

**Third/Additional Language
Learning Strategies in a Globalised
World: Learning the Chinese
language in Ireland**

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A thesis submitted for the degree of Doctor
of Philosophy

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Declaration

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Summary

This thesis investigates how multilingual learners in Ireland engage with learning Chinese as a third or additional language (L3/AL). Given the increasing prominence of Chinese as a global language and its rise within Irish education, the research aims to explore the specific language learning strategies (LLSs) used by learners with multilingual backgrounds. The study focuses on understanding how factors such as proficiency in multiple languages, linguistic background, and immersive experiences shape learners' strategic approaches to acquiring Chinese.

1. Research Questions and Objectives

The thesis addresses key research questions:

- 1) 1. How do learners with English as their first language and Irish as their second use LLS when learning Chinese as a L3/AL?
- 2) 2. How does learners' language background influence their use of strategies in learning Chinese?
- 3) 3. How do learners' prior language experiences influence their use of strategies in learning Chinese, and what pedagogical insights can be drawn from these patterns?

2. Literature Review

The literature review chapter examines the evolution of LLS, focusing on multilingual contexts. It discusses the complexities faced by learners transitioning from Indo-European languages to Chinese, a typologically distinct language. The review highlights challenges in classifying LLS, including cognitive, metacognitive, and affective strategies, and applies Oxford's Strategic Self-Regulation (S²R) Model to understand how multilingual learners manage the demands of learning Chinese.

Additionally, the Irish educational context is crucial, as learners often speak both English and Irish. This multilingual background significantly influences how learners approach Chinese, setting them apart from learners in monolingual contexts.

3. Research Methodology

A mixed-method approach was employed, combining qualitative interviews and quantitative questionnaires. The qualitative data, collected through semi-structured interviews, were analysed using thematic analysis to capture learner experiences with strategy use. Meanwhile, the quantitative data, processed using SPSS, provided insights into LLS patterns across different demographics. Descriptive statistics and correlation tests

were used to explore how factors like age, gender, and linguistic background influenced LLS application.

4. Key Findings

The findings indicate that learners with more immersive experiences tend to use fewer explicit strategies, particularly in the metacognitive domain. Immersion seems to lead to a more intuitive, less conscious use of language, suggesting that such environments foster automaticity in learning. However, these learners also reported challenges in managing the emotional pressures of immersion, such as anxiety.

Multilingual learners often applied strategies learned from previous language experiences, highlighting the importance of interlanguage transfer. These learners unconsciously transferred skills across languages, but the success of this transfer varied depending on the similarities between the languages involved.

5. Discussion and Implications

The discussion synthesises the quantitative and qualitative findings, shedding light on the complex interplay between immersive experiences, multilingual proficiency, and strategic behaviour. The role of affective strategies, particularly for managing anxiety and sustaining motivation, emerged as particularly important in high-pressure learning environments like exams.

The findings suggest that tailored pedagogical approaches are needed to support learners in immersive contexts, particularly by providing strategies to manage their emotional responses. The thesis emphasises the individualised nature of strategy use, advocating for language instruction that accommodates diverse backgrounds and learner experiences.

6. Conclusion

The thesis concludes that LLS use is complex and context-dependent, particularly in multilingual learners tackling a typologically distant language like Chinese. Further research is needed to explore how learners adapt strategies in such challenging contexts, especially in educational environments where multiple languages are involved.

By examining an underexplored area of LLS research, this thesis contributes significantly to the field of language acquisition. It offers insights that could improve language teaching methodologies, making them more responsive to the unique needs of multilingual learners in diverse educational settings like Ireland.

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Third/Additional Language Learning Strategies in a Globalised World: Learning the Chinese language in Ireland

Qinyuan Li

Abstract

This thesis investigates the language learning strategies (LLS) employed by multilingual learners in Ireland studying Chinese as a third or additional language (L3/AL). Given the growing global importance of Chinese and its rise within Irish education, the research seeks to understand how learners' linguistic backgrounds, proficiency levels, and immersion experiences shape their strategy use. The study focuses on learners from diverse linguistic contexts, particularly those with both English and Irish language proficiency.

Adopting a mixed-method approach, the research combines qualitative interviews with quantitative questionnaire data. A total of 14 semi-structured interviews were conducted to explore individual experiences with cognitive, metacognitive, affective, motivational, and social strategies. Additionally, 115 questionnaires were collected to provide a broader understanding of strategy use patterns and their correlation with factors like language background, motivation, and immersion.

Key findings reveal that multilingual learners in Ireland use moderate level of LLS when learning Chinese as a L3/AL, with clear evidence of strategy transfer in the interview data. Of the five LLS dimensions, the motivational dimension yielded the highest mean score, while the social dimension scored the lowest. Learner's proficiency level did not significantly influence their LLS use. However, immersive language learning experience were found to negatively correlate with the use of metacognitive and affective strategies, possible reasons were discussed. Additionally, individual differences, such as age, gender, and language background also impact LLS use. Notably, high motivation emerged as a critical factor in LLS use among multilingual learners, with a positive cycle proposed to explain this relationship.

The thesis highlights the importance of affective and motivational strategies, advocating for learner-centred pedagogical approaches and tailored support to optimise learner's strategy use. This research contributes to the field of language acquisition by providing new insights into LLS in the context of learning Chinese as an L3 in a multilingual environment, with implications for both theory and teaching practice.

Table of Contents

CHAPTER 1 INTRODUCTION	1
1.1 BACKGROUND	1
1.2 LANGUAGE LEARNING STRATEGIES IN MULTILINGUAL CONTEXTS	2
1.3 THE IRISH CONTEXT AND CHINESE LANGUAGE LEARNING	2
1.4 RESEARCH OBJECTIVES AND QUESTIONS	3
1.5 RATIONALE FOR THE STUDY	4
1.6 STRUCTURE OF THE THESIS	5
1.7 CONCLUSION	6
CHAPTER 2 LITERATURE REVIEW	7
2.1 LANGUAGE LEARNING STRATEGIES	7
2.1.1 <i>Two Perspectives on LLS Study</i>	8
2.1.2 <i>The Definition and Categorisation of LLS</i>	13
2.1.3 <i>Focuses of LLS Studies</i>	23
2.1.4 <i>S²R model and relative theories</i>	31
2.2 THIRD OR ADDITIONAL LANGUAGE ACQUISITION AND LEARNING STRATEGIES	53
2.2.1 <i>The Influence of Prior Knowledge and Learning Experience on L3/AL Learning</i>	56
2.2.2 <i>A Systematic Literature Review of L3/AL Learning Strategies</i>	58
2.2.3 <i>Focuses on L3 Learning Strategies</i>	60
2.2.4 <i>Some Remaining Issues</i>	65
2.3 CHINESE LANGUAGE LEARNING STRATEGIES AND CHINESE LANGUAGE TEACHING IN IRELAND	67
2.3.1 <i>Chinese Language Learning Strategies of Indo-European Language Learners</i>	67
2.3.2 <i>Chinese Language Teaching Development in Ireland</i>	71
2.3.3 <i>Research and Findings of Chinese Language Acquisition in the Irish Context</i>	77
2.4 CONCLUSION	79
CHAPTER 3 RESEARCH METHODOLOGY	81
3.1 RESEARCH AIMS AND QUESTIONS	81
3.2 RESEARCH APPROACHES	82
3.2.1 <i>Ontology and Epistemology</i>	82
3.2.2 <i>Mixed Method</i>	83
3.2.3 <i>Instruments and Methods Used in LLS Studies</i>	84
3.3 OVERVIEW OF RESEARCH DESIGN	92
3.3.1 <i>Interview Design and Implementation</i>	93
3.3.2 <i>Questionnaire Design and Implementation</i>	98
3.4 SAMPLE POPULATION	106

3.4.1 Qualitative study Participants	107
3.4.2 Quantitative study participants	111
3.5 POTENTIAL BIASES AND DATA COLLECTION CHALLENGES	117
3.5.1 Potential Biases	117
3.5.2 Data Collection Challenges.....	118
3.6 CONCLUSION	118
CHAPTER 4 QUALITATIVE STUDY FINDINGS.....	120
4.1 INTRODUCTION	120
4.2 COGNITIVE STRATEGIES	121
4.2.1 Activating Knowledge.....	121
4.2.2 Conceptualising Broadly.....	124
4.2.3 Conceptualising with Details	126
4.2.4 Using reasoning.....	130
4.2.5 Using the senses to understand and remember.....	133
4.3 METACOGNITIVE STRATEGIES	138
4.3.1 Planning	139
4.3.2 Paying attention.....	146
4.3.3 Obtaining and using resources.....	148
4.3.4 Organising	155
4.3.5 Monitoring	157
4.3.6 Evaluating	161
4.4 AFFECTIVE STRATEGIES.....	168
4.4.1 The Results with Oxford's Affective Strategy Set.....	168
4.4.2 Positive reward system and language learning affective strategies.....	172
4.5 MOTIVATIONAL STRATEGIES.....	180
4.5.1 The Results with Oxford's Motivational Strategy Set.....	180
4.5.2 Motivational strategies emerged from the data.....	181
4.6 SOCIAL STRATEGIES.....	188
4.6.1 Interacting to learn and communicate.....	189
4.6.2 Learning despite knowledge gaps in communicating	191
4.6.3 Dealing with sociocultural contexts and identities.....	194
4.7 CONCLUSION.....	196
CHAPTER 5 QUANTITATIVE STUDY FINDINGS	198
5.1 INTRODUCTION	198
5.2 DESCRIPTIVE STATISTICS.....	199
5.2.1 Mean and Standard deviation.....	199
5.2.2 Normality	200

5.3 RELIABILITY	204
5.4 CORRELATION TESTS	205
5.4.1 Multi-choice selections	206
5.4.2 Number of languages spoken	210
5.4.3 Multilingual proficiency	213
5.4.4 Immersive learning experience	218
5.4.5 Chinese proficiency level	225
5.5 DIFFERENCES BETWEEN GROUPS	225
5.5.1 Female vs. Male	226
5.5.2 English L1 group vs. Other language L1 group	227
5.5.3 Irish speakers/learners vs. Non-Irish speakers/learners	227
5.5.4 Immersive Chinese language learning experience	234
5.6 STRUCTURE VALIDITY TEST AND CONSTRUCT REFINING INSIGHTS	235
5.7 CONCLUSION	241
CHAPTER 6 DISCUSSION	243
6.1 INTRODUCTION	243
6.2 THE LLS USED BY THE MULTILINGUAL PARTICIPANTS WHEN LEARNING CHINESE AS AN L3/AL	244
6.2.1 Motivational dimension	244
6.2.2 Cognitive dimension	247
6.2.3 Metacognitive Dimension	249
6.2.4 Affective dimension	250
6.2.5 Social dimension	251
6.3 INFLUENCE OF IMMERSIVE LANGUAGE LEARNING EXPERIENCE	253
6.3.1 Immersive experience and Metacognitive dimension	254
6.3.2 Immersive experience and the Affective dimension	255
6.4 CHARACTERISTICS OF DIFFERENT LEARNER GROUPS	258
6.4.1 Gender differences	258
6.4.2 Does English as L1 have an impact on learners' strategy use	259
6.4.3 Do Irish learners/speakers act differently in their strategy use	259
6.4.4 The influence of immersive Chinese language learning	263
6.5 L3/AL LEARNERS GENERATE POSITIVE CYCLE BY SATISFACTION OF BPN	264
6.5.1 L3/AL learners' competence need are satisfied through their previous language learning experience	264
6.5.2 Attribution, BPNs satisfaction and Motivation internalisation	267
6.6 CONCLUSION	272
CHAPTER 7 CONCLUSION	273
7.1 OVERVIEW OF RESEARCH OBJECTIVES AND KEY FINDINGS	273

7.2 MULTILINGUALISM AND STRATEGY USE	274
7.3 INFLUENCE OF IMMERSIVE LEARNING EXPERIENCES.....	275
7.4 CHARACTERISTICS OF DIFFERENT LEARNER GROUPS	275
7.5 THEORETICAL AND PRACTICAL IMPLICATIONS	276
7.5.1 <i>Theoretical Implications</i>	276
7.5.2 <i>Practical Implications</i>	277
7.6 LIMITATIONS AND FUTURE RESEARCH DIRECTIONS.....	280
7.6.1 <i>Limitations</i>	280
7.6.2 <i>Future Research Directions</i>	284
7.7 FINAL REFLECTIONS	285
REFERENCE:	286
APPENDIX I. THE LIST OF THE SYSTEMATICALLY REVIEWED ARTICLES.....	327
APPENDIX II. QUESTIONNAIRE LIKERT SCALE CONSTRUCTION.....	332
APPENDIX III. THE LANGUAGE LEARNING STRATEGY (LLS) QUESTIONNAIRE FOR LEARNING CHINESE AS A THIRD LANGUAGE/ADDITIONAL LANGUAGE (L3/AL).....	340
APPENDIX IV. THE NEW CONSTRUCT REVEALED FROM THE EFA.....	353
APPENDIX V. REVISION OF THE QUESTIONNAIRE LIKERT SCALE.....	358
APPENDIX VI. INTERVIEW PARTICIPANT’S INFORMATION LEAFLET	364
APPENDIX VII. INTERVIEW CONSENT FORM	366
APPENDIX VIII. QUESTIONNAIRE PARTICIPANT’S INFORMATION LETTER AND CONSENT FORM	368
APPENDIX IX. SCREENSHOT OF ETHICS APPLICATION APPROVAL (MARKED ON 04-FEB-2022)	371

List of Figures

Figure 2.1 Nelson and Narens' (1994) formulation of a meta-level/object-level theoretical mechanism	38
Figure 2.2 The relationship between Self-Determination Theory (SDT), L2 Motivational Self System (MSS) and Oxford's Motivational Strategies	47
Figure 3.1 Two phases of the research.....	93
Figure 3.2 The five dimensions of strategies interplays with each other.....	101
Figure 3.3 The structure of the LLS Questionnaire for Learning Chinese as a L3/AL	102
Figure 3.4 Gender distribution.....	111
Figure 3.5 Grade distribution.....	112
Figure 3.6 Number of languages spoken by participants.....	113
Figure 3.7 Participants' language repertoire	115
Figure 3.8 Number of languages learned with immersive learning experience	116
Figure 4.1 Positive cycle of affective tactics of multilingual learners.....	179
Figure 4.2 Mapping between Oxford's motivational strategy set and the motivational strategies employed by L3/AL learners	186
Figure 5.6 Strategy scale mean score normality distribution histogram.....	203
Figure 6.1 The positive cycle for BPN satisfaction and motivational strategy	266

List of Tables

Table 2.1 Oxford's (1990, p. 17) taxonomy of language learning strategies	17
Table 2.2 Oxford's (2017) Strategic Self-Regulation (S ² R) Model of L2 learning.....	20
Table 2.3 Factors related to the effectiveness of the LLS use in learning English (Griffith, 2013)	24
Table 2.4 S ² R Model employed in this study, adapted from Oxford (2011, 2017).....	31
Table 2.5 Oxford's (1990) early version of affective strategies: LET.....	40
Table 2.6 Paired Samples Test between social strategies and the other categories.....	50
Table 2.7 Independent Samples Test between two context groups, immersion and non-immersion.	52
Table 2.8 Comparison of the available resources for learners when learning each language	55
Table 2.9 The research settings of L3 learning.....	59
Table 2.10 Comparison of learner's strategy using level and mean value of Chinese language learning strategy studies	68
Table 3.1 Interview participants' language profile	109
Table 4.1 Tactics and Occurrences of the Activating Knowledge Strategy	122
Table 4.2 Tactics and Occurrences of the Conceptualising Broadly Strategy.....	124
Table 4.3 Tactics and Occurrences of the Conceptualising with Details Strategy	126
Table 4.4 Tactics and Occurrences of Using Reasoning Strategy	130
Table 4.5 Tactics and Occurrences of Using the senses to understand and remember Strategy	134
Table 4.6 Tactics and Occurrences of Planning Strategy	139
Table 4.7 The characteristics of planning and the occurrences	143
Table 4.8 Tactics and Occurrences of Obtaining and Using Resources Strategy.....	149
Table 4.9 Tactics and Occurrences of Obtaining and Using Resources Strategy.....	158
Table 4.10 Tactics and Occurrences of Evaluation strategy.....	162
Table 4.11 Tactics and Occurrences of Affective strategies.....	168
Table 4.12 Emerged tactics and occurrences under Affective Strategy	172
Table 4.13 Oxford's (2017) Motivational Strategies set and occurrences	180
Table 4.14 Motivational strategy themes identified in the interviews of L3/AL learners	181

Table 4.15 Matrix present of Oxford's motivational strategy set and the motivational strategies themes emerged in L3/AL learners' interviews.....	185
Table 4.16 Oxford's (2017) Social Strategy set and occurrences	189
Table 5.1 Descriptive statistics of each LLS dimension and sub-dimension	200
Table 5.2 Normality test result of sub-dimensions	201
Table 5.3 Normality test result of each dimension and average mean	203
Table 5.4 Cronbach's alpha for each dimension and sub-dimension with and without reversed questions.....	204
Table 5.5 Correlations between multiple-choice selections and average scores overall and for each dimension.....	207
Table 5.6 Correlation between multi-choice selections and average score of sub-dimensions	208
Table 5.7 Item level significant correlation with multi-choice selections	209
Table 5.8 Correlations between number of languages spoken and average scores overall and for each dimension	212
Table 5.9 Item level correlation with number of languages spoken	212
Table 5.10 Correlations between Multilingual proficiency and average scores overall and for each dimension.....	214
Table 5.11 Correlations between Multilingual proficiency and average scores of sub-dimensions	215
Table 5.12 Item level correlation with multilingual proficiency	217
Table 5.13 Correlations between Immersive learning experience and average scores overall and for each dimension	219
Table 5.14 Correlations between Immersive learning experience and average scores of sub-dimensions	220
Table 5.15 Item level correlation with Immersive learning experience	223
Table 5.16 Item level correlation with Chinese proficiency level	225
Table 5.17 Item level Mann-Whitney U test result of Female and Male groups.....	226
Table 5.18 Item level Mann-Whitney U test result of English L1 group and Other language L1 group.....	227
Table 5.19 Item Level Mann-Whitney U Test Results for Irish Speakers/Learners vs. Non-Irish Speakers/Learners.....	228

Table 5.20 Comparison of the Correlation Test result of Multilingual Proficiency Level and LLS Use of Irish Speakers/Learners and Non-Irish Speakers/Learners and the whole group	230
Table 5.21 Comparison of the Correlation Test result of Immersive language learning experience and LLS Use of Irish Speakers/Learners, Non-Irish Speakers/Learners and the whole group	232
Table 5.22 Item Level Mann-Whitney U Test Results for groups with and without Chinese immersive learning experience	234
Table 5.23 Factor Correlation Matrix	239
Table 6.1 Learner's statement and their attribution of language learning success and failure	268

List of Abbreviations

- Additional language (AL)
- Attitudes toward the Learning Situation (ALS)
- Basic Psychological Needs Theory (BPNT)
- Causality Orientations Theory (COT)
- Chinese language teaching (CLT)
- Common European Framework of Reference for Languages (CEFR)
- Confirmatory Factor Analysis (CFA)
- Communities of Practice (CoP)
- Cognitive Evaluation Theory (CET)
- CRITERIA (cooperation, respect, integrity, tolerance of ambiguity, exploration, reflection, intercultural empathy, and acceptance of complexity)
- Exploratory Factor Analysis (EFA)
- First language (L1)
- General Data Protection Regulation (GDPR)
- Goal Content Theory (GCT)
- Hanyu Shuiping Kaoshi (Chinese Language Proficiency Test) (HSK)
- Intelligence quotient (IQ)
- Irish Sign Language (ISL)
- Kaiser-Meyer-Olkin (KMO)
- Language Learning Strategy (LLS)
- Linguistics and Language Behaviour Abstracts (LLBA)
- Metacognitive Awareness Listening Questionnaire (MALQ)
- Metacognitive Awareness of Reading Strategies Inventory (MARSI)
- Modern Language Association (MLA)
- Motivated Strategies for Learning Questionnaire (MSLQ)
- Motivational Self System (MSS)
- Organismic Integration Theory (OIT)
- Relationship Motivation Theory (RMT)
- Second language (L2)
- Second language acquisition (SLA)

- ☐ Self-Determination Theory (SDT)
- ☐ Self-Regulatory Capacity in Vocabulary (SRCvoc)
- ☐ Social L2 Learning (SL2)
- ☐ Statistical Package for the Social Sciences (SPSS)
- ☐ Strategic Self-Regulated Model (S²R Model)
- ☐ Strategy Inventory for Language Learning (SILL)
- ☐ Strategy Instruction (SI)
- ☐ Third language (L3)
- ☐ Transition Year Unit (TY Unit)
- ☐ University College Cork (UCC)
- ☐ University College Dublin (UCD)
- ☐ Willingness to Communicate (WTC)
- ☐ Zone of Proximal Development (ZPD)

Chapter 1 Introduction

1.1 Background

In an increasingly globalised world, multilingualism has become not just a desirable skill but a necessary one, impacting both personal and professional domains. The ability to communicate in multiple languages opens up diverse opportunities, fostering cross-cultural understanding and collaboration. Consequently, the study of language learning strategies (LLS) has gained significant traction within the field of applied linguistics. LLS, defined as the specific actions, behaviours, steps, or techniques students use to improve their progress in developing skills in a second language (Oxford, 1990), have been extensively studied, especially in the context of second language acquisition (SLA). However, in cross-cultural and multilingual settings, learners often engage with culturally distinct norms, values, and educational practices that directly shape their approach to language learning. Cultural background can influence learners' preferences for certain strategies, such as social interaction, or metacognitive planning (Griffiths, 2013, p. 240; Oxford, 1990, p. 201; Takeuchi, 2003). Consequently, as multilingualism becomes increasingly prevalent, it is essential to examine how these strategies evolve in the context of third or additional language learning (L3/AL).

Multilingualism involves the ability to use three or more languages, and it is often associated with enhanced cognitive abilities and greater linguistic awareness (Bialystok, 2009). The transition from learning a second language (L2) to acquiring an L3/AL introduces unique challenges and opportunities that differ from those encountered in the L2 learning process. This thesis seeks to address a critical gap in the literature by examining the influence of multilingual proficiency on LLS, with a particular focus on learners of Chinese as an L3/AL in Ireland. The choice of Chinese is significant due to its typological distance from Indo-European languages, which presents unique learning challenges that may not be as pronounced in the acquisition of more closely related languages.

1.2 Language Learning Strategies in Multilingual Contexts

Language learning strategies have been widely recognised as crucial elements in the language acquisition process, influencing learners' ability to comprehend, produce, and interact in a new language (Chamot, 2004). Most previous research on LLS has been conducted within the frameworks of SLA or foreign language acquisition (FLA), often focusing on learners operating in monolingual or bilingual contexts (Chamot, 2004; Grenfell & Macaro, 2007). These studies typically do not account for learners who draw on multilingual repertoires when acquiring an additional language. However, the dynamics change significantly when learners are dealing with multiple languages. In a multilingual context, learners draw not only on their linguistic knowledge of previously acquired languages, but also on their broader metalinguistic awareness, language learning experiences, and strategic competences. These are shaped by their life trajectories and accumulated life capital, such as the social, cultural, and experiential resources that influence their learning dispositions and engagement with additional languages (Consoli, 2022). While such resources can facilitate the acquisition of new languages by enhancing learners' adaptability and reflective capacity, they may also introduce complexities, including cross-linguistic interference or tensions between linguistic identities (Jessner, 2006, pp. 12–13).

Previous studies have highlighted that multilingual individuals often exhibit greater flexibility and creativity in their use of language learning strategies, as they are able to transfer skills and knowledge across languages (Cenoz et al., 2001). However, the extent to which these strategies are effective when applied to typologically distant languages like Chinese remains under-explored. Moreover, the existing research has primarily concentrated on Indo-European languages, with less attention given to non-Indo-European languages. This thesis aims to fill this gap by investigating how multilingual learners adapt their strategies when learning Chinese in Ireland. Influenced by the rapid economic growth of China, Chinese language programs have increasingly been offered across the Irish educational system (Li et al., 2020). Studying how multilingual learners acquire this new language is important for informing pedagogical practices and policy making.

1.3 The Irish Context and Chinese Language Learning

The context of this study is Ireland, a country with a rich linguistic heritage that includes the Irish (Gaeilge), English, Irish Sign Language (ISL) and Cant/Shelta, a unique language

of the Irish Traveller community that blends elements of Irish and English. Historically, Latin (Genée, 2005) and French (Risk, 1970) have also significantly influenced the development of the languages spoken here. In recent years, interest in Chinese language education has grown, reflecting Ireland's increasing economic and cultural engagement with China. Currently, three Confucius Institutes have been established through partnerships between Irish and Chinese universities. These are located at University College Dublin, University College Cork, and University of Galway. The institutes offer modules in Chinese language and culture, and support local cultural initiatives and events. At post-primary level, the introduction of Chinese language modules into the Junior Cycle curriculum and the inclusion of Chinese as a subject in the Leaving Certificate examination mark key milestones in the subject's institutional expansion. As Chinese becomes more embedded within the Irish education system, understanding the strategies employed by learners, particularly those who are already multilingual, becomes essential for informing both pedagogical practice and educational policy.

Chinese language learning in Ireland presents unique challenges due to the significant differences between Chinese and the Indo-European languages more commonly spoken in Ireland. These differences can lead to difficulties in pronunciation, character recognition, and syntactic structuring, which may not be as problematic in the learning of other European languages (Everson, 2008; Gong et al., 2020; Lei & Xie, 2017; Zhang & Lu, 2014). Consequently, this research seeks to explore the specific strategies that multilingual learners use to overcome these challenges and how their prior linguistic experiences influence their approach to learning Chinese.

1.4 Research Objectives and Questions

The primary objective of this thesis is to investigate the relationship between multilingual proficiency and language learning strategies in the context of Chinese language acquisition as an L3/AL in Ireland. Specifically, it aims to explore the following research questions:

1. How do learners with English as their first language and Irish as their second use LLS when learning Chinese as a L3/AL?
2. How does learners' language background influence their use of strategies in learning Chinese?
3. How do learners' prior language experiences influence their use of strategies in learning Chinese, and what pedagogical insights can be drawn from these patterns?

By addressing these questions, the research aims to provide an in-depth understanding of how multilingual learners navigate the complexities of learning a language that is typologically distinct from their previous languages.

1.5 Rationale for the Study

This study is rooted in both professional experience and personal curiosity. As a Chinese language teacher with several years of teaching experience in the Irish educational context, I have had the opportunity to observe the variation of learning outcomes of many students learning Chinese, despite receiving similar instruction. These differences raised my initial curiosity and led me to question what factors, particularly learning strategies, might be contributing to such divergence. This observation developed into my academic curiosity about how multilingual learners draw on their existing linguistic repertoires when encountering a typologically distant language like Chinese. My motivation to undertake this research is therefore grounded in both classroom realities and a commitment to better understanding the strategic needs of multilingual learners in order to support learners like my students more effectively.

Theoretically, this research contributes to the growing body of literature on multilingualism and LLS, a field that has gained more attention over the past two decades as it has moved beyond bilingual paradigms (Amaro, 2017; De Angelis, 2007; Jessner, 2006). While much LLS research has traditionally focused on L2 acquisition within Indo-European language contexts, there is a growing need to address L3/AL learning involving typologically distant languages such as Chinese, particularly in Anglophone or European contexts (Cenoz & Gorter, 2011).

Chinese, with its logographic script, tonal phonology, and unique syntactic patterns, presents significant learning challenges for speakers of Indo-European languages (Everson, 2008; Gong et al., 2020; Lei & Xie, 2017; Zhang & Lu, 2014). These linguistic dissimilarities highlight the importance of understanding how multilingual learners adapt and apply strategies in such contexts. The study, therefore, addresses this gap in the literature by exploring how previously acquired linguistic repertoires interact with the learning of Chinese as an L3/AL.

Pedagogically, the findings of this study have the potential to inform curriculum design and language instruction, especially in multilingual contexts such as Ireland, where Chinese is being increasingly offered across educational levels (Li et al., 2020; Wu, 2011; Zhang, 2020). The Irish context, where English and Irish are dominant and policy discourses

increasingly embrace linguistic diversity, provides a unique lens through which to examine the affordances and limitations multilingual learners experience in language classrooms. By situating this inquiry within the Irish educational context and exploring strategy use among multilinguals learning Chinese, the study offers both local insights and broader theoretical implications for the field of multilingualism and LLS research.

1.6 Structure of the Thesis

The thesis is organised into seven chapters, each building on the previous to provide a coherent narrative of the research process and findings.

- **Chapter 2 Literature Review:** This chapter reviews the relevant literature on language learning strategies, third or additional language acquisition, and the specific context of Chinese language learning in Ireland. It also discusses the theoretical frameworks that underpin the study, including the S²R model and related theories.
- **Chapter 3 Research Methodology:** This chapter outlines the research design, including the research questions, the mixed-method approach adopted for the study, and the instruments used to collect data. It also discusses the sample population and the ethical considerations involved in the research.
- **Chapter 4 Findings: Qualitative data** This chapter presents the findings from the qualitative analysis of data collected through semi-structured interviews and pre-interview questionnaires, focusing on the cognitive, metacognitive, affective, motivational and social strategies used by multilingual learners.
- **Chapter 5 Findings: Quantitative data:** This chapter presents the quantitative analysis of the data, including descriptive statistics, correlation tests, and the results of reliability and validity tests.
- **Chapter 6 Discussion:** This chapter discusses the findings in relation to the existing literature, highlighting the distinguished characters of LLS use by learners learning Chinese as an L3/AL in Ireland and beyond.
- **Chapter 7 Conclusion:** The conclusion summarises the key findings of the study, addresses the research questions, and suggests directions for future research.

1.7 Conclusion

This thesis addresses a critical gap in the literature by exploring the relationship between multilingual proficiency and language learning strategies in the context of Chinese language acquisition in Ireland. Through a mixed-method approach, it seeks to provide a comprehensive understanding of how multilingual learners navigate the challenges of learning a typologically distant language and the strategies they employ to enhance their learning. The findings of this research have the potential to inform both theory and practice, contributing to the development of more effective language teaching methodologies that are responsive to the needs of multilingual learners in diverse educational settings.

Chapter 2 Literature Review

In this chapter, the literature review is organised in three sections. The first section reviews the conceptual development of LLS in the context of L2 acquisition, including the two main perspectives of LLS research, definitions and taxonomies, major findings, and key theoretical frameworks, with particular emphasis on Oxford's S²R model (2011, 2017). The second section focuses on L3/AL acquisition and comprises two parts: an overview of L3 acquisition research and a systematic review of L3 learning strategies. The third section introduces Chinese language acquisition and LLS studies, both within a broader international context and specifically in Ireland.

The structure of this chapter reflects an integration of a traditional argument-driven literature review with a systematic review approach. This dual strategy is adopted to suit the multifaceted nature of the research topic, which spans conceptual and empirical domains. The argument-driven review facilitates a critical synthesis of theoretical constructs and evolving debates in L2/L3 learning and strategy use, providing a conceptual foundation for the study. Meanwhile, the inclusion of a systematic review in the second section responds to the growing body of empirical research in the field of L3 learning strategies. Given that several systematic reviews have already been conducted in the LLS domain (Plonsky, 2011; Rose et al., 2018), this structured approach ensures transparency and rigour in the evaluation of empirical findings, while also identifying trends, gaps, and methodological orientations in existing studies. By combining these two approaches, this chapter aims to offer both conceptual depth and empirical clarity, thereby establishing a comprehensive foundation for the current research.

2.1 Language Learning Strategies

The origins of LLS research can be traced back to the 1970s when researchers such as Rubin (1975) and Stern (1975) examined the strategies used by “good language learners”, they proposed that learners of languages can learn from those “strategies” to improve their own language acquisition. Over the past 50 years, LLS has become a prominent area of study in second and foreign language learning. However, its development has not been without challenges. Ongoing debates and unresolved issues persist concerning the

theoretical foundations, definitions, and categorisations of LLSs (Dörnyei & Ryan, 2015; Grenfell & Macaro, 2007). Despite these challenges, a modest consensus has been reached suggesting that the instruction of LLSs can improve learners' performance (Rubin et al., 2007). This supports the argument that LLSs are valuable tools for facilitating language learning and merit further investigation and development. In this section, four main areas will be addressed: 1) the two perspectives in LLS study: psycholinguistic and sociocultural, 2) the definition and categorisation of LLS, 3) key findings related to LLS in the development of the four language skills: listening, communication, reading and writing, as well as vocabulary learning, 4) Oxford's (2017) S²R model and associated theoretical frameworks.

2.1.1 Two Perspectives on LLS Study

First, let us examine the two primary perspectives on LLS: the psychological and the sociocultural. The psychological perspective focuses on the origins of LLS in second language acquisition highlighting its progression into the domain of self-regulated learning. It emphasises the cognitive and motivational processes involved in individual learning (Cohen, 1999; Dörnyei & Ryan, 2015; Oxford, 1990, 2017; Pintrich, 2004). In contrast, the sociocultural perspective views learning as inherently social, emphasising the dynamic interactions between learners and their environments (Brown et al., 1989; Hickey & McCaslin, 2001; Holliday, 2003; Jang & Jiménez, 2011; Oxford & Schramm, 2007). By exploring both perspectives, this section aims to provide a holistic understanding of how language learning strategies are shaped by both individual cognitive factors and social contexts.

The Psychological Perspective

The psychological perspective on LLS has two origins. One is SLA research, stemming from the question, "what can we learn from the good language learners" (Rubin, 1975; Stern, 1975). The other is a social psychology view, which emphasises self-regulated learning and motivation (Tseng et al., 2006; Zimmerman & Pons, 1986).

LLS research originated within the field of SLA. During the 1970s and 1980s, researchers observed the distinct traits of successful language learners and sought to identify the LLSs they were using. Rubin's (1975) article, "What the 'Good Language Learner' Can Teach Us," is widely regarded as the foundational work in this area (Hardan, 2013; Macaro, 2006). By analysing successful learners' tactics and strategies, she identified two groups of processes that may contribute to learning: direct strategies (e.g., clarification and

verification, monitoring, memorization, guessing/inductive inferencing, deductive reasoning, practice) and indirect strategies (e.g., creating opportunities for practice and production tasks related to communication). Similarly, Stern (1975) listed 10 strategies that good language learners used most frequently. Although early studies mainly focused on functional and pragmatic aspects, they also touched both social and psychological dimensions (Grenfell & Macaro, 2007). Despite the lack of clear theoretical frameworks at the time, these pioneering studies laid the groundwork for future research in the field.

In the 1990s, several key publications on LLS emerged, and more empirical studies were conducted (O'Malley & Chamot, 1990; Oxford, 1990; Wenden, 1991). Chamot and O'Malley (1990) proposed adopting John Anderson's theories of cognitive psychology in SLL studies (Anderson et al., 1977). Based on this theory, they classified LLSs into three groups: metacognitive, cognitive, and social. Oxford (1990) provided a similar classification scheme, dividing strategies into two groups: direct and indirect. The direct ones include cognitive, memory, and metacognitive strategies, while the indirect ones include compensation, affective, and social strategies. These classifications have been widely applied in numerous empirical studies, generating a substantial body of quantitative data on learners' use of LLSs. However, they have also faced criticisms, particularly concerning their theoretical foundation and psychological validity (Kellerman, 1991). Critics argue that while these categories provide useful insights, they may lack the robust theoretical and psychological grounding. Section 2.1.2 discusses these arguments in detail, including the issues related to definitions and categories.

LLS research after 1990 continued to emphasise the importance role of individual learners, with increasing studies exploring the relationship between learner variables and LLS use. However, this period has also seen growing critiques. Dörnyei and Skehan (2003) argued that both classifications mentioned above are problematic. For instance, in Oxford's classification, 'memory strategies' can be viewed as a subset of 'cognitive strategies.' Similarly, Chamot and O'Malley's (1990) classification groups strategies such as 'cooperation,' 'question and clarification,' and 'self-talk' into one category, 'social and affective,' which reduces the practicality of the framework. Additionally, they highlighted that the definitions of LLS are inconsistent, and the theoretical basis for the concept of LLS is still insufficiently developed. Dörnyei (2005) then proposed that LLS research should shift to a more flexible and encompassing concept: "self-regulation."

Self-regulation or self-regulated learning strategies stems from a social cognitive perspective (Bandura, 1988; Zimmerman, 1989). This line of research was initially

developed to understand broader learning processes beyond specific subject area. It focuses on the relationship between learners' self-regulation and their academic performance. MacIntyre and Charos (1996) were pioneers in linking self-regulated learning with LLS, emphasising that learners need sufficient motivation to use strategies and to overcome obstacles like anxiety and lack of confidence, which may impede strategy use.

Based on the self-regulated learning model, Pintrich and colleagues introduced a quantitative tool, The Motivated Strategies for Learning Questionnaire (MSLQ), designed to study learners' motivation and self-regulation (Pintrich et al., 1993; Pintrich & De Groot, 1990; Vanderstoep et al., 1996). This tool has since been used in many LLS studies (Dörnyei & Ryan, 2015; Hamedani, 2013; Mizumoto & Takeuchi, 2011; Yeşilbursa & Bilican, 2013; Yusri & Rahimi, 2010).

Dörnyei and Skehan (2003) were instrumental in introducing social cognitive theories to LLS studies. Oxford (Oxford, 2011b, 2017) began using the term "self-regulated L2 learning strategies" in her S²R Model, this model integrates elements such as self-regulation, agency and autonomy, growth mindsets, self-efficacy, resilience, hope, and internal attributions for success. Oxford's S²R model represents a significant effort to bridge the two psychological views of LLS, creating a more comprehensive and holistic framework for understanding.

Both SLA studies and self-regulated learning theories share the goal of understanding how individual learners employ strategies in their language learning process. These studies explore individual differences and examine how these variations affect learners' use of strategies. These studies also recognise that the use of LLS is dynamic, adapting in response to context and task-specific demands. The sociocultural perspective further develops this idea by viewing the learning process and strategy use as a social activity, emphasising the role of interactions and the environment on how learners engage with strategies.

The Sociocultural Perspective

In contrast to the psychological perspective, which focuses on the individual, the sociocultural perspective emphasises the central role of social interaction in learning. It views learning as a process that occurs through collaboration between the learner and a more knowledgeable other. Vygotsky (1967, 1980, 1986, 1987), the most well-known sociocultural theorist, has had a significant influence on the understanding of the learning process within a social context. His theories highlight how social context, dialogue, and interaction with others shape the development of learning strategies, suggesting that

learners acquire skills not in isolation but through guided participation within a social environment.

Vygotsky's (1979, 1987) dialogic model describes several higher-order functions that are comparable to what we now refer to as strategies (Oxford, 1996). For instance, "analysing" and "synthesising" are cognitive strategies, while "planning," "monitoring," and "evaluation" are metacognitive strategies. Social strategies are embedded in the nature of social interaction, which is key to the dialogic model. Hickey and McCaslin (2001) also pointed out that Vygotsky's model contains four categories of strategies: (a) task-involved strategies, (b) self-involved strategies, (c) other-involved strategies, and (d) setting-involved strategies. These categories illustrate the varied ways in which learners engage with tasks, themselves, others, and their environment.

Building upon Vygotsky's sociocultural theory, which emphasises the co-construction of knowledge through interaction with more knowledgeable others, the concept of Communities of Practice (CoP) offers a broader framework for understanding how learning occurs within socially situated activities. While Vygotsky focused on interactions within the Zone of Proximal Development (ZPD), CoP theory, initially introduced by Lave and Wenger (1991) and later developed by Wenger (1999), extends this perspective by conceptualising learning as a process of participation in a community of shared practices, norms, and identities. In this view, knowledge is not transmitted but co-constructed through sustained engagement in communication activities. The CoP model further reinforces the sociocultural orientation by locating learning within broader cultural, institutional, and historical contexts (Wenger et al., 2002). It thus provides a useful lens for exploring how learners acquire and deploy strategies through meaningful participation, not only in one-to-one interactions but also as a part of the evolving collective.

The CoP model posits that communities of practice offer authentic, meaningful learning experiences. Learning occurs when newcomers observe, imitate, and learn from experienced members, teachers or capable peers, who support these learning opportunities. From this perspective, learners bring their own identities, experiences, and motivations to the learning process, and they learn through participation, interaction, and social engagement within the community. This development is referred to as "legitimate peripheral participation", through which newcomers gradually move from the fringe toward fuller participation as they gain expertise and confidence. Although the model acknowledges learners' agency, it also recognises that learners do not possess full control

over their learning process, as these are shaped by the structure, norms, and power relations within the community.

The relationship between CoP and LLS becomes particularly salient when we recognise that the sociocultural perspective is not merely an optional lens, but an inevitable and integral component of understanding strategy use. While LLS has traditionally been examined through psycholinguistic and cognitive frameworks, recent theoretical advancements pointed that learners do not operate in isolation. Rather, they develop and employ strategies within specific social and cultural environments. From this point of view, LLS are not simply individual cognitive tools, but socially mediated practices shaped by learners' interactions, identities, and the cultural norms of the communities in which they participate. Strategies are thus embedded in the social level of learning; they evolve as learners negotiate meaning, seek legitimacy, and engage with others in contextually meaningful ways. The CoP framework aligns closely with this understanding, highlighting the relational and participatory nature of LLS as dynamic and context-sensitive.

Complementing this view, Holliday's (2003) Social Autonomy Model (SAM) further addresses the sociocultural dimension of strategy use by challenging ethnocentric assumptions in language education. While the CoP model emphasises participation within communities, SAM foregrounds the importance of respecting learners' existing cultural identities and strategic repertoires. Holliday argues that learners should be encouraged to share their own strategies and academic perspectives with peers and teachers, thereby co-constructing the learning process. His model cautions against the uncritical imposition of external strategy instruction, which can reflect cultural imperialism or teacher-centred assumptions. At the same time, SAM critiques the notion that strategy instruction should be avoided altogether due to fears of cultural imposition, as this can deny learners access to useful tools from the target culture. The model thus calls for an inclusive, dialogic environment in which learner agency, diversity, and mutual exchange are central to strategy development.

Taken together, both the CoP model and the SAM offer critical insights into LLS from a sociocultural perspective. They foreground the relational, identity-driven, and contextually situated nature of learning strategy use, moving beyond individualistic accounts towards a more holistic and inclusive understanding of how learners navigate complex educational and cultural landscapes.

Oxford and Schramm (2007) argue that although the psychological and sociocultural perspectives are often seen as conflicting, they can actually learn from each other. In their analysis, they compared these perspectives across four aspects: a) self-regulation; b) strategies, motivation, and volition; c) aptitude and strategies; d) strategies related to “active” and “action”. By exploring these areas, they suggest that integrating insights from both perspectives can enhance our understanding of language learning and LLS. For example, while psychological theories provide detailed accounts of internal strategy use, sociocultural theories highlight how these strategies are co-constructed and influenced by social contexts. Together, they offer a more nuanced view of how learners develop and deploy strategies within various learning environments.

Informed by this integrative framework, the present study explores Chinese language learners’ strategy use by combining cognitive dimensions, such as motivation and self-regulation, with sociocultural influences emerging from learners’ multilingual experiences and learning trajectories. The analytical framework adopted in this study includes a focus on social strategies, ensuring that both individual and interactional aspects of strategy use are captured in the analysis. This dual emphasis facilitates a more situated understanding of language learning strategy use.

2.1.2 The Definition and Categorisation of LLS

In LLS studies, the definitions and categorisation are among the most debated topics. However, they form the foundation of LLS research, making it essential to clarify these concepts early on. To establish a clear framework from the outset, this section will explore the key issues surrounding the definition and categorisation of LLS. By addressing these foundational elements, the discussion aims to provide a clearer understanding of how LLS is conceptualised and developed within the field.

Definitions

Rubin (1975) was one of the first linguistic scholars to study LLS in “good language learners”. In Rubin’s study, this term primarily emphasised behavioural strategies. In the following decades, she did not provide a specific definition for LLS but described learning strategy as:

The techniques or devices which a learner may use to acquire knowledge. (Rubin, 1975)

After her, many scholars contributed to this field. In books published in the early 1990s (O'Malley & Chamot, 1990; Oxford, 1990; Wenden, 1991), the cognitive aspect of LLS is highlighted. In these works, the definition of learning strategies is given:

Learning strategies are special thoughts or behaviours that individuals use to help them comprehend, learn, or retain new information. (O'Malley & Chamot, 1990, p. 1)

Learning strategies are special actions taken by learners to make learning easier, faster, more enjoyable, more self-directed, and more transferable to new situations. (Oxford, 1990, p. 8)

In the above definitions, strategies are described as 'behaviours and thoughts' or 'actions'. However, Dörnyei and Skehan (2003) pointed out that both O'Malley and Chamot's definition and Oxford's definition have flaws. For instance, Oxford defined LLS as 'actions', but her taxonomy also includes mental processes. O'Malley and Chamot's definition highlight the cognitive aspects of LLS by including 'thoughts' in the definition. However, their categorisation lacks theoretical coherence. For example, they group social and affective strategies together, which creates ambiguity because these strategies serve distinct functions. To address these shortcomings, some later studies used more ambiguous terms to define LLS, such as 'steps', 'processes', and 'methods'.

Language learners' strategies are 'steps' and 'actions' selected by learners either to improve the learning of a second language, or their use of it, or both. (Gao, 2003)

Learning strategies are learning processes which are consciously selected by the learner. (Cohen, 1999, p. 4)

Learning strategies are the methods students use to acquire information. (Seli & Dembo, 2012, p. 12)

Therefore, a consensus definition for LLS has not been achieved (Griffiths & Inceçay, 2016; Oxford, 2017). Some scholars have even suggested abandoning the term 'strategies' due to its persistent ambiguity and adopting the term 'self-regulation' instead, as used in educational psychology (Dörnyei & Skehan, 2003). The key distinction between LLS and

self-regulation lies in their scope and focus. LLS traditionally refers to specific techniques and behaviours that learners use to enhance their language acquisition, providing detailed insights into how particular strategies directly impact learning outcomes (Oxford, 2011; Griffiths, 2008). In contrast, 'self-regulation' encompasses a comprehensive set of learner-initiated cognitive, metacognitive, and motivational processes that guide and monitor the entire learning experience (Winne, 1995; Zimmerman & Schunk, 2001). It integrates strategy use within a more structured framework of goal-setting, self-monitoring, and self-evaluation (Pintrich, 2004).

There is a strong case for LLS to stand on its own as a distinct construct, as it allows for a focused investigation of specific strategies that learners employ to improve their language skills. This targeted approach can lead to more precise identification of effective strategies and clearer pedagogical recommendations tailored to different learning contexts (Oxford, 2017). By examining strategies independently, researchers and educators can develop targeted interventions that address specific areas of need in language learning.

However, integrating LLS into the broader concept of self-regulation can also be beneficial. This approach offers a more holistic understanding of how strategies interact with motivation and self-management processes, emphasising the dynamic nature of learning (Dörnyei, 2005; Tseng et al., 2006). Such integration allows for the exploration of how learners not only choose and use strategies but also regulate their use based on goals, feedback, and changing learning conditions. This holistic perspective can lead to deeper insights into learner autonomy and adaptive learning behaviours.

In a recent study, Oxford (Oxford, 2017, p. 12) systematically analysed 33 definitions and two subsets of 'language learning strategies', 'learner strategies', 'self-regulated learning strategies', 'strategies', and 'strategic'. Based on this analysis, she proposed a comprehensive definition of the concept, and used it in her S²R Model:

L2 learning strategies are complex, dynamic thoughts and actions, selected and used by learners with some degree of consciousness in specific contexts in order to regulate multiple aspects of themselves (such as cognitive, emotional, and social) for the purpose of (a) accomplishing language tasks; (b) improving language performance or use; and/or (c) enhancing long-term proficiency. (Oxford, 2017, p. 48)

As Oxford suggests, she hopes this study will "bring order out of chaos" regarding the definition of LLS. Her definition addresses the issue raised by Dörnyei and Ryan (2015): "What exactly is the difference between engaging in an ordinary learning activity and a strategic learning activity?" The distinction lies in the concepts of "selection" and "some degree of consciousness." It implies that if a learner studies vocabulary by simply reviewing a word list, it is unclear whether they are employing a strategy (Dörnyei & Ryan, 2015). However, if the learner actively groups unknown words into categories, creates mnemonics, or uses them in example sentences to aid memory, they are using a learning strategy, as these techniques involve deliberate selection and conscious effort (Cohen, 2011; Oxford, 2017). This is because they have intentionally chosen a specific method with a certain level of awareness. Therefore, this study will adopt the new definition proposed by Oxford. It is important to note that, under this definition, although strategies are defined as complex and dynamic thoughts and actions, they serve as general plans and guidelines rather than specific actions aimed at solving a specific task problem. In Oxford's (2017) S²R Model, the specific actions or behaviours that a learner employs within a particular context to meet immediate needs are referred to as tactics. Tactics represent the application of strategies and are theoretically limitless. A single tactic can be associated with multiple learning strategies depending on the learner's purpose. For example, talking to oneself in the target language could be classified as a cognitive strategy when used to construct new sentences for memorisation, a metacognitive strategy when used to plan a conversation, or even an affective strategy when employed to reduce anxiety and self-regulate emotions.

Categorisations

The classification of strategies varies in different studies. As mentioned in the previous section, O'Malley and Chamot (1990, p. 46) classified strategies into three main types: metacognitive, cognitive, and social/affective.

Metacognitive strategies:

- Selective attention, which means focusing on special aspects of learning tasks.
- Planning, planning for the organisation of either written or spoken discourse.
- Monitoring, reviewing attention to a task, comprehension of information that should be remembered, or production while it is occurring.
- Evaluation, checking comprehension after completion of a receptive language activity, or evaluating language production after it has taken place.

Cognitive strategies:

- Rehearsal, repeating the names of items or objects to be remembered.
- Organisation, Grouping and classifying words, terminology, or concepts according to their semantic or syntactic attributes.
- Inferencing, using information in text to guess meanings of new linguistic items, predict outcomes, or complete missing parts.
- Summarising, intermittently synthesising what one has heard to ensure the information has been retained.
- Deducing, applying rules to the understanding of language.
- Imagery, using visual images to understand and remember new verbal information.
- Transfer, using known linguistic information to facilitate a new learning task.
- Elaboration, linking ideas contained in new information, or integrating new ideas with known information.

Social/affective strategies:

- Cooperation, working with peers to solve a problem, pool information, check notes, or get feedback on a learning activity.
- Questioning for clarification, eliciting from a teacher or peer additional explanation, rephrasing, or examples.
- Self-talk, using mental redirection of thinking to assure oneself that a learning activity will be successful or to reduce anxiety about a task.

Oxford (1990) proposed a different classification system, dividing strategies into two broad categories: direct strategies (memory, cognitive, compensation) and indirect strategies (metacognitive, affective, social). Oxford argued that direct strategies handle new language learning in specific tasks and situations, whereas indirect strategies assist in overall learning management and support the use of direct strategies.

Each of the six categories includes several sub-categories, as shown in Table 2.1. Oxford's taxonomy is widely used in questionnaires in LLS research, as many descriptive studies rely on questionnaires based on the Strategy Inventory for Language Learning (SILL) (Chamot, 2005; Oxford, 1990). It is noteworthy that SILL continues to be employed in many studies (Cáceres-Lorenzo, 2015; Soodmand Afshar & Bayat, 2018).

Table 2.1

Oxford's (1990, p. 17) taxonomy of language learning strategies

<i>Language</i>	<i>Direct</i>	<i>Memory strategies</i>	<i>A. Creating mental linkages</i>
	<i>strategies</i>		<i>B. Applying images and sounds</i>

<i>Learning Strategies</i>		<i>C. Reviewing well</i>
		<i>D. Employing action</i>
	<i>Cognitive strategies</i>	<i>A. Practicing</i>
		<i>B. Receiving and sending messages</i>
		<i>C. Analysing and reasoning</i>
		<i>D. Creating structure for input and output</i>
	<i>Compensation strategies</i>	<i>A. Guessing intelligently</i>
		<i>B. Overcoming limitations in speaking and writing</i>
	<i>Metacognitive strategies</i>	<i>A. Centring your learning</i>
		<i>B. Arranging and planning your learning</i>
<i>Indirect strategies</i>		<i>C. Evaluating your learning</i>
	<i>Affective Strategies</i>	<i>A. Lowering your anxiety</i>
		<i>B. Encouraging yourself</i>
		<i>C. Taking your emotional temperature</i>
	<i>Social Strategies</i>	<i>A. Asking questions</i>
		<i>B. Cooperating with others</i>
		<i>C. Empathizing with others</i>

However, both O'Malley and Chamot's and Oxford's classifications have significant limitations. O'Malley and Chamot's framework groups diverse strategies, such as 'cooperation,' 'questioning for clarification,' and 'self-talk,' into a single 'social and affective' category. This broad grouping is problematic because it conflates strategies that serve distinct functions. For instance, 'cooperation' involves collaborative learning, while 'self-talk' is a psychological strategy used to manage anxiety or increase self-efficacy. By merging these distinct strategies, it becomes challenging to identify and address specific learner needs effectively, reducing the classification's usefulness in both research and pedagogical contexts. Moreover, their categorisation of strategies into metacognitive, cognitive, and social/affective domains is not consistently grounded in a unified cognitive

theory. This can lead to ambiguity and overlap between categories. For example, the distinction between cognitive and metacognitive strategies is not always clear-cut, as some strategies, like self-monitoring, can involve both cognitive processing and metacognitive regulation (Ellis, 1994; Dörnyei, 2005).

In contrast, Oxford's taxonomy separates memory strategies into an independent category, even though they could be considered part of cognitive strategies. This separation can lead to confusion and overlap, as strategies like "creating mental linkages" or "using imagery" are inherently cognitive processes used for memory retention. Additionally, the inclusion compensation strategies, such as guessing unknown words, further blur the boundary between cognitive and other strategy type, complicating the classification and making it less coherent. While Oxford's taxonomy provides a more detailed breakdown of strategy types, the distinctions between categories can sometimes appear arbitrary and may not accurately reflect the interconnected nature of these strategies.

Both taxonomies, despite these limitations, are largely compatible as they share overarching categories like cognitive and metacognitive strategies (Dörnyei & Skehan, 2003). However, their lack of precision and coherence makes them less effective for developing targeted instructional approaches. A more refined taxonomy that better differentiates between distinct strategies and acknowledges their overlapping roles would provide clearer insights into learner behaviour and improve the applicability of strategy research. In response to these limitations, Dörnyei and Ryan (2015) proposed their taxonomy:

Cognitive strategies, involving the manipulation or transformation of the learning materials/input (e.g., repetition, summarising, using images).

Metacognitive strategies, involving higher-order strategies aimed at analysing, monitoring, evaluating, planning, and organising one's own learning process.

Social strategies, involving interpersonal behaviours aimed at increasing the amount of L2 communication and practice the learner undertakes (e.g., initiating interaction with native speakers, cooperating with peers).

Affective strategies, involving taking control of the emotional (affective) conditions and experiences that shape one's subjective involvement in learning. (Dörnyei & Ryan, 2015, p. 149)

Dörnyei and Ryan's taxonomy improves on these earlier models by emphasising a more detailed breakdown of social and affective strategies, acknowledging the complex emotional and interpersonal factors in language learning. They also clarify the concepts of cognitive and metacognitive strategies by incorporating theories from educational psychology and introducing the concept of Self-regulation. However, their model still treats strategies somewhat statically, without fully exploring how learners dynamically select and adapt their strategies based on context and evolving needs.

Building on the previous critiques and theoretical advancements, Oxford (2011b, 2017) revised her earlier taxonomy and introduced the S²R Model which represents a significant evolution in the conceptualisation of LLS. Unlike her 1990 taxonomy, the S²R Model consolidates strategies into four primary categories: cognitive, affective, motivational and social. The previously defined 'metacognitive' category has been restructured and expanded into a comprehensive metastrategy layer, which encompasses four distinct sets: metacognitive, meta-motivational, meta-social, and meta-affective strategies. This reconceptualization allows metastrategies to operate across all primary categories, providing a more nuanced understanding of how learners regulate not only cognitive processes but also their emotional states, and social interactions. In the revised model, motivational strategies were separated from the affective dimension and established as a distinct fourth dimension (see Table 2.2). These metastrategies address six types of metaknowledge: person knowledge, group/culture knowledge, task knowledge, whole-process knowledge, strategy knowledge, and conditional knowledge.

This expanded framework surpasses the limitations of the 1990 model by acknowledging that metaknowledge extends beyond cognitive domains to encompass affective and sociocultural dimensions. The emphasis on human agency and the strategic self-regulation of learning underscores the active role of learners in managing their own cognitive, emotional, motivational and social experiences throughout the learning process.

Table 2.2

Oxford's (2017) metastrategies and strategies in the Strategic Self-Regulation (S²R) Model of L2 learning

<i>Metastrategies</i> <i>(metacognitive, metamotivational; metasocial; meta-affective):</i> -Paying attention; -Planning; -Organising learning and obtaining resources; -Monitoring and evaluating.	Cognitive Domain	Using the senses to understand and remember
		Activating knowledge
		Using reasoning
		Conceptualising with Details
	Motivational Domain	Conceptualizing Broadly
		Going Beyond the Immediate Data
		Self-consequating
		Using positive self-talk and positive self-image
	Social Domain	Using defensive pessimism
		Enhancing learning
		Controlling attributions
		Interacting to learn and communicate
	Affective Domain	Learning despite knowledge gaps in communication
		Dealing with sociocultural contexts and identities
		Selecting the situation to influence emotions
		Modifying external situations to control emotions
		Deploying my attention to control emotions
		Changing cognitive appraisals of situations (internal or external) to shape emotions (reframing)
		Modulating my emotional responses
		Making meaning as a means of handling emotions

However, the new taxonomy still raises some controversies regarding the term “metastrategy.” Although Oxford (2017) listed four types - metacognitive, meta-motivational, meta-social, and meta-affective strategy sets, their content is nearly identical: paying attention, planning, organising learning and obtaining resources, monitoring, and evaluating. The difference lies only in their intended purpose. In related research and classifications (Dörnyei & Ryan, 2015; O’Malley & Chamot, 1990), and even in Oxford's

earlier taxonomy (Oxford, 1990), these strategies were referred to as “metacognitive strategies”. Oxford provides the rationale for her as follows:

Metacognitive simply means ‘beyond the cognitive’ and includes strategies that provide general management of cognitive strategies. Unfortunately, prior taxonomies of strategies had no term to describe control of two other key dimensions of L2 learning strategies. Hence, until now the term metacognitive was applied to the control of strategies in the affective and social realms, not just to the control of cognitive strategies. (Oxford, 2011, p. 30)

Ironically, while some experts call for more nuanced analyses of the complexity involved in strategy use (see, for example, Oxford, 2017, Chapter 3), researchers and practitioners have tended to gravitate towards categorisations that treat strategies as fixed and static constructs.

Some researchers disagreed with the introduction of these new terms. They argued that, as with Oxford’s previous taxonomy, the revised version still treats strategies as monolithic structures, categorising them into predefined slots. Moreover, the new terms arguably diminish the role of metacognitive functions, relegating them to a subordinate position under other domains (Cohen & Wang, 2018). For instance, while certain affective functions are closely related to metacognitive functions, they served distinct purposes, namely, to motivate learners, evaluate strategies, and plan further actions. Thus, these researchers refuse to classify these strategies as meta-affective, asserting that they remain more appropriately situated within the metacognitive domain.

Furthermore, a general understanding of metacognition is not as simple as “beyond the cognitive” (Oxford, 2017). Rather, metacognition is considered the highest level of mental activity (Kozulin, 2021) includes a critical awareness of a) one’s thinking and learning and b) oneself as a thinker and learner (Chick, 2013). This study adopts the view that metacognition encompasses an individual’s understanding of themselves as a thinker and learner, which involves awareness and regulation of their own feelings, motives and affects during their thinking and learning. Thus, there is no need to introduce a new term to refer to the awareness and regulation over using affective, motivational and social strategies. In other words, the term “metastrategies” simply replace the original “metacognitive strategies” without adding new concepts.

In the literature, the term “meta-affect” has appeared in research on other subjects, such as mathematics, where it has been defined as:

Affect about affect, affect about and within cognition about affect, and the individual’s monitoring of affect through cognition (thinking about the direction of one’s feelings) and/or further affect (DeBellis & Goldin, 2006).

However, it is important to clarify that DeBellis and Goldin’s definition does not imply “affect about affect”, in the sense of, for instance, feeling ashamed about being anxious. Instead, it refers to “thinking about affect”, which align more closely with the concept of metacognition. As Chich (2013) notes, metacognition involves not only the ability to monitor and control one’s thinking but also the capacity to reflect on oneself as a thinker and learner. Therefore, when applied to affect, the process of thinking about and regulating one’s feelings falls squarely within the domain of metacognition, making meta-affect a specialised form of the metacognition. This logic also applies to the reflection and regulation of motivational and social strategies.

For these reasons, this study will partially adapt Oxford’s S²R model by retaining the term 'metacognitive strategies' rather than adopting 'metastrategies,' incorporating it as one of the five dimensions of LLS. These five dimensions consist of cognitive, metacognitive, motivational, affective, and social strategies. This adaptation does not disregard the connections between metacognitive strategies and the other dimensions, but rather aims to clarify the specific role of metacognitive strategies while allowing greater flexibility in observing the interconnections between all five dimensions. This is important because the use of strategies and tactics in real learning situations is not fixed, but fluid and dynamic.

2.1.3 Focuses of LLS Studies

Over the past three decades, significant advancements have been made in the study of LLS. This section reviews the individual differences in LLS in second language acquisition, as well as the different LLS used for various language skills.

LLS and Learners’ Individual Differences

This section discusses the factors that may influence the learner’s use of LLSs. Many studies focus on factors such as gender, age, second L2 proficiency, belief, motivation and others (Anderson, 1991; Cáceres-Lorenzo, 2015; Carson & Longhini, 2002; Dörnyei, 2005; Dörnyei & Skehan, 2003; Griffiths, 2013; Hong, 2016; LoCastro, 1994; Tseng & Gao, 2021;

Wu, 2001). According to Griffiths (2013), these factors relating to the effectiveness of strategy use can be grouped into four aspects: learning aim/objective/goal/target, learning situation/context/environment, how strategies are employed, and Individual/personal variables. Although the study was conducted within the context of English language learning, it provides invaluable insights into the nuanced role of individual differences. Griffith's insights and findings are synthesised and presented in table 2.3.

Table 2.3

Factors related to the effectiveness of the LLS use in learning English (Griffith, 2013)

<i>Aspects</i>	<i>Influences</i>
<i>Learning aim/objective/goal target</i>	<i>For different learning goals, different strategies should be chosen for effectiveness.</i>
<i>Learning situation/context/environment</i>	<i>The learning environment can have a strong influence on the use of the learning strategy.</i> <i>According to the quantitative data, when learning in an unfamiliar environment, the learner's flexibility, the ability to manage the learning process and tolerate ambiguity are important.</i>
<i>How strategies are employed</i>	<i>Successful learners usually use strategies in clusters. However, unsuccessful learners may not always be able to choose appropriate strategies and use them effectively.</i> <i>According to the quantitative data, the frequency of language learning strategy use is positively related to successful language learning.</i> <i>Advanced learners frequently use many more strategies than elementary learners.</i>
<i>Individual/personal variables</i>	<i>Both the quantitative and the qualitative studies showed that motivation is a significant factor in strategy use and successful language learning.</i> <i>The quantitative data suggested that European students appear to have an advantage in learning English.</i> <i>However, the qualitative study showed that Asian students could also be very successful if they are motivated and adopt well-developed LLS repertoires.</i>

Age	<i>In both quantitative and the qualitative studies there were no significant difference between the younger group (age 14-23) and the older group (age 24-64).</i>
Sex/gender	<i>The quantitative data showed that genders were not found to be statistically significant in strategy use.</i>
Learning style	<i>The qualitative interview suggested that no learning style appeared to be more likely to lead to successful language learning.</i>
Personality	<i>The qualitative interview suggested that no personality seemed more strongly typical of a good language learner than any other.</i>
Autonomy	<i>The qualitative interview suggested that successful learners are autonomous and capable of regulating their learning, using strategies for this purpose.</i>
Beliefs	<i>The qualitative interview suggested that successful learners can adapt their beliefs to the requirements of their situation and to adopt effective strategies accordingly. In addition, they need to believe in themselves as equal to the learning challenge, and, to believe that the learning task is worthwhile.</i>
Aptitude	<i>Due to the controversial measurement, the relationship between aptitude and strategies remains under-researched.</i>
Affect	<i>The qualitative interview suggested that the role of affect is essential in successful language learning.</i>
Identity	<i>The complex identity contracture may be useful in identifying an individual learner's strategy use.</i>
Investment	<i>The qualitative interview suggested that the level of reported strategy use may be a good indicator of the extent of a learner's willingness to invest in language learning.</i>

In addition to Griffith, many scholars have addressed individual differences in LLS use, reporting varying findings. Carson and Longhini's (2002) study suggested that a learner's learning style could impact their choice of strategies, though Griffiths' emphasises that learning style may not necessarily influence learning outcome, it serves as a reminder to teachers to consider each student's unique learning style and needs. Cáceres-Lorenzo (2015) found that gender could influence strategy preference among young learners of Chinese, although Griffiths' research indicates that gender differences in strategy use are generally not statistically significant.

Furthermore, bilingual learners showed a strategic advantage, consistent with Griffiths' observation that effective learners demonstrate flexibility and adaptability in strategy use. Hong's (2016) study on international learners of Chinese revealed that cultural background and nationality affect LLS usage, aligning with Griffiths' findings that contextual and environmental factors, such as nationality, play a significant role in determining strategy effectiveness. This variation in LLS use may be attributed to the linguistic similarities between learners' native languages and Chinese, as well as their familiarity with the cultural context. Such factors can affect learners' comfort levels and strategic choices, thereby influencing their ability to effectively employ language learning strategies.

Additionally, LoCastro (1994) and Wu (2001) emphasised the impact of the learning environment on strategy use, resonating with Griffiths' conclusion that situational context is a critical factor influencing LLS effectiveness.

There is a growing body of research investigating the influence of learners' language backgrounds on their use of LLSs. Studies suggest that bilingual and multilingual individuals may possess certain advantages in language learning (Cáceres-Lorenzo, 2015; Grenfell & Harris, 2015; Novokmet, 2015). Furthermore, Dmitrenko (2017) reported a positive correlation between the frequency of strategy use and the degree of multilingualism. The findings indicate that learners who possess higher degrees of multilingualism tend to use learning strategies more frequently.

Studies on individual differences further demonstrate that LLS use is both dynamic and context-dependent, with its effectiveness in facilitating successful learning influenced by various factors related to the learner's background and personal traits. These include elements such as language proficiency, motivation, cultural background, and cognitive styles, all of which contribute to the variability in strategy use and its outcomes (Dörnyei, 2005; Griffiths, 2013; Hong, 2016).

LLSs and Language Skills

This section will explore the relationship between LLS and various language skills. The strategies that learners use to acquire different language skills often vary, with distinct emphases placed on specific aspects for each skill. For example, strategies effective for reading comprehension may not be as beneficial for speaking or listening. As a result, tailored approaches are necessary to address the unique demands of each language skill.

(a) LLSs in Listening

Listening strategies are elicited mainly through four primary ways: think-aloud protocol, diaries, retrospective verbal reports, and group interviews. Research in this area has shown considerable interest in the interaction between top-down and bottom-up processes. Top-down processing involves using general knowledge to understand specific meanings, relying on prior knowledge to contextualise information, whereas bottom-up processing is data-driven, focusing on information from the specific task and often occurring in real time. The relationship between proficiency level and strategy use is also a key area of investigation.

However, the diversity in research designs, such as differing task types, age groups, and whether re-listening is permitted, makes it challenging to draw consistent conclusions about the relationship between strategy use and listening success. Despite this variability, one consistent finding is that students who perform better in listening tasks tend to employ a wider range of strategies (Graham et al., 2007).

Research on listening strategies has emphasised the importance of both prior knowledge and listening proficiency in successfully completing listening tasks. According to the S²R model ((Oxford, 2011b, 2017), deploying prior knowledge is categorised as a cognitive strategy under 'Activating Knowledge.' Graham and colleagues (2007) identified specific criteria for prior knowledge to enhance listening comprehension: a) the information contained in the text needs to be congruent with the listener's prior knowledge of the topic of the text; b) learners' lexical knowledge needs to exceed a 'threshold' level; and c) learners need to know how to use their prior knowledge effectively, deploying it flexibly in combination with linguistic information contained in the input. These criteria suggest that effective listeners are those who can dynamically combine their background knowledge with contextual cues to facilitate comprehension.

(b) LLSs in Communication

Communication strategies are mainly studied from two perspectives: the interactional view and the psycholinguistic view. From the interactional perspective, communication

strategies are defined as attempts to solve communication problems and enhance communication (Faerch & Kasper, 1984). These strategies exist not only in L2 learning but also in L1 pragmatic use. In L2 communication, strategies such as meaning negotiation and repair are critical, as they facilitate learning through interaction. Research has indicated that the use of communication strategies may vary according to a learner's proficiency level, with differences observed between proficiency groups. Higher proficiency learners tend to use specific strategies, such as social and affective strategies, fluency-oriented strategies, and negotiation of meaning (Khanji, 1996; Nakatani, 2006). However, the relationship between proficiency and strategy use remains inconclusive, due to the limited number of studies in this area and varying research methodologies.

From the psycholinguistic perspective, communication strategies are employed by learners when they face lexical difficulties or gaps in linguistic knowledge, often serving as cognitive and social strategies in the S²R model (Oxford, 2017). These strategies are typically categorised into two types: conceptual and linguistic. The former includes holistic and analytic strategies, while the latter includes transfer and morphological creativity strategies. Many studies have examined the impact of proficiency and task types concerning communication strategies, finding a negative correlation between proficiency level and learners' use of communication strategies. Additionally, tasks are found to affect the strategies used (Nakatani & Goh, 2007).

(c) LLSs in Reading

The LLSs in reading tasks are divided into two groups based on two reading processes: top-down and bottom-up (Anderson, 1991; Block, 1986; Hosenfeld, 1976; Sarig, 1987). These studies have referred to the two groups in various ways, such as "main meaning" and "word level," "global" and "local," or "general/holistic" and "analytic." Research has also examined strategy types, finding that metacognitive strategies are linked to successful reading comprehension (Erler & Finkbeiner, 2007).

A common question in reading strategy studies is: is foreign language reading a reading problem or a language problem? (Alderson, 1985). It remains debatable whether there is a threshold in L2 proficiency that allows for the transfer of L1 knowledge to L2 reading. Orthography is another factor that may affect the transfer of reading strategies. Studies on reading in different orthographies suggest that the distance between orthographic systems suggest that the distance between writing system may hinder reading comprehension (Durgunoğlu et al., 1993; Holm & Dodd, 1996; Koda, 1990).

Bilingual learners' learning patterns are also discussed in reading strategy studies. Several strategies used by bilingual learners have been identified: a) thinking in the language of the text to ensure concept development; b) translating, often from the stronger to the weaker language; c) transferring prior knowledge learned in the other language; and d) using cognates to understand individual words (Erler & Finkbeiner, 2007).

The translation strategy is generally used by less proficient learners. Upton and Lee-Thompson (2001) proposed the hypothesis that there may be a threshold in L2 proficiency, beyond which thinking in or translating into L1 becomes less effective in the reading process.

(d) LLSs in Writing

Similar to reading strategies, the influence of L1 is also evident in the use of LLSs for writing. It is common for L2 learners to switch to L1 during L2 writing, and this switching occurs at various stages of the writing process for different purposes, including planning, drafting, and revising, as well as serving as a control mechanism (Manchón et al., 2007). In the writing process, L1 use typically serves for three functions: a) generating text, b) tackling linguistic and stylistic problems, and c) organising and structuring content. It is noteworthy that the phenomenon of using L1 to monitor the entire writing process does not necessarily decline with increased L2 proficiency (Grosjean, 1982).

Many factors influence the use of writing strategies, which can be broadly categorised into two groups: writer-internal and writer-external factors (Oxford, 2011). Writer-internal variables include the writer's goal, L2 proficiency, writing competence, prior L1/L2 literacy, and educational experience, as well as the writer's mental model of writing – that is, their conception of what constitutes good writing. Writer-external variables encompass task-related factors (such as task types and cognitive requirements) and topic-related factors (including the writer's familiarity with the topic). Additionally, time constraints also act as an important factor that influences the learner's choice of strategy.

The transfer of writing strategies, such as organisational skills, has been observed across languages, and this transfer is mediated by the writer's proficiency in the target language (Cumming, 1989). As learners' L2 proficiency increases, they become more adept at applying writing techniques acquired in their L1 to their L2 writing. Cumming's study also found that, bilingual learners benefit more from this transfer, as improvements in their L3/AL proficiency enhance their overall writing skills. This suggests that higher L2 proficiency not only facilitates the use of existing strategies but also promotes the development of new, effective techniques in L2 writing.

(e) LLSs in Vocabulary Learning

There are several classifications of vocabulary learning strategies. Ahmed (1988) proposed five main categories: memorisation, practice, dictionary use, note-taking, and group work. Oxford's (1990) taxonomy and O'Malley and Chamot's (1990) taxonomy, mentioned in the sections 2.1.2, are also frequently applied in studies of vocabulary learning strategies. Vocabulary learning strategies can be divided into two groups based on their reliance on context: decontextualised strategies (e.g., memorization, repetition, association, keyword method) and contextualised strategies (e.g., vocabulary inferencing strategies).

Dictionary use is an important strategy studied in vocabulary learning, and e-dictionaries have become a common tool mentioned by learners in digital era. studies have shown that annotations combining textual and visual information significantly enhance word retention and text recall compared to single-mode annotation (Chun & Plass, 1996).

Several factors influence the use of vocabulary learning strategies, with four being particularly prominent in research: proficiency level, individual variation and gender, strategy use and development, learning environment.

Proficiency level is a critical indicator, as learners with higher proficiency tend to employ a broader range of strategies due to their greater linguistic knowledge. Individual variation and gender also play a role; while gender may influence strategy preferences, it does not necessarily have a significant impact on learning outcomes (Gu, 2005; Nyikos, 1989). Successful learners often employ metacognitive strategies to monitor and regulate their vocabulary learning process (Gu, 1994).

The development of vocabulary learning strategies has been examined extensively. Findings show that as learners' proficiency increases, their strategic behaviours evolve from basic to more sophisticated forms (Harley & Hart, 2000; Schmitt & McCarthy, 1997).

Finally, the learning environment, which encompasses both classroom and socially embedded contexts, significantly affects strategy choice. These factors align with the individual differences discussed earlier in this section, illustrating the dynamic and adaptive nature of LLS use. Such variability suggests that the effectiveness of LLSs is not fixed but can adapt in response to changing situational demands and personal characteristics.

In conclusion, research on LLSs has provided significant insights into how individual differences and specific strategies influence the acquisition of various language skills. The complexity of LLS use across diverse contexts highlights the need for a nuanced and

flexible approach to language learning. The next section will closely examine the adapted S²R model and the related theories applied in this study.

2.1.4 S²R model and relative theories

The S²R model originated from a psychological perspective, emphasising the role of learners as active agents in their own learning. As mentioned earlier in Section 2.1.2, Oxford's taxonomy has undergone several revisions, evolving from its initial form in 1990 to the most recent update in 2017. Notably, in the 2011 version of the S²R model, Oxford (2011b) highlighted the importance of self-regulated learning within the context of LLS, proposing that learners actively and constructively use strategies to acquire target languages. This version introduced three major dimensions: cognitive, affective, and social. As mentioned in section 2.1.2, in this version, Oxford expanded the metacognitive strategies into metastrategies, dividing them into three types: metacognitive, meta-affective, and meta-social-interactive (meta-SI), forming a top layer over the other three primary dimensions.

In the latest edition, published in 2017, the S²R Model dimensions were expanded to four categories: cognitive, motivational, social, and affective. Each dimension was accompanied by sets of strategies and metastrategies, providing a more inclusive framework that builds upon the original model.

The first version of the S²R model provides a detailed and structured list of tactics, making it particularly valuable for identifying specific strategies in qualitative data. At the same time, this study incorporates the motivational dimension introduced in the 2017 version, as it represents a significant and meaningful enhancement to the original one. As outlined in Section 2.1.2, while it is essential to recognise the connections between metacognitive strategies and the other dimensions, this study considers the subdivision of the metacognitive dimension into multiple meta-categories unnecessary. Therefore, 'metacognitive strategy' is retained as a distinct dimension, rather than being subsumed under broader metastrategy categories in the other four dimensions.

Based on these considerations, the adapted S²R model used in this study includes the following dimensions, strategies, and tactics, as outlined in Table 2.4.

Table 2.4

S²R Model employed in this study, adapted from Oxford (2011, 2017)

Dimensions	Strategies	Tactics

Cognitive Strategies	Using the Senses to understand and remember	Using the visual sense to understand and remember Using the auditory sense to understand and remember Using the haptic (tactile/kinesthetic) sense to understand and remember Using combined sense to understand and remember
	Activating knowledge	Brainstorming Using visual images to activate knowledge Using information-internalising in reverse
	Using Reasoning	Using inductive reasoning Using deductive reasoning
	Conceptualising with Details	Making distinctions Sequencing Analysing and decoding Classifying/categorising Comparing/contrasting across languages Making hierarchies of ideas
	Conceptualising broadly	Synthesizing across several sources Summarising/getting the gist Combining/linking similar things
	Going beyond the immediate data	Predicting Inferring
Metacognitive Strategies	Paying Attention	Paying attention more broadly (floodlight, general attention)

	Paying attention more sharply (flashlight, focused attention)
Planning	Setting goals Planning ahead
Organising learning and Obtaining Resources	Prioritising Organising the study environment Identifying and finding technology resources Identifying and finding print resources Finding in-person resources Obtaining and using hybrid resources
Monitoring and evaluating	Monitoring performance during a task Monitoring ease of learning (EOL) Monitoring by making a judgment of learning (JOL) Monitoring via a feeling of knowing (FOK) Monitoring strategy use Monitoring affective state during a task Monitoring cultural understanding and communication in specific context
Motivational Strategies	Self-consequating Using positive self-talk and positive self- image

Using defensive pessimism		
Enhancing learning		
Controlling attributions		
Social Strategies	Interacting to learn and communicate	Interacting online or in person Working with a mentor or tutor Asking for explanation, clarification, verification
	Learning despite knowledge gaps in communication	Using other words to continue to communicate, despite the gap in knowledge. Using physical cues to continue to communicate, despite the gap in knowledge Changing the topic (topic avoidance) Pretending understand (masking)
	Dealing with sociocultural context and identities	Imitating cultural behaviours Exploring the meaning of social roles, identity, power, and the media Considering what is expected for entry into the “imagined community”
Affective Strategies	Selecting the situation to influence emotions	
	Modifying external situations to control emotions	

Deploying my attention to control emotions
Changing cognitive appraisals of situations (internal or external) to shape emotions. (reframing)
Modulating my emotional responses
Making meaning as a means of handling emotions

Note. Tactics are adopted from the first version of S²R (Oxford 2011). The metacognitive strategies and tactics are merged from the metastrategies in each dimension. Motivational dimension was separated from Affective dimension in the second version (Oxford, 2017), thus, both of them has no tactics correspondent to each strategy.

The construction of the S²R model incorporates multiple theoretical frameworks and assumptions, forming a robust theoretical foundation. This section provides a briefly review of the key theories and assumptions underpinning both the S²R model and the present study.

Schema theory

Schema theory is a cognitive framework that explains how individuals organise and interpret information based on pre-existing mental structures, known as schemas (Piaget, 1952). The concept of schema was first raised by Kant (Kant, 1892), who described schemas as organising structures that mediate how we perceive and interpret the world (McVee et al., 2005). Two key processes are involved in the way schemas change over time: assimilation and accommodation. Assimilation occurs when new information is integrated into an existing cognitive structure, whereas accommodation involves modifying cognitive structures to incorporate new information.

This theory is not only relevant to cognitive strategies, such as, how do learners create the schema of the target language, but also to metacognitive strategies. Bartlett (1932) stressed the constructive character of memory in relation to schema, defining it as "an active

organisation of past reactions or experiences, which must always be supposed to be operating in any well-adapted organic response." From the cognitive psychology perspective, schema is a mental structure by which the learner organises information, and the organising act makes the material more memorable (Mandler, 2014; Oxford, 2011a).

The tactics and mechanism of monitoring

In the context of cognitive processes and metacognition, self-monitoring is considered as a key component of metacognition by many researchers (Brown et al., 1989; Flavell, 1979; Kuhn, 2000). Flavell (1979) views monitoring as an integral part of cognitive activities, occurring through the action and interactions of four elements: metacognitive knowledge, metacognitive experiences, goals (or tasks), and actions (or strategies). This perspective suggests that monitoring is a continuous process throughout learning, allowing nearly every decision or problem-solving act to be self-monitoring and regulation. O'Malley and Chamot (1990) describe monitoring as being aware of one's own actions, bringing mental processes under conscious scrutiny, and thereby enabling better control over them. They identified eight types of monitoring tactics: comprehension monitoring, production monitoring, auditory monitoring, visual monitoring, style monitoring, strategy monitoring, plan monitoring, and double-check monitoring (O'Malley & Chamot, 1990, p. 147).

Oxford (2011b) drawing on Nelson and Narens' (1994) framework, defines monitoring as involving "checking for one's own errors, making judgements about ease of learning, assessing whether learning has occurred, how confident one feels about the learning, and gauging feelings of knowing.:

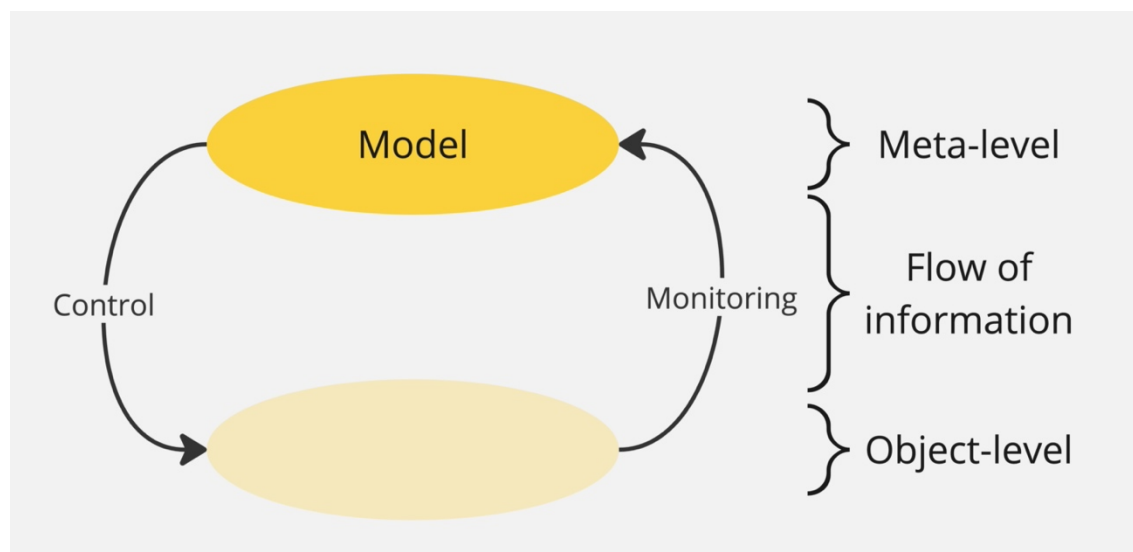
When comparing O'Malley and Chamot's (1990) categorisation of monitoring with Oxford's (2011b, 2017) monitoring tactics (see Table 2.4), several similarities and differences emerge.

1. *Comprehension monitoring* can encompass aspects such as *ease of learning, judgement of learning, feeling of knowing judgement, and cultural understanding and communication in specific contexts*.
2. *Production monitoring* and *style monitoring* may include *monitoring cognitive performance* and *strategy use for culture and communication in specific contexts*.
3. *Strategy monitoring* aligns with Oxford's *focus on strategy use across dimensions*. Furthermore,
4. *plan monitoring* and *double-check monitoring* could involve *judgement of learning, monitoring cognitive performance, and feeling of knowing judgement*.

One notable limitation of O'Malley and Chamot's list is the omission of *monitoring affective states*, a crucial process in the overall learning experience. In contrast, Oxford's framework offers broader, more generalised categories that encompasses not only cognitive but also affective, motivational and social dimensions. O'Malley and Chamot's taxonomy is context-specific and more detailed, it lacks a strong theoretical support. Oxford's framework, by comparison, presents a more theoretically grounded model of monitoring. Overall, **Monitoring** is recognised as one of the highest-level mental activities, with a unique operational mechanism. Nelson and Narens (1994) explained this process using a model of two interacting structural levels: meta-level and object-level, illustrate how monitoring and control regulate learning (see Figure 2.1).

Figure 2.1

Nelson and Narens' (1994) formulation of a meta-level/object-level theoretical mechanism



Note. The meta-level contains an imperfect model of the object-level. Adapted from Nelson and Narens (1994).

The formulation demonstrates that the monitoring mechanism operates through a dynamic interaction between the meta-level and the object-level. The meta-level is informed by the object-level; decisions made by the meta-level depend on information gathered from the object-level and, in turn, act upon it. This process is cyclical, repeating itself across levels of control – from micro-level adjustments, such as choosing a specific word, to macro-level decisions, such as evaluating whether overall learning is progressing as planned. For example, a student learning a new language may realise (at the meta-level) that they are consistently mispronouncing a particular word (object-level observation). Based on this awareness, the meta-level may decide to slow down and focus on pronunciation drills to correct the error. Once this decision is implemented, the meta-level again assesses whether the adjustment has led to an improvement in pronunciation. The Scenarios in which monitoring occurs are highly diverse and can hardly be defined or classified by a limited set of behaviours, as the process is flexible and responsive to both minor tactical adjustments and broader strategic decisions in learning.

Monitoring may not always be beneficial

Flavell (1979) raised the question of whether monitoring is always beneficial, asking whether it could also have a negative effect on learning? He noted that one might “think of the feckless obsessive, paralysed by incessant critical evaluation of his own judgments and decisions”. While most studies in the field of learning and education emphasise the benefits of moderate self-monitoring during problem-solving (Chiu & Linn, 2012; Cresswell, 2000; Lan, 1996), there is relatively little literature addressing the potential downsides.

In experimental psychology, research has demonstrated that excessive error monitoring and regulation can be linked to negative emotionality. Disorders such as anxiety and mood disorders have been associated with the overactivation of these executive functions, which may help explain why damage to specific brain regions (such as the anterior cingulate) can sometimes alleviate emotional disorders (Luu et al., 2000).

If excessive monitoring can, in some cases, be detrimental, it raises the possibility of a concept such as 'monitoring of monitoring,' whereby learners regulate the extent of their self-monitoring to ensure that it remains beneficial. This process may also be accompanied by monitoring of affective states to avoid negative emotional consequences. However, in terms of measurement, the constant and often subconscious nature of monitoring makes it challenging to accurately assess the amount of monitoring a person engages in, or to determine whether the level of monitoring is appropriate.

The influence of affects to learner’s language learning.

In recent decades, the role of emotions in language learning has been explored more extensively. Naiman and his colleagues (1978) found that managing affective demands, such as overcoming inhibition to speak and learning to laugh at one’s own mistakes, has a positively impacts on language learning. Many subsequent studies have confirmed that affect plays a crucial role in language acquisition (Murphy et al., 2020; Wang et al., 2023). Oxford’s (1990) early work categorised affective strategies as one of the three indirect strategy types in her taxonomy, which included *lowering anxiety*, *encouraging oneself* and *taking one’s emotional temperature*. She also outlined several tactics under each strategy, which were highly action-based, such as *using progressive relaxation*, *deep breathing*, *meditation*, and *discuss your feelings with someone else* etc (see Table 2.5). In the same year, O’Malley and Chamot (1990) also addressed affective strategies, although they grouped them with social strategies under the term 'social and affective strategies,' the broader category was described as involving either interaction with others or cognitive control over emotions. Within this grouping, they highlighted two affective strategies: *self-*

talk and *self-reinforcement*. Self-talk refers to a learner reassuring themselves that they will succeed in the task or using mental control to reduce anxiety. *Self-reinforcement* involves motivating oneself by arranging rewards upon completing learning tasks. As discussed earlier, the early versions of affective strategies were primarily based on learner self-reports and were largely behavioural in nature, lacking a strong theoretical foundation to support them.

Table 2.5

Oxford's (1990) early version of affective strategies: LET

Affective Strategies	Lowering your anxiety	Using progressive relaxation, deep breathing, or meditation
		Using music
		Using laughter
	Encouraging yourself	Making positive statements
		Taking risks wisely
		Rewarding yourself
	Taking your emotional temperature	Listening to your body
		Using a checklist
		Writing a language Learning diary
		Discussing your feelings with someone else

Oxford (2011b, 2017) observed that affective strategies have received relatively little attention in research, with only a few areas, such as L2 learner anxiety (Mercer, 2015) and motivation (Dörnyei & Skehan, 2003; Dörnyei & Ushioda, 2009), being widely discussed. However, many other elements relate to affect and affective strategies remain underexplored. These include learner's language beliefs, language attitudes, self-efficacy, self-confidence, willingness to communication, and empathy. All the factors may influence learners' use of affective strategies. Additionally, some research in neuroscience has explored how human brain manages emotions, although studies explicitly linking these traits to LLS are limited. In the initial version of the S²R model, Oxford considered motivational strategies as a subset of affective strategies. However, in the revised version, she separated motivational strategies from affective strategies to reflect their distinct roles in learning. In this updated model, Oxford incorporated Gross's (2014) emotional self-

regulation strategies and Frankl's (1985) meaning-making strategies. The resulting categorisation (see Table 2.4) is more generalised compared to the earlier one, behaviourally focused classifications.

Oxford (2017) also emphasised that, there is no stone-hard categorisation. Rather, the categories are flexible and permeable. She argued that it is more important to look at the underlying the purpose of a thought or action rather than to assign it to a specific category. Categorisation serves primarily as a tool to help us understand strategies and tactics and identify their purpose in real-life learning situations. For instance, consider the tactic of *self-talk*. In some situations, self-talk might serve a *cognitive* function, whereby the learner talks themselves through a task to organise their thoughts or maintain focus. In other contexts, self-talk may fulfil an affective role, helping learners to manage anxiety by offering reassurance. In such cases, the purpose of the self-talk strategy determines its categorisation, demonstrating the need for flexibility in the classification of learning strategies.

Theoretical frameworks regarding learning motivations.

Motivation plays a crucial role in LLSs as it drives learners to initiate, sustain, and regulate their learning efforts. Dörnyei and Ushioda (2021) emphasise that motivation influences not only the quantity of effort learners invest but also the quality of their engagement with language tasks. Motivational factors such as learners' goals, self-efficacy, and interest in the language can shape their choice of strategies, determining whether they employ metacognitive, cognitive, or affective strategies to enhance learning (Oxford, 2017). Furthermore, self-regulated learners often utilise motivational strategies, such as self-reinforcement and goal-setting, to sustain their persistence, particularly when faced with challenges (Dörnyei, 2005).

According to Dörnyei and Ryan (2015), the development of motivation research in language learning can be divided into three stages. The first stage, the "Social psychological period" (1959-1990), was primarily influenced by Gardner's (2001) Socio-Educational Model. The second stage, the "Cognitive-situated period" (1990s), saw the emergence of theories like Self-Determination Theory (SDT) (Deci & Ryan, 2012), which emphasised intrinsic motivation and autonomy. The current stage, which started in 2000, is "Process-oriented". It focuses on motivational change, self-regulation, and possible selves (Dörnyei & Ushioda, 2009).

(a) Socio-Educational Model and Integrative Motivation

In Gardner's (2001) Socio-Educational Model, he presents the idea of "integrativeness", reflecting a genuine interest in learning a second language to psychologically connect with the target language community. It is contended that integrativeness, along with the "Attitudes toward the Learning Situation (ALS)", directly influences the learner's integrative motivation, seen as an individual difference affecting learning behaviour in both formal and informal contexts. However, the concept of "integrativeness" has been criticized as vague, with no clear equivalent in mainstream motivational and educational psychology theories (Dörnyei & Ushioda, 2009, p. 35). Moreover, in the context of world English, it is challenging to determine if English learners desire to get psychologically closer to a specific culture (Coetzee-Van Rooy, 2006, p. 447). Nevertheless, the Socio-Educational model sets a foundation for motivation study in L2 acquisition and inspires the development of the L2 Motivational Self System, which will be addressed later.

(b) Self-Determination Theory

SDT is a framework for understanding human motivation and personality, developed by Deci & Ryan (2012). In the most recently published book (Ryan, 2023), It consists of six mini-theories, each addressing different facets of motivation:

1. Cognitive Evaluation Theory (CET): This theory mainly focuses on how social environments influence intrinsic motivation. It suggests that an autonomous environment supports intrinsic motivation, whereas a controlled environment hampers it.
2. Organismic Integration Theory (OIT): This theory describes a continuum of motivation, ranging from amotivation (lack of motivation) to intrinsic motivation. It identifies three stages of extrinsically motivated behaviours, varying in the degree of internalisation and integration into oneself. These stages are introjected regulation, identified regulation, and integrated regulation. The theory proposes that while introjected regulation mimics extrinsic motivation, identified and integrated regulation resemble intrinsic motivation.
3. Causality Orientations Theory (COT): This theory explores the individual differences in how much a person's behaviour is self-determined. The theory identifies three causality orientations: autonomous, controlled, and impersonal. The autonomous causality orientation suggests that learners interpret cues in a way that provides a greater sense of autonomy. The controlled orientation implies that learners perceive cues as controls and demands. The impersonal orientation

indicates that learners view cues as signs of incompetence, leading to general lack of motivation.

4. **Basic Psychological Needs Theory (BPNT):** This theory highlights three universal psychological needs: competence, autonomy, and relatedness, which are crucial for optimal development and functioning. Satisfying these Basic Psychological Needs (BPN) can lead to more autonomous motivations, while their dissatisfaction may result in problematic behaviour or ill-being. Recent studies argue that the relationship between need satisfaction and need frustration is asymmetric. Failure to satisfy a need does not necessarily lead to need frustration, but need frustration typically involves a lack of need satisfaction (Vansteenkiste et al., 2020).
5. **Goal Content Theory (GCT):** This theory studies the specific content of goals and their relation to psychological health and well-being.
6. **Relationship Motivation Theory (RMT):** Focused on close personal relationships, this theory investigates how motivations for these relationships affect personal well-being and relationship quality (Knee & Browne, 2023).

The first four of the six mini theories are especially relevant to L2 learning. According to SDT, learners feel more motivated and effective when they experience autonomy (having control over their learning), competence (confidence in their language skills), and relatedness (forming meaningful connections with others through the language). In the context of language learning, promoting these three basic psychological needs can boost intrinsic motivation. Consequently, learners may pursue language learning for the inherent satisfaction and interest in the language, rather than due to external rewards or pressures.

(c) L2 Motivational Self System

The L2 Motivational Self System (MSS) is a theoretical framework that was developed from a psychological perspective, specifically drawing on studies of 'Possible Selves' and 'Future Self-Guides'. It was also inspired by Gardner's (Dörnyei & Ushioda, 2009) Socio-Educational model and SDT. The L2 MSS is composed of three central components: the Ideal L2 Self, the Ought-to L2 Self, and the L2 Learning Experience (Dörnyei and Ushioda, 2009).

1. The Ideal L2 Self represents a learner's hopes, ambitions, and desires regarding their language proficiency. It is their self-image when using the second language. This aspect acts as a powerful motivator, prompting learners to pursue their language learning goals.

2. The Ought-to L2 Self, on the other hand, is driven by a sense of duty, societal obligation, or internalised external expectations. This component reflects the pressures and demands perceived by the learner in their sociocultural context, pushing them to learn the language for reasons that may be less linked to personal desire and more to external norms or requirements.
3. The third component, the L2 Learning Experience, centres on the immediate environment and practical experience of the learner in the language learning context. This component can significantly affect the learner's motivational levels, as it encompasses their interactions with the language, the teacher, their peers, and the learning materials.

This comprehensive system effectively integrates traditional motivational concepts with a nuanced understanding of identity and self in the context of language learning. It not only provides a theoretical lens to understand motivation, but also offers practical implications to foster it.

The L2 MSS proposes six practical steps to assist learners in generating and maintaining motivation: 1. Construction of the ideal L2 self, which involves creating a vision of their future proficient self; 2. Imagery enhancement, which is about strengthening this vision; 3. Making the ideal L2 self-plausible, which involves substantiating the vision with concrete plans; 4. Activating the ideal L2 self, which is about keeping the vision alive and salient; 5. Developing an action plan, which involves operationalizing the vision into achievable steps; and 6. Considering failure, which involves counterbalancing the vision by considering potential obstacles and setbacks (Dörnyei & Ushioda, 2009). These steps guide learners in becoming active agents in their language learning journey, harnessing their self-concept and motivation to achieve their language learning goals.

(d) Oxford's Motivational Strategy Dimension in the S²R Model.

In Oxford's updated version of the S²R Model, the motivational strategy set comprises five strategies. This strategy set is constructed from Wolters' (2003) proposed strategies for the regulation of motivation and Oxford's (2011b) previous version of the S²R model.

1. Self-consequating, this strategy involves individuals setting up personal rewards or punishments for themselves. Rewards are used as incentives for achieving set goals, while punishments serve as deterrents for not meeting those goals. It is a form of self-regulation that encourages learners to stay focused and committed to their learning process.

2. Using positive self-talk and cultivating a positive self-image, as seen in the affective strategy set, can boost confidence and motivation. Positive self-talk involves using encouraging and affirming language. Cultivating a positive self-image, visualising oneself as capable and successful in language learning, can be highly motivating. This increases a learner's resilience and perseverance.
3. Using Defensive Pessimism, this strategy involves setting lower expectations and mentally preparing for the worst-case scenario. This can paradoxically lead to better performance by reducing anxiety and increasing preparedness.
4. Enhancing Learning, this strategy involves using diverse learning methods such as multimedia resources, language exchange, and gamified learning to enhance engagement and retention.
5. Controlling Attribution, this strategy involves consciously attributing successes and failures to factors that are intended to maintain motivation.

The integration of SDT, the L2 MSS, and Oxford's strategies offers a comprehensive explanation of learner motivation in language acquisition. Despite their distinct constructs, these frameworks complement each other effectively (See Figure 2.2).

In SDT, the satisfaction of three core psychological needs, autonomy, competence, and relatedness, leads to internalised motivation. This aligns closely with the Ideal L2 self in the L2 MSS, driven by autonomous motivation, including intrinsic motivation and integration, both of which stem from the fulfillment of these needs.

Oxford's self-consequating strategies support the need for autonomy in SDT, allowing learners to set personal rewards and reinforce their intrinsic motivation. Additionally, strategies like positive self-talk and self-image contribute to developing the Ideal L2 self in L2 MSS, promoting autonomous motivation, a key concept in SDT.

Defensive pessimism, another strategy from Oxford's set, helps learners anticipate challenges. This connects with the Ought-to L2 self in L2 MSS, representing controlled motivation stemming from external obligations. Although controlled motivation is typically less sustainable than autonomous motivation, it can still be effective in the short term, particularly for avoiding negative outcomes.

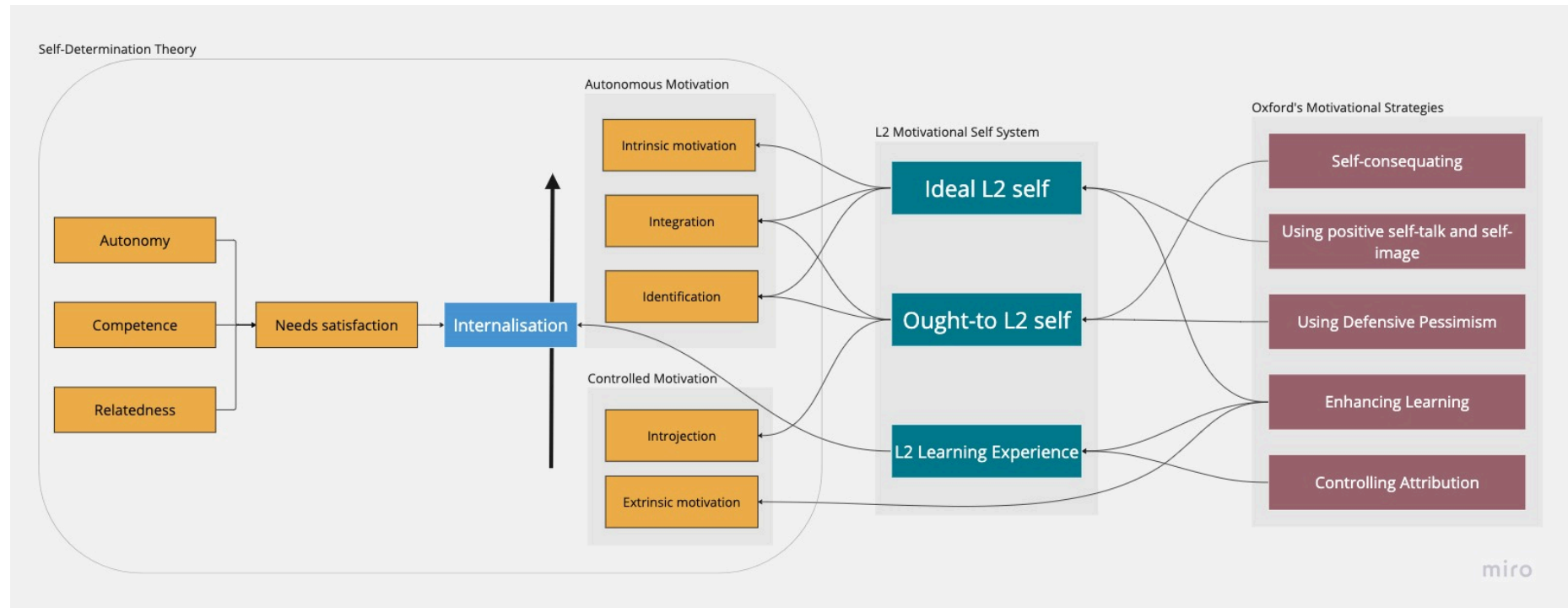
Oxford's strategy of enhancing learning through enjoyable activities, like watching films or interacting with native speakers, fosters intrinsic motivation. This satisfies SDT's need for competence (improving skills) and relatedness (building social connections), aligning with the Ideal L2 self in the L2 MSS.

Finally, controlling attribution, grounded in Weiner's (1985) Attribution Theory, addresses how learners interpret success and failure. This aligns with CET within SDT, where managing attributions enhances learners' ability to process their learning experiences and boosts emotional resilience. This is particularly relevant in developing the L2 Learning Experience in the L2 MSS.

In summary, SDT, the L2 MSS, and Oxford's strategies interact to provide a holistic framework for understanding and enhancing motivation in language learning, covering the spectrum from autonomous to controlled motivations, providing robust foundation for motivational LLS studies.

Figure 2.2

The relationship between Self-Determination Theory (SDT), L2 Motivational Self System (MSS) and Oxford's Motivational Strategies.



Note. The yellow area is adopted from the Self-Determination Theory (SDT) (Deci & Ryan, 2012). The dark blue area is adopted from the L2 Motivational Self System (MSS) ((Dörnyei and Ushioda, 2009). The burgundy area is adopted from the S²R model (Oxford, 2017).

Figure 2.2 indicates the relationship between the three theoretical frameworks, the arrow lines trying to capture the similar concepts or integrations between the concepts in each theoretical framework and provide a holistic understanding and mapping of the three.

Social dimension of language learning strategies.

The Social Strategy Dimension is a fundamental aspect of LLS and has undergone significant development in language learning research. This section examines its evolution, various researchers' categorisations, and how the understanding of social strategies has expanded to incorporate sociocultural perspectives and cultural concepts.

Social strategies in LLS were identified and emphasised in early studies and are widely regarded as key components of LLS (Dörnyei & Ryan, 2015; O'Malley & Chamot, 1990; Oxford, 1990). O'Malley and Chamot (1990) grouped social strategies with affective strategies and included cooperation, questioning for clarification, and self-talk (primarily affective). Dörnyei and Ryan (2015), as mentioned in section 2.1.2, separated social and affective strategies, defining social strategies as the utilisation of interpersonal engagement to enhance opportunities for foreign language practice and to obtain feedback.

In contrast, Oxford (1990) outlined three social strategies: asking questions, such as requesting clarification or correction; cooperating with others, including collaboration with peers or proficient speakers of the target language; and empathising with others which involves developing cultural understanding and awareness of others' emotions and perspectives.

The main distinction between these early frameworks is that Oxford's (1990) expands beyond interaction to address the cultural dimensions of language learning. This feature is reflected in her later work, particularly in the S²R model, which integrates cultural understanding as an essential component of language learning. This broader approach marks a shift from merely focusing on interaction to recognising the importance of sociocultural contexts, signalling a more comprehensive understanding of social strategies in language learning.

(a) The Social Strategies in the S²R Model.

In the latest version of S²R Model, The new list of social dimension including three strategies, *Interacting to learn and communicate*, *Learning despite knowledge gaps in communicating*, and *Dealing with sociocultural context and identities*.

Cohen (1996) suggested that communication strategies ought to be viewed as language use strategies, the reason being that their primary function is not learning, but rather completing

the current interlanguage. Contrarily, the S²R model argues that learners are simultaneously learning while communicating (Oxford, 2011b). It suggests that while learners are actively using their language skills for communication, they are also absorbing new information and enhancing their existing knowledge, thereby effectively learning while communicating. Therefore, communication serves not only as the goal but also the means of language learning.

To successfully communicate in a target language, in addition to mastering the semantic meaning of the language, learners also have to understand the pragmatic meaning and develop sociocultural competence (Oxford, 2011b). Because language is not just a system of words and grammar rules, but a complex social construct that is deeply intertwined with the culture from which it originates. Cultural nuances, idioms, and context-specific conventions all influence the way the language is used and understood.

From a sociocultural standpoint, culture doesn't just shape the learning process within a specific social context, it also significantly influences an individual's identity formation (Göncü & Gauvain, 2012; Norton, 2010, 2014). The S²R model, which embraces Kramsch's (1993, 2013) theory, proposes that culture consists of three layers: the social layer, which is a reflection of the current, synchronic culture; the historical layer, offering a diachronic perspective; and the imaginative layer, which exists in each individual's mind. These layers continuously interact, creating the sociocultural context. Learning a new language, to some extent, is akin to embracing a new culture and weaving it into one's identity (Gardner, 2001).

In the Common European Framework of Reference for Languages (CEFR) (Council of Europe, 2001), sociocultural competence is characterised by a curious and open mindset. It includes an understanding of social groups and their customs and products within different cultures, the ability to analyse and connect cultural texts or events to one's own culture, the skill to learn new cultural information, and engage with various cultures in real-time situations. It also involves a critical awareness of culture. Oxford (2017) proposed an acronym for sociocultural competence: CRITERIA, which stands for cooperation, respect, integrity, tolerance of ambiguity, exploration, reflection, intercultural empathy, and acceptance of complexity. The aim of social strategies is to foster these characteristics.

In recent years, the concept of language learning through interaction has gained momentum. Burch (2014) introduced a conversation analytic perspective on communication strategies. He asserts that language learning strategies are products of the social context of interaction, rather than pre-planned or compensatory tactics for language deficiencies. Burch also

questions traditional classification systems, arguing that communication strategies are multifunctional, context-dependent, and too complex to be boiled down to discrete, quantitative codes. In practical terms, authentic and meaningful interactions play a vital role in language teaching. A similar viewpoint is shared in Li and Jeong's paper (2020). They proposed the Social L2 Learning (SL2) model, which roots L2 learning in social interaction. This model is founded on neurocognitive evidence and the theoretical framework of language learning. For example, L2 words learned through social interaction stimulate similar brain areas to L1 words; the adult brain exhibits significant neuroplasticity in response to social interaction. These findings align with the competition model, suggesting that the core principles of learning remain consistent between L1 and L2. The above development highlights the importance of using and instructing social strategies in language learning and education.

(b) Empirical Studies of using Social Strategies in learning Chinese.

Section 2.3.1 reviewed 13 studies on Chinese language learning strategies (13 references). All these studies are based on Oxford's SILL (1990), and the mean frequency of using the six categories of strategies (cognitive, metacognitive, memory, social, affective, and compensation strategies) are compiled in Table 2.10. As the data is sourced from different studies and collected from various areas and countries, a paired sample T-test was conducted to compare if there are significant differences between the frequency of using social strategies and the other categories (Table 2.5). The results indicate that social strategies are used significantly more often than other strategies (SC-CP, $p=0.005$, $p<0.05$; SC-CG, $p=0.005$, $p<0.05$; SC-AF, $p<0.001$; SC-MM, $p<0.001$), except metacognitive strategies (SC-MC, $p=0.235$, $p>0.05$). Based on the effect size (Cohen's d), social strategies are moderately used more frequently than memory and affective strategies, and slightly more frequently than cognitive and compensation strategies.

The frequency mean value data obtained from LLS studies of Chinese language learning.

Table 2.6

Paired Samples Test between social strategies and the other categories.

Paired Samples Test										
		Paired Differences				Significance				
		Mean	Std. Deviation	Std. Error Mean	99% Confidence Interval of the Difference		t	df	One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	SC - CP	.19437	.23978	.05994	.01774	.37101	3.243	15	.003	.005
Pair 2	SC - MC	.05000	.16129	.04032	-.06882	.16882	1.240	15	.117	.234
Pair 3	SC - CG	.21125	.25969	.06492	.01994	.40256	3.254	15	.003	.005
Pair 4	SC - AF	.68813	.35529	.08882	.42639	.94986	7.747	15	<.001	<.001
Pair 5	SC - MM	.42875	.30724	.07681	.20241	.65509	5.582	15	<.001	<.001

Paired Samples Effect Sizes

			Standardizer ^a	Point Estimate	99% Confidence Interval	
					Lower	Upper
Pair 1	SC – CP	Cohen's d	.23978	.811	.057	1.551
		Hedges' correction	.25266	.769	.054	1.471
Pair 2	SC – MC	Cohen's d	.16129	.310	-.355	.965
		Hedges' correction	.16995	.294	-.337	.916
Pair 3	SC – CG	Cohen's d	.25969	.813	.060	1.554
		Hedges' correction	.27364	.772	.057	1.475
Pair 4	SC – AF	Cohen's d	.35529	1.937	.840	3.053
		Hedges' correction	.37438	1.838	.797	2.897
Pair 5	SC – MM	Cohen's d	.30724	1.395	.481	2.310
		Hedges' correction	.32375	1.324	.456	2.192

a. The denominator used in estimating the effect sizes.
 Cohen's d uses the sample standard deviation of the mean difference.
 Hedges' correction uses the sample standard deviation of the mean difference, plus a correction factor.

Note. MM=Memory strategies; CG=Cognitive strategies; MC= Metacognitive strategies; CP=Compensation strategies; SC=Social strategies; AF=Affective strategies

Among the studies, seven were conducted in China, representing an immersion context, while nine were conducted in other countries, representing a non-immersion context. An independent samples T-test was used to determine if there was a difference in the frequency of social strategy use between the two groups (Table 2.6). The results showed no significant difference between the groups ($p=0.977$, $p>0.05$). This indicates that, whether in an immersion or non-immersion context, learners tend to use a similar number of social strategies when learning the Chinese language.

Table 2.7

Independent Samples Test between two context groups, immersion and non-immersion.

		Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
SC	Equal variances assumed	.001	.977	1.097	14	.145	.291	.20143	.18355	-.19226	.59511
	Equal variances not assumed			1.108	13.457	.144	.287	.20143	.18185	-.19009	.59294

Note. SC=Social strategies.

Harish (2014) utilised a questionnaire based on Oxford's SILL (1990) to test Indian English learners' use of social strategies in three different contexts: in class, outside the classroom on campus, and off campus. The study found that learners use moderate social strategies and in all three contexts, they prefer less interactive strategies, like learning culture through observation, over highly interactive ones, such as asking questions in English. However, the study did not explore whether the two types of social strategies impact the learners' outcomes differently.

With the rise of the internet, the use of online tools or computer-assisted learning has become a trend. Two scholarly articles have examined the use of LLSs in this context. The social strategies identified in these studies include asking for help, talking on live chat, initiating conversations, cooperating, empathising, and practicing. However, both studies pointed out that learners are using these strategies unintentionally most of the time, thus not using them effectively. Although platforms like Moodle have some interactive affordances, technological constraints and lack of guidance might still be the reasons that hinder learners from using social strategies.

The Empirical studies show that social strategies are vital in language learning, in the Chinese language learning context, social strategies are used significantly higher than the other strategies except metacognitive strategies. However, learners often choose fewer interactive strategies and may unintentionally misuse these strategies, particularly in online learning environments. Therefore, providing guidance and removing technological constraints could further optimise the use of social strategies in language learning.

2.2 Third or Additional Language Acquisition and Learning Strategies

L3/AL acquisition has gained recognition in language acquisition research over the past two decades years (Amaro, 2017). Several terms are commonly used in this field: a) Multiple Language Acquisition; b) Multilingual Acquisition; c) Third Language Acquisition; d) Third or Additional Language Acquisition (De Angelis, 2007, p. 10). The first two terms don't reflect the sequence nature of language learning and could refer to the simultaneous acquisition. The third term is also problematic, as it may imply that L3 is acquired immediately after L2, whereas it refers to any language learned after the L2. Compared to the first three terms, the fourth term, Third or Additional Language Acquisition, is more appropriate, as it accounts for the similarities in the processes of acquiring L3 and AL. Hufeisen (2000) explained these similarities by identifying the

resources learners draw upon when acquiring L1, L2, L3, and AL (see Table 2.8). According to Hufeisen, the significant distinction lies in the fact that learners of L3 and AL already possess foreign language learning experience and strategies, and are generally more aware of their own learning styles. Several studies have confirmed this threshold between L2 and languages learned thereafter, particularly with respect to strategy use (Dmitrenko, 2017; Kemp, 2007). This suggests that the difference between learning an L2 and an L3 is greater than the difference between learning an L3 and an AL. In addition to prior language learning experience, *life capital*, as proposed by Consoli (2022), may also shape learners' use of LLS in L3/AL acquisition. While learner experience typically refers to accumulated linguistic knowledge and strategies from earlier language learning, *life capital* encompasses a broader repertoire of life experiences that may shape learning behaviours and strategy choices.

This section reviews the literature on the effect of prior knowledge and learning experience on L3/AL acquisition. Additionally, it presents a systematic literature review of LLS used in L3/AL context.

Table 2.8*Comparison of the available resources for learners when learning each language*

Available resources for learners when learning L1/L2/L3/AL								
	<i>Universals (innate language- learning ability)</i>	<i>Learning environment</i>	L1	Life capital, learner experience, and learning strategies	Foreign language- learning experience and strategies	Learners' self- knowledge about his/her learning style	L2	L3, other ALs
L1	✓	✓						
L2	✓	✓	✓	✓				
L3	✓	✓	✓	✓	✓	✓	✓	
AL	✓	✓	✓	✓	✓	✓	✓	✓

2.2.1 The Influence of Prior Knowledge and Learning Experience on L3/AL Learning

Bilingualism was not always regarded as beneficial. Before the 1950s, it was considered a serious hindrance to intellectual development (Hakuta, 1986; Lee, 1996). Claims suggested that bilingualism could lead to speech disorders, cognitive deficits, mental confusion, and even mental retardation. While such views seem ridiculous today, they were mainstream at the time. Edwards (2004) explains that these beliefs were influenced by an anti-immigration mindset prevalent in early 20th-century America, a period marked by high immigration. These studies and tests conducted during that era were often methodologically flawed, culturally biased, and used to justify racial discrimination.

As mindsets evolved and scientific research methods improved, increasing evidence emerged showing that bilinguals could excel in academic learning and that bilingualism could foster cognitive development. Research further indicated that bilingualism might enhance the acquisition of additional languages and even produce positive effects on aging (Bialystok et al., 2004; Grenfell & Harris, 2015; Malakoff & Hakuta, 1991; Peal & Lambert, 1962; Sanz, 2000; Vildomec, 1963). Since the 1960s, most research has accepted that bilingualism/multilingualism positively affects L3/AL acquisition and contributes to cognitive development (De Angelis, 2007, p. 137). For example, Sanz (2000) compared Catalan/Spanish bilingual students with their Spanish monolingual peers in their acquisition of English. Her findings showed that bilinguals had a stronger grasp of English and she offered several possible explanations: 1) Bilinguals and monolinguals follow the same learning path, but bilinguals have enhanced cognitive skills that lead to faster learning. 2) Language learning experience aids L3 acquisition. 3) Bilinguals may have different brain working memory capacities compared to monolinguals. 4) Metalinguistic awareness gives bilinguals the capacity to learn languages more effectively.

Regarding how prior language knowledge and learning experience affect a learner's cognitive development, Cummins (1976, 1979) proposed two hypotheses: the Threshold Hypothesis and the Developmental Interdependence Hypothesis.

The Threshold Hypothesis posits that there are two critical thresholds in a learner's L2 competence. The first determines if the L2 negatively impacts cognitive development, while the second determines if it benefits the learner. In order to reap cognitive benefits, a learner must attain a certain level of competence. Barik and Swain (1976) tested this

hypothesis through a five-year longitudinal study with young learners in a French immersion program. Initially, there were no significant differences in IQ scores. However, as the programme progressed, learners were categorised into high and low achievers based on their French test scores. A subsequent IQ test revealed that high achievers in French scored significantly higher on IQ tests than their low-achieving peers. This finding supports the existence of the second threshold, indicating that attaining a certain level of L2 proficiency benefits cognitive development. However, there was insufficient evidence for the first threshold, as the IQ scores of the low-achieving learners remained stable, suggesting that L2 learning did not hinder cognitive development. This may also indicate that an L3 learner who has already achieved a relatively high level in L2 benefits from both L2 knowledge and enhanced cognitive ability. This advantage appears to manifest only in additive bilingual context, where the learner is biliterate (Swain et al., 1990).

The Developmental Interdependence Hypothesis suggests that the development of an L2 partly depends on the learner's competence level in their L1, especially among young learners. Although the hypothesis originally focuses on L2 acquisition, it can also be extended to L3/AL learning. If a learner's native and non-native languages are interdependent, it may be assumed that this relationship also exists among non-native languages, as well as between the native language and non-native languages (Lasagabaster, 2001).

A study in three schools, two offering regular curricula and one with an immersion English curriculum, found that learners from the school with an additional French curriculum outperformed those from the school without an extra language curriculum on an English proficiency test (Griessler, 2001). This finding suggests that learning an L3 can facilitate L2 acquisition. Interdependence between languages appears across many linguistic domains. Recent studies have demonstrated that most linguistic features, including lexis, phonetics and phonology, morphology, and syntax, can be transferred from one non-native language to another (Chamot, 1973; De Angelis, 2007, p. 41; Diaubalick et al., 2020; Ringbom, 1987; Rothman, 2011). Negative transfers tends to occur at the novice level, while positive transfers are more frequent at advanced level (Odlin, 1989). Moreover, Transfer can arise not only from languages in which learners are proficient but also from those with which they have limited knowledge. Even a language learned for just one or two years may influence the acquisition of another language (De Angelis, 2005a, 2005b). These

findings underscore the importance of distinguishing between monolingual and multilingual learners in empirical studies.

Multilingualism also associated with enhanced metalinguistic awareness. Herdina and Jessner (2002) proposed the Dynamic Model of Multilingualism, which applies Dynamic System Theory to multilingual acquisition. In this model, metalinguistic knowledge and awareness are identified as key factors contributing to the catalytic effects that bilingualism can have on L3 learning. Metalinguistic awareness is widely recognised as one of the most important factors in facilitating and accelerating the learning of L3/AL. These benefits also extend to LLS. Cohen (2013) (as review in De Angelis, 2007: 122) reported that his non-native language knowledge helped him developing memorisation strategies. For instance, he referred to the Spanish word *árbol* (tree) to help him remember the Hebrew word *arbolet* (whirlpool), noting that both languages were non-native to him.

The next section presents a systematic review of studies on learning strategies in L3/AL acquisition.

2.2.2 A Systematic Literature Review of L3/AL Learning Strategies

The purpose of this systematic literature review is to examine the focus of studies related to L3 learning strategies, the main research methods employed, and their implications. The review addresses the following three research questions:

- What questions have been explored in L3 learning strategy studies, and what are the key findings?
- What methodologies have been employed in studies of L3 learning strategies?
- What issues remain unresolved, and what areas require further investigation?

To answer these questions, a systematic search was conducted across the following databases: ERIC, Academic Search Complete, British Education Index, Modern Language Association (MLA) Directory of Periodicals, MLA International Bibliography, and Linguistics and Language Behaviour Abstracts (LLBA). To capture all relevant literature, the search terms included: "Third language" or "L3 acquisition" or "additional language" or "multilingual" and "learning strateg*" or "strategic learning" or "learner strateg*". After screened irrelevant items, this search yielded 37 results.

To ensure the focus remained specifically on L3 learning strategies, the following inclusion criteria were applied:

- The study involves participants of at least 3 languages.
- The study focuses on learners' language learning strategies.

- The study is empirical in nature.
- The article is publicly accessible, either online or via the university library.

After reviewing the abstracts, 11 studies were selected that met all inclusion criteria, and full texts were obtained (see Appendix I). Notably, ten of these were published after 2010, reflecting a relatively recent and growing interest in this field.

The eleven selected studies were conducted in diverse contexts, as shown in Table 2.5. five of them involved university students or adult learners, among the studies in primary school contexts, three were conducted using the same participant sample.

Table 2.9

The research settings of L3 learning strategy studies

Research setting	Primary school	Post-primary school	University/adults
Number of papers	4	2	5

The participants of the studies were mostly “foreign language learners” according to Cenoz and Jasone’s (2013) definition. Only one study involved bilingual children learning a L3. As previously mentioned, “foreign language learners” and “active bilinguals” represent two distinct groups, whose learning environments, language proficiencies, and strategy preferences may differ. This distinction must be taken into account in certain studies to ensure accurate interpretation of findings.

An analysis of the research questions addressed in the selected articles reveals several recurring themes:

1. Are there differences between learners’ L2 and L3 learning strategies, and if so, in what aspects?
2. Do LLS transfer from L2 to L3/AL?
3. What strategies do multilingual learners use when acquiring an L3/AL?
4. Is there a threshold in strategy use between L2 and L3 language acquisition?
5. What factors influence learners’ choice of L3 learning strategies?
6. Is LLS instruction effective in the context of L3/AL learning?

Some of these questions are unique to L3 learning strategy research, while others are also commonly explored in the context of L2 learning. The following section will examine these questions in detail.

2.2.3 Focuses on L3 Learning Strategies

Are there differences between L2 learning strategies and L3 learning strategies?

This is the most frequently asked question in the reviewed studies, with researchers approaching it from various perspectives.

Grenfell and Harris (2015) found that bilingual learners outperformed their monolingual peers in French listening tests. Through interviews three bilingual students, the study revealed that bilinguals were more accustomed to oral/aural memorisation strategies and frequently use "substitution" strategies in daily life. Although this study focused on bilingual Children rather than learners acquiring two languages sequentially, it offers insight into how young learners with more than one language benefit from multilingualism by employing distinct strategies in subsequent language learning.

Mitits and Gavriilidou (2016) conducted a study with 932 monolinguals and 307 multilinguals junior high school students learning English as a foreign language. While the study found no significant difference in the frequency of strategy use between L2 and L3, differences emerged in strategy preferences. Learners reported using metacognitive strategies most frequently when learning Greek (L2), while a combination of affective and metacognitive strategies was preferred when learning English (L3). In contrast, Pawlak and Kiermasz (2018) reported that learners used strategies more frequently in L2 than in L3. They attributed this to several factors, including varying proficiency levels, the states of each language in the curriculum, and learner motivation. Learners had chosen to major in their L2, while the L3 was a compulsory subject, potentially resulting in reduced motivation. Although few differences were found in the overall patterns of LLS use, learners preferred cognitive strategies for both languages.

The influence of motivation on multilingual learners' LLS is not unique to this study. Yusri and Rahimi (2010) also argued that intrinsic goal orientations, along with learners' attitudes and perceptions, may significantly affect strategy choices. Similarly, two studies involving multilingual adults revealed a positive relationship between the degree of learners' multilingualism and the number of strategies employed in learning a new language (Dmitrenko, 2017; Kemp, 2007).

These six studies were conducted in diverse educational contexts: two with adults, two in university settings, one in junior high school, and one in primary school. No conclusive evidence has emerged regarding whether L3 learning strategies differ substantially from L2 strategies; however, the findings do indicate some notable differences. The studies suggest that learners' strategy choices are shaped by a range of factors, including the learning context (Mitits & Gavriilidou, 2016), motivation levels, language proficiency, and individual learner variation (Pawlak & Kiermasz, 2018; Yusri & Rahimi, 2010).

Some researchers have also acknowledged limitations in research methodology. For example, Pawlak and Kiermasz (2018) highlighted several shortcomings of the SILL questionnaire (Oxford, 1990), noting that its items are often too general to capture the full range of strategies, and that it has been criticised for its emphasis on behavioural indicators rather than cognitive processes.

It is also important to note that one of the studies cited above was conducted with bilingual children. Cenoz and Jasone (2013) proposed a distinction between two types of third language learners: "active bilinguals" and "foreign language users." The former refers to early bilinguals who were exposed to two languages from birth but may have also acquired a third language at school. The latter refers to learners who have acquired a foreign language and are now in the process of acquiring a third language. These two groups experience different learning environments and acquire their second languages in different ways, which may in turn affect their use of L3 learning strategies.

Do strategies transfer from L2 to L3/AL?

Several studies suggest that cross-linguistic transfer is possible among the languages in a multilingual individual's repertoire. Such transfers have been observed in areas including lexis, phonetics and phonology, morphology, syntax, and pragmatics (De Angelis, 2007, p. 41). Given these findings, it is important to investigate whether a similar transfer also occurs in the use of LLS. If strategy transfer does take place, understanding how it functions could contribute to the design of more effective strategy instruction in multilingual learning contexts.

In a study by Mitits and Gavriilidou (2016), the researchers examined the learning strategies used by 307 junior high school multilingual learners for both L2 (Greek) and L3 (English). A paired sample t-test was conducted, and Pearson correlation coefficients were calculated. The results showed a positive correlation between learners' use of strategies in

L2 and L3, indicating that students who reported using more strategies for learning Greek also reported using more strategies for learning English.

These findings suggest that multilingual learners tend to transfer language learning strategies between their L2 and L3/AL. This type of strategic transfer highlights the interconnectedness of learners' linguistic experiences and the potential of leveraging existing strategies to support the acquisition of additional languages.

What strategies do multilinguals use when learning L3/AL?

Cenoz and Jasone (2013) noted that “learners who have gone through the process of learning a second language are also more experienced language learners, and it is likely that they have developed certain skills and strategies for achieving the language-learning task.” This observation reflects the broader view that multilinguals, due to their cumulative learning experience, are more likely to possess and employ a wider range of LLS when acquiring an L3/AL.

In Kemp's (2007) study, she developed a 40-item grammar strategy questionnaire by compiling strategies recommended in textbooks and in the SILL. In addition, participants were asked to list any strategies they used that were not included in the questionnaire. The results showed that 21 out of 144 participants provided additional strategies, resulting in the inclusion of 33 new strategies. Kemp concluded that the more languages a learner knows, the greater the likelihood they will use self-generated strategies beyond those found in standardised inventories. Among the added strategies, many participants mentioned comparing and relating new grammar structures to their existing languages or identifying similarities between them.

Similarly, Dmitrenko (2017) found that multilinguals supplemented all six categories of Oxford's (1990) taxonomy with additional strategies. Many of these strategies focused on “taking advantage of prior language knowledge and learning experience”, reinforcing the idea that multilinguals actively draw on their broader linguistic repertoire. Based on these findings, Dmitrenko developed the M-SILL, adapted from Oxford's original SILL to better reflect the strategic behaviour of multilinguals. The M-SILL survey revealed a marked difference between L2 and L3/AL learners, particularly in their use of strategies aimed at “establishing relationships between similar languages and leveraging their commonalities.” The findings from these studies indicate that multilingual learners tend to employ a greater number and variety of strategies in L3/AL learning, owing to their richer linguistic

knowledge and accumulated learning experience. They are also more likely to have discovered their individual learning styles and patterns through previous language learning, which may enhance their ability to manage learning more effectively (Dmitrenko, 2017). These insights further suggest that existing instruments, which were developed primarily for L2 learners, may be insufficient for capturing the full range of strategies used by multilinguals. As a result, there is a clear need for the development of more context-sensitive tools tailored to the multilingual learning context.

Is there a threshold effect in LLS use between L2 and L3 language learning?

The threshold effect was first observed in Kemp's (2007) study. She assessed the number of strategies used by L2 learners and L3/AL learners and found that L3/AL learners used significantly more strategies than L2 learners. She further examined participants' choices on the strategy questionnaire scale, noting that L2 learners chose the option 'I never do this' significantly more often than L3/AL learners. Additionally, there was no substantial difference between L3 and LX learners. Dmitrenko (2017) confirmed Kemp's findings, revealing that the higher a learner's degree of multilingualism, the more frequently they use learning strategies. The gap between L2 and L3 learners was greater than that between L3 and LX learners. Hufeisen (2000) explained this effect by analysing the resources available to learners when acquiring a new language. For L2 learners, these include "innate language-learning ability," "learning environment," and "L1," while L3 learners have additional resources such as "life capital, learner experience, and learning strategies," "foreign language learning experience and strategies," "self-knowledge about their learning style," and "L2."

The threshold effect highlights the importance of studying L3 learning strategies. It confirms that examining learners' L3 learning strategies is meaningful and valuable. It also reveals that L3 learning strategies are similar to those used in learning future additional languages. Thus, L3 and AL learning strategies can be studied together.

What are the factors that influence learner's choice of L3 learning strategies?

Among the eleven reviewed studies, two explored the influence of gender on learners' use of LLS. Mitits and Gavriilidou (2016) examined L2 and L3 learning strategies among multilingual boys and girls. Their findings revealed that multilingual girls tended to use LLSs more frequently than boys in both L2 and L3 learning. Furthermore, girls used LLSs

with similar frequency across both languages, whereas boys used LLSs more frequently in L2 than in L3.

In contrast, Milla and Gutierrez-Mangado (2019) conducted a study involving 131 elementary school students and found no significant gender differences in learners' overall choice of LLSs. However, when gender was cross-referenced with proficiency level (lower beginner, beginner, upper beginner), differences in strategy use were found only at the lower beginner level, which then disappeared at higher proficiency levels.

Gender has also been widely studied in the context of L2 learning strategies, yet findings remain inconclusive (Cáceres-Lorenzo, 2015; Dörnyei & Ryan, 2015; Griffiths, 2013; Oxford, 1996; Phakiti, 2003). These inconsistencies may be attributed to differences in research contexts and learning environments.

Proficiency is another factor commonly considered in studies on LLS use. In L3 studies, however, proficiency becomes more complex, as both L2 and L3 proficiency levels need to be taken into account. Measuring language proficiency in multilingual learners is particularly challenging, due to their diverse language repertoires and varying levels of competence. Among the selected studies, only Dmitrenko (2017) systematically accounted for this variation by calculating a total proficiency score and categorising learners' languages into low, medium, and high proficiency groups. Her study combined the number of languages known with proficiency levels to define a learner's degree of multilingualism. In the same study by Milla and Gutierrez-Mangado (2019), , the researchers also explored the impact of L3 proficiency on learners' strategy use. No significant differences were found between the three proficiency groups (lower beginner, beginner, upper beginner) across any of the strategy categories. This lack of distinction may be due to the young age of participants and the narrow range of proficiency levels.

Conversely, Park and Starr (2016) reported that social and metacognitive strategies were preferred by high-proficiency L3 learners, suggesting that as learners become more advanced, they are more likely to employ complex, reflective strategies to manage their learning.

While several factors have been examined in the context of L3 strategy use, many variables frequently discussed in L2 strategy research remain underexplored. These include: learning goals, learning environment, motivation, learning style, age, nationality, personality, autonomy, beliefs, aptitude, affect, identity, and investment (Griffiths, 2013). In general, individual differences do not operate in isolation; rather, they interact to shape learners' LLS choices. Therefore, to gain a more comprehensive understanding of how learners

orchestrate their language learning strategies, future research must take a broader range of factors into account.

Is strategy instruction effective in L3 learning?

Pawlak and Kiermasz (2018) pointed out that the lack of LLS instruction may be one of the reasons why learners tend to rely on traditional strategies, such as cognitive and memory strategies, in both their L2 and L3 learning. A similar preference for cognitive strategies was observed in Vo and Jaturapitakkul's (2016) study, which examined Thai EFL learners studying Vietnamese vocabulary. The authors concluded that the language teaching approach itself could be a contributing factor.

Many studies have proved that Strategy Instruction (SI) is effective in L2 acquisition (Chamot, 2005; Gunning & Oxford, 2014; Macaro, 2001; Zenotz, 2012). In relation to L3, SI is also beneficial. De Zarobe and Zenotz conducted several studies investigating learners' reading strategies when English was taught as an L3 (de Zarobe, 2017; de Zarobe & Zenotz, 2018, 2018). The studies divided primary school students into two groups, an experimental group that received SI and a control group that did not. The results showed that the experimental group exhibited significantly greater progress in reading compared with the control group. However, the difference in the number and types of strategies used between the two groups was less pronounced. Importantly, the effects of the SI intervention were sustained long after its implementation, suggesting a long-term benefit. In this study, participants had begun learning both their L2 and L3 at the age of four, meaning they had already accumulated five to six years of experience in both languages.

These findings confirm that strategy training is also essential in L3 learning. Incorporating SI into multilingual education programmes can provide learners with greater metacognitive control, broaden their strategic repertoire, and foster more autonomous and effective learning behaviours.

2.2.4 Some Remaining Issues

Treat learner's language repertoire as a cluster

In the reviewed articles, although all claimed that the participants possessed three or more languages, some did not fully engage with learners' entire language repertoires. For instance, in de Zarobe and Zenotz's (2015, 2018) studies, the focus was on learners' L3 reading competencies and their progress following SI. However, learners' L1 and L2 were merely mentioned in the participant descriptions and were not considered during the SI or

the broader scope of the studies. A similar issue was observed in Yusri and Rahimi's (2010) study, where both groups were L3 learners, yet their L2 was neither assessed nor incorporated into the research design. Even in studies that considered multilingual learners' languages, there was a tendency to include only European languages, disregarding non-European ones (Dmitrenko, 2017).

Cenoz (2013) proposed a Focus on Multilingualism Approach, which emphasises that:

“Instead of focusing on ‘one language only’ or ‘one language at a time, FOCUS ON MULTILINGUALISM looks at all the languages in the multilingual speakers’ repertoire. It considers the complexity of multilingualism and how the different subsystems are connected across the languages in their development, and in the way they support each other.” (Cenoz, 2013)

Research on L3 learning strategies should be informed by studies on L2 learning strategies, yet should not be confined to them. A multilingual's languages are not static entities; rather, they constitute a dynamic system that evolves over time. Considering all of a learner's background languages as an integrated whole can expand our understanding of how language knowledge and experiences interact. This should be a central theme in future studies on L3 learning strategies.

Examine how learners orchestrate the strategies.

The use of learning strategies is generally reported to have a positive correlation with language learning success (Griffiths, 2013; Griffiths & Inceçay, 2016; Oxford, 1996). However, it remains difficult to claim that employing a specific strategy or set of strategies will definitively lead to successful outcomes. As noted earlier, multilinguals' language systems and LLS are likely to form a dynamic system. According to Kemp (2007), “good strategy use involves using clusters, chains or hierarchies of strategies”. To account for learners' strategic clusters, future research should adopt a more holistic approach. Particularly in studies of L3 learning strategies, this holistic approach should consider individual differences, learning contexts, and the learners' complete language repertoires.

Contradictions and Tensions Between L2 and L3 Strategy Research

While previous sections have summarised key similarities in LLS use across L2 and L3 acquisition, there remain important theoretical and empirical tensions.

For example, the concept of metacognitive awareness is widely celebrated in both L2 (Oxford, 1990) and L3 contexts (Kemp, 2007), yet the degree to which this awareness develops autonomously or is mediated by prior language learning experiences is debated. Jessner (2008) argues that L3 learners often display enhanced metalinguistic knowledge, a view which challenges the notion of strategy universality posited in earlier L2 research. Furthermore, some sociocultural models (Swain & Deters, 2007) emphasise the role of learner identity and agency in shaping strategy use, factors that may be especially noteworthy in L3 settings where multilingual identities are negotiated. Such perspectives suggest that while L2 and L3 research may overlap in terms of general strategy taxonomies, they diverge in terms of learner experience, socio-contextual engagement, and language interaction. These differences emphasise the need for more context-sensitive frameworks that incorporate learners' linguistic background and the social context in which they acquire additional languages.

Taken together, these issues suggest that L3 learning strategy research would benefit from a shift towards more holistic, dynamic, and multilingual-aware models, ones that recognise both the synergies and the tensions with L2 strategy research and accommodate the complexity of multilingual language development.

2.3 Chinese Language Learning Strategies and Chinese Language Teaching in Ireland

This section introduces Chinese language teaching and learning in three parts. The first part briefly discusses studies on Chinese LLS conducted in China and European countries, providing a holistic view of research involving learners with Indo-European language backgrounds. The second part outlines the history and development of Chinese language teaching (CLT) in Ireland. The third part focuses on studies related to CLT within the Irish context, some of which are directly relevant to the present study..

2.3.1 Chinese Language Learning Strategies of Indo-European Language Learners

Research on Chinese language learning strategies has grown considerably over the past two decades. Studies have primarily focused on two learning contexts: learning Chinese in the target language environment (i.e. in China), and learning Chinese in non-target language contexts (i.e. outside China). The former group includes learners from diverse linguistic

backgrounds studying in China (Jiang, 2000; Wu, 2007). , while the latter involves learners typically sharing similar first language backgrounds and studying in their home countries (Ding, 2019; Hou, 2016; Jia, 2017; Liao, 2020; Marcos, 2020).

A mixed-methods approach, often combining questionnaires and interviews, is commonly employed. Oxford's (1990) SILL remains the most widely used instrument, albeit frequently adapted to meet specific research contexts and learner needs. This section reviews a selection of studies on Chinese LLSs, with a focus on Indo-European language speakers, while also incorporating research from target language contexts to provide a more comprehensive perspective.

Wu (2007) conducted a large-scale study involving 535 international students learning Chinese in China, using a SILL-based questionnaire. The findings revealed that, overall, learners used strategies at a moderate frequency. Compensation strategies were the most commonly employed, followed by social, metacognitive, and cognitive strategies. When learners were grouped by region, Indo-European language speakers showed the following strategy preference (from highest to lowest): compensation, social, metacognitive, cognitive, affective, and memory strategies (see Table 2.10). This pattern contrasts significantly with that of Asian language speakers.

In a separate study, Jiang's (2000) reported that learners in target language environments more frequently used social and metacognitive strategies, followed by compensation and cognitive strategies, with memory and affective strategies being the least used. This pattern is supported by other studies conducted in similar contexts (e.g. Li et al., 2011), where metacognitive, social, and compensation strategies were preferred, while cognitive, memory, and affective strategies were used less frequently.

Liao (2020) compared learners with and without experience in a target language context. Upon arrival in China, learners reportedly favoured metacognitive and social strategies, followed by memory, affective, compensation, and cognitive strategies. After ten months of study in China, this order shifted to: social, metacognitive, memory, affective, cognitive, and compensation strategies. These findings align with those of Ding (2019), who also found that both target and non-target context learners used significantly more metacognitive and social strategies, and fewer memory and affective strategies. Moreover, learners with experience studying in China tended to use strategies more frequently than those without such experience.

Table 2.10

Comparison of learner's strategy using level and mean value of Chinese language learning strategy studies

	Context		High level -----to-----low level					
Wu (2007)	University	in	CP*	SC	MC	CG	AF	MM
	China		3.52	3.43	3.36	3.34	3.00	2.81
Jiang (2000)	University	in	SC	MC	CP	CG	AF	MM
	China		3.52	3.48	3.47	3.33	2.86	2.77
Li, Yao & Liu (2011)	University	in	MC	SC	CP	CG	MM	AF
	China		3.67	3.66	3.57	3.38	3.23	3.21
Liao (2020)	Home country		MC	SC	MM	AF	CP	CG
	university		3.54	3.47	3.27	3.27	3.20	3.02
	University	in	SC	MC	MM	AF	CG	CP
	China		4.08	4.06	3.77	3.69	3.63	3.60
Ding (2019)	Home country		MC	SC	CP	CG	MM	AF
	university		4.00	3.90	3.55	3.27	3.09	3.01
	University	in	SC	MC	CP	CG	MM	AF
	China		4.32	4.47	4.14	4.05	3.22	3.08
Hou (2016)	High school	in	SC	MC	MM	CG	CP	AF
	Italy		3.62	3.41	3.08	3.01	2.97	2.97
Ran (2018)	University	in	CP	MC	SC	MM	CG	AF
	Hungary		3.94	3.89	3.83	3.71	3.41	3.20
Xu (2011)	University	in	MC	MM	CG	CP	SC	AF
	German		2.97	2.79	2.77	2.77	2.71	1.83
Xue (2018)	Japanese		SC	CP	CG	MC	AF	MM
	learners in China		3.43	3.40	3.33	3.30	3.23	3.02
	Russian		SC	MC	CG	CP	MM	AF
	university learners in China		3.54	3.53	3.44	3.42	3.26	3.16
Zeng (2011)	University	in	SC	MM	MC	CG	CP	AF
	Spain		3.74	3.56	3.49	3.42	3.3	2.57
Jia (2017)	University	in	CG	SC	MM	MC	CP	AF
	Hungary		3.52	3.19	3.06	2.89	2.67	2.60

Fan (2014)	University in the	CP	SC	MC	CG	MM	AF
	United States	3.47	3.40	3.27	3.24	3.13	2.57
Hu (2014)	University in the	SC	CP	MC	CG	MM	AF
	United Kingdom	3.73	3.47	3.44	3.42	3.04	2.44

Note. MM=Memory strategies; CG=Cognitive strategies; MC= Metacognitive strategies; CP=Compensation strategies; SC=Social strategies; AF=Affective strategies.

Although the aforementioned studies are all grounded in Oxford's (1990) classification, different researchers have employed various questionnaire items to meet their specific research objectives. Nevertheless, these instruments have been consistently developed within the same overarching framework. Among the 16 studies cited, social strategies were identified as the most frequently used in eight studies and ranked second in six. Metacognitive strategies appeared as the most frequently used in three studies and the second most in another six. Their lowest ranking was fourth, as reported in Jia's (2017) study. Affective strategies were found to be the least utilised, appearing in this position in 11 of the studies reviewed. In general, social and metacognitive strategies are the most commonly adopted categories among learners of Chinese, whereas affective strategies are the least used.

Individual differences have also been a focal point in several studies, with gender, age, and language proficiency identified as influential variables in learners' strategy use. For instance, Li, Yao, and Liu (2011) found that gender did not significantly affect the use of indirect strategies (i.e., metacognitive, affective, and social strategies) but did impact the use of direct strategies (i.e., memory, cognitive, and compensation strategies). Female learners were found to employ more direct and metacognitive strategies than their male counterparts. No significant differences were observed across age groups, likely due to the narrow age range of participants (mostly between 20 and 30 years old). Similar findings were reported by Ran (2018) and Jia's (2017), whose studies focused on Hungarian adult learners of Chinese. Both studies noted that female learners tended to use strategies more frequently than males, while age appeared to exert little influence on strategy use.

Learners' duration of learning is typically positively correlated with their language proficiency, although this is not universally applicable. Hence, studies on learners' competence and learning duration factors are discussed jointly. Several studies have shown that high-performing learners tend to use more strategies than their lower-performing peers (Jiang, 2000; Li et al., 2011; Ran, 2018; Wu, 2007). Wu (2007) found significant correlations between learners' performance and their use of cognitive, metacognitive,

compensation, and social strategies. The study also revealed that cognitive strategies were most frequently employed by successful learners, who demonstrated effective use of such strategies to support their language acquisition.

Some research has concentrated on strategy use in relation to specific language skills or components, such as oral communication (Na, 2009; Zeng, 2011; Zhai, 2019), pronunciation (Jia, 2017), character learning (Jiang, 2019; Jiang & Zhao, 2001; Zhao, 2015), reading (Wang & Wu, 2017), and idiom acquisition (Marcos, 2020). Interview data have shown that learners with closer contact with the target language tend to use a wider range of strategies and exhibit stronger motivation (Ding, 2019; Ran, 2018). Practical recommendations have been made to enhance learners' Chinese language acquisition through strategic instruction, which has been highlighted as a critical pedagogical approach (Ran, 2018; Wang & Wu, 2017). Additionally, some studies have incorporated technological aspects into their investigations. For example, certain questionnaires were modified to reflect contemporary learning practices, including items such as "using Chinese learning apps to help remember new words." Many studies have advocated for the integration of information technology to promote learners' strategy use and foster greater autonomy (Hou, 2016; Liao, 2020).

In conclusion, the exploration of Chinese language learning strategies is still in its early stages, with most studies employing Oxford's (1990) theoretical framework. Social and metacognitive strategies are generally more prevalent among Chinese language learners, while affective strategies remain the least used. As previously mentioned, the SILL remains a widely utilised instrument across global contexts; however, its limitations must be acknowledged. Greater caution should be exercised when relying on SILL as the primary data collection tool in studies of language learning strategies. Most of the studies reviewed have been conducted within the last two decades. The field of CLT has experienced rapid development both within China and internationally, including in Ireland. The following section will examine studies conducted in the Irish context.

2.3.2 Chinese Language Teaching Development in Ireland

The United Kingdom is considered one of the earliest countries to have adopted CLT with its first recorded instance in 1825 (Zhao, 2009). Approximately 80% of universities and 20% of post-primary schools in the UK offer Chinese language courses (Tang, 2016). In the United States, Chinese speakers now represent the second-largest non-English-speaking population. Chinese community heritage language schools have existed for over 150 years

in the U.S., and Chinese language education has been incorporated into both the K–12 school system and higher education (Xiao, 2016).

Compared with these countries, CLT has a relatively short history in Ireland; the In comparison, CLT in Ireland has a relatively short history. Its origins can be traced back to the establishment of two Confucius Institutes: one at University College Dublin (UCD) in 2006 and the other at University College Cork (UCC) in 2008 (Osborne et al., 2019). Correspondingly, the first tertiary-level Chinese language programme in Ireland also began in 2006 (Zhang & Wang, 2018). These Confucius Institutes are committed to promoting Chinese language education, enhancing cultural exchange, and fostering collaboration between China and Ireland in various domains. This section provides an overview of the current landscape of Chinese language education in Ireland.

Post-Primary Setting

The first post-primary school in Ireland to introduce Chinese language education was Loreto Secondary School in Bray. In 2007, the school's principal contacted the then-Chinese Ambassador, Mr Xinsheng Zhang, to explore the possibility of offering Chinese studies. Mr Zhang recommended reaching out to the UCD Confucius Institute (Wu, 2011). Consequently, Loreto Bray launched its Chinese Studies Programme in September of that year, with support from the UCD Confucius Institute.

In 2012, the National Council for Curriculum and Assessment (NCCA) introduced a Transition Year (TY) Unit titled *Chinese Culture and Language Studies* (NCCA, 2012). This marked the first formal inclusion of Chinese in the Irish post-primary curriculum. Although the TY Unit is a one-year module comprising 45 learning hours, primarily focusing on cultural content, with only about 10% dedicated to language, it served as a valuable entry point for learners. The module quickly gained popularity, and nearly 200 schools across Ireland adopted it within two years (Ji, 2015). This rapid expansion was largely facilitated by the support of the Confucius Institute, which helped address teacher supply issues.

In 2014, the NCCA introduced the *Junior Cycle Short Course in Chinese Language and Culture* (hereafter the Short Course) (NCCA, 2016). The course aims to improve students' Chinese language proficiency, develop cultural and intercultural awareness, and prepare learners for future study. Unlike the TY Unit, the Short Course is more comprehensive, comprising approximately 100 hours of student engagement and structured around four thematic strands: *Myself, My Family and My Friends*; *Out and About in Public Places*;

Education and School; and *Chinese and Young Global Citizens*. Learning outcomes are presented as “should be able to” statements.

Despite its more thorough design, the Short Course has not achieved the same popularity as the TY Unit (Li et al., 2020; Zhang & Wang, 2018). A survey revealed that only nine schools currently offer the Short Course (Li et al., 2020). Stakeholders cited several reasons for its limited adoption. Principals identified a shortage of qualified teachers as the most significant challenge (97.63%), despite the support provided by the Confucius Institute. Teacher allocation and timetabling were also major concerns (89.16%). Additionally, some schools already offered a wide range of language options and were unable to accommodate a new one without dropping an existing language. From teachers’ perspectives, while most expressed positive attitudes toward the Junior Cycle curriculum, concerns were raised about the suitability of some course content, a lack of teaching materials, insufficient support, and the absence of standardised assessments.

Following the introduction of the Short Course, a gap emerged between the Junior Cycle and university-level study. Students who had taken Chinese at junior cycle could only continue their learning through private tuition or extracurricular tutorials. In response, the Department of Education and Skills announced in 2017 the inclusion of a Senior Cycle Chinese language programme, to be introduced in 2020, with a Leaving Certificate examination planned for 2022 (Department of Education, 2017). To this end, the NCCA published a draft of the *Leaving Certificate Mandarin Chinese Specification* in 2019 (NCCA, 2019). However, similar issues to those encountered with the Short Course persist, including challenges related to course content, teaching materials, and teacher professional development. Nevertheless, as the saying goes, “Rome wasn’t built in a day,” and ongoing collaborative efforts from various stakeholders offer hope for continued improvement. The Post-Primary Languages Initiative (PPLI, 2020) supports the teaching of modern foreign languages in Ireland and has recently expanded its scope to include Mandarin Chinese. PPLI has organised various events to promote Chinese teaching and has recruited teachers to meet the growing demand across schools.

In summary, although Chinese language education in Ireland began later than in other European countries such as France and the UK, it is progressing rapidly. This development is partly driven by China’s growing economic influence, which has increased learner motivation. Another significant contributing factor is Ireland’s multicultural and inclusive social environment. According to the 2011 census, approximately 70,000 Chinese

immigrants were living in Ireland (Latham & Wu, 2013). and the country's openness to multilingualism and multiculturalism has created a welcoming context for CLT.

Higher Education Setting

Since the establishment of the first Confucius Institute at UCD, the number of universities in Ireland offering Chinese language courses has continued to grow. At present, seven universities provide a range of Chinese language programmes; five of these incorporate Chinese language modules into undergraduate degree courses, while four offer such modules at the master's level. In many of these programmes, Chinese is offered in combination with other disciplines such as Business, Law, Computer Science, Social Science, and Music Technology (Li et al., 2020).

A survey conducted in 2009 by the Irish Institute for Chinese Studies at UCD revealed considerable interest among Irish university students in pursuing Chinese language studies within degree programmes. According to the findings, 66.1% of respondents supported the idea of a part-time Chinese Studies course leading to a formal qualification, while 61.8% indicated that a master's degree incorporating elements of Chinese Studies would be beneficial (ibid.). These results suggest a strong demand and a generally positive attitude toward Chinese language learning in Irish higher education. Nevertheless, recent years have seen a decline in the number of university students enrolled in Chinese language courses (Zhang & Wang, 2018). One contributing factor is the gap between the Junior and Senior Cycles in post-primary education, which disrupts the continuity of Chinese language learning. Additionally, certain demotivational factors have influenced students' decisions not to pursue Chinese language studies (ibid.).

University students studying Chinese in Ireland typically fall into three main categories: local Irish students, Chinese heritage learners, and international (primarily European exchange) students. The characteristics and needs of each group vary.

The majority of Chinese language learners in Irish universities are Irish students, who generally begin at a beginner level or have attained some foundational knowledge through previous exposure at post-primary level, particularly through the Transition Year (TY) Unit or the Junior Cycle Short Course introduced since 2012. Some of these students demonstrate a keen interest in Chinese language and culture, while others are motivated by career-related goals, as highlighted in the study by Li and colleagues (2020). The needs of this group fall into three broad categories: (1) to achieve higher levels of Chinese language proficiency; (2) to acquire domain-specific cultural and linguistic knowledge (e.g., in

business, law, or social sciences); and (3) to pass standardised proficiency tests as a prerequisite for exchange programmes or future career development.

The second group consists of Chinese heritage learners, who tend to have higher oral proficiency due to their home language environment. While their listening and speaking skills are often strong, they typically require more support in reading and writing. These learners also express a deeper interest in exploring Chinese culture and gaining a greater understanding of their cultural heritage.

The third group includes international students, such as Erasmus participants, who may already possess some background in Chinese language studies. Their learning needs are similar to those of local Irish students, though their varying proficiency levels and educational backgrounds present additional challenges for instructors. Teachers must carefully balance instruction to accommodate the diversity of learners within this group.

Compared with the post-primary context, Chinese language education at tertiary level in Ireland is more mature, with most instructors being qualified educators or visiting scholars from China, typically arranged through the Confucius Institutes (Wu, 2011). However, the unique operational structure of the Confucius Institutes often results in a high turnover of teaching staff, with new cohorts arriving every two to three years. This rotation undermines continuity and hinders the accumulation of pedagogical experience within a stable teaching environment. Incoming teachers frequently require time to adapt to the Irish educational context and to familiarise themselves with students' culturally influenced learning habits and preferences.

Policy and Structural Influences on Learning Strategy Use

National and institutional policies on multilingual education in Ireland have increasingly recognised the value of promoting linguistic diversity, as outlined in Languages Connect: Ireland's Strategy for Foreign Languages in Education 2017–2026 (Department of Education, 2017). This strategy set ambitious targets for increasing the uptake and diversity of foreign languages and identified Mandarin Chinese as a key language of strategic importance. However, the implementation of these policies has varied across educational levels, and this has important implications for learners' LLS use.

At post-primary level, the NCCA has introduced a Short Course in Chinese Language and Culture for the Junior Cycle (NCCA, 2016), while the Leaving Certificate Mandarin Chinese Specification provides for language learning at senior cycle (NCCA, 2019). Despite these developments, a significant challenge remains in the lack of curricular

continuity between the junior and senior cycle provisions. The short course is optional, and schools which offering it do not always provide the Leaving Certificate Chinese language subject. Moreover, the short course focuses more broadly on cultural awareness with limited emphasis on language proficiency, while the Leaving Certificate specification, though designed at ab initio level, expects students to engage in more structured communicative tasks. This discontinuity can lead to confusion around learning goals and hinder learners' ability to build on prior knowledge.

In addition to curricular misalignment, other structural factors further impact learners' strategic behaviour. These include a lack of standardised teaching materials, variation in teacher qualifications. The Transition Year unit, though valuable in offering cultural exposure, often lacks integration into a coherent, multi-year language learning pathway. These conditions place additional responsibility on learners to navigate their own learning progress. In the absence of systematic instructional support and predictable curriculum progression, students may rely on surface-level strategies such as memorisation or translation, or turn to autonomous learning strategies such as digital tools, and informal goal setting.

At the tertiary level, Chinese language modules are generally more coherent and benefits from institutional partnerships, including Confucius Institutes. However, challenges such as inconsistent prior learner experience, differences in language backgrounds, and varying teacher expectations continue to influence strategy use. University learners may find themselves needing to adapt strategies frequently to manage different teaching approaches, particularly during their international exchange period, and a diverse range of proficiency levels among peers.

While Ireland's overall policy environment demonstrates a strong commitment to multilingualism and language diversification, in practice, the needs for structural coherence and continuity is still stands out. As a result, learners' strategy choices are not only shaped by cognitive and affective factors but are also significantly influenced by institutional frameworks, curriculum design, and the degree to which policy is implemented at the classroom level.

2.3.3 Research and Findings of Chinese Language Acquisition in the Irish Context

As noted previously, formal Chinese language education in Ireland began in 2007, and research on Chinese language acquisition in this context has only gained momentum over the past decade. Although still developing, this body of work has begun to offer important insights, particularly in the third-level education sector, where most empirical studies have been conducted (Zhang & Wang, 2018; Zhang & Lu, 2014). This section critically reviews these studies, highlighting common findings, methodological limitations, and gaps for further exploration.

One of the most prominent themes in the literature is Chinese character acquisition, an area which reflects the linguistic challenges unique to non-alphabetic writing systems. Zhang and Lu (2014) examined the potential of integrating digital tools such as Facebook and machine translation in character learning. Their study of 41 first-year university students found minimal engagement on social media and inconsistent outcomes when comparing online and offline writing. While grammatical accuracy was higher in Facebook submissions, this did not translate into increased lexical variation or character production. The study provided early insight into the affordances and limitations of technology-enhanced learning but stopped short of offering a comprehensive pedagogical model. Moreover, the findings reflect a key tension in the digital age: while technology may offer new avenues for practice, it does not inherently lead to deeper engagement or learning outcomes unless pedagogically scaffolded.

Another study by Zhang and Reilly (2015) explored whether orthographic knowledge acquired through writing Chinese characters contributes to improved reading ability. Their experimental design offered robust evidence that character-copying practice outperformed pinyin in visual recognition tasks. However, the authors acknowledged a potential confound in the form of task familiarity, which was partially addressed in a second experiment. The study highlights the cognitive advantages of logographic writing in reading development, yet its narrow focus on recognition rates limits broader conclusions about comprehension or retention. It also raises questions about how best to integrate character-writing practice into curricula for learners with different goals.

Jiang's (2019) mixed-methods study provides a more holistic view by linking self-regulation with character acquisition. Drawing on both case studies and survey data, the study found that strategy use was highly variable and correlated with proficiency level. Repetition and evaluative strategies were common, while metacognitive strategies were

underutilised. Notably, strategy diversity did not increase significantly over time, suggesting a need for more explicit strategy training in Irish classrooms. While Jiang's study offers a more nuanced understanding of learner behaviour, its limited sample size and reliance on self-report data pose challenges for generalisability. Still, its critical contribution lies in identifying self-regulation as a key predictor of success, thereby pointing towards practical implications for instructional design.

Other studies have addressed affective and motivational dimensions of learning. Zhang (2020) explored demotivation among Chinese learners at an Irish university, combining quantitative and qualitative methods. The study's strength lies in its exploration of the dynamic and interactive nature of demotivating factors. Reduced self-confidence was identified as a central issue, particularly during the early to middle stages of a degree programme. While Zhang offers useful coping strategies, such as reframing perceptions and increasing learner support, the study could have benefited from a clearer theoretical grounding in motivation models (e.g., Dörnyei's L2 Motivational Self System). Furthermore, teacher-related factors were noted but not deeply examined, despite their centrality in shaping learners' classroom experiences and attitudes.

Xiang (2015) survey in Northern Ireland examined oral language learning strategies among high- and low-achieving students. The study's contribution lies in its identification of practical learning behaviours, such as peer interaction and strategy experimentation, that correlate with higher performance. However, the survey design did not account for contextual variables such as classroom dynamics, teacher support, or learner background, which limits interpretive depth. While the findings are consistent with broader strategy use literature, they remain largely descriptive and would benefit from triangulation with qualitative data or longitudinal tracking.

Taken together, these studies represent an encouraging start in understanding Chinese language acquisition in the Irish context. Several patterns emerge: first, learners face particular difficulty with character learning, and strategy use, especially metacognitive and affective regulation, plays a significant role in shaping outcomes. Second, technological tools offer mixed results; their effectiveness depends less on availability than on pedagogical integration. Third, affective factors such as motivation and confidence are critical yet insufficiently theorised in the current body of work. Finally, most existing studies focus on isolated skills or learner traits, with limited attention to teacher perspectives, curriculum alignment, or institutional factors such as progression pathways and assessment design.

Critically, while the studies reviewed here provide valuable descriptive and experimental data, few engage in cross-comparison across learner types (e.g., heritage vs. non-heritage learners) or learning contexts (e.g., intensive vs. elective modules). Moreover, there is little consideration of how broader sociocultural and policy contexts shape learner experiences, an oversight given the evolving nature of CLT in Ireland. Addressing these gaps through longitudinal, mixed-methods, and comparative studies could significantly advance the field. In sum, research on Chinese language learning in Irish higher education is developing, but remains at an early stage. Future studies should aim to move beyond surface-level findings by adopting theory-driven, context-sensitive approaches that synthesise learner strategies, instructional design, and systemic factors. Such work will be crucial for supporting sustainable and effective Chinese language education in Ireland.

2.4 Conclusion

In this Chapter the concept of LLS is explored through a comprehensive examination of its development, categorisation, and application, with a particular focus on Chinese as a L3/AL. The chapter is divided into three main sections: the first reviews the evolution of LLS, including its definitions, taxonomies, and primary findings; the second focuses on the acquisition of a third language, discussing an overview of L3/AL acquisition and a systematic review of L3 learning strategies; and the third section delves into Chinese language acquisition, exploring LLS both in a broader context and specifically within Ireland.

The review of the S²R model, along with relevant theories and concepts, laid a solid foundation for this study by offering a comprehensive understanding of the intricate relationship between cognitive, motivational, social, and affective dimensions in language learning. The S²R model, which evolved from a purely psychological perspective to incorporate sociocultural elements, provides a robust framework for analysing how learners actively and constructively engage in language learning. By integrating various theoretical perspectives, such as Schema Theory and Self-Regulated Learning, the model emphasizes the importance of self-regulation, metacognition, and the influence of prior knowledge and learning experiences. This review not only highlights the dynamic and complex nature of language learning strategies but also underscores the significance of monitoring, cultural context, and identity in shaping language acquisition. As such, the S²R model serves as a crucial underpinning for this study, guiding the exploration of learner strategies and their impact on language learning outcomes.

The systematic review of L3/AL learning strategies reveals a growing interest in understanding how these strategies differ from L2 strategies, how they transfer between languages, and the factors influencing their use. It shows that while some differences in strategy use exist between L2 and L3 learning, these are often influenced by factors such as proficiency levels, motivation, and individual learner differences. The review also highlights the importance of considering the entire language repertoire of multilingual learners when studying L3 strategies. The findings suggest that strategy instruction is effective in L3 learning, and future research should focus on how learners orchestrate strategies across different languages and contexts.

The last section discusses Chinese LLS studies and the development of CLT in Ireland, focusing on the strategies used by learners with Indo-European language backgrounds. The review highlights that studies on Chinese LLS studies have emerged relatively recently, with most research using Oxford's (1990) SILL as a framework. Social and metacognitive strategies are frequently used by Chinese language learners, while affective strategies are the least utilized. The section also explores how individual differences, such as gender, age, and language proficiency, influence strategy use, with high-performing learners typically employing a wider range of strategies.

Next Chapter will discuss the methodology adopted in this research.

Chapter 3 Research Methodology

This chapter outlines the research design and methodology employed in this study, focusing on both qualitative and quantitative approaches to investigate multilingual learners' use of LLS when learning Chinese as an L3/AL. The adoption of a mixed-method approach is justified by the complex nature of multilingual learning, where purely qualitative or purely quantitative methodologies alone would not adequately capture both the depth and breadth required to fully understand learners' experiences. Qualitative methods, such as in-depth interviews, provide detailed insights into individual cognitive processes and personal learning experiences. In contrast, quantitative approaches, such as questionnaire surveys, enable the exploration of broader social patterns and statistical relationships within larger learner populations (Creswell & Creswell, 2017, p. 213; Tashakkori & Teddlie, 2010, p. 1).

This methodological integration ensures both a nuanced understanding of individual learner strategies and a comprehensive view of the broader social influences, aligning effectively with the research aims and questions outlined in this thesis.

3.1 Research Aims and Questions

This study seeks to examine the strategies used by English L1 and Irish L2 learners in learning Chinese as an L3/AL, to explore whether learners transfer or apply their LLS from previous learning experiences when acquiring a new language, and to investigate the distinctive features of strategies used by those with more than one language. This study will also compare the LLS use of Irish-speaking and non-Irish-speaking learners of Chinese as an L3/AL to examine whether language background influences strategy use. In addition, it aims to explore the LLS used by multilingual learners and to provide insights that may inform future efforts to support their strategic development. As outlined in the introduction to this thesis, these overarching goals will be addressed with following research questions:

1. How do learners with English as their first language and Irish as their second use LLS when learning Chinese as a L3/AL?

1.1 Does strategy use differ by gender, age, or school grade?

1.2 Does proficiency in Chinese affect how learners use strategies?

2. How does learners' language background influence their use of strategies in learning Chinese?

2.1 Does the number and proficiency of previously learned languages affect strategy use?

2.2 Do learners with different first and second languages use different strategies?

2.3 Do learners who speak Irish use different strategies?

3. How do learners' prior language experiences influence their use of strategies in learning Chinese, and what pedagogical insights can be drawn from these patterns?

3.2 Research Approaches

3.2.1 Ontology and Epistemology

Before exploring the specific research methods, it is essential to examine the underlying concepts of ontology and epistemology, as these philosophical foundations shape the nature of inquiry and the interpretation of data. Ontology concerns the nature of reality, while epistemology addresses the nature of knowledge and how it can be acquired. In educational research, these foundational perspectives influence methodological choices and the interpretative lens through which findings are understood (Cohen et al., 2018, p. 5).

Building on this conceptual grounding, the study was initially influenced by post-positivist assumptions, particularly the belief that patterns of behaviour can be identified through empirical investigation, it gradually became apparent that a more flexible and integrative philosophical stance was needed. In recognising the value of both participants' subjective experiences and broader, generalisable insights, the study adopts a pragmatic paradigm. This approach allows the researcher to combine interpretive and empirical elements, reflecting a commitment to methodological pluralism and practical inquiry (Biesta & Burbules, 2003; Creswell & Plano Clark, 2018).

To elaborate further, the pragmatic paradigm rejects rigid dichotomies between positivism and interpretivism and instead focuses on what works in practice to address the research questions. Pragmatism is grounded in the belief that reality is both singular and multiple, and that knowledge is constructed through the interaction between the researcher and the research context (Biesta & Burbules, 2003). It acknowledges that both objective patterns and subjective meanings contribute to understanding human behaviour. Thus, this paradigm allows for methodological flexibility and the integration of different data types,

making it particularly suitable for investigating the multifaceted nature of language learning strategies.

The researcher acknowledges the significance of individual lived experiences and recognises that these are embedded within broader sociocultural structures. Ontologically, this position reflects a relational view of reality, where phenomena are not seen as isolated entities but as products of interaction and context. Epistemologically, the study adopts a transactional stance: knowledge is co-constructed through engagement between participants and the researcher, whose reflexivity is integral to the process of meaning-making (Lincoln et al., 2011; Vygotsky, 1980).

While respecting the interpretivist tradition that prioritises subjective meanings, the study also values the identification of recurrent patterns and emergent themes that can inform theoretical insights on learning behaviour. Thus, the inquiry does not aim for complete objectivity but acknowledges the researcher's active role in interpretation and theory development. For instance, participants' self-reported strategies are considered alongside the researcher's evolving reflective understanding, which is shaped through cycles of engagement, analysis, and meaning-making (Chamot, 2004; Tseng et al., 2006).

By adopting a pragmatic paradigm, the study draws on dialectical reasoning (Greene, 2007), embracing tensions between different paradigmatic positions to enrich understanding. This orientation allows for the triangulation of participant perspectives, contextual insights, and theoretical frameworks to produce nuanced interpretations. In doing so, the research appreciates the complexity of learner agency, strategy use, and contextual influences, recognising that no single method or worldview can capture the entirety of these phenomena.

This paradigmatic stance supports the study's overarching aim: to explore learners' strategic behaviour not only as idiosyncratic responses but also as actions shaped by and responsive to the broader learning context. Therefore, this study resists simplistic categorisations and instead values the interplay between structure and agency, objectivity and subjectivity, and empirical findings and interpretive depth .

3.2.2 Mixed Method

Guided by a pragmatic research paradigm, this study employs a sequential exploratory mixed methods approach, combining structured qualitative interviews with a subsequent quantitative survey. Pragmatism, widely recognised as the philosophical foundation for mixed methods research, supports methodological pluralism and prioritises practical

solutions to complex research problems (Creswell & Clark, 2011, p. 41; Tashakkori & Teddlie, 2010, p. 13). This design is particularly suited to exploratory studies where qualitative findings are used to inform the development or refinement of quantitative instruments (Creswell & Clark, 2011, pp. 86–88).

The decision to begin with qualitative data collection reflects the need to explore multilingual learners' LLS use in depth before identifying patterns on a larger scale. Semi-structured interviews allow for the identification of key themes, learner perspectives, and contextual factors influencing strategy use. Insights from this phase are then used to inform the construction and interpretation of the subsequent survey, which quantitatively captures the broader applicability of the findings.

Mixed methods are especially valuable in applied linguistics research, including LLS studies, where complex and dynamic learner behaviours necessitate methodological triangulation (Dörnyei, 2007, p. 164; McKinley & Rose, 2019). Quantitative methods in this study enable the identification of patterns and group-level trends in strategy use, while qualitative interviews provide depth and context, capturing learners' motivations, choices, and reflections (Dörnyei, 2007, p. 24). This integration allows for a more holistic understanding of how multilingual learners navigate L3/AL acquisition, particularly in typologically distant language contexts like Chinese.

There is growing scholarly consensus that mixed methods are particularly effective in LLS research (Chamot, 2005; Oxford, 2011b, pp. 147–151). By combining exploratory and confirmatory perspectives, this study captures both the complexity of individual learner experiences and the broader trends necessary for pedagogical and theoretical insights. Accordingly, a sequential exploratory mixed methods design is adopted to examine the breadth and depth of multilingual learners' LLS use when learning Chinese as an L3/AL.

3.2.3 Instruments and Methods Used in LLS Studies

The mixed method will combine both qualitative and quantitative approaches; a review of the instruments and methods used in LLS studies is necessary. As reviewed in Chapter 2, studies of LLSs have emerged since the 1970s (Hardan, 2013). The field has already developed for 50 years. However, hitherto all LLS studies have to face two common methodological issues, as pointed out by White, Schramm, and Chamot (2007): Firstly, most strategy use is not observable, as they are internal, mental processes. To address this, most LLS studies in the last 50 years have relied on learners' self-reports as their main source. Secondly, strategy use is not a fixed attribute of individuals, but changes according

to the task, the learning conditions, the available time, etc. To cope with this adaptive nature of LLSs, researchers have started to call for dynamic-systems-based research methods (Dörnyei, 2014; Oxford, 2017).

In the studies reviewed in Chapter 2, both quantitative approaches and qualitative approaches are used in L2 strategy studies; mixed methods are also very popular. The research of L3 learning strategies inevitably inherits the overarching research orientations (e.g., quantitative and qualitative approaches) from L2 learning strategies. As noted in Chapter 2, all the L3 learning strategy articles are using parametric tests to analyse the data, some of them also employing qualitative methods (e.g., interviews or open-ended responses) as complementary tools. Questionnaires and language tasks/tests are the two most frequently used methods in the studies. In the next section, the most adopted approaches will be introduced and discussed, including quantitative approaches and qualitative approaches.

Quantitative Approach: Questionnaires

Questionnaires are the most frequently used methods in LLS studies, and they are a convenient tool for collecting information from a large population. Over the 50 years of development in the field, a number of questionnaire instruments have been developed and widely used. This section examines five of the most well-known instruments that are used to investigate LLSs. Some of them are specially designed to investigate LLSs, including the most well-known Strategy Inventory for Language Learning (SILL) and Language Strategy Use Survey (LSUS). Some are built upon self-regulatory theories, such as the Motivated Strategies for Learning Questionnaire (MSLQ) and the Self-Regulatory Capacity in Vocabulary (SRCvoc), and some are developed with new attempts, for instance, the scenario-based questionnaire.

(a) Strategy Inventory of Language Learning (SILL)

Oxford's (1990) SILL is the most widely used tool to investigate LLSs in both EFL and SLA (Hamedani, 2013; Mitits & Gavriilidou, 2016; Mizumoto & Takeuchi, 2011; Pawlak & Kiermasz, 2018). The SILL was developed using Oxford's (1990) earlier taxonomy which contains six categories: memory, cognitive, metacognitive, compensation, social and emotional. The SILL uses a Likert scale; the 5-point scale is from 'never or almost never' (1) to 'always or almost always' (5). There are two versions of the inventory, one is designed for speakers of English learning other target languages which contains 80 items, another is designed for learners of English as an L2 which contains 50 items. It is indeed a

useful scale with a learner-friendly interface which can raise the learners' awareness of LLS use, it has been translated into several different languages, and used in many different contexts.

However, this tool is not without its problems. It has been criticised for its overlap classification and behavioural items. As regards overlapping categories, Dörnyei (2005) noted that, 'compensation' strategies which relate to conversational purposes are communication strategies, instead of language learning strategies. And the separation of 'memory' strategies and 'cognitive' strategies is not necessary as memory processes are a subclass of cognitive process. It is also pointed out that those items are not cumulative, therefore computing mean scale scores is psychometrically not justifiable (Dörnyei & Ryan, 2015; Dörnyei & Skehan, 2003). Oxford also admitted that "a single instrument could not possibly be applicable and useful to all possible groups of language learners" (Oxford, 2011a). Thus, cultural adaptations need to be made when using it in different context.

As a popular tool, the SILL is also employed in L3 learning strategy studies, some studies used an adapted version of SILL (Milla & Gutierrez-Mangado, 2019; Mitits & Gavriilidou, 2016; Pawlak & Kiermasz, 2018), some referenced SILL to design their research tool (Dmitrenko, 2017; Kemp, 2007; Vo & Jaturapitakkul, 2016). As discussed in the previous chapter, multilingual learners may use more strategies (idiosyncratic learning strategies) (Dmitrenko, 2017; Kemp, 2007), which means using SILL without adjusting would be problematic in L3 learning strategy research. Thus, it is important to collect multilingual learners' strategies or generate a new taxonomy for L3 learning strategy research.

(b) Scenario-Based Questionnaire

In order to address the issue with classification discussed above, Oxford (2011b) proposed a new model the S²R model, combining Self-regulated Learning with LLS. To fit the dynamic nature of individual's strategy use, besides, she announced a new scenario-based questionnaire to investigate learner strategies (Oxford, 2017). Gkonou and Oxford (2016) designed the questionnaire with a scenario-based approach to assess emotion-regulation strategies. The questionnaire consists of ten scenarios which are extracted from real-life situations, based on each scenario there are both open-ended questions and choice questions to guide the learner to feel and think deeply. For instance, in a given scenario, a respondent will be asked 'what kind of emotions would you experience in this situation?' and will be required to 'name the emotions. Oxford (2017) believes that the scenario-based questionnaire is a more authentic method and can be developed and applied to other

language skill areas for LLS assessing. The tool has not been found used in other peer-reviewed studies yet, thus, the reliability and validity still need to be verified.

(c) The Motivated Strategies for Learning Questionnaire (MSLQ)

The Motivated Strategies for Learning Questionnaire (MSLQ) was developed and revised by Pintrich and his colleagues (Pintrich et al., 1993; Pintrich & De Groot, 1990). It is developed from a social cognitive view of motivation and self-regulated learning and has been widely adopted in the field of educational psychology. It is not specialised for language learning but has been adjusted to investigate LLS in many studies (Ghyasi et al., 2013; Huang, 2008; Stoffa, 2009). The original questionnaire is composed of two parts, the motivation part (31 items) and the learning strategy part (50 items). The 81 items are rated on a seven-point Likert scale, from 'not at all true for me' (1) to 'very true for me' (7). The items of the learning strategy part are divided into three sections and six sub-sections: a. cognitive strategies: rehearsal; b. cognitive strategy: elaboration; c. cognitive strategy: organisation; d. metacognition; e. resource management: time and study space; f. resource management: self-effort. The function of MSLQ is to evaluate learners' self-regulated learning level; higher motivation and higher use of strategies indicate that the learner is a self-regulated learner. MSLQ has been translated into different languages and is regarded as a reliable and useful tool by many researchers (Dörnyei & Ryan, 2015; Duncan & McKeachie, 2005). It is also used as a strategy collection tool in L3 learning strategy study (Yusri & Rahimi, 2010). However, just like SILL, MSLQ does not address L3 learning strategies explicitly and therefore the items are too broad and general to use without modification in L3 studies.

(d) Language Strategy Use Survey (LSUS)

The Language Strategy Use Survey (LSUS) (Cohen et al., 2003) is a skill-based instrument containing 90 items covering listening, vocabulary, speaking, reading, writing, and translation. Each item can be marked with one of three options: 1 - I use this strategy and find it useful; 2 - I have tried this strategy but welcome learning more about it; 3 - I have never tried this strategy. The LSUS was validated with a sample of 300 tertiary students in French and Spanish classes (Paige et al., 2004). The skill-based nature of LSUS provides learners with a more specific context when considering their learning strategies. It also structures items by different situations, for example, in the listening section, there are subtitles like "before listening," "when I listen," and "if I do not understand." Unlike SILL, where some items are too broad or only suitable for certain proficiency levels (e.g., "read for pleasure in target language" would not be a typical choice for beginner-level learners),

LSUS is organised by skills. This structure makes it easier for learners to recall their learning in skill-based tasks and determine if they were using a particular strategy. The LSUS is also an effective tool for raising learners' awareness of language learning strategies.

(e) Self-Regulatory Capacity in Vocabulary (SRCvoc)

Tseng, Dörnyei, and Schmitt's Self-Regulatory Capacity in Vocabulary (SRCvoc) learning scale offers a novel method to assessing LLSs (Tseng et al., 2006). It takes a psychometric route with two main objectives: first, to devise items that tap into general learner traits rather than survey specific behavioural habits; second, to base the instrument's structure on a theoretical construct, Dörnyei's (2001) system of self-regulatory strategies (Corno & Kanfer, 1993; Dörnyei & Ryan, 2015; Kuhl, 1987). The SRCvoc identifies vocabulary learning strategies across five aspects: commitment control, metacognitive control, satiation control, emotion control, and environment control. This relatively new instrument has been employed in numerous LLS studies (Hamedani, 2013; Mizumoto & Takeuchi, 2011; Yeşilbursa & Bilican, 2013). By focusing on a single language skill, vocabulary learning, the SRCvoc offers a fresh perspective on assessing LLSs through a self-regulatory lens. This method has the potential to be extended to other language skills in future research.

(f) Other Instruments

There are some other questionnaires refinements addressed a certain language skill such as the Metacognitive Awareness of Reading Strategies Inventory (MARSİ) (Mokhtari & Reichard, 2002) which categorised reading strategies into three categories: global reading strategies, problem solving strategies and support reading strategies. And the Metacognitive Awareness Listening Questionnaire (MALQ) (Vandergrift et al., 2006), classified listening strategies into five categories: planning/evaluation, directed attention, person knowledge, mental translation and problem solving. Both of these questionnaires are focused on metacognitive strategies and provide a deeper understanding of metacognitive learning process relating to specific skills.

The quantitative approach is appropriate to collect data from a large population, however, it has also been criticised for its limitations. There are three potential issues for self-report questionnaires: 1) learners may not understand or interpret accurately the strategy description in each item; 2) they may claim to use strategies they do not use, 3) and may fail to recall strategies they have used in the past (White et al., 2007). Furthermore, it cannot depict each individual in detail, and questions like how often can be considered as “often” in a Likert-Scale based questionnaire is an insoluble question (Gu, 1995). Some studies also found that the questionnaires are not applicable in all situations and cultural contexts

and need to be adjusted (Griffiths & Inceçay, 2016). Thus, qualitative approaches such as interviews and think-aloud protocols are used as complementary methods in many studies, to add insights to individual learner's strategy choice.

Qualitative Approaches

Qualitative approaches are an important research method for investigating LLSs; they include oral interviews, observation, verbal reports, diaries and journals, and recollection studies. Observation can be used with young learners, as it would be insufficient to rely on their self-reports. However, like other methods, observation cannot delve deeply into their mental processes. Verbal reports and recollection studies can be combined with oral interviews, as interviews have the flexibility to guide learners in recollecting and reporting their learning strategies. In recent years, some innovative methods have been employed in LLS studies, such as think-aloud protocols (White et al., 2007). Therefore, this section will focus on three commonly used qualitative approaches, oral interviews, learning diaries and journals, and think-aloud protocols, to discuss their implementation and examine their limitations.

(a) Interviews

Interviews can be conducted directly with the language learners. The learners are usually prompted to recall their learning process of completing a learning task and describe what they did to complete the task. Interviews can provide more detail of an individual learner's strategy use. Thus, it is more suitable for a case study, or it can be used together with other assessment methods. Griffith (2013) conducted a retrospective interview with ten students who were learning English. He reported that the qualitative data from the interview generally supported the quantitative findings, but there were still some new findings. For example, factors that emerged from the interview may explain the phenomenon of LLS use in different levels which was identified from the survey. In Grenfell and Harris's (2015) study, they employed a stimulated recall interview with three adolescent learners. Stimulated recall can be viewed as a subset of introspective research methods which accesses participants' reflections on mental processes (Gass et al., 2005). The learners were asked to undertake a French-speaking task. The whole process was recorded and played back to the learners after the task was completed. The learners could pause the recording and make comments about their feelings and thoughts at that moment. The stimulated recall interview can partly remedy the memory fading influences that may emerge in a retrospective interview.

(b) Diaries and Journals

Diaries and journals require learners to record their learning process and show the strategies they used during their learning. This method can help learners develop metacognitive awareness of their learning processes and strategies as they become ‘participant observers’ in their own learning (Oxford & Crookall, 1989). The diary and journal study can be guided by the teacher; Rubin (1981) pointed out that students are sometimes unaware of how to record their learning strategy use; thus, a notetaking method should be introduced. Takeuchi’s (2003) study examined 67 books on ‘how I have learnt a foreign language’ published in Japan. The result of this qualitative study showed that some strategies are favoured in Japanese culture, and the learners may employ different strategies at a different learning stage. This study provides a new angle for diary study, instead of collecting data from a specific learning group, the existing information needs to be reviewed. In the classroom setting, teachers could ask learners to keep a learning diary or journal, however it requires learners to take much effort to record and be sensitive of their strategy use, this method is more suitable for learners with less workload from other commitments.

(c) Think-aloud Protocol

The think-aloud protocol is a method of simultaneous verbalization of thoughts during a specific task. The learner is prompted to speak out and describe their thoughts while completing a given target language task. This method was widely used in problem-solving research and was introduced to L2 studies in the 1980s (Bereiter & Bird, 1985). The think-aloud protocol is the most direct way to provide a demonstration to online strategy use, due to the fact that it collects data while undertaking the task which will avoid failure to remember (Lau, 2006). However, there are some drawbacks. For instance, it will slow down the speed of completion a reading task, and it will be affected by the reporter’s verbal skill, inadvertent cueing, environmental influence, process interruption, likewise, it cannot access the unconscious thinking as well (Bereiter & Bird, 1985; Lau, 2006). As in Chapter 2, LLS is defined with ‘some degree of consciousness’, however the unconscious strategy use might only occur when learners are very familiar with a certain strategy and use it as a habit, however there is still some arguments regarding the level of consciousness necessary for a process to be considered as strategy (Cohen, 2007). In order to successfully elicit data through think-aloud protocol, the subjects need to be trained for the process, since both the type of task and how students are asked to respond can influence the kind and quality of their thinking aloud. Researcher needs to get to know learner’s proficiency level and choose suitable material for them. According to White’s (2007) description, a brief think-aloud

protocol process is like this: Before starting, the interviewer needs to explain to the interviewee about the study. Firstly, the interviewer will model thinking aloud with an independent sample task which is not the task in question. After modelling, interviewer will ask interviewee to tell what they have remembered about the interviewer had said while modelling and reinforce his answer. Secondly, a certain task will be assigned to the learner, and during the problem-solving task, the learner will be asked about ‘before you start, what are you thinking?’ ‘What are you thinking now?’ ‘What is going through your mind?’ to let the interviewee to get used to these interrupting questions and be aware of their thoughts while doing the task. Thirdly, the interviewer will be encouraged to complete a task independently without the guiding questions in a think-aloud way.

There are several issues need to be considered when conducting think-aloud protocol. The first one is which language should be used by the interviewee to report their thinking, first language, target language or mixed language? Heine (2005, as cited in White et al. 2007) found in her study that learners tend to use the language that the researcher had employed for explaining and for practice, even though they have been told that they can choose and go back and forth with the reporting language. Some researchers raised concern that if using a target language for reporting, it will hinder the learner to express their real thoughts, especially when learners are not competent enough to do a verbal report in the target language (Vandergrift, 1996). Culture specific action patterns is another concern in choosing the reporting language, which means the interviewee may approach tasks differently according to the language they are asked to use, nonetheless, it is more likely to occur when learner reached high proficiency of the target language. L1 is still a more favourable choice as it is easier for the subjects and require less cognitive processing capacity. A better choice is to let the learners to choose, it is rather important in L3/AL study, as the learners usually have multiple languages knowledge, this freedom will allow them to access all their language resources. However, there is a disadvantage in terms of transcribe and analyse, it will require the researcher to be proficient in all languages.

The second issue is the transcribing of think-aloud data. It is important that the whole process needs to be video recorded. Transcription is ‘not merely a technical procedure but an interpretive practice (Mishler, 1991), the strategy study will not only document the oral speech but also document the non-verbal communication, such as point, gesturing and even facial expression. Sometimes, the body language is related to the verbalized thoughts, and sometimes it tells more. Thus, record as much information and transcribing for analysis is necessary.

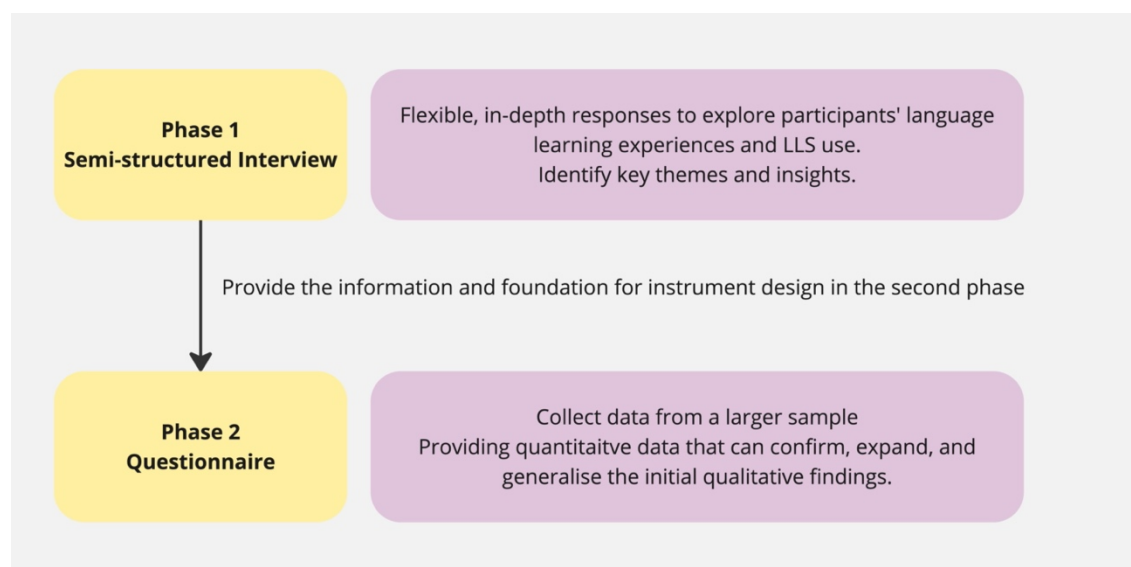
3.3 Overview of Research Design

As discussed, both quantitative and qualitative approaches have limitations. Therefore, this research employed a mixed methodology, incorporating both qualitative and quantitative approaches to complement each other.

The study was conducted in two phases (Figure 3.1). In the first phase, 14 participants joined the in interviews to identify strategies used by multilingual learners. In the second phase, a national questionnaire was carried out to collect data from the target population throughout the country. Quantitative analysis has been performed using statistical software such as the Statistical Package for the Social Sciences (SPSS). The instruments were designed based on existing scales: SILL, MSLQ, and LSS. Learners' language proficiency in their target language and background languages were collected for quantitative analysis.

Figure 3.1

Two phases of the research



3.3.1 Interview Design and Implementation

A semi-structured interview was carried out in the first phase from November 2021 to April 2022. It aimed to explore whether learners transfer any previously used LLS to the new target language, and to what extent they manage to use their previous language learning experience and knowledge in the new target language. As well as what kind of special LLSs do they use when learning Chinese as an L3/AL.

Interview implementation

The interviewees were recruited through snowball sampling and by contacting gatekeepers from various schools. The interview questions were designed based on the reviewed literature and research questions, and the implementation procedures received ethical approval from Trinity College Dublin. Three experts in the relevant research field reviewed the interview questions, two of them were the researcher's supervisors, and one was a colleague specialising in language acquisition research. The questions were revised based on their feedback before being conducted. A biographical information online sheet was sent to the interviewees to collect background information and evaluate their eligibility for the interview. Two pilot interviews were carried out to assess any oversights or missed considerations in the design. Following the two pilot interviews, several refinements were made to enhance the clarity and effectiveness of the interview questions. Firstly, the wording of certain questions was revised to ensure that participants could easily understand

them without requiring additional explanations. Efforts were made to minimise the use of technical terms and to simplify complex concepts, allowing interviewees to focus on sharing their language learning experiences easily rather than confused by research jargon. Secondly, the sequence of questions was adjusted to promote a more natural and coherent conversational flow, which facilitated a smoother interview process and encouraged richer responses. These adjustments ensured that the interviews would yield data more aligned with the study's aims, and helped establish a more participant-friendly and methodologically robust approach. Though the formal interview used questions with adjusted language and sequence, the two pilot interviews also provided valuable data to relevant questions. Therefore, they were included to the dataset in analysis. Both pilot and formal interviews were conducted through online video calls and recorded with participants' consent. Ultimately, 12 participants participated into the formal interview, together yielding about 20 hours of recorded data, which was subsequently transcribed. The analysis of the interview data was performed using NVivo version 12.

To ensure ethical integrity, the study received the ethical approval on 4th February 2022. Participants were provided with information leaflet and consent form (See Appendix VI and VII). They were informed that their participation in the study was entirely voluntary, and interviewees had the right to withdraw at any time without consequence. Informed consent was obtained through a secure online platform, Qualtrics, which complies with GDPR regulations. Interview recordings were securely stored on the researcher's encrypted local device, with identifiable information removed during transcription and pseudonymization applied to maintain confidentiality. The participants' personal information was replaced with pseudonyms, ensuring that their identities could not be directly linked to the data. The audio and video recordings will be permanently deleted 13 months after the completion of the thesis examination process, while pseudonymized data may be used in academic publications and conference presentations.

Interview questions

The semi-structured interview mainly includes the following questions, and further in-depth questions are asked based on the participants' responses.

1. Can you tell me what languages you know? How would you describe your background/proficiency in language a/b/c? How did you acquire those languages?
2. How do you feel about your experience learning a/b/c languages in school? Can you describe how you learned them?

3. Let us focus on your Chinese learning. When you are learning Chinese, do you compare it to the languages you know? Which parts do you compare? To which language? Do you think the experience of your previous language learning helps you understand the structure of Chinese? Do you think those experiences make you more confident in learning Chinese? Which language learning experience do you think is more helpful, and why?
4. A lot of people report using particular strategies when learning languages. What kind of strategies are you using when learning Chinese? I have some examples and questions for you, and please assess based on your own learning.
 - Metacognitive strategies: Do you set learning goals? Are they specific or broad? Long-term or short-term? How do you plan your study? Do you search for learning tools or materials by yourself? What kind of learning tools or materials do you think are useful? How do you stay focused when you are learning? Apart from school tests, do you assess your learning progress yourself?
 - Cognitive Strategies: How do you remember Chinese characters? How do you remember the sound of the words? Do you review lessons regularly? Do you use images, sounds, or words from the languages you know to help you remember? Have you tried to summarise some rules during your learning of Chinese? Have you tried to analyse some characters or sentences in terms of learning them? When you were learning a new word or sentence, did you try to relate it to some knowledge you already knew?
 - Affective Strategies: Have you ever had any negative feelings during your study of Chinese? How do you overcome those feelings? Do you encourage yourself?
 - Motivational Strategies: What are your motivations for learning Chinese? Do you think they are strong enough? How do you maintain your motivation?
 - Social Strategies: Have you ever tried to find opportunities to use Chinese language with someone in your daily life? How do you feel? Do you think it was helpful to practice? Will you keep finding those kinds of opportunities? When you were trying to communicate with people, how would you deal with situations where you don't understand or don't know how to express yourself? Do you ask for help when you have a question in learning Chinese? Who do you usually ask?

5. Could you give me some examples? Do you think there are some strategies that we discussed above that you never used in learning other languages, but you found helpful in learning Chinese? Can you think about why you use them in Chinese learning? If you are going to learn a new language, do you think you will use them?
6. Do you think you are satisfied with the strategies you are using in learning Chinese? If you have a chance to give some advice about learning strategies to a Chinese beginner, what are your suggestions?

Qualitative data analysis approach

This study employed a combination of framework analysis and thematic analysis to conduct a thorough and nuanced examination of the qualitative data. By combining these two analytical approaches, the study ensured a robust exploration of the research questions, balancing theory-driven inquiry with data-driven discovery.

The framework analysis was guided by Oxford's (2017) S²R Model (see Section 2.1.4), which provided a structured lens for categorising and analysing LLSs. Initially, the data were mapped onto the S²R model, following the five steps:

1. Familiarisation: Transcripts were read multiple times and annotated to note initial impressions.
2. Identifying a thematic framework: Initial codes were developed based on the S²R model's categories (cognitive, affective, metacognitive, and motivational strategies).
3. Indexing: Segments of data were coded and aligned with relevant S²R components using NVivo.
4. Charting: A matrix was constructed to compare participants' use of strategies across categories and learner profiles.
5. Mapping and interpretation: Emerging patterns were identified to highlight how multilingual learners employed or adapted strategies within the S²R framework.

This deductive approach allowed for the systematic organisation of the data and aligned the analysis with well-established theories in LLS research (Gale et al., 2013). By utilising the coding strategies outlined by Oxford (2011), each category was examined through the relevant tactics and strategy types.

Concurrently, thematic analysis was applied to identify patterns or themes that emerged inductively from the data. This process followed the six-step method proposed by Braun and Clarke (2006, 2021, p. 35):

1. Familiarisation: Interview transcripts were read and re-read to gain an in-depth understanding.
2. Initial coding: Using NVivo, open coding was conducted, allowing themes to emerge from the data without reference to pre-existing frameworks.
3. Searching for themes: Codes were grouped into candidate themes based on conceptual similarity.
4. Reviewing themes: Themes were refined through constant comparison and reviewed against the entire dataset for coherence.
5. Defining and naming themes: Each theme was defined clearly with illustrative quotes and analytical interpretation.
6. Writing up: The themes were written up in the findings chapters with supporting quotes from diverse participants to enhance trustworthiness.

The thematic analysis provided the flexibility to explore new insights that may not have been fully captured by the S²R model, ensuring that the analysis remained open to emerging data and novel findings.

While Oxford's (2017) S²R model was primarily based on L2 acquisition, as discussed in Chapter 2, it did not fully address the specificities of L3/AL learning. Therefore, as patterns emerged from the data, the thematic analysis was adapted accordingly. For instance, Oxford's motivational strategy set includes categories such as *Controlling Attribution*, *Enhancing Learning*, *Self-consequating*, *Using Defensive Pessimism*, and *Using Positive Self-talk and Positive Self-image*. However, an examination of the interview data revealed discrepancies between the model and participants' reported experiences. Specifically, strategies such as *Self-consequating* and *Controlling Attribution* were mentioned significantly less frequently by participants, and the use of *Defensive Pessimism* was not observed at all. Conversely, strategies related to positive self-talk and positive self-image were strongly present.

This prompted a reflexive reconsideration of the coding scheme. Consequently, three new themes were generated based on the participants' motivational strategies: *Identifying and Enhancing Intrinsic Motivation*, *Strengthening the Ought-to L2 Self*, and *Thinking about the Ideal L2 Self*. This adaptation ensured that the analytical framework remained dynamic, accurately reflecting the distinctive and context-specific characteristics of L3 learners'

motivational strategies, and clearly illustrating the reflexive, data-driven process underpinning thematic analysis.

The dual-analytic approach enabled both structured and emergent insights. Framework analysis provided alignment with the theoretical model, while thematic analysis facilitated deeper exploration of participants' nuanced and contextualised strategy use. This combination allowed for triangulation and flexibility in interpretation, accommodating both theory-driven and participant-led understandings.

To ensure transparency and minimise subjective bias in the selection of illustrative quotes presented in Chapter 5, I adopted a frequency-based mapping approach in the initial phase. However, drawing on Braun and Clarke's (2021; 2017) guidance on reflexive thematic analysis, I also selected quotes that vividly captured the nuances of each theme, including both representative and divergent perspectives. While some participants are cited a bit more frequently than others, this reflects the depth and relevance of their responses to the analytic focus rather than a bias in representation.

The subsequent sections presented the analysis and results concerning the cognitive, metacognitive, affective, motivational, and social strategies defined by the S²R model. Additionally, the findings were compared with the tactics described within the model to identify congruences or deviations, further contributing to our understanding of LLS use in L3/AL contexts.

3.3.2 Questionnaire Design and Implementation

The Construction of the LLS Questionnaire for Learning Chinese as a L3/AL

The construction of the LLS Questionnaire for Learning Chinese as a L3/AL (see Appendix III) is drafted from three sources. The first is Oxford's (2017) S²R model, the second is an empirical study based on interview data collected from learners studying Chinese as a L3/AL. The final part incorporates studies about LLS in the context of both L2 and L3 acquisition, along with motivation studies and self-regulation theories.

In Oxford's (2017) S²R model, four dimensions of strategic self-regulated learning are listed: the cognitive dimension, the motivational dimension, the affective dimension, and the social dimension. Each dimension contains two parts: the meta-strategy part and the strategy part. Thus, there are two layers of strategies. The upper layer consists of meta-strategies, which include meta-cognitive strategies, meta-motivational strategies, meta-affective strategies, and meta-social strategies. Oxford (ibid.) acknowledges that a learner

may use all the dimensions of the strategies to create a strategy chain or orchestrate the strategies.

This model has a profound theoretical foundation, creatively explaining that metacognition not only affects the cognitive dimension but also acts on other dimensions. However, in empirical interview research, it was found that this model cannot be perfectly applied to L3/AL learners. This is because it has been found that the characteristics of L3/AL make their language learning more autonomous. The metacognitive dimension should be one of the five dimensions, rather than a separate layer.

Based on the interview data, it was found that L3/AL learners may have more autonomous motivations rather than controlled motivations. The motivation may be generated from a positive cycle by the satisfaction of their basic psychological needs. These findings make the learning process more active and intrinsically enjoyable. This could be the original power that enables learners to use more strategies in each dimension. Despite this, the study proposed that all strategy dimensions interplay with each other and work together to meet the ultimate purpose of language learning, which is being able to communicate. The meaning of communication here is in a broader sense, including both synchronous communication such as engaging in conversations with other people, and asynchronous communication such as reading, listening or watching in the target language and reflecting afterward.

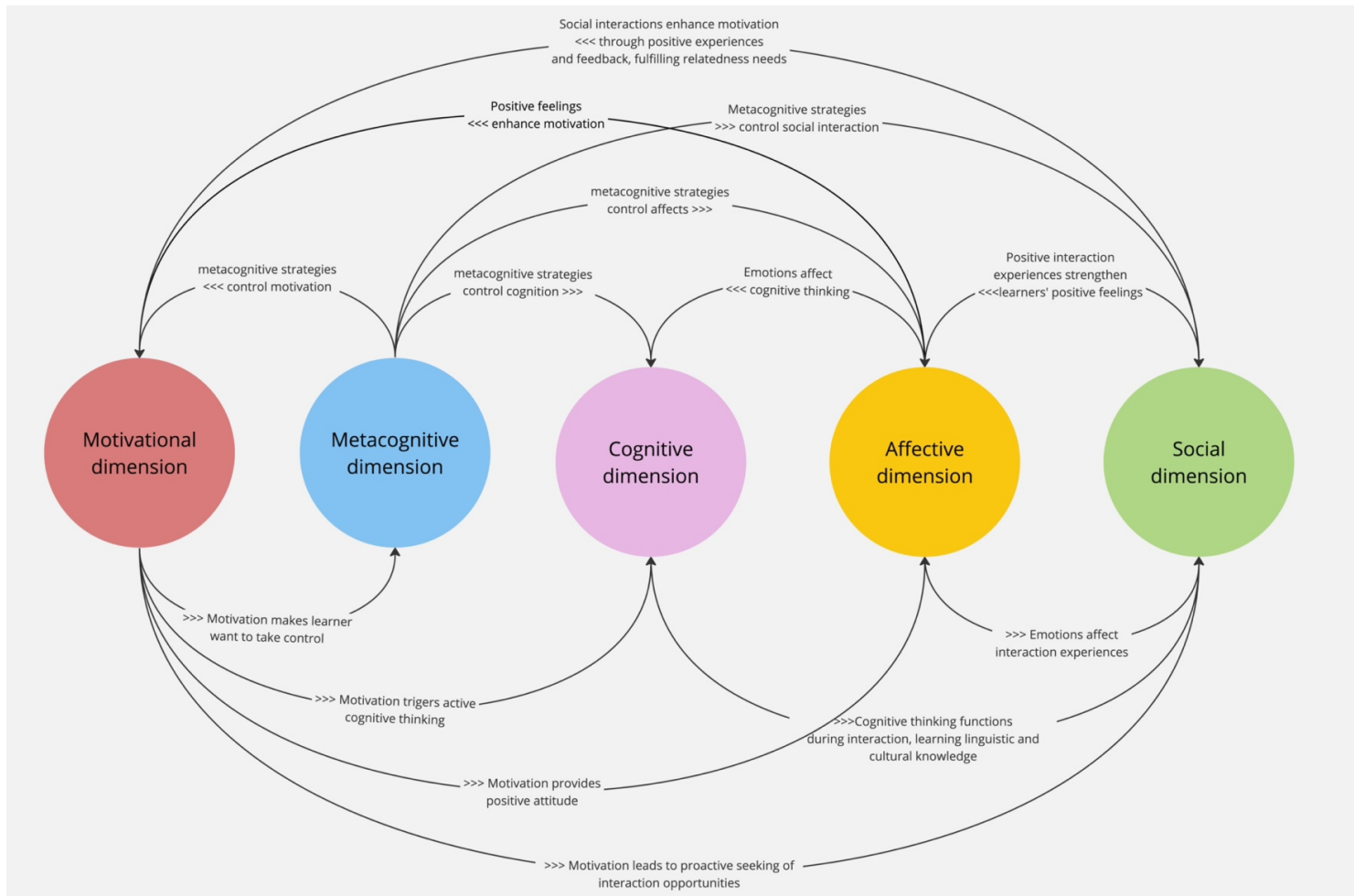
Figure 3.2 illustrates this concept more clearly. The Motivational and Metacognitive dimensions influence the rest of the dimensions. The former provides energy for active thinking and taking action, while the latter is responsible for control and management. There are also bidirectional influences between dimensions, forming loops such as the motivation-affection loop, motivation-metacognitive control loop, motivation-social interaction loop, social interaction-affection loop, etc.

Based on this concept, the questionnaire is divided into five parts, each containing several sub-dimensions (see Figure 3.3). These sub-dimensions were derived from interview data and discussed in the data analysis. The motivational dimension includes a) identifying and enhancing intrinsic motivation, b) contemplating the ideal L3/AL self, and c) strengthening the ought-to self. The Metacognitive dimension uses Oxford's four sub-dimensions: a) paying attention, b) planning, c) organising and obtaining resources, and d) monitoring and evaluating. The cognitive dimension has two parts: a) integrating all language learning experiences, and b) using cognitive tactics to learn Chinese. As interviews revealed learners often use more cognitive strategies in learning Chinese, especially characters, the

questionnaire aims to test this hypothesis. The affective dimension includes a) reducing stress, pressure, and anxiety, and b) maintaining overall calmness. The final social dimension contains a) interacting to learn and communicate, b) learning despite knowledge gaps in communicating, and c) dealing with sociocultural contexts and identities.

Figure 3.

The five dimensions of strategies interplays with each other.



The structure of the LLS Questionnaire for Learning Chinese as a L3/AL.



The Principles of Constructing the Items

A 5-point Likert scale was selected as the response format for the questionnaire to capture respondents' agreement or disagreement with statements regarding their LLS. The scale ranges from 1 to 5, representing "Strongly disagree," "Disagree," "Neutral," "Agree," and "Strongly agree." This choice was informed by literature highlighting cognitive load considerations; a 5-point scale helps minimise cognitive complexity, thereby enhancing response reliability (Preston & Colman, 2000; Weijters et al., 2010). Although scales with more points can offer finer granularity and potentially reduce central tendency bias (Dawes, 2008), the simpler structure of a 5-point scale balances analytical nuance and cognitive efficiency effectively (Revilla et al., 2014). Additionally, the inclusion of a neutral midpoint ("Neutral") allowed respondents to express genuine neutrality or ambivalence. It is an important option given the complexity and variability inherent in multilingual learners' experiences (Garland, 1991; Krosnick & Presser, 2010).

The formation of the questionnaire items is based on two principles. First, the items are general declarations or conditional relations. Second, the Occam's Razor principle is applied to ensure simplicity and clarity.

The first principle is that the items are general declarations or conditional relations focusing on general and prominent facets of the learning process, will not include specific behavioural items. This principle is drawn from the critique of SILL, which has been criticised for not forming a linear relationship between items, thus the accumulation of scores is not meaningful (Dörnyei & Ryan, 2015; Rose, 2012; Tseng et al., 2006).

The second principle is to make the statements as simple as possible. This principle is adopted from the Occam's Razor principle which suggests when given multiple explanations for a phenomenon, the simplest one is most likely the correct one. It encourages eliminating unnecessary assumptions or explanations. Thus, the items tend to use simple and natural language, make sentences as short and simple as possible. The items will also avoid using ambiguous words or expressions, and negative constructions to make sure every item is clear conveyed and not increasing cognitive burden to participants (Dörnyei, 2010).

60 items are chosen for the current questionnaire. These items have been carefully selected from a larger "item pool" which comprises of 90 items in total.

The Reliability and Validity Analysis

To ensure the robustness of the quantitative instrument employed in this study, both reliability and validity of the instrument are tested. Reliability and validity are foundational to the credibility of any educational research (Creswell & Creswell, 2017, p. 158). These tests are not only methodological requirements but also serve to affirm the trustworthiness of the data collected and the subsequent interpretations drawn from it.

Reliability refers to the consistency of a measure, its ability to yield the same results under consistent conditions. In this study, internal consistency reliability was assessed using Cronbach's alpha, which is widely regarded as a standard indicator for evaluating the coherence among items within each subscale of a questionnaire (Tavakol & Dennick, 2011). This was particularly important given the instrument was newly constructed. The Cronbach's alpha values obtained (see Section 5.3) provided empirical support for the reliability of the adapted instrument across strategy categories.

Validity, on the other hand, concerns the extent to which an instrument measures what it purports to measure. This study adopted a multi-dimensional approach to establish validity: Firstly, the content validity of the questionnaire was addressed through expert review. Reviewers were including the researcher's supervisors and three colleagues in the relevant research area. The process critically checks each question for its relevance, clarity, and comprehensibility (DeVellis & Thorpe, 2021, p. 81). It helped determine if the items in the questionnaire were relevant and representative of the concept it aimed to measure. The reviewers' feedback was referenced for refining the questions and ensuring they accurately captured the dimensions of the theoretical framework.

Secondly, a pilot survey was conducted for face validity with two participants. The purpose of this step was to refine and streamline the questionnaire based on the responses and feedback from the authentic target group (Nevo, 1985). The participants' responses provided insights into how the questions were interpreted and answered, which were invaluable in refining the questionnaire to improve its clarity and effectiveness. The result of the pilot survey lead to an added multi-choice question in the questionnaire to collect participants Chinese learning tactics.

Finally, to ensure the construct validity an Exploratory Factor Analysis (EFA) was conducted using SPSS. EFA is a statistical technique used to identify underlying relationships between measured variables (Costello & Osborne, 2005; Schreiber, 2021). Due to the limited target population, conducting a Confirmatory Factor Analysis (CFA) would have been problematic. Thus, EFA served as an alternative method to gain insight

into the questionnaire's structure. This step was crucial in ensuring that the questionnaire accurately captured and measured its intended concept. The result of the EFA test is presented in Chapter 5, Section 5.6.

The validity and reliability tests were designed to ensure that the questionnaire was a robust tool for measuring language learning strategies. It was a rigorous process that helped ensure the reliability and validity of the questionnaire, thereby enhancing the quality and credibility of the research findings.

Questionnaire Collection

The LLS Questionnaire for Learning Chinese as a L3/AL was conducted through Qualtrics, a professional online survey platform that protects respondents' information in accordance with General Data Protection Regulation (GDPR). To avoid bias and ensure the quality of the data, the items were presented in a randomised way.

The questionnaire collection period ran from April 2024 to May 2024. All third-level institutions offering Chinese language courses in Ireland were contacted, and the questionnaire was sent to gatekeepers for distribution to target groups. Ultimately, responses were received from 10 institutes, totalling 115 responses.

Quantitative data analysis approaches

The quantitative analysis in this study follows a structured process, beginning with data collection through a carefully designed questionnaire that was administered via the Qualtrics platform. The survey received 115 responses. Prior to statistical analysis, a data cleaning process was undertaken to ensure the quality and validity of the dataset. This involved multiple screening steps in line with best practices in quantitative research. First, 18 responses were excluded due to missing or incomplete data across key survey items, as partial responses can compromise the reliability of analyses and violate assumptions of many statistical tests (Tabachnick & Fidell, 2013, pp. 71, 93). Next, response time was examined, and 4 cases completed in under 300 seconds were removed. As the survey included multiple multi-item scales requiring reflection, such short completion times raised concerns about satisficing or random ticking, which are associated with reduced data quality (Meade & Craig, 2012). Additionally, 3 respondents who self-identified as non-Chinese language learners were excluded, as they fell outside the target population and would distort the specificity of the study's focus.

Beyond these initial exclusions, the dataset was also screened for straight-lining (i.e., identical answers across multiple Likert items), excessively patterned responses, and outliers using standardised z-scores and boxplots; however, no further anomalies were detected. These cleaning procedures ensured that only complete, thoughtful, and contextually relevant responses were included in the final dataset of 90 cases, enhancing both the internal validity and interpretability of the results.

The quantitative data analysis was conducted using SPSS version 29, applying several statistical methods to examine relationships between variables. Descriptive statistics, such as mean, standard deviation, and frequency distribution, were calculated to provide a general overview of the use of LLS within the sample. To assess whether the data followed a normal distribution, the Shapiro-Wilk test was conducted. The reliability of the scale and its constructs was tested using Cronbach's Alpha, ensuring the internal consistency of the measurement tools. EFA was employed to investigate the underlying structure of the questionnaire items, determining whether they formed distinct factors or dimensions of LLS. Finally, correlation analysis was conducted based on the results of the normality test. If the data were normally distributed, Pearson's Correlation was used; for non-normally distributed data, the Mann-Whitney U test was applied to assess relationships between variables.

This quantitative approach provides a robust foundation for exploring the LLS of multilingual learners

3.4 Sample Population

The target group of this research is third-level students in Ireland who are learning Chinese. A rough estimate of the target population is around 300 undergraduates and a small number of postgraduate students. As mentioned in the previous chapter, learners of Chinese language in Irish universities can be divided into three groups: local Irish students, Chinese heritage students (Irish nationality), and international exchange students. The study will focus on two groups, local Irish students and European exchange students, because they have similar backgrounds in learning Chinese language. The local Irish students may come from two language backgrounds; the majority would have English as L1 and Irish as L2 (to varying degrees of proficiency). English and Irish are both official languages in Ireland; most students are required to learn Irish in their primary and post-primary schools. The DES statistics report showed that there was a significant number of students, 29,100, who passed a higher level of Irish language test in the Leaving Certificate examination in 2015

(Ní Mhurchú & Shindo, 2016). In most of the schools, students are also required to learn another second language in post-primary school; thus, Chinese would be their additional language.

Meanwhile, there is a small possibility that the learner would have Irish as their L1 and English as their L2 or second L1. According to the 2011 Census, there are 1,774,437 persons are Irish speakers across the state, however, only 17,000 people lived in strongly Irish-speaking communities, about 10,000 people lived in areas where there was substantial use of Irish (Central Statistics Office, 2016). Thus, compared with English L1 and Irish L2 learners, it is probably hard to find many of those who have Irish L2 and English L2 learners who are learning Chinese in the university, in this case, the scope of the Irish native speaker learning a L3/AL will not be limited to Chinese.

The international exchange students are from different countries, most of them have their own mother tongue and learned English as their second language, so Chinese would be their L3/AL. However, the number of this group won't be as large as the Irish student group, because the places for exchange students are limited each year.

Learners in all year groups will be covered in this study. The reason for choosing all grades is because each grade will provide distinctive valuable information, for instance, the first-grade learner would be easier to recall their previous LLS used in post-primary school. Since the time limitation, this study would be hard to adopt a longitudinal approach, the differentiation of the learning duration may be a compensation to provide information of its influence on LLS use. Besides, the learning duration relates to the target language proficiency, it will be investigated to answer the research question 1.2. The proficiency levels of the learners' Irish will be considered as well. The Irish language proficiency will be measured by self-statement as well as a standard test. The variety of the proficiency levels will provide the possibility for the study to look at how could the L2 proficiency level influence the using of the L3 learning strategies.

The international exchange group and native Irish group will be set as two comparison groups to compare with the Irish L2 group, to investigate whether English as a first language would influence learner's self-regulation level and LLS use.

3.4.1 Qualitative study Participants

Ultimately, 14 participants were recruited for the interview (including pilots). The sample size of 14 participants was determined based on the principle of data saturation, a widely used criterion in qualitative research to establish adequacy (Guest et al., 2006). Saturation

was achieved after approximately 12 interviews, with no new themes emerging from the data. Two additional interviews were conducted to ensure thematic completeness. The sample included participants with varied linguistic backgrounds and learning experiences, which enhanced the representativeness and richness of the dataset. The participant's personal information is eliminated, and the data was pseudonymised. They were either current or former students from various Irish universities and were multilingual learners studying Chinese as an additional language. During the interviews, participants were given the option to choose their preferred language, English or Chinese, resulting in three participants opting to use Chinese. This choice serves as an indication of their proficiency in the language. Table 4.1 provides an overview of the participants' language profiles, with all names represented by pseudonyms.

Table 3.1*Interview participants' language profile.*

Pseudonym	Gender	Status	L1	L2, proficiency^a	L3, proficiency	L4, proficiency	LN, proficiency
Adam	M	Graduated	English	Irish, C2	Spanish, B2	Chinese, C1	
Bill	M	Graduated	French	English, C1	German, B1	Chinese, C1	
Charles	M	Graduated	German	English, C2	Latin ^b , A1	Spanish, C1	Korean, A1
					Italian, B1	Russian, C2	
					French, C1	Chinese, C2	
Daisy	F	Graduated	English	Irish, A1	French, A2	Chinese, B2	
Daniel	M	Second year undergraduate	English	Spanish, B2	French, A1	Chinese, A1	
Evan	M	Graduated	English	Irish, B1	Spanish, A1	Latin, A1	Chinese, B2
Frank	M	First year undergraduate	English	Irish, C1	French, B1	Japanese, A1	Chinese, A2
George	M	Second year undergraduate	English	Irish, A2	German, A1	French, A1	Chinese, B1
Henry	M	Second year undergraduate	English	Irish, A2	Latin, B2	French, A2	Japanese, B1
							Chinese, B1
Iris	F	Fourth year undergraduate	English	Irish, B1	French, B2	Korean, A1	Chinese, B2
Jane	F	First year undergraduate	English, A Chinese dialect ^c	Irish, B1	French, B1	Chinese, B1	
Kate	F	Fourth year undergraduate	English	Irish, B1	French, B1	Chinese, B2	

Pseudonym	Gender	Status	L1	L2, proficiency^a	L3, proficiency	L4, proficiency	LN, proficiency
Lisa	F	Second year undergraduate	English, A south-east African language ^d	Irish, B2	French, B1	Chinese, A2	
Nadia	F	Second year undergraduate	second year	Irish, B2	Spanish, B1	Chinese, A2	

Note. The information in this table was collected from the pre-interview online sheet and the interviews to illustrate the basic information and language background of the interview participants.

a. The proficiency levels are self-reported levels. Participants were provided with the CEFR Common Reference Levels Self-Assessment Grid.

b. This participant started learning several languages almost at the same time. Thus, the languages are grouped based on his learning timeline.

c. This is the participant's heritage language, and it haven't reached a very high level. To protect the participant's personal information, the specific language is replaced by "a Chinese dialect".

d. This is the participant's heritage language, and it hasn't reached a very high level. To protect participant's personal information, the specific language is replaced by "a south-east African language".

3.4.2 Quantitative study participants

The survey was conducted over a two-month period, from April to May 2024, using the Qualtrics online survey platform. A total of 115 responses were initially collected. However, the data cleaning process resulted in a final sample of 90 valid and complete responses. Although this number was slightly lower than the original count, it was deemed sufficient for the analyses undertaken. In line with methodological guidance for correlational studies, a sample size approaching 100 is generally considered adequate to detect medium effect sizes with a statistical power of .80 (Tabachnick & Fidell, 2013, pp. 123–124). Moreover, given that the estimated total number of learners studying Chinese in post-primary and higher education institutions in Ireland is approximately 300–350, this sample constitutes a substantial proportion of the population. According to (Cohen et al., 2018, pp. 222–223), a sample representing 25–30% of a small, clearly defined population can be considered robust in educational research. The retained sample also reflected diverse multilingual learner backgrounds and was considered representative of the Chinese language learning population in the Irish educational context, thereby supporting the reliability and relevance of the findings. This section will present the biographical and language background of the survey respondents. It will include details such as gender, age, grade, institute, and language repertoire.

(a) Gender

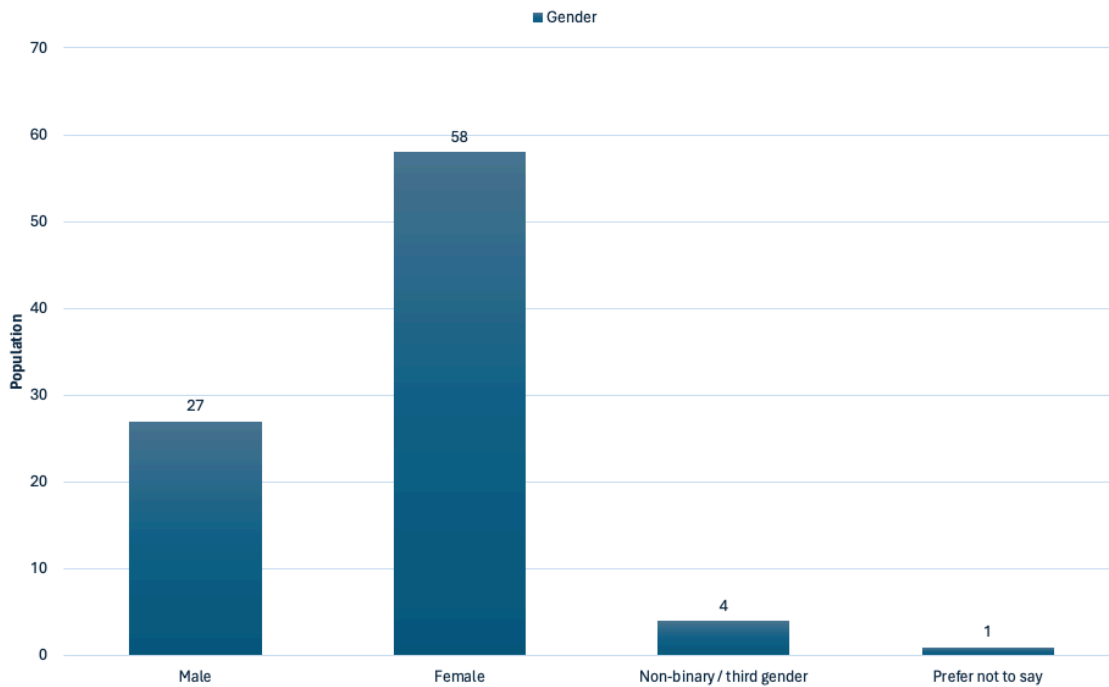
The gender distribution of participants in the survey shows that the majority identify as female (58 participants), followed by male (27 participants) (see Figure 3.4). Additionally, there are 4 participants who identify as non-binary or third gender, and 1 participant who prefers not to disclose their gender.

(b) Age

The participants are all university students, most of them age between 18 to 24 ($n=83$), a few of them are between 25 to 44 ($n=7$).

Figure 3.3

Gender distribution



(c) Grade

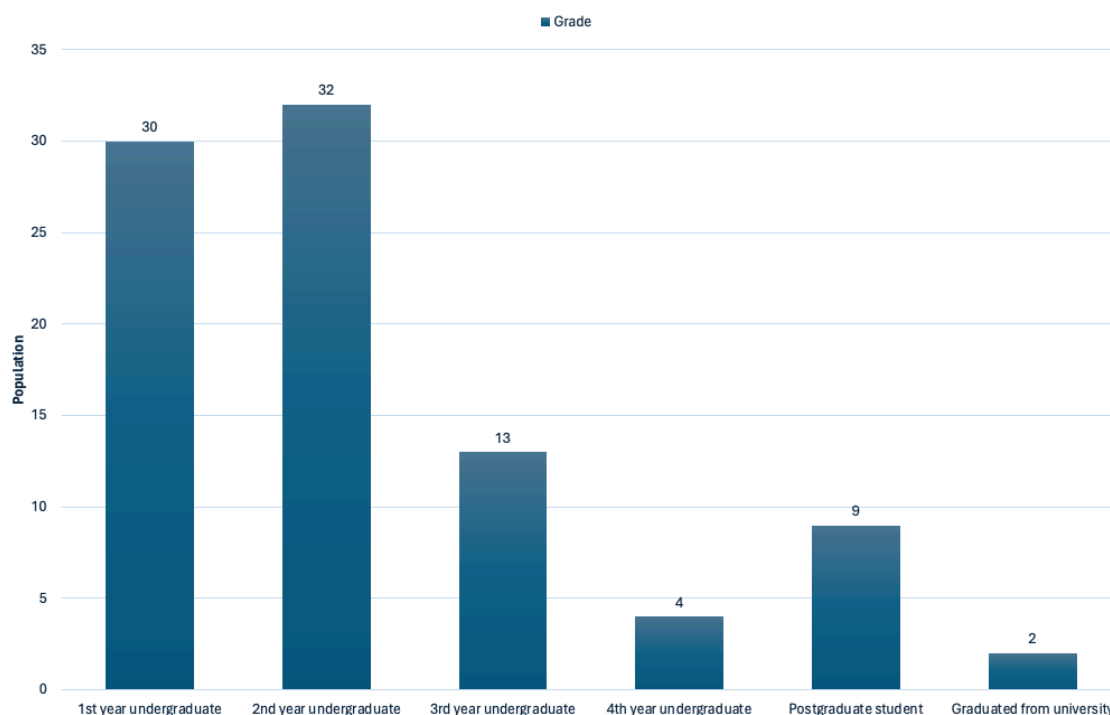
Figure 3.5 illustrates the grade levels of the survey participants. Most respondents are in their first and second year of undergraduate studies, with 30 participants in the first year and 32 in the second year. Higher grade learners constitute a smaller group, with 13 participants in the third year, 4 in the fourth year, and 9 postgraduates. Additionally, two participants have already graduated from university.

(d) Institutes

The participants come from eight third-level educational institutions in the Republic of Ireland and one from Northern Ireland. These institutes including Trinity College Dublin, University College Cork, University College Dublin, Maynooth University, Dublin City University, Technological University Dublin, Southeast Technological University, Dundalk Institute of Technology, and Queen's University Belfast. Approximately 81% of the participants are from Trinity College Dublin, University College Cork, and University College Dublin.

Figure 3.4

Grade distribution



(e) Participants' language background

The participants in the survey speak at least three languages. One participant, who speaks nine languages, knows the most languages in the group. However, the majority of participants speak five languages (see Figure 3.6).

As shown in Figure 3.7, participants reported speaking a total of 34 languages. These include English, Chinese, Irish, French, German, Spanish, Japanese, Korean, Italian, Russian, Latin, Polish, Portuguese, Lithuanian, Arabic, Romanian, Khmer, Slovak, Czech, Fuqing Dialect, Urdu, Cantonese, Igbo, Hungarian, Vietnamese, Runyankole, Rutoore, Ukrainian, Thai, Norwegian, Catalan, Malay, Irish Sign Language, and Swedish. All participants speak English, with 69 of them identifying it as their first language. All participants also speak Chinese as a third or additional language. Five participants are Chinese heritage learners (including Fuqing Dialect and Cantonese speakers), but their Chinese proficiencies have not yet achieved a very high level. Irish is spoken by 53 participants, with two of them being highly proficient native speakers. French is spoken by 44 participants, with five being native speakers. The "other" category in Figure 4 comprises 15 languages, each spoken by one participant.

Figure 3.5

Number of languages spoken by participants.

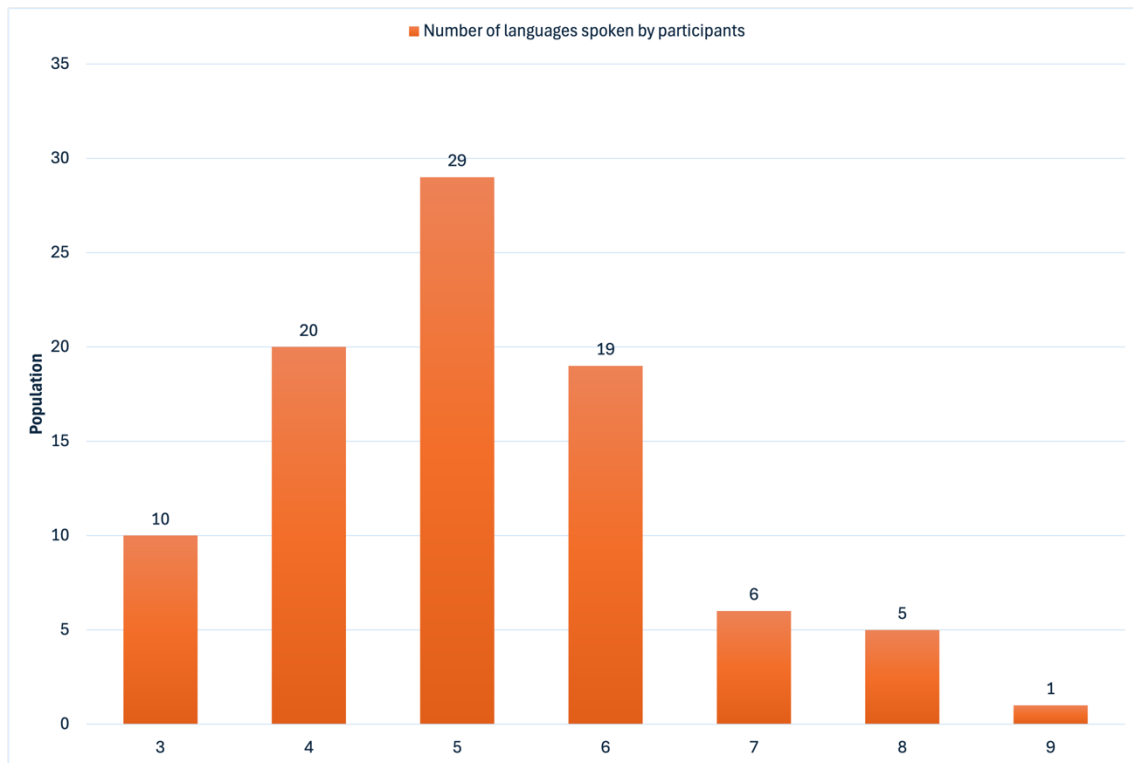
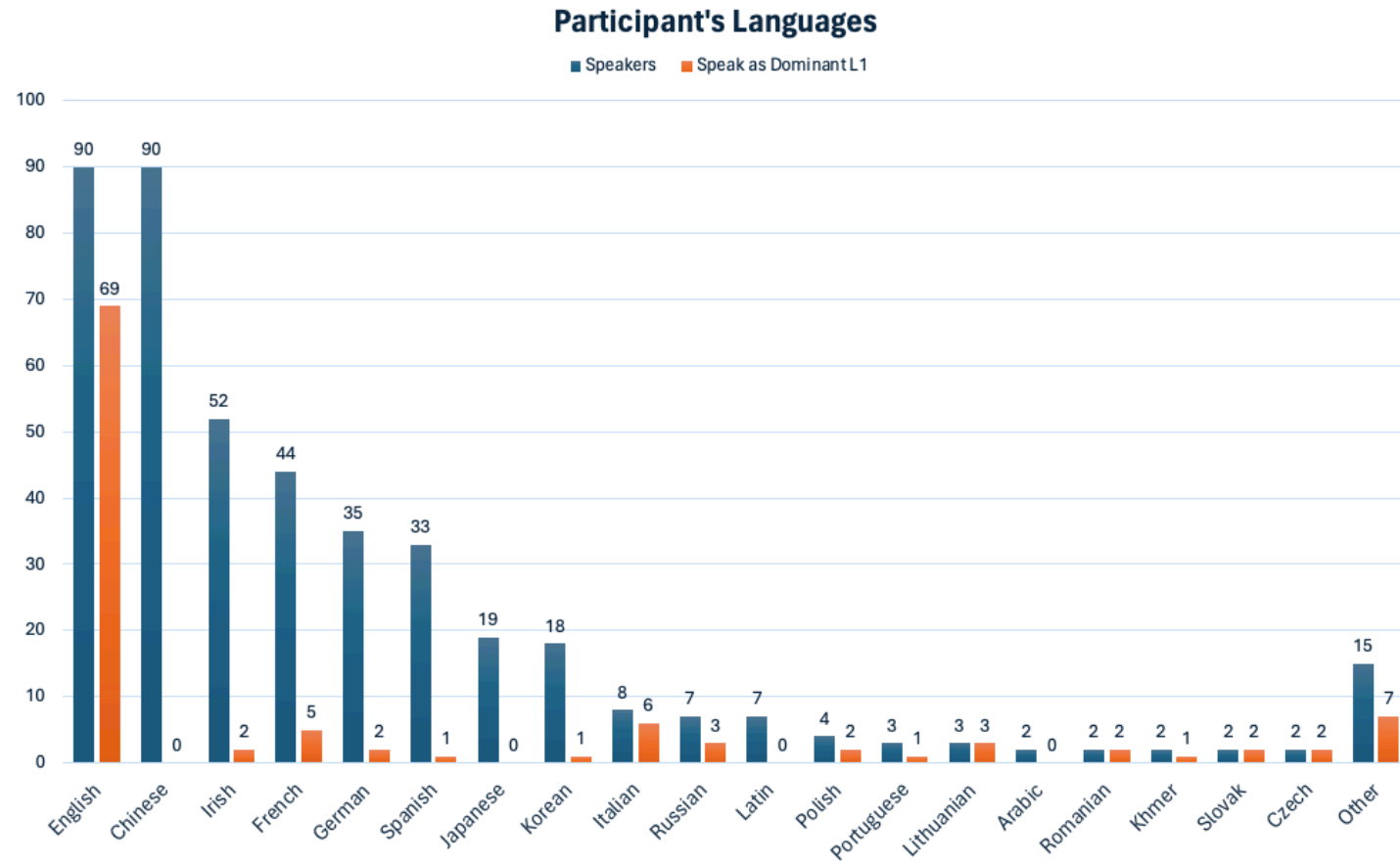


Figure 3.6

Participants' language repertoire

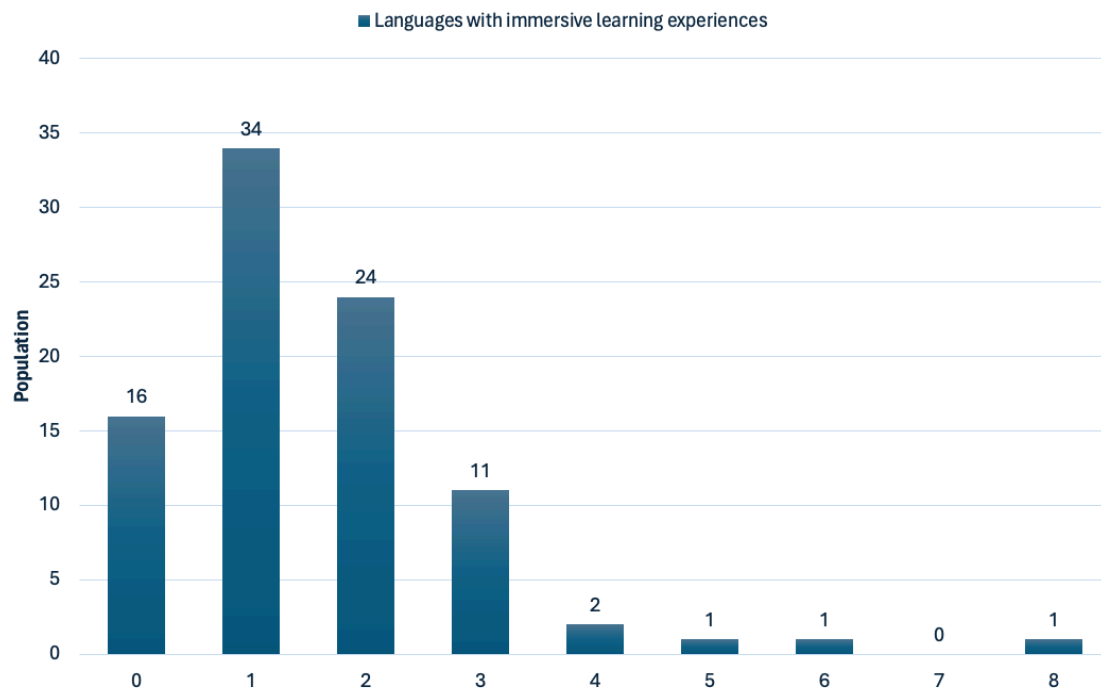


Note. “Other” languages including 15 languages, whereas 7 of them are spoken as dominant L1 by the speaker. Each of the language has one speaker.

The questionnaire also collected data on participants' immersive language learning experiences. As illustrated in Figure 3.8, 34 participants have immersive experience with one language, 24 with two languages, and 11 with three languages. Meanwhile, 16 participants reported no immersive language learning experience.

Figure 3.7 Number of languages learned with immersive learning experience

Number of languages learned with immersive learning experience



The second part of the questionnaire contains 60 items 5-degree Likert scale, and a multi choice question with 25 options. The Likert scale consist by questions from 5 dimensions, including motivational strategy, metacognitive strategy, cognitive strategy, affective strategy and social strategy, each dimension contains 2-4 sub-dimensions (see appendix II). The multi-choice question are 25 behaviours or particular tactics that could be used in learning Chinese language. These tactics are extracted from the interview data and the previous studies (Dmitrenko, 2019; Kemp, 2007; Oxford, 1990). All 90 respondents are fully completed the Likert scale, 88 of them completed the multi-choice question. The questionnaire aims to test what kind of strategies are employed by the target multilingual group when learning Chinese language as a L3/AL.

3.5 Potential Biases and Data Collection Challenges

This section presents a reflexive account of the research process, highlighting the researcher's positionality, potential sources of bias in data collection, and the challenges encountered during fieldwork. These reflections are grounded in the understanding that research is inevitably shaped by the researcher's experiences, perspectives, and methodological choices (Berger, 2015; Finlay, 2002).

3.5.1 Potential Biases

While the mixed methods design generated a rich and multifaceted dataset, several potential methodological limitations still need consideration. The use of self-reported data in both the questionnaire and interviews raises the possibility of recall bias and social desirability bias (Dörnyei, 2007; Tourangeau & Yan, 2007). These limitations are particularly noticeable when investigating less tangible aspects of language learning, such as affective and metacognitive strategies, where participants may unintentionally over- or under-report their behaviours (Tseng et al., 2006). Although care was taken in the phrasing of interview questions and in engage with the participants, the researcher's presence may have unintentionally influenced the responses. Additionally, while the S²R model offered a useful theoretical framework, its original design for L2 contexts required adaptation to accommodate the specificities of L3/AL learning. The reliance on thematic and framework analysis further introduced a degree of interpretive subjectivity, as meaning-making was inevitably filtered through the researcher's lens.

To address these concerns, a number of strategies were implemented to enhance the rigour and trustworthiness of the findings. Participants were assured that their contributions would be treated with strict confidentiality and pseudonymised in all reporting. They were encouraged to respond openly, with an emphasis on honesty and the absence of 'correct' answers. Questionnaire items were carefully constructed to avoid evaluative language, while interviews were conducted with a neutral, non-directive tone to minimise interviewer influence. Triangulation between quantitative and qualitative strands enabled cross-validation of emerging themes, while regular supervisory feedback and peer debriefing contributed to the refinement of interpretations.

Importantly, the researcher's own multilingual background and transnational educational experiences, rather than being treated as a source of contamination, were understood as a resource that contributed positively to the depth and sensitivity of data interpretation. In

line with Consoli's (2022) concept of life capital, such experiences were recognised as epistemic assets that supported empathetic engagement with participants. This position echoes Sultana's (2007) argument that researchers' identities can facilitate relational proximity and deeper insight in intercultural research, and it also aligns with Bourke's (2014) view that acknowledging subjectivity is not a weakness but a means of enhancing transparency and reflexivity in qualitative inquiry.

3.5.2 Data Collection Challenges

The data collection process of this study was conducted during the COVID-19 pandemic, which inevitably led to a series of unforeseen difficulties that impacted both the scope and practical execution of the research. Beyond the immediate logistical challenges, such as school close down, restricts to access to library, and the sudden shift to online learning, the pandemic also influenced the size and composition of the target population. At the project's outset, it was estimated that between 600 and 650 students were enrolled in Chinese language programmes across the selected institutions. However, pandemic-related travel restrictions and broader uncertainty led to a notable decline in the program enrolments of the Chinese language courses, as the students would assume that they won't have chance for international exchange. This demographic contraction posed challenges for participant recruitment and reduced the diversity and representativeness of the sample.

Moreover, the psychological impact of the pandemic, including increased stress, cognitive fatigue, and shifting learning priorities, may have further influenced participants' engagement with both language learning and the research process. These circumstances necessitated continuous adaptation of recruitment strategies and timelines, along with a flexible and empathetic approach to data collection. The study remained attentive to participants' emotional wellbeing and broader contextual pressures, acknowledging that their experiences were shaped not only by educational settings but also by the unexpected global crisis.

3.6 Conclusion

This chapter outlined the research methodology designed for this study. Firstly, the research aims and research questions were presented. Secondly, a range of quantitative and qualitative approaches were introduced and discussed; the discussion showed that a mixed-methods design would be suitable for this study. Thirdly, the population sample and instrument design were described, along with the theoretical foundations and frameworks

that informed them. The study was carried out in two phases: the first phase comprised a pilot semi-structured interview with selected participants; the second phase involved a national questionnaire aimed at gathering data on learners' strategy use in learning L2 and L3/AL. Finally, the process of instrument design and implementation was elaborated in detail. This process involved careful design, incorporated expert feedback, included piloting stages and refinement, and was conducted with meticulous care. Potential biases and contextual challenges, including those introduced by the COVID-19 pandemic and the researcher's own positionality, were acknowledged and addressed to enhance the study's rigour and transparency. The next two chapters will report the results and findings that emerged from the interview data and the questionnaire.

Chapter 4 Qualitative Study Findings

4.1 Introduction

This chapter presents the qualitative findings of the interviews, which aimed to explore the learning strategies employed by multilingual learners studying Chinese as a L3/AL in Ireland. The research focuses on five key dimensions of language learning strategies: cognitive, metacognitive, affective, motivational, and social strategies. These strategies are crucial in understanding how learners navigate the complexities of acquiring Chinese a language typologically distant from most of their previous languages, especially in a multilingual context.

The qualitative data were gathered through semi-structured interviews with 14 participants, all of whom were either current or former students from various Irish universities. These participants were multilingual learners with different levels of proficiency in Chinese and other languages, adding depth to the exploration of their strategy use. The interviews, conducted in either English or Chinese (language chosen by the interviewee), provided rich insights into the learners' cognitive and metacognitive processes, emotional responses, motivations and social interactions related to language learning.

The analysis utilised a dual approach, combining framework analysis based on Oxford's S²R model (2011, 2017) with thematic analysis following Braun and Clarke's (2021, p. 4) methodology. This approach allowed the study to systematically categorise strategies while remaining open to new patterns that emerged from the data. Importantly, the framework was adapted to reflect the specificities of L3/AL learning, ensuring that the strategies identified were relevant to the learners' multilingual contexts.

In the following sections, the findings are presented across the five strategy dimensions, offering detailed descriptions of how the participants used strategies to learn Chinese as a target language, plan their learning, manage emotions, maintain motivation, and interact socially to enhance their Chinese language proficiency. Furthermore, the findings will be contextualised within the broader literature on language learning strategies, providing a

comparison with existing models and highlighting any deviations that are unique to the L3/AL context.

4.2 Cognitive strategies

Cognitive strategies are a set of approaches that learners use to solve problems in language learning. As mentioned in section 2.1.4, in the S²R model (Oxford, 2017, p. 171), there are six strategies listed under cognitive strategies: *Activating knowledge*, *Conceptualising broadly*, *Conceptualising with details*, *Going beyond the immediate data*, *Using reasoning*, and *Using the senses to understand and remember* (see Table 2.4 in Chapter 2). This section provides a detailed analysis of the cognitive strategies emerged from the interview data.

4.2.1 Activating Knowledge

As discussed in section 2.1.4, *Activating Knowledge* is a process that helps learners use their existing knowledge to conceptualise, understand, or remember newly acquired information in language learning. From a constructivist perspective, learning involves not about passively receiving information but actively constructing one's own knowledge. In the interviews, 26 occurrences in 13 interview transcripts were identified regarding *Activating Knowledge*. A thematic analysis was employed to analyse these occurrences. Instead of using the three tactics listed in Oxford's model, *Brainstorming*, *using visual images*, and *Using information-internalising in reverse*, which primarily describe how knowledge is activated, this study focused on capturing the distinct characteristics of Mandarin Chinese learners and multilingual learners that emerged during the data coding process.

Based on the data, the occurrences were categorised into six tactics groups (see Table 4.2). As illustrated in Table 4.2, the most frequently mentioned tactic was *Activating knowledge of situations where new words or sentences can be used*. This corresponds to a form of brainstorming align with Oxford's list of tactics. The more consciously one engages with the language, the more likely it is to be retained. The next most common tactics were *activating knowledge of similar structures or vocabulary with similar sounds* and *activating knowledge of other languages*. These two tactics sometimes overlapped. For multilingual learners, similar-sounding words do not necessarily originate from one language. For instance, Bill, a French native speaker with English as a second language, noted that the Chinese word "柠檬 níngméng" resembles the English word "lemon," which

aided his memory it firmly (the French equivalent is "citron"). A comparable experience was reported in Charles's comment about Lithuanian:

Charles: If you know Russian, you will find that the vocabulary and grammar structure and morphology are quite similar (with Lithuanian). So, I think it is helpful, if you have some linguistic foundation, it is helpful for learning a new language, and you will have more resources to dig into.

Table 4.1

Tactics and Occurrences of the Activating Knowledge Strategy

	Tactics	Occurrences
Activating knowledge (26 occurrences in 13 interviews)	Activate general knowledge (not about language) that one has learned before	2 occurrences in 2 interviews
	Activate knowledge of similar structures or vocabulary with similar sounds	8 occurrences in 6 interviews
	Activate knowledge of other languages	6 occurrences in 6 interviews
	When learning a new character, the learner activates knowledge of the radicals or symbols with which they are familiar	4 occurrences in 4 interviews
	When learning new words or sentences, the learner activates knowledge of situations in which they can use them	8 occurrences in 7 interviews
	When learning new words, the learner activates knowledge of other words that contain the same character/s	4 occurrences in 4 interviews

When learning a new character, learners often *activate knowledge of the radicals or symbols*. Similarly, when acquiring new vocabulary, they may *activate knowledge of other words that contain the same character/s* (see Lisa's example). These two tactics exemplify the strategy "*using visual images to activate knowledge*." This approach is particularly effective for learning Mandarin Chinese, given that its writing system is ideographic and thus more pictorial than alphabetic scripts. Participants frequently reported grasping new

characters by drawing on their knowledge of commonly encountered radicals or symbols or characters embedded in other known words. This process relies heavily on visual cognition.

Lisa: There are two words, and one can mean this and the other can mean that. You can also see those characters in different words. So what I do is I'll look at the characters, and then I'll try to recognise them in different words. OK? For example, that's the character "气 (air)" for "不客气(you are welcome)" you know? So I know this word is "不客气" then, that's "气 (air)" for "天气(weather)", or so like. what I'll do is I'll try to recognize them (the characters) and spot them from other words, you know?

Chen (2019) introduced the concept of *grapho-morphological awareness* of Chinese Characters, which refers to the synthetic visuoperceptual and cognitive understanding that individuals develop in relation to Chinese script. Using relationship networking theory, Chen explained how the recognition of characters activates visual perception, thereby highlighting the role on the visual engagement during the process of learning Chinese characters.

In addition to engaging the visual sense, activating auditory knowledge also plays a significant role in the language learning process. Language inherently contains sound information, and the pronunciation of the target language can help learners activate phonetic knowledge from other languages. In Chinese, it is particularly important to distinguish between homophonic, as the language contains many this kind of words. Tone, is one means of differentiation, while context provides another. A large number of Chinese characters are compound characters (Sung & Wu, 2011; Zhu, 1987), typically composed of two parts: the radical, which conveys meaning, and the phonetic component, which reference the sound. When learners can recognise the phonetic component, they are most likely to deduce the pronunciation of the character. It is therefore unsurprising that many students mentioned using this tactic.

The findings related to *Activating Knowledge* align strongly with Schema Theory (Bartlett, 1932; Piaget, 1952), highlighting the active role of multilingual learners in utilising and adapting their pre-existing schemas. For instance, participants reported consciously drawing on phonetic and semantic similarities across languages, demonstrating active assimilation. At times, however, the distinctive orthography and semantics of Chinese

necessitated significant accommodation, altering their existing schemas to integrate new linguistic structures.

Strategies are often employed in conjunction rather than in isolation (Cenoz, 2013; Jessner, 2008; Oxford, 1996). For example, before activating knowledge of radicals or symbols, learners must first decode and analyse the new character they encounter – an example of *Conceptualising with Details*. Similarly, after activating knowledge of similar structures or phonetically similar vocabulary, or other words containing the same character(s), learners may need to differentiate or synthesise these elements. These processes align with the strategy of *Conceptualising with Details* or *Conceptualising Broadly*, which will be discussed in the following section.

4.2.2 Conceptualising Broadly

Conceptualising Broadly is a cognitive strategy that involves integrating information together, such as through summarising or synthesising. While *Conceptualising with Details* refers to the process of breaking information down into components, such as through analysing, highlighting important aspects, prioritising, and similar cations. Conceptualising represents a fundamental cognitive process in language learning, contributing to the comprehension of grammar, vocabulary, and broader linguistic concepts. These strategies are also associated with the higher-order psychological functions identified by Vygotsky (1980).

Table 4.2

Tactics and Occurrences of the Conceptualising Broadly Strategy

	Tactics	Occurrences
Conceptualising Broadly (27 occurrences in 12 interviews)	Synthesising across several sources	7 occurrences in 5 interviews
	Summarising/getting the gist	8 occurrences in 8 interviews
	Combining linking similar things	11 occurrences in 5 interviews

The three tactics of *Conceptualising Broadly* identified by Oxford (2011) - *Synthesising across several sources*, *Summarising/getting the gist*, and *Combining linking similar things* – were all observed in the interview data. *Synthesising across several sources* involves

drawing insights from different materials or origins. Participants appeared to use this tactic not only to conceptualise linguistic knowledge, such as vocabulary, grammar, or syntactic structure, but also to understand the sentence level, within broader contextual frames. Multilingual participants often synthesised across multiple languages, as illustrated below.

Kate: And the French is also helpful, considering a lot of the vocab is kind of similar to English. Just, you know, the verbs and vocab sound the same. So that is helpful too.”

In addition to synthesising linguistic knowledge, individuals also develop and refine their own learning styles and methods through the experience of acquiring multiple languages. As their language learning progresses, the process of "how do I learn" becomes increasingly explicit. This observation aligns with Hufeisen's (2000) assertion that L3/AL learners tend to be more competent, as they are able to draw upon their prior experiences in learning a new language.

Evan: So when I was learning Chinese and when I speak Chinese, I do not really translate word for word in my head either, you know, I kind of speaking... I know the phrase, if you know what I mean, I say the phrase. And maybe that is the same as I did when I was studying Irish, you know, I wasn't translating word for word.

Synthesising across several sources is a tactic that highlights the strategic use of available resources. Multilingual learners clearly have access to a broader repertoire of linguistic knowledge and language learning experience, which they draw upon during the learning process.

Summarising/getting the gist was the most frequently mentioned of the three tactics, appearing in six out of thirteen interviews. Participants reported using this tactic to summarise grammar rules, to extract the general meaning of a sentence without necessarily understanding every individual word, and to reflect on the difficulties they had encountered. One example is provided by Henry, who shared his experiences of learning Japanese and Chinese, reflecting the use of both tactics.

Henry: (Japanese) So it really becomes you can... just whatever your subject is, just throw は after it. (summarise the grammar rule)

Henry: (Chinese) Then I would test myself, can I, you know, make the sentence with that structure that I can't review. Because oftentimes you can get tricked up with the word order and stuff. (summarise the difficulties)

The tactic *Combining/Linking Similar Things* was reported by three participants, primarily in the context of vocabulary learning. Learners described linking words with similar meanings to support memorisation. Some also reported pairing two characters to aid recall. If one character was forgotten, the other could serve as a cue to retrieve the meaning of the word. As the interview also collected learners learning tactics of previous languages, Chinese appears the most frequently mentioned language in relation to this tactic. Participants often use this tactic to learn Chinese vocabulary by making associations between characters.

George: Yeah. Like in like 好 (good) and 妈妈 (mother) and in those words, it is like the parts. It is almost like the feminine part. I mean in a word like 医生 (doctor) and like 医院 (hospital) they would have that radical (character). And if I would see like 厅 (hall) or 院 (a place, courtyard, institute) or 馆 (a place for event, restaurant etc.), I would kind of know, oh, this is kind of like a location or a place.

Links between languages also occur, particularly when the languages are typologically similar. Research has shown that L3 learning can be influenced by the typological proximity between the target language and previously acquired languages (Cenoz, 2013; Schepens et al., 2016; Wach, 2016).

Kate: I found learning French pretty easy just because there was really a lot of similarities. Everything, you know, you learn a new verb and it is like, Oh, that makes sense because it is similar to the English word.

4.2.3 Conceptualising with Details

Table 4.3

Tactics and Occurrences of the Conceptualising with Details Strategy

	Tactics	Occurrences
Conceptualising with details (83)	Sequencing	4 occurrences in 4 interviews
	Making hierarchies of ideas	0 occurrence in 0 interview

occurrences in 14 interviews)	Making distinctions	10 occurrences in 8 interviews
	Comparing/Contrasting across language	34 occurrences in 11 interviews
	Classifying or categorising	1 occurrence in 1 interview
	Analysing and decoding	34 occurrences in 12 interviews

Compare with *Conceptualising Broadly*, *Conceptualising with Detail* had a greater number of identified occurrences (83). With the exception of *Making hierarchies of ideas*, all other tactics within this category were observed in the interview data. The most frequently reported tactics were *Analysing and Decoding* and *Comparing/Contrasting across Languages*.

Analysing and Decoding was identified in 12 interviews and is commonly used to learn new characters or grammar rules. Most Chinese characters are composed of multiple components, each carrying a specific function – either semantic or phonetic. It is essential to identify the function of each component in order to determine the meaning and pronunciation of unfamiliar characters. According to the interview data, participants frequently mentioned that their teachers had taught them how to decode characters. This suggests that they had, to some extent, been trained to use this tactic to aid their understanding and retention of character meanings. All interviewees referred to this tactic in the context of learning Chinese, indicating that it is a characteristic feature of the Chinese language.

However, decoding words, characters, or the smallest segments of language is not exclusive to Chinese. In learning English, for example, teachers also provide instruction on word formation and morpheme, including the use of prefixes and suffixes as a decoding tactic (Mann & Singson, 2003). This approach is similarly found in other inflected languages. It can therefore be argued that the ability to decode develops cumulatively through increasing language learning experience. Although *decoding* is a fundamental cognitive tactic in language learning, Chinese and inflected languages differ significantly in their structures. In the case of Chinese, decoding characters or vocabulary particularly relies on understanding the meaning and structural composition of each component. Notably, approximately 90% of Chinese characters are semantic-phonetic compound (Zhu, 1987), making this tactic particularly useful in the context of learning Chinese.

Iris: Oh yeah, I remember that character. You know, the radical means this and put it all together. It does mean that, so definitely does help. I do it a bit less by myself.

It is more so an in-class thing. But then if I do think of it while I'm doing it, it does make sense, so it does help for learning if you do look at the radicals.

Daisy: I used to do it. I used to obviously copy it from the book, and then I would like to try to break it down into like the smaller parts because there's so many different strokes and tiny little things with Chinese characters that can make such a difference.

The tactic *analysis and decoding* is likewise applied to the analyse of sentence structures and the interpretation of sentences across languages, including but not limited to Chinese.

Henry: Because there are certain sentences that you just be, I don't know, comfortable with in the sense that like, you know, I got a lot of very often you're saying, Oh. Every day I wake up at seven and get up, you know, 我每天八点/七点起床 (I get up at eight/seven o'clock every morning.) right? It is like, So you think back to that, it is like, okay, so this is where the time goes. This is how you know. And then the verb in all of this.

Evan: With Spanish I would have been more... I would have been translating word for word, you know, rather than using the phrase.

Comparing and contrasting across languages was the second most frequently mentioned tactic among the six within the ***Conceptualising with Details*** category. All participants shared comparisons between the languages they had learned. These comparisons encompassed not only linguistic aspects - such as pronunciation, grammar, vocabulary, and expression - but also their learning experiences and personal perceptions of those languages.

Daisy: ...That is quite similar between Irish and Chinese. Like a lot of things, there's not a direct translation for them, little things. Whereas I think with French and English, sometimes French can be quite like English in the way that it is structured.
(Language aspects)

Evan: Well, actually, they never spoke English in Chinese class. Whereas when I was learning Spanish and Latin, they would speak English and provide translations.

I believe that the strategy of never speaking English in the Chinese class was very important. (The experiences of learning different languages)

Jane: I think it could be a mix of a few things. I think one of them is probably feeling embarrassed, but I don't know why I feel like I can do it in French and Irish, but I don't know in Chinese... I don't know. (Feelings of using different languages)

For many participants, the comparison between languages emerged naturally. While some were prompted by the researcher's questions, participants generally responded with ease, likely because they had already engaged in such comparative thinking prior to the interviews. Other comparisons arose spontaneously during the conversations. Through this process, learners developed a deeper understanding of themselves, the languages they spoke, and their individual approaches to learning.

Whereas L2 learners may compare their L1 with their L2, it is often difficult for them to compare language learning processes. The acquisition of an L1 is typically a natural and effortless process, while L2 acquisition in formal educational contexts tends to be more conscious and deliberate. As a result, the experience of acquiring L1 may contribute less directly to the acquisition of an L2.

The strategy of *Conceptualising Broadly and with Details* reflects participants' sophisticated use of organisational and elaborative cognitive strategies as described by Chamot and O'Malley (1990). Learners' practice of categorising Chinese vocabulary according to semantic attributes and making explicit comparisons between languages directly corresponds to organisational tactics. Furthermore, summarising and synthesising linguistic information from multiple sources exemplifies advanced elaboration and inferencing strategies, underscoring the adaptive cognitive strategies multilingual learners employ to manage linguistic complexity.

It is worth noting that, not all the tactics listed in Oxford's model were observed in the interview data. Ten occurrences of *making distinctions*, while only one mention of *classifying or categorising*. No instances of *making hierarchies of ideas* were found. Several factors may account for this. Firstly, the retrieval interviews may not have prompted participants to recall all the details of their language learning. Additionally, it is challenging to capture all the tactics employed by a learner within the limited time frame of an interview. Secondly, the tactics used in their daily study may differ from those

employed when solving real language tasks, and their frequency may not be as high as the more commonly reported tactics.

Nine interviewees shared their classroom learning experience. They described tasks assigned by their teachers, and in some cases, referred to specific in-class activities. While training and practice involved the use of various strategies, none of the participants recalled their teachers explicitly teaching learning strategies during class. Instead, they appeared to acquire these strategies through hands-on experience. For example, several participants mentioned learning to analyse character components and radicals by observing their teachers model this approach.

Some participants also commented on the well-designed exercises and textbooks used in or after class. These textbooks included exercises aimed at training learners to classify vocabulary and construct hierarchies (as mentioned by Iris). These strategies embedded within these exercises were not explicitly identified by participants during the interviews. However, it is reasonable to assume that learners apply these strategies in their daily language task-solving processes.

Iris: Whereas in Chinese, it is kind of you have your textbook corresponding workbook and then it is organised. Yeah, everything else the teacher wants to add, but you kind of have. It is all kind of one. The lessons are all cohesive. They're all together, so.

4.2.4 Using reasoning

The **Reasoning** strategy was identified in 7 out of 14 interviews with a total of 11 occurrences. Compared to other strategies, **Reasoning** appeared less frequently. This may be attributed to the fact that reasoning is an internal cognitive process that is not directly observable. In the context of retrospective interviews, and in the absence of specific tasks, participants may have struggled to recall whether they had consciously used this learning strategy. As a result, evidence of **Reasoning** was only inferred from fragments of their descriptions of the learning process.

Reasoning can be categorised into *inductive reasoning* and *deductive reasoning*. *Inductive reasoning* involves deriving general conclusions from specific instances, it is a bottom-up process. *Deductive reasoning*, in contrast, entails applying general principles to specific cases, it is a top-down process (Oxford, 2011).

Table 4.4

Tactics and Occurrences of Using Reasoning Strategy

	Tactics	Occurrences
Using reasoning (13 occurrences in 7 interviews)		Generalising grammar from language texts. 2 occurrences in 2 interviews
	Inductive reasoning	Generalising an inner logic when studying Chinese characters, and this is helping them remembering the characters. 3 occurrences in 3 interviews
		Apply grammar rules and sentence structure to other situations or sentences. 7 occurrences in 4 interviews
	Deductive reasoning	Apply the language knowledge they learned from other languages to the new language they are learning. 1 occurrence in 1 interview

As mentioned in the interviews, the *inductive reasoning* has mostly been used in two ways.

1) Generalising grammar from language texts.

Frank: Sometimes they give you a sentence and you figure out the word that goes inside there. And then after a while, you kind of get used to it and then you're like, Oh, I know this one. And then that is a really nice feeling.

2) Generalising an inner logic when studying Chinese characters, which helped the participants retain and recall the characters more effective.

Henry: Makes sense of a Chinese character, like, what is that word. It is just like, let us say I needed to remember the word 好 (good/yes), for example. And then I would just, you know, some weird logical tangent that somehow leads me from 好 to like a mother and a child, you know, 好 let us say there was some I'd watched the movie recently where some guy had said some especially memorable line about like, how does that woman have a child or something. I would often have the kind of weird, logical chains like that to sort of remember, you know?

Inductive reasoning and the tactic of *combing/linking similar things* tactic in **Conceptualising Broadly** are often used in tandem. In the context of learning Chinese characters, once a learner has mastered a set of basic characters, they often begin to recognise that these frequently used characters also appear as components in other, more complex characters. By understanding the function of individual components within a character, the learner can make informed guesses about the meaning or pronunciation of unfamiliar characters. This process is often referred to as the inner logic of character learning, and strategies play a crucial role in supporting it.

According to the interview data, participants also employed *deductive reasoning* in two ways: 1) by applying grammar rules and sentence structures to new situations or constructions, or by incorporating newly learned words or phrases into familiar sentence structures.

Daniel: I'm trying to think of an example. If there's a similar structure, we might have already learnt using a similar concept, I suppose, or words that have similar meanings. I'll try and see how I've used to that, whereas is the word in a similar meaning in another structure and see if I can use the word of the same structure.

2) Applying linguistic knowledge acquired from other languages to the new language they are learning.

Charles: So, I think, because I have learned Latin, I feel somehow easier when I was learning French and Spanish.

It is often assumed that multilingual learners would employ the second tactic more frequently than L2 learners. However, this was not clearly reflected in the interview data, where only one instance of this tactic was identified.

Participants' frequent use of inductive reasoning strategies reflects a dynamic and strategic cognitive process central to multilingual language acquisition, echoing the Dynamic Model of Multilingualism proposed by Jessner (2008) and Herdina and Jessner (2002). Learners' ability to generalise grammatical rules and character structures from limited examples highlights their heightened metalinguistic awareness, consistent with recent literature that emphasises multilingual learners' unique cognitive flexibility (De Angelis, 2007).

4.2.5 Using the senses to understand and remember

The strategy of *Using the Senses to Understand and Remember* was identified in 12 interviews, with a total of 56 occurrences (Table 4.5). According to Oxford's categorisation, there are four main sense-based tactics: *visual sense*, *auditory sense*, *haptic (tactile/kinesthetic) sense*, and *combined sensory use*. Each of these tactics was mentioned in 8 or 9 interviews, indicating no strong group preference. However, individual learners demonstrated personal tendencies, for example, two participants reported frequently associating words or characters with images, which they found helpful for memory retention. Some other participants noted that speaking to themselves was more effective than repetitive writing. These observations align with findings from learning style research. Learning styles influence the choice of learning strategies – alongside other factors such as the learning context - but there is no significant correlation between style and the effectiveness of strategy use (Schmeck, 1988, p. 98). This suggests that regardless of a learner's sensory preference, they can identify and apply effective strategies that suit their individual needs.

Table 4.5*Tactics and Occurrences of Using the senses to understand and remember Strategy*

		Tactics	Occurrences
Using the senses to understand and remember (56 occurrences in 12 interviews)	Using the visual sense to understand and remember	1. Associating the shape and meaning of a character or word with a picture or scene.	16 occurrences in 8 interviews
		2. Relating the character or word to a picture or scene that has no connection in terms of meaning.	
		3. Employing various methods to repeatedly visualise the words or characters.	
		4. Watching videos or observing the movements of teachers.	
	Using the auditory sense to understand and remember	1. Listening to audio material or watching video material. 2. Reading written material out loud. 3. Talking to oneself in the target language.	12 occurrences in 8 interviews
	Using the haptic(tactile/kinaesthetic) sense to understand and remember	1. Repeatedly writing characters on paper. 2. Recalling vocabulary while doing physical exercises. 3. Typing the vocabulary or characters. 4. Using a vocabulary flashcard app to tap and reveal the meaning or pronunciation.	13 occurrences in 10 interviews
	Using combined sense to understand and remember		15 occurrences in 8 interviews

By analysing the interview data, it was revealed that the *use of visual sense* tactics was primarily observed in four ways:

1. Associating the shape and meaning of a character or word with a picture or scene.

Lisa: Yeah, actually, the way the characters are written. And I can see, for example, if you look at the rain, the rain, you know, 下雨 (raining), so the rain character, I will look at the rain and I look at the way it drops, there's like little droplets. Look at that as if it is water. So, I look it that way.

2. Linking a character or word to an unrelated picture or scene.

Frank: It is like when I look at the character, I would change that into what I recall the connection, which is... There's not really a connection, but I make a connection. So, it is like I would think of the picture before I think of the actual pronunciation, because it is much easier. It is like. Because my oral is really good if I can remember the picture. I'll know how to say it in Chinese and then I'll be able to read the character. So I need to picture that I had a picture to every 汉字 (character) kind of thing.

3. Employing various methods to repeatedly visualise the words or characters.

George: I would have like flashcards, and I would constantly kind of expose myself to them. So, I'm constantly seeing characters.

4. Watching videos or observing the speaker's movements.

Frank: So that is why I much prefer the in-class learning because if I see the teacher like moving or something for me, I'll just memorise it much easier.

With regard to the first and second tactics, it appears that characters are more likely than words to trigger the use of visual sense. This may be attributed to the fact that many basic Chinese characters are derived from pictographs. In the field of neuroscience, research has shown that reading in alphabetic writing systems versus logographic writing systems activates different regions of the brain. This activation occurs within the visual word form

area, which adapts to the visual processing demands of distinct scripts (Bolger et al., 2005; Nelson et al., 2009).

The *use of auditory sense* tactics was mainly observed in three ways:

1. Listening to audio material or watching video material.

Evan: I used to watch Chinese movies, you know? The thing is, they were CDs and I would just get them and watch the movies. I concentrated on trying to understand them, some better than others. Songs were helpful too. Actually, it's very easy to understand Chinese songs, you know? I just listened to those as well. So all those things used to help me.

2. Reading written material out loud.

Daisy: when I was studying Chinese, I always have to... It was always speaking out loud like I was talking to myself when I was studying Chinese.

3. Self-talk in the target language.

George: Yeah, I always kind of talk to myself in Chinese as much as I can. I might be kind of weird, but... I pretend like I'm in a Chinese restaurant and my family are there, and I have to order for them or just talk about history or politics or something like that.

Nadia: I feel like if I'm having a conversation, like, if I practise conversation with myself, it stays in my head so well. But like writing stuff out over and over again, that just goes straight out of my brain doesn't work.

It may be argued that reading aloud and speaking to oneself constitute the use of the auditory sense. In the interviews, participants deliberately chose to vocalise rather than read silently or rely on inner speech, suggesting a conscious use of auditory input to aid memory retention. Therefore, this study interprets these behaviours as forms of auditory strategy use. These multimodal combinations will be further explored in the discussion of combined sensory strategies.

According to the interview data, the *use of the haptic (tactile/kinesthetic) sense* was primarily observed in four ways:

7. Repeatedly writing characters on paper.

Daniel: Like doing my character practising sheets. I mean, I would never repeatedly write the words (of my other languages).

8. Recalling vocabulary while doing physical exercises.

Evan: I remember even go running, you know, I try to count like count to 100, you know, like that basic, you know, like, that is what I do it like.

9. Typing the vocabulary or characters.

George: I mean, if you took it out, you know, and then when I kind of got better typing Chinese characters, then I stopped writing, which is probably something I shouldn't do, but I just started typing as much. Now I'm a professional, typing and reading it at a level of that.

10. Using a vocabulary flashcard app to tap and reveal the meaning or pronunciation.

Lisa: I feel like Quizlet is really, really helped because they look like cards. The cards are on the screen and once you tapped it. It will show you like the English version of it. So, I'd say there was a word in French or a different language and didn't know the word you can tap or your test yourself, that app is really good because there's also tests there on the Quizlet.

The third haptic tactic was mentioned only once, in a single interview, where the participant reported trying to recall basic words while running. They believed this activity helped reinforce continuous engagement with the target language. Notably, existing research suggests that physical exercise can enhance memory retention (Zabriskie & Heath, 2019). The fourth tactic was identified through the use of a language learning app that required learners to tap and flip virtual cards to reveal meanings or pronunciations. This tactile interaction may help reinforce memory for previously forgotten words. However, further empirical research is required to substantiate this claim.

As previously discussed, several tactics inherently involve the use of multiple senses. For instance, watching videos engages both visual and auditory senses; reading aloud and speaking to oneself primarily involve auditory processing but may also activate the haptic sense, as learners use their oral muscles to find the correct articulatory positions. Some participants also mentioned writing while speaking words aloud. Typing characters involves both haptic and visual engagement. The use of flashcard apps can involve all three sensory modalities, haptic, visual, and auditory.

Given this overlap, it is not necessary to list the use of combined senses as a separate strategy. These multisensory approaches are already encompassed within the *orchestrating strategy* category in Oxford's metacognitive strategies. Several studies have indicated that activating multiple senses can facilitate connections and enhance memory retention (Hesslow, 2012; Willis, 2007).

Lastly, the strategy of *Going Beyond the Immediate Data* was not identified in the interview data. This strategy comprises two key tactics: *predicting* and *inferring*. These are commonly employed in receptive language skills such as reading, listening, and engaging in conversation, where learners draw on background knowledge or non-verbal cues to anticipate or deduce meaning. Although these tactics are widely recognised and frequently used in language tasks, they did not emerge in the interviews. This absence may be attributed to the retrospective nature of the data collection method, which relies on participants' ability to recall specific instances. As a result, learners may have struggled to identify or articulate their use of these strategies in past learning experiences. This constitutes a limitation of the current study and highlights the need for future research using alternative methods to better capture the use of such strategies in real-time contexts.

4.3 Metacognitive Strategies

This section will examine metacognitive strategies. While the analysis incorporates aspects of the S²R model, it does not strictly adhere to its terminology or metacognitive strategies (metastrategies). As discussed in section 2.1.2 and 2.1.4, this study adapts that while metacognitive strategies act on other dimensions, they can be recognised and studied independently. Therefore, it is not necessary to split them into four parts as in the S²R model, labelling them as acting on cognitive, affective, motivational, or social dimensions. This section will present the study in six parts, each part discussing one metacognitive strategy:

Planning, Paying Attention, Obtaining and Using Resources, Organising, Monitoring, and Evaluating.

4.3.1 Planning

Planning contains almost 1/5 of the identified items in metacognitive strategies, it is an important part and can be easily recalled if the participant consciously planned any part of their study. According to Oxford's category (see section 2.1.4), there are two main elements in planning, 1. *setting goals* and 2. *planning ahead (for study)*. After analysing all the items, two other features are apparent, 3. *integrating language learning into a broader plan* and 4. *following the requirements of a class or assessment*.

Setting learning goals can be easily identified, as found in all 14 interviews (Table 4.7). There are long-term goals and short-term goals, skill-oriented goals, and task-oriented goals. Setting goals is the first step toward making a plan. Three common types of goals are identified from the interviews:

1. Language skill goals, such as communication.

Adam: I am learning mainly for communication, for communication...No, I never did that (imitate the pronunciation in a video). Many people said it is good. But...maybe I am too lazy to do it. I didn't have much trouble (in communication). I know my pronunciation isn't very good, my handwriting isn't very good, but I think my communication ability isn't bad, and I think that is the most important. I don't care if a Chinese praised me 'oh, your Chinese is so good, your accent is so authentic.' I don't care about that, I think you know what I am talking about, you understand me, then that is ok.

Table 4.6

Tactics and Occurrences of Planning Strategy

		<i>Tactics</i>	<i>Occurrences</i>
<i>Planning</i> (104 occurrences in 14 interviews)		<i>Setting goals</i>	<i>23 occurrences in 14 interviews</i>
		<i>Planning for study</i>	<i>65 occurrences in 14 interviews</i>
		<i>Integrating language learning into a broader plan</i>	<i>7 occurrences in 6 interviews</i>
		<i>Following the requirements of a class or assessment</i>	<i>16 occurrences in 8 interviews</i>

2. Achieving a specific language proficiency level by passing a proficiency test.

Daniel: So we're doing the HSK 3 (Chinese proficiency test, level 3) at the moment and then next year we're supposed to go to China, but we don't know if it will happen. So we're still going to do quite a lot of Chinese instead to make up for us because we won't if we're not there. So I'd like to think by the end of next year. I'd say maybe probably HSK 4 by the end of next year and then maybe HSK 5 by the end of the next year. I don't know if that is realistic or not, but if so, that is kind of how I'd be thinking.

3. Setting goals for short-term tasks, for example, completing an exercise by the end of the night.

Frank: I think like even just short-term goals like by the end of this week, I want to be able to write maybe like these 10 characters or something. So I would do them once, twice and then a few days later as well. And I would do short-term goals. I wouldn't really do long-term goals. Like by the end of my four years, I'd like to be as fluent as I can be.

Participants who have the first type of goal are very focused. They tailor their learning to meet their goals and are not afraid to disregard parts of general learning content that are not aligned with their goals. For example, if the goal is communication, the learner may not prioritise practicing writing characters. As long as the learner can be understood by listeners, they may not prioritise perfect pronunciation.

The second type of goal, mentioned by seven participants, involves proficiency tests and levels, which provide clear objectives for learning.

The third type of goal is more specific and indicates that the learner has considered a particular challenge or task. Small accomplishments in these goals eventually contribute to the achievement of long-term goals. Therefore, short-term or task-oriented goals are essential and can motivate learners with a sense of achievement.

Planning for study involves considering various aspects, such as when to study, where to study, how long the study session will last, and what form of study to choose (classroom

learning or self-learning). It also includes determining when to review, selecting the appropriate tools, defining the study content, and ensuring the completion of study goals. In essence, planning for study encompasses all the preparations made prior to learning. Participants develop study plans based on their self-understanding. For instance, a participant knows when they will be too tired to study and should avoid studying during that time. The researcher was consistently impressed by the participants' self-awareness during the interviews. Due to their deep familiarity with themselves, they are able to customise their study plans to suit their individual needs.

Multilingual learners may excel in creating study plans, possibly because they have more experience in language learning. This gives them a better understanding of their own capabilities, including how long they can maintain focus and how much they can challenge themselves.

Bill: I will try it daily, to study at least 30 minutes.

Daniel: Yeah, I am. So I look at my timetable each week and when I'm working and when I have extra stuff on and I just think how much business subjects I need to do and how much Chinese do I need to do? Are there any assignments? And I just kind of look at when the deadlines are, when I want to do my self-study, and I just lost it all and it is different each week.

Integrating language learning into a broader plan can enhance its importance and relevance for learners. As learners have diverse lives and priorities, language learning may not always be their top priority. However, when learners can see how language learning aligns with their broader goals, they are more likely to make an effort to pursue it, as long as those broader goals remain intact.

Adam: Yes, because I think in my life, learning Chinese is not the only goal, it is just one of the goals, and this goal was set to help another goal, which is about work. So I can't devote every day and every hour to learn Chinese. I just spent a few minutes every day, no matter it is perfect or not, as long as I can understand, and can be understood.

There are connections between motivations and *integrating language learning into a broader plan*. For instance, incorporating language learning into a study abroad plan allows

participants to meet school requirements. Similarly, incorporating language learning into career planning opens up more options and enables participants to meet specific job requirements. Including language learning in a life plan indicates that the learner wants to use the language in their daily life or just enjoy learning languages. While extrinsic motivations may initially trigger the language learning process, integrating language learning into a broader plan provides a more specific and actionable approach compared to simply expressing a general interest in learning languages and cultures.

When something is more specific, it becomes easier to act upon and achieve. While a person may have numerous interests, without an actual plan, language learning may fail to capture their attention. Moreover, considering the limited time available to students who have multiple significant goals, it becomes crucial to adopt a holistic approach that allows them to create a comprehensive plan for language study. This is particularly important for students who need to balance their time spent on various subjects. Furthermore, the data illustrate that experience and strategies gained from L2 learning can also be transferred to L3/AL learning.

The last tactic under the ***Planning*** Strategy is to *follow the requirements of a class or assessment*. Since most of the participants are university students, it is reasonable for them to mention their class and textbook. Following a course saves learners time and energy by providing learning materials and a plan for self-study. Setting learning objectives is also easier in a classroom context, usually focused on passing exams or achieving higher scores. Some even mentioned aiming to be among the top performers in the class. However, if the class is poorly designed or the activities and assignments do not align with a learner's personal goals, the learning experience can become more challenging.

Daisy: So I suppose that was kind of my objective was to understand. Do everything that we were learning in those chapters. But for my own personal learning, I don't think I ever really set objectives. It was usually following a class.

Well-designed classroom learning provides scaffolding and support for learners, but it may also lead to learners relying too much on external guidance. In language classes, we hope teachers promote and emphasise learner-centred classroom learning. This approach allows learners to plan their own course of study, including the form, tools, and content. The ultimate goal of language teaching is to cultivate learner autonomy, enabling them to manage their own learning even after leaving school. Therefore, it is important to

emphasise that learners should plan their own learning, even when they have excellent textbooks and well-structured courses.

In our discussion of the first metacognitive strategy, **Planning**, we identified four key themes: *setting goals, planning for studying, integrating language learning into a broader plan, and following class or assessment requirements*. These themes highlight that participants engage in different planning activities depending on their current situation and their awareness of their own needs and abilities. Multilingual learners who are learning a L3/AL, tend to have more experience in making plans due to their previous L2 learning experience. This experience can assist them in incorporating language learning into their overall study plan, career plan, or life plan. By understanding themselves better, they are able to create customised study plans that suit their individual needs.

Implementation of plans

During interviews, participants discussed their approaches to implementing their study plans, with some outlining clear learning goals and plans, while others did not consciously realise that they were implementing a learning plan. Data collected encompassed both loose and strict plans.

Loose plans suggest that learners have a general motivation to take specific actions to enhance their learning but lack a clear, structured approach. Strict plans, on the other hand, involve learners having a detailed study schedule, specifying the content, timing, location, and duration of study. This distinction aligns with the broader framework of self-regulated learning, where planning is a key component (Pintrich, 2004; Zimmerman, 2000).

Participants generally fell into two groups: those currently studying in tertiary institutions and those who had already graduated. Each group demonstrated distinct patterns in implementing their study plans, with the former relying more on classroom goals and schedules (Oxford, 2011), while the latter exhibited more self-directed learning traits, as often seen in post-formal education settings (Tseng & Gao, 2021). However, these patterns were not strictly confined to the two groups. Graduates, when reflecting on their past studies, also reported employing structured methods in their planning. Even in their self-directed plans, some adhered to daily study durations (Dörnyei & Ushioda, 2021).

A total of 66 items were identified under implementing plans, with the following distribution among loose, strict, classroom-focused, and self-conducted plans:

Table 4.7

The characteristics of planning and the occurrences

Loose planning	Strict planning
23 occurrences in 10 interviews	15 occurrences in 9 interviews
Classroom-focused planning	Self-conducted planning
25 occurrences in 12 interviews	27 occurrences in 9 interviews

Strict plan implementation is mostly related to the learner's dedicated time for language learning. Eight of the participants mentioned that they spend a certain amount of time daily or weekly on learning the target language. In addition to time, some mentioned they will choose the best time slot to learn (e.g. when there are fewer people in the library) and the learning environment is a vital consideration as well, some Organising strategies are also mention, such as putting the phone away. Strict plans are used in both classroom-focused and self-conducted learning. Learners are aware that they need to ensure a certain amount of language learning time to achieve success. These plans typically involve learning tasks or content that learners can accomplish on their own. Strict plans also ensure that learners follow the class, complete assignments, and prepare for exams which are important prompts for learning when they are in a course program.

Bill: For example, when I was learning Chinese, the most important thing is learning a little bit every day. 30 minutes daily at least, if I can do one hour.

Lisa: If I go home now, I'll write out my homework immediately , the characters for that chapter and the ones previously , and just go back over it all the time. And I'm studying on Saturdays and Sundays as well. I spend two hours doing that, or even an hour if I don't have time.

Loose plans primarily consist of two types mentioned in the interviews: plans for communication with others and increasing language input without a clear purpose. The first type, communication plans, involves participants expressing their desire to converse with locals. To achieve this goal, they take actions such as initiating communication for practical purposes. While these plans lack a specific time frame, content, or task, the loose plan is present in their minds, and they take steps to execute it.

Evan: I used to go down the street. And you go into the shopping mall, there are just big shopping malls with small stores, you know. And actually I'd look for Chinese speakers and just practise, you know, like I could nearly always tell if

someone was from Mainland China, because it is a kind of instinct when you're living there long enough, it is kind of you could build up that kind of instinct.

Frank: I do have a certain habit. but sometimes people would call me a bit childish because I like just having fun and having a language is how I learn as well. So it is like, I'm going to give it a walk out of my French class, or I walk out of my Chinese class or Japanese class. I would use the language for like another like two or three minutes or something in just saying certain phrases again, because I find that it is just I find it fun. But I also remember it then as well. It is like once I left the class, sometimes you forget everything that happened in the class. But if you leave the class and say just one sentence, you generally remember it much better.

The second type involves increasing language input without a clear purpose. Two learners mentioned being inspired by a video discussing input and output theories, which led them to believe that simply increasing input will automatically result in output. As a result, they aim to increase their exposure to the target language by engaging in random listening and reading activities. These activities are not scheduled or limited to specific environments and can be done whenever the learners have free time, such as while waiting for a bus or working out at the gym. These random inputs are not compulsory tasks, but the learners feel positive about doing them. Flavell (1979) indicated that metacognitive knowledge would inform and guide the use of metacognitive strategies, thus enhancing metacognitive experiences. The cycle is evident in the case of these two participants.

Adam: I don't have a daily schedule for language learning, I just did a lot of input, in my free time such as when I was eating, waiting for a bus, or lying on the bed.

George: Constant kind of exposure to character or constant exposure to the language is necessary for me at the moment. I'm just using my time wisely and absorbing that, you know, in a kind of sensible way, it is more important than learning with an intent.

Loose plan implementations are mostly self-conducted, with learners typically having a vague goal and intrinsic motivations. They may choose loose plans due to the uncontrollable nature of communication, as it cannot be fully controlled by one party. Although learners can schedule meetings with friends or native speakers for study purposes

or initiate conversations, the completion of the process is uncertain. For increasing language input, loose plans supplement classroom-focused learning tasks while requiring less attention or cognitive effort.

Some implementations have become habits for learners, such as taking notes in class, writing down characters learned during the day, or conversing with classmates in the target language for fun and practice. While these habits are difficult to categorise as "strict" or "loose" plans, participants mentioned them as conscious components of their learning plans. Some learners have established steps for specific tasks, such as remembering characters or writing an essay, which they follow when encountering those tasks. These steps, derived from past learning experiences and stored as metacognitive knowledge, generate new metacognitive experiences when implemented, aligning with Flavell's (1979) theory of cognitive development. Flavell believes that the actions and interactions between metacognitive knowledge, metacognitive experiences, and metacognitive strategies monitors a wide variety of cognitive enterprises.

Nadia: I would just ... if I had like a big essay, I would maybe like learn and I would write it out in English what I wanted to say, and then I would translate it myself. And then if I just had new words and stuff like, I would learn the new vocabulary, that is kind of the height of the learning, if I wrote that I would do.

In summary, interview participants employed various Implementation Plan strategies. Learners implement strict plans with relatively stable learning times and environments, focusing on tasks that can be completed independently. They use loose plans to achieve communication goals and maximize language input during fragmented time. Classroom-focused learning provides learners with content and a time frame to help implement their study plans. Self-conducted learners also benefit from fixed study time tactics. However, loose plans are predominantly self-conducted, with intrinsic motivation prompting learners to seek learning opportunities without a detailed plan.

4.3.2 Paying attention

Paying attention is a metacognitive strategy that helps learners distribute their attention to what is important to them during their language learning. As other metacognitive strategies, it works with other strategy dimensions including *paying attention to cognition*, *paying attention to affect*, *paying attention to motivation* and *paying attention to context, communication and culture* (Oxford, 2017).

The paying attention evidence can be found in the interview data. 21 occurrences were found in 11 interviews. In general, the participants have a well-established awareness to their Chinese language learning, as Charles puts it “If you are interested, there is no problem for you to concentrate and focus on the learning.” The Schema Theory reviewed in Chapter 2 highlighted the importance of paying attention in building schemata in the cognition process and turn short-term memory into long-term memory (McVee et al., 2005). A typical description of this process in Daniel’s response on how he was learning Chinese characters explains this process.

Daniel: I find that (typing characters) quite helpful. If I can type it, I'll listen to what the teacher is saying, and I'll try and get what the Pinyin is. And if I can Type it, then I'm quite confident with it.

In Daniel's response, he was paying attention to what the teacher was saying and paying attention to choosing the right character, because he was typing in Pinyin, the Romanised alphabet used to mark the sound of characters. After these processes, by feeling he was able to type the right character, Daniel confirmed he had mastered the character. At the same time, Daniel was paying attention to the learning tactics that worked for him, so he could tell me how he was learning and remembering the characters.

Participants were also *paying attention to their emotions and feelings*; one example comes from Kate.

Kate: Usually when I get upset about it (learning Chinese), I'm probably just tired or hungry or I've been studying too much. So usually when I take a break and come back to it later. That does help. But also, I remember. How good it feels when I do get it right and when I feel like I really am learning and other people's reactions because people always think it is really cool that I'm learning Chinese

When unpleasant feelings occurred, Kate was paying attention to the reason and how to solve it. While she was also paying attention to the positive feelings and feedback, highlighting them and using them to encourage herself.

Paying attention to context, communication and culture is also found evident in some participant’s interviews as they had experience living in China, have spent a considerable amount of time using the language. As Evan described his experience.

Evan: In terms of my vocabulary and my understanding, I wouldn't understand everything, but I'd always understand the meaning. And even if I went for dinner with them, with Chinese colleagues, when we were having a conversation, I'd always... If I knew the context, I would understand what they were saying.

Most of the participants indicated that they do not have any problem focusing on what they are learning and some of them shared their enjoyment in learning the languages. They do not have any issue motivating themselves. *Paying attention to motivations* may not be obvious to these highly motivated and self-regulated learners. During the interviews, the thinking and reflection on their own learning is a demonstration of their paying attention strategy use. In conclusion, *paying attention* is an often-used metacognitive strategy and it is usually used together with other strategies such as monitoring and evaluating, cognitive strategies, affective strategies, and social strategies.

4.3.3 Obtaining and using resources

This strategy, comprising 117 items, was the most frequently mentioned and appeared in all the interviews. It encompasses two types of behaviours: *obtaining resources and using resources*. Oxford (2011, 2017) provides sample tactics for resource use based on their type, including technological resources, print resources, in-person resources, and hybrid resources. While all these categories were present in the interviews, this classification is somewhat broad. From the interviews, it emerged that the resources could be more effectively divided into two categories: traditional resources, commonly used before the internet era, and internet-based resources. Furthermore, when sorted by their function, these resources can be used for practising reading, practising listening, searching vocabulary, communicating, taking quizzes, and completing hybrid exercises.

Traditional resources VS. Internet-based resources

The traditional resources including books, paper-based dictionaries, tapes, discs and face-to-face communication including classroom learning. Internet-based resources including online articles, audios, videos, quiz apps, mock exams, learning related information, social networking platforms, translation tool, and online classes. Among the 14 participants, 12 of them are young adults age from 19 to 26, only two participants who are relatively older, one is 37 years old, another is 62 years old. Although the two types of resources are mentioned by all the participants, it is found that those two older participants mentioned the using of traditional resources more frequently than the younger learners, that might be

due to their past learning experience and the technology affordance by the time. Some of the participants confirmed that the resources that they found are very helpful to their studies, for instance, the flashcard apps and the dictionary apps. The internet makes the resources easier to be searched and accessed. The traditional flashcards can only show the word and the meaning, now it can play the sound, give more sample sentences, link to more information, and can be used on a phone anywhere anytime. A traditional dictionary needs more prior knowledge to use, the searching takes time, and it is heavy to carry. While a dictionary app is easy to access on a digital device, without prior knowledge to use, you can draw a character or take a picture on the digital device and the machine would recognize it, it gives pronunciations, pictures and enormous samples sentences. Some of them even have a build-in flashcard function to add the words you just searched and can be used while reading an electric book. As a tool they save a lot of metacognitive and cognitive costs compare with their traditional versions while learning a language.

Resources with different functions

Resources can also be categorised in seven groups based on their functions: 1) for reading (text based), 2) for listening or watching, 3) for quiz or exam practice, 4) searching for meaning or translating, 5) communication, 6) classes or teachers, 7) learning strategy or tactics. Each category above contains both traditional resources and internet-based resources, which means although the internet enables learners to find resources faster, easier and get more sophisticated tools, their needs generally stay the same. The next part we will discuss what is the learning needs of the learners and how do they use the resources based on their needs.

Table 4.8

Tactics and Occurrences of Obtaining and Using Resources Strategy

	Tactics	Occurrences
Using Resources (117 occurrences in 14 interviews)	Using resources for reading	28 occurrences in 11 interviews
	Using resources for listening or watching	40 occurrences in 13 interviews
	Practicing with quiz or exams	23 occurrences in 11 interviews
	Using dictionaries and translation tools	29 occurrences in 11 interviews

Practicing with target language speakers	47 occurrences in 14 interviews
Asking for help in a class or from teachers.	23 occurrences in 13 interviews
Collecting strategy or methodology resources	3 occurrences in 3 interviews

Resources for listening or watching are mentioned more frequently than others and appear to be very popular among learners. This group of resources, often contains an element of entertainment, such as songs, films, documentary, TV shows etc. These types of resources evoke positive and relaxing emotion, making them commonly associated with affective strategies (Oxford, 2011). Besides YouTube and Netflix, new social networking platforms such as TikTok, with its short videos format, are also becoming increasingly popular among young adults.

Adam: I need to take a rest sometimes, but I don't like to do nothing when I am relaxing. In this case I will watch a Chinese movie or something, so I can tell myself, Oh I am having a rest and learning at the same time.

Lisa: Yeah, Irish is I feel like that type of technique of going onto YouTube as well, like for Chinese go on YouTube as well. And there's actually ... TikTok yeah, so that is how I know about like, there's a Chinese teacher I'm following on TikTok, and she always goes live and she's always like Chinese is easy, look, and she puts everything up on board, like 爸爸, 妈妈, □ those kinds of words that helped me. And listening to them and stuff like that. It is very helpful.

Reading materials are the most-used resource, although it is only mentioned by 11 participants. Perhaps because it is too common to be mentioned. Traditional resources including all kinds of books, textbook or books in target language. Internet based resources including all kinds of text-based resources, including websites articles, text-based social network information etc.

Quiz and exam practices include traditional flashcards, workbook exercises, mock exams, and learning apps such as Duolingo, Super Chinese, as well as flashcard apps like Quizlet and Memrise. Two participants specifically mentioned that using flashcard apps significantly enhanced their learning, particularly in the context of studying Chinese.

Kate: One of the main ways that I learn that I study Chinese is by using flashcards, which I found I just it really, really works for me because what I do is I like if I'm learning a new vocab, I write the character and repeat the pronunciation until I feel like I know the character. And then I'll put it on a flashcard and then revise the flashcards, which is really helpful because it helps me learn the writing, but also the meaning of the pronunciation all at the same time. And then I'll go through the flashcards to revise them.

Dictionaries and translation tools are useful tools in language learning. Paper-based dictionaries only mentioned by the two learners who are relatively older. The rest of the items are all about dictionaries on digital devices. As mentioned in the first part, digital dictionaries' affordance is much more than traditional paper-based dictionaries. Some of the dictionary apps even contains a built-in sentence or article translation function, thus, it can also be seen as a translation tool. Translation tools are very useful, but machine translation usually lacks accuracy, learners use translation tools to check the meaning of sentences and to get an idea about the expressions that they would like to say. They also mentioned that they used the translation tools very carefully.

Bill: I like those apps. My ways of learning Chinese are like... When I was in school, there are traditional ways, we use textbooks, paper-based dictionaries, learning with a teacher. When I entered the university, I was wondering why the teachers asked us to use paper-based dictionaries, we have excellent dictionaries on our phones. I don't know how to use paper-based Chinese dictionaries even for now, too hard to use. I only used it once, during an exam.

There is some overlap between 'Classes or Teachers' resources and 'Communication' resources, as both can be categorised as in-person resources. However, classes also represent a systematic learning process and often come with a comprehensive resource package. Additionally, some online courses include video clips as part of their offerings. Communication resources, on the other hand, include friends, classmates, language partners, study groups, or even native speakers encountered in daily life. Based on this distinction, I categorised them into two groups.

Thirteen learners mentioned their classroom language learning experiences, although all participants had studied languages at school. Seven of them reported attending language

classes or additional language tuition, which they chose themselves. Among these, three had taken online conversational lessons with a native-speaking teacher, while the others attended traditional classroom-based lessons.

Charles: It was started from the third year in high school, I gained a huge interest in Spanish, so I spent a lot of spare time to learn Spanish. And then, I went to Spain to attend a language course in my school holiday.

As discussed above, communication opportunities could include not only classroom learning, but also casual talk with friends, language partners, classmates, even strangers. In this category I only listed resources out of classes, however, there are still some items relating to classroom learning, for example, classmates, exchange students in their class, activities organised by the school. But there are also many resources that are obtained actively by the learner themselves, for example, talking with a taxi driver, making friends with a native speaker, etc. All the participants have found some communication resources in their language learning experience. Some are one-time or short-time communication, some are long-time communication and even last to a life-long friendship. Technology is also engaging in communication as learners can use their phones and social apps to maintain the communication for a long distance.

Evan: Initially, I found I was always very nervous, even in the taxi, I was kind of afraid to speak in terms of asking, you know, the taxi driver like is it far to the hotel and stuff? In case they wouldn't understand me. But after a while, I just found that it surprised me that they always understood, you know, and if they didn't understand the first time, they'd always understand what I said a second time. I say it in another way, you know?

Three of the participants mentioned some learning tactics or methods that influenced them a lot. Like the input and output theories, which encourages as much input as possible to lead to meaningful output. And they also watched videos by those who are successful in learning languages sharing their experience, they got insights from others' learning experiences. They will follow the methods they tried useful.

George: My listening skills aren't the best. So, the one thing I've been doing is I read something by a man called Stephen Krashen, and he was talking about

something called comprehensible input and just focussing on reading and listening as much as you can and developing your ability just to comprehend what is going on. I mean, you come across like a new world, figure out what the new word means and then you see a new character, figure out what that means and just know what your character is. And then because it will come up so often from now on, you'll be aware of it and then you'll hear it more and see it more. And so, I've been reading a lot more of what without translating, just reading it and understanding what it means without having to translate it in my head. I just kind of, yeah. So that is where I'm at now.

The reported using of diverse resources for interaction aligns with the sociocultural perspectives mentioned in Chapter 2, particularly the role of social environments is shaping strategic behaviours. In the digital era, this influence extends beyond physical environment to digital spaces. As indicated in CoP model (Weiger, 1999), such communicative engagements allow learners to participate in meaningful social exchanges that support language development.

Patterns of obtaining resources

It was found during the interviews that learners obtain resources in various ways. In language classes, the most important resources for learners are their class contents, such as textbooks, slides, notes, workbooks, and language proficiency test materials. They also have opportunities to communicate with teachers, classmates, and make friends during school activities. Learners use their digital devices to search for new words, watch videos, use flashcards, and do quiz exercises.

For learners who have already left school, they have developed a language-oriented way of life or language learning. They use their languages as a tool to find information, communicate, and maintain friendships. There are three patterns of obtaining resources:

1. Searching with a specific question or task: When learners have a question or encounter an obstacle during learning, they turn to online search or ask someone more knowledgeable.

Iris: If I'm maybe unsure of something you have to do for homework like grammar is different like websites you can use, particularly like a grammar website for Chinese I know a few of my classmates also use, because it does tell you what the

grammar structure is and then, the order like subject-verb whatever, and then it also gives the example sentences.

2. Searching for learning material at a certain level: Learners judge what to learn at a certain level and look for suitable materials. This is more common among high-proficiency learners and is connected to the strategies of evaluation and planning.

George: Yeah, I would just be typing like HSK 3 listening or HSK 3 reading. And then it would bring me up pages of like intermediate Chinese reading. The reading I would be more comfortable with.

3. Searching for content that interests the learner: This can be observed in learners at any proficiency level since interest is the best teacher.

Bill: I am reading a book (in Chinese), it is called *A Brief History of Humankind*.

Patterns of using resources.

Participants in the interviews mentioned how they use resources in different ways. As many researchers have pointed out, there are no inherently good or bad strategies for learning. Learning strategies are dynamic and complex systems, and there are also no universally good or bad ways of using resources. The participants' descriptions of their resource usage indicated that they were consciously choosing their methods. However, the way in which resources are used may influence one's study in some way.

For example, five participants mentioned using subtitles when watching videos in the target language. Some participants would not look at subtitles, while others would turn them on. Some participants also found that the subtitles were often inaccurate and would attempt to translate the content themselves. Another example is the use of quiz apps on digital devices. Some participants use them seriously for a dedicated amount of time each day and regularly review their progress based on Ebbinghaus' forgetting curve (a psychological concept illustrates the decline of memory retention over time). Others use the apps occasionally as a form of relaxation, while some use them for quick review before exams. Different tactics to resource usage can have varying impacts, and further exploration in this area may be necessary.

4.3.4 Organising

Organising is listed as one of the eight metastrategies by Oxford (2011b). In the interview data, 28 occurrences were found in 12 interviews. Most of them (11 occurrences) are related to cognition, according to Oxford's categorisation. One of the most mentioned tactics is to *collect or capture useful information* such as unfamiliar words or sentences. The collection is usually accompanied by a later review process. The collection behaviour is organising, and during a later review process, the organising is ongoing. For instance, when an unfamiliar word in the flashcard list is mastered, the learner would mark it as learned or associate the new information pieces with other things they already know. One learner mentioned that he even created a vocabulary categorizing system to help him learn new words by themes, such as food, sports, etc. The information collection-organising-review process is also the process of how learners build new schemata through interaction with the environment. Arbib (1992) pointed out that "when people try to recall a story, they reconstitute it in their own terms - relating the experience to a familiar set of schemas, rather than by rote memorization of details." The reconstitution process is embedded in the organising process, which is meant to connect what they newly learned to the knowledge and experience they already have.

Daniel: I just have a table set up and documents on my computer, and I just I have the character with the Pinyin and the meaning. I don't have it organised by what lesson I've done, and I also organised them by a sort of categories. By learning a new type of food, I put it into the food section or by learning a new sport I put it in the sports section so I can either search for a word by lesson or by a sort of category of what it means.

In Daniel's example, he reorganised the vocabulary by themes. During this process, he will first activate existing schemas in his mind related to various categories. Then, he will integrate the new words into their existing schemas, making connections between the new words and his prior knowledge to complete assimilation. In some cases, the learner may encounter a new word that doesn't fit any of the existing categories. In this case, he may modify or create a new schema to accommodate the new information. The organisation of words can also help the learner think about them hierarchically; by adding sub-categories or putting an existing category under a broader category, the learner will finally create a word or meaning nest. The organising is a repeating task, by constantly adding new words

or meanings that the learner encounters in new situations during use, the learner may reinforce their understanding. The same process may also occur during learning grammar. Though it is not obvious from the participants' retrospective reports in the interviews, it is reasonable to assume that the organising strategy is usually used with cognitive strategies. For instance, by organising new material into meaningful categories, students can activate their prior knowledge and conceptualize the information more broadly, which strengthens their overall comprehension. Moreover, these strategies encourage learners to *go beyond the immediate data, making connections between related concepts and ideas*. This process not only aids in organising and assimilating new information but also bolsters memory retention by creating a structured mental framework for easier retrieval. Consequently, the synergy between organising strategies and cognitive strategies fosters deeper learning, enabling students to assimilate, remember, and apply new knowledge more effectively. This hypothesis may need further investigation in the future studies.

The second most mentioned tactic for organising strategy is *organising the environment for better cognitive activities* (8 occurrences). The tactics include finding a quiet place that helps to concentrate on studying, preparing some tea or food for better concentration, playing some light music, and putting away digital devices.

Frank: Probably my best concentration thing is... it is like some people might have different things, for me, having a cup of tea or something just keeps me productive as I might just like, learn one 汉字 (character), take a sip of tea or something and do another one. It is like once my tea is empty, I lose focus, or I think about other things. And generally, I would probably leave my laptop off as well because I find technology... I much prefer books and learning from books because like, it is so easy to just hop on the internet, get distracted. So I like just books so that all around you is Chinese, and then that is your only focus. For me that is the best.

Organising the study environment helps in concentration by reducing distractions, creating a conducive atmosphere, and promoting a sense of control over one's surroundings. An organised study space enables students to focus more effectively on their tasks, leading to improved productivity and efficiency. Research has shown that noise or the chronic influence of prolonged exposure to noise may affect cognitive performance of information processing. High and continuous noise arousal can decrease the breadth of attention; however, at relatively lower levels of arousal, it may increase performance, as it helps the

individual to exclude irrelevant cues (Szalma & Hancock, 2011). That is why listening to light music or white noise sometimes helps concentration.

Only one occurrence relates to organising for affect and one relates to organising for communication. A participant mentioned that she would prepare some food in case she became tired and upset during studying. A break with food or drinks can comfort her and save her from upset emotions. Another participant talked about his experience of organising conversational sessions with his teacher. It is a flexible course, so he can balance his study and work perfectly. Overall, the organising strategies are used more often for cognitive purposes.

Organising is considered as one of the metacognitive strategies based on the schema theory, as reviewed in Chapter 2. Schema was first raised by Kant (1892) as organising structures that mediate how we see and interpret the world (see McVee et al., 2005). Bartlett (1932) stressed the constructive character of remembering that relates to schema and defined schema as "an active organisation of past reactions or experiences, which must always be supposed to be operating in any well-adapted organic response." From the cognitive psychology perspective, schema is a mental structure by which the learner organises information, and the organising act makes the material more memorable (Mandler, 2014; Oxford, 2011b). Thus, the organising strategy is important for learners to develop schemata for remembering or other cognitive processes, the themes emerged from the data confirm that the learners use organising as an important strategy in managing their studies.

In summary, **Organising** is important for developing schemas for remembering and other cognitive processes. The S²R Model assigns organising strategies into three dimensions: cognitive, affective, and social. **Organising** strategies are used for cognitive purposes more often than for affective or socio-interactive purposes. Learner's use organising strategies in different ways, such as collecting or capturing useful information or unfamiliar parts for later review, strategically adding new words to flashcards or lists, *using technology to organise learning materials*, *organising the learning environment*, *organising study time flexibly*, and *organising for emotions*. The synergy between **organising** strategies and cognitive strategies fosters deeper learning, enabling students to assimilate, remember, and apply new knowledge more effectively.

4.3.5 Monitoring

As it was reviewed in Chapter 2, self-monitoring was considered as an important component of metacognition by many researchers (Brown et al., 1982; Flavell, 1979; Kuhn,

2000). However, identifying the use of monitoring strategies can be challenge. According to the definition of strategy adopted in this study (see section 2.1.2), a certain level of consciousness is necessary when using strategies and unconscious when using strategies in order to make learning more efficient. **Monitoring** may turn into some degree of unconscious actions when the whole process becomes very familiar and habitual to the learner, unless new information occurs in this monitoring and control process. Thus, the quantity of **monitoring** use may not be precisely measured, and the data from learner interviews mainly serve to verify their usage scenarios for monitoring. Therefore, in this analysis, we focus on the scenarios that emerged in the interviews and hope to provide some useful design clues and ideas for the questionnaire. In the analysis of the interview data, **monitoring** was divided into 7 categories (see Table 4.9).

Table 4.9

Tactics and Occurrences of Obtaining and Using Resources Strategy

	Tactics	Occurrences
Monitoring (117 occurrences in 14 interviews)	Monitoring via a feeling of knowing	14 occurrences in 9 interviews
	Monitoring ease of learning	22 occurrences in 6 interviews
	Monitoring by Making a judgement of learning	26 occurrences in 10 interviews
	Monitoring cognitive performance during a task	7 occurrences in 6 interviews
	Monitoring affective state during a task	12 occurrences in 5 interviews
	Monitoring cultural understanding and communication in specific contexts	0 occurrences in 0 interviews
	Monitoring strategy use	11 occurrences in 6 interviews

1. Monitoring via a feeling of knowing

George: At the moment when I see a sentence, I would kind of just know it or not know it, but I would know the subject and the time pretty much straight away.

2. Monitoring ease of learning

Bill: I will probably need to review seven to ten times, before I remember the tone (of a character).

3. *Monitoring by Making a judgement of learning*

Daisy: We wouldn't really learn how to speak Irish. It was more just translating.

4. *Monitoring cognitive performance during a task*

Daniel: I my, you know, character recognition was terrible, and my pronunciation wasn't great. But this year, even just recently, I've really, I seem to have just, it is just become clear now if the teacher puts up a sentence on the boards, I can read it, I know what all the characters are. It is just kind of naturally starting to come to me now.

5. *Monitoring affective state during a task*

Frank: compare it to an extent like I noticed that I'm learning much more Chinese, much faster than the other two. That is also because I'm much more interested, interested in it, and I enjoy the classes a lot more because they're very fun and inclusive. So generally, I'm interested in something I learned much faster. So that is really good.

6. *Monitoring strategy use*

Bill: I feel that way (copying and writing characters) is not effective (for remembering); I have given up writing characters. There are too many, so I'd rather type. Actually, I used it for a long time, but about two years ago, I stopped, I feel it is useless. I won't write characters anymore. It's very tedious and time-consuming.

The first four belong to monitoring cognition, the fifth belongs to monitoring affect, and the sixth belongs to monitoring for context, communication, and culture. The seventh one falls into the three categories in Oxford's classification, but in reality, it is difficult to separate them, because monitoring cognitive, affective, communication, and cultural understanding often occur simultaneously. For example, a student mentioned that he gave up the exercise of writing Chinese characters because he felt it was useless, too tiring, and

took up too much time, so he chose to type. In this process, monitoring occurred when he judged his learning outcomes for writing Chinese characters and came to the conclusion that the exercise was not that helpful for him. He also experienced negative emotions such as tiredness and a feeling of waste of time, so switching from writing to typing was his strategy adjustment. According to Nelson and Narens' (1994) view, *monitoring* strategies should also come along with control.

Learner's monitoring levels are quite high

In the interview data, it can be seen that learners have a clear understanding of their monitoring of learning. They can easily make judgements of what they know and what they don't know, which part is difficult for them, which learning strategies are effective, and they can monitor their emotional changes, both good and bad. However, almost no one mentioned their monitoring of culture and context during the communication process, which may be limited by retrospective interviews. In addition, several people reflected on their previous language learning experiences and proposed that "if they could have done this or that" it would have been better. For instance:

Kate: I suppose if there was more conversation and stuff in (Irish) class, even if we were only role playing scenarios, but still kind of, you know, showing us ways that we can actually really use the language and even just letting us giving us the opportunity to actually try and express something for ourselves instead of just answering questions, or reciting what we've learnt. That probably would have been good for people's confidence, I think.

This kind of reflection is the result of the accumulation of language learning experience and constant comparison and thinking about learning activities, indicating that they have indeed applied monitoring to all aspects of language learning.

In the interview, almost all learners had a good understanding of their learning preferences. One learner talked about how he focused his attention on learning languages, and he analysed his traits quite clearly. He knows what things distract his attention and knows how to avoid them. This shows that he is often in a state of monitoring his own learning behaviour and is satisfied with the strategies he uses.

Frank: Because I am a social person, I often enjoy talking to people, which can distract me from studying. For instance, I might have an hour free to study Chinese,

but then someone might start a conversation, and I end up chatting instead. However, during weekends, when it's quieter, I tend to focus better. I usually have a cup of tea with me, and for that time, I'm able to concentrate fully. I also tend to leave my laptop off because I find technology distracting; I much prefer learning from books. It's too easy to hop online and lose focus. With books, I can surround myself with Chinese, and that becomes my sole focus, which I find to be the most effective method for me.

Monitoring helps to consciously regulate one's behaviour (Flavell, 1979). and in this regard, the interviewees of multilingual learners have shown a relatively high level. They are confident and determined when discussing their past learning behaviour, and they all reflected on their past learning experiences and mentioned some parts that could have been learned in a better way, and of course, they also discover that they may have negative emotions in some situations, but **monitoring** makes them aware of the need to make appropriate adjustments.

4.3.6 Evaluating

Monitoring and **evaluating** are listed as separate strategies in the first version of S²R Model but are combined in the second version. Although in practices, these two processes sometimes occur simultaneously, they are two distinct concepts. **Monitoring** involves ongoing observation and awareness of one's learning process, whereas **evaluating** focuses on assessing or judging the effectiveness of a learning method or the quality of their work based on evidence or criteria after the process has been completed (Rolheiser & Ross, 2001). This section will take a close look of the evaluating strategies and tactics employed by the learners.

A multitude of studies have demonstrated the positive impact of self-evaluation on enhancing learning (Andrade, 2019; Sitzmann et al., 2010) In research focused on learners' **Evaluating** strategies and instructional methods, several tactics have been identified as effective.

1. Reflecting on their learning and comparing their performance with their learning goals, objectives, or criteria (Al-Mwzaiji & Alzubi, 2022; Harris, 1997; Mohamed Jamrus & Razali, 2019).
2. Evaluating performance through native speaker's responses, peer assessment, or teacher's feedback (Alexander & Poch, 2017; Al-Mwzaiji & Alzubi, 2022).

3. Evaluating the effort taken to learn the target language, determining if it is sufficient and sustainable (Corno, 1993; Harris, 1997).
4. Taking proficiency examinations, quizzes, or other assessments to measure progress (Oxford, 2017).
5. Being aware of the feelings experienced during the learning process and evaluating whether they are beneficial or harmful (Oxford, 2011b; Wolters, 2003).
6. Evaluating the level of motivation (Oxford, 2011b; Wolters, 2003).
7. Evaluating the use of learning strategies and identifying which ones are helpful and which ones are less useful (O'Malley & Chamot, 1990; Oxford, 2011b, 2017).

Consistent with the literature, all seven tactics were identified in the interview data through framework analysis, with a total of 129 instances of *Evaluating* Strategies recorded across the 14 interviews. The distribution of the occurrences is as follows:

Table 4.10

Tactics and Occurrences of Evaluation strategy

	Tactics	Occurrences
Evaluating (129 occurrences in 14 interviews)	Evaluating of performance	25 occurrences in 13 interviews
	Evaluating of effort investment	17 occurrences in 10 interviews
	Evaluating by exams, quiz or proficiency tests.	27 occurrences in 11 interviews
	Evaluating of feelings and emotions	14 occurrences in 6 interviews
	Evaluating of motivation	7 occurrences in 5 interviews
	Evaluating by feedback	11 occurrences in 6 interviews
	Evaluating of strategies	28 occurrences in 12 interviews

Table 4.11 evidently shows that all the interviewees utilise evaluation strategies in their learning activities. When *assessing their language performance*, multilingual learners compare their achievements with their learning goals. On the other hand, more experienced

learners are aware of their personal learning objectives, rather than relying solely on the goals set by a course or teacher. This is explained in the **Planning** section (Section 4.2.1). For instance, Adam, who participated in the interview using Chinese, clearly articulated his learning goal, which differs from the typically preferred learning outcomes. Instead of focusing on pronunciation and handwriting that closely adhere to standard language norms, his goal reflects a personalised evaluation of his own language learning. This reflection and evaluation on their own learning performance clearly demonstrates self-regulation (Dörnyei & Ryan, 2015).

Adam: I know my pronunciation isn't very good, my character handwrite isn't very good, but I think my communication ability is ok, and I think that is the most important. I don't care if a Chinese praise me and say, 'your Chinese is really good, your pronunciation is really good', I don't care about that, I think I understand what you are talking about, and you understand what I am talking about, that is Ok.

Furthermore, learners often *assess their overall language proficiency by gauging their ability to understand various aspects of the target language*. For instance, they may consider how well they comprehend courses taught in the target language, reading materials, listening recordings, or TV programs, as it was said by Daisy.

Daisy: I remember when we first went to Shanghai University and all of the classes were all in Chinese and there was no English. And I remember I remember thinking in my head, I was like, Oh, it is OK because I'll hear it so much and I'll get used to it. But after quite a while, I realised that the classes were moving forward, but my understanding of Chinese wasn't getting better.

Evaluating performance may occur not only during the completion of a language task but also by continuously tracking their learning progress. Daniel gives an example about how he assesses himself.

Daniel: So I'll time myself and I won't use any resources. I'll see what I can get and what I can't guess. I'll use a different colour and look it up and write it down in a different colour, and I'll grade myself on what I got to see, how I'm doing, and I can just track my progress throughout each lesson.

Ten participants mentioned the *evaluation of their efforts* in learning different languages. They discussed the amount of effort they put into learning and compared their efforts across different periods of learning. Two examples here come from Charles and Daniel.

Charles: Yes, at that time, I just want to learn more characters as quickly as possible, I want to read more and improve my ability to recognise the characters. I want to improve it as soon as possible.

Daniel: I suppose compared to now, I wasn't the sort of organised with my studying, so I didn't really have much of a system. I mean, I'd do my homework. I was quite good at practising, so I'd practise with listening exams, and I watched a lot of Spanish TV shows on Netflix with subtitles in English.

The learners are aware of when they need to exert more effort, particularly before exams. Recognising the amount of effort, they put into their learning helps them track their progress and accomplish their goals (Corno, 1993; Harris, 1997). Additionally, someone mentioned being cautious about investing excessive effort into language learning, as they need to allocate their time and efforts wisely across various subjects or life tasks.

Frank: But I know, for instance, like the first semester and I noticed I was falling behind slightly in the class. So this semester I have set a goal, which is to catch up for being the top kind of half of the class. So I would be putting more work in more effort. So for instance, tonight I'll be doing a lot after this. And tomorrow for the Chinese exam, and I want to kind of keep maybe if I did, even just half an hour a day or something, I think I'm between a lecture or something. I think that would just help so much. I know it would help so much. I just need time to do it.

Evaluating by exams, quiz or formal assessments is a common tactic used by language learners, it was found in 11 interviews. In fact, all learners have the experience of taking language exams. Thirteen of them have either sat or planned to sit at least one proficiency language test for one of their languages. Whether it is a requirement for their language course or stems from personal willingness, proficiency tests are effective objective measures of learning progress, and many studies are focusing on language assessment (Green, 2013; Oxford, 2017). Daniel expressed his openness to the coming exam.

Daniel: we will sit the HSK3 exam next month. So I mean, that is a goal, but I didn't know that was determined by the school. I guess I personally don't set any goals, I'm quite open-minded.

Taking in-class quizzes or exams is another common way of evaluation, since 10 of the learners are college students, following the class schedule and participating in quizzes and exams provides a convenient way to assess their learning progress and serves as a key component of formative assessment (Trumbull & Lash, 2013). However, it is unclear whether all learners use these evaluations to identify their weaknesses and take corrective actions. Lisa, for example, shared her perspective on exams and how she sets her goals, indicating a primary focus on scores. This way may lead to overlooking valuable insights provided by the assessments, which could otherwise highlight areas for improvement.

Lisa: I look at my test results and then I'll say, Okay, I want this next or I want this type of grade next, and I'll keep trying until I reach the goals that I want. So I do have learning goals. My next, the goal is to reach 75 percent of my test. I think I reach 65 on my last one. I'm just trying to get into the 70s, you know. That is where I'm trying to be seventy, right now I'm on 60s, 65. OK. Hit the 70s. Yeah, that is my learning goal anyways, to reach the 70s and then 80s. But it is all step by step.

Emotional evaluation strategies were identified in six interviews, revealing that multilingual learners frequently employ these tactics. This indicates their ability to recognise negative emotions that arise during language tasks, learning activities, or communication. Negative feelings that mentioned by learners including tiredness, boredom, frustration, upset, and nervousness. On the other hand, learners can also identify activities related to the language that bring them joy or encouragement. This awareness is crucial as it allows learners to reflect on their emotional states and make necessary adjustments to their learning approach. Positive emotions play a role in activating the reward circuit in our brain and help generate motivation (Chiew & Braver, 2011). An example is given by Daniel.

Daniel: I really enjoy it now because I mean, last week, for example, I had a lot of assignments and work to do, and I was almost I was like, I was using Chinese class as a break from doing my assignments because I actually enjoy it so much.

Evaluating motivation is mentioned by five learners. Some of them assess their level of motivation and find ways to maintain or increase it. However, others recall experiences of demotivation and admit to having had low motivation to learn the language. This evaluation and reflection process allows learners to assess their motivation level, identify reasons for their motivation levels, and helps them stay engaged and committed to their language learning journey.

Wolters (2003) suggested that, theoretically, there is a curvilinear relationship between a learner's motivation and their use of strategies to regulate motivation. In other words, when motivation is low, learners may not have any reason to use learning strategies. Conversely, when motivation is high, learners may not feel the need to use strategies. It is only when motivation is at a medium level that learners tend to use more strategies to boost their motivation. The interviewees mostly reported being at a high level of motivation, which may explain why only five of them mentioned evaluating their motivation. For instance, George's answer can be a representation of the interviewees.

George: I wasn't really motivated to learn it (Irish) more so because my friends would tell me because their parents told them, we're never going to use this. If you were told, like if I was telling you to like, learn this skill and I'd say, Oh, but by the way, you're never going to use outside of classroom, you know, how much effort you're going to put into it. And I would just kind of get by that and I would do what would have to be done.

Evaluation, as stated by Oxford (2011), encompasses the sociocultural interaction dimension. Language learners may evaluate their proficiency based on their ability to interact meaningfully with others. The feedback from more capable language users is invaluable for language learners. Some interviewees expressed excitement about being able to communicate with native speakers. Learners often gauge their proficiency not only by the extent to which they understand the conversation counterpart, as it was mentioned above, but also by the extent to which they are understood, and they considering successful communication as a learning goal. Feedback from peers and teachers is also important for those who do not have an immersive language environment, as stated by Kate, she values the moments when she got feedback from others. Peer-assessment has been proven to efficiently enhance learners' self-assessment awareness (Al-Mwzaiji & Alzubi, 2022).

However, the interview did not find information about multilingual learners evaluating on cultural and contextual appropriateness during communication.

Kate: Like one time I happened to run into a Chinese person, and they found out I was learning Chinese and we had a conversation. But I was with some of my friends, and when they saw me speaking Chinese, this person, they were all just like "Wow", they just thought it was so cool they were so impressed. And I was like, I was really impressed as well. So I was like, Oh my God, wait, I really can have a conversation. So the moment like that I remember those and I'm like, Okay, I know it is pretty cool.

Finally, 12 learners mention the *evaluation of strategy use*. They reflect on the effectiveness of the strategies they have used or are currently using and explain why they adjust accordingly. Additionally, they compare their classroom learning experiences across different languages and select methods that they find suitable for themselves. In the S²R Model, Oxford (2011) divides strategy evaluation into three dimensions, namely evaluating cognitive strategy use, evaluating affective strategy use and evaluating sociocultural-interactive strategy use. However, during interviews, it can be challenging to distinguish the function of evaluating in such detail. For example, learners may evaluate an abandoned tactic as too tiresome to use, which involves evaluating affective strategies and evaluating cognitive strategy. Therefore, it is more practical to categorise them as a whole under the Evaluating of strategy. It is important to note that strategies in all dimensions can be evaluated.

It is possible that because the learners are aware of the interview's theme, they tend to introduce more strategies they have tried and highlight the ones that are currently effective. Overall, multilingual learners have discovered several useful strategies and tactics that benefit them.

Bill: At the beginning, my learning tactics were not very good, but I tried different things. How I learned Chinese, at the beginning, I learned at school and found that they were using traditional methods. We used textbooks, we had a teacher who taught us, and we used dictionaries. But I felt weird about using paper dictionaries when I was entering college. We have such useful apps, why did our teacher tell us to use paper dictionaries?

In summary, evaluating strategy plays a crucial role in language learning as it allows learners to assess their performance, progress, and the effectiveness of their learning activities. And multilingual interviewees are found all using Evaluating strategy, but with various tactics. The tactics involve 1. reflecting on their learning and comparing their performance with their learning goals, objectives, or criteria; 2. Evaluating performance through native speaker's responses, peer assessment, or teacher's feedback; 3. Evaluating the effort taken to learn the target language, determining if it is sufficient and sustainable; 4. Taking proficiency examinations, quizzes, or other assessments to measure progress; 5. Being aware of the feelings experienced during the learning process and evaluating whether they are beneficial or harmful; 6. Evaluating the level of motivation; 7. Evaluating the use of learning strategies and identifying which ones are helpful and which ones are less useful. The tactics within the Evaluating strategy, functioning in three dimensions, evaluating cognitive dimension, affective dimension, and sociocultural-interactive dimension. By regularly evaluating their learning, learners can make informed decisions and adjustments to optimise their language acquisition process.

4.4 Affective Strategies

Affective strategies and tactics are strategies that helps the learner deal effectively with attitudes, beliefs, emotions, and motivation and optimise them for learning (O'Neil & Spielberger, 1979; Oxford, 1990). In the S²R model it was separated from motivations in the second edition. As discussed in Chapter 2, this study adapts the latest version in 2017.

4.4.1 The Results with Oxford's Affective Strategy Set

Affective strategies are found in all 14 interviews, although, as discussed above, there are no clear boundaries between categories, categorisation is still important for us to understand the mental processes and behaviours of language learners. In this section my analysis consists of two parts, the first is Oxfords framework and her list of strategy set, the second is from the thematic analysis, about the tactics that were spotted from the interview data. The discussion will focus on two questions, the first one is the unique features of using affective strategies that showed in the multilingual learner's interview data, the second question is whether there is a curvilinear in affective strategy use in relation with language learning experience.

Table 4.11

Tactics and Occurrences of Affective strategies

	Tactic	Occurrences
Affective Strategies	Selecting the situation to influence emotions	8 occurrences in 5 interviews
	Modifying External situations to control emotions	4 occurrences in 3 interviews
	Deploying my attention to control emotions	4 occurrences in 4 interviews
	Changing cognitive appraisals of situations (internal or external) to shape emotions (reframe)	54 occurrences in 13 interviews
	Modulating my emotional responses	7 occurrences in 5 interviews
	Making Meaning as a means of handling emotions	25 occurrences in 11 interviews

Oxford has listed six strategies, and they are all mentioned in the interviews, see in table 4.12. It can be seen that, changing cognitive appraisals of situations (internal or external) to shape emotions is the most mentioned strategy, found in 13 interviews, and has 54 occurrences. However, rather than say the occurrences are about changing cognitive appraisals, the learners already having some cognitive beliefs and awareness towards their own learning ability and the target language, these beliefs, and awareness formed their emotional reactions towards the learning activity, which are rather positive. For instance, Charles, he found that learning a foreign language is very interesting, and that positive attitude made him happy every time when he had a chance to learn or to communicate.

Charles: At that time, for Spanish, it was when I started to learn Spanish, it was the first time, I found that I am so interested in a foreign language.

There was also a lot of positive self-talk in this category, as it was mentioned in many previous studies, positive self-talk is a good tactic to enhance emotional control.

Daisy: No, I don't think so. A lot of other people think so. So when I hear people used to say, Oh, I could never learn Chinese like, it is so difficult, it nearly encouraged me more to learn it because it is everyone said it was so difficult. So, I was like, I'll learn it and see if it is really difficult. And it is not.

Making meaning as a means of handling emotions has also been mentioned frequently, as it is found in 11 interviews. This strategy originated from Frankl's (1985) meaning developing strategies. In this part, it was found in the interviews that when encountered with difficulties, the learners have more volition to overcome it, because they think the activity, or the learning would be beneficial to their big goal. That is the meaning of learning language.

Adam: In my third year, when I was in China, I joined every society. Many of them I am not really interested. Like dancing or making movies, not interested at all. But I told myself, that I need to talk, I need to take part in. So I participated in a few sketches and became an actor. I was not interested in movies too, but I forced myself to do it, if there was an opportunity to output.

Connecting with people can make learning more meaningful and emotionally rewarding, even if it's just by using the language on special occasions or speaking a few words. As indicated by Iris, speaking a language with a friend who can understand it creates happy moments.

Iris: There's one of my friends whose mom is Chinese, so when she comes over, they try to say something small (in Chinese) here and there, even though she speaks English perfectly. It's kind of fun to just say something small (in Chinese). She and I would understand what other people don't understand.

From this perspective, it is really important for the role of teacher, a good teacher can be the meaning for a student to learn the language. As one of the interviewee stated that:

Kate: We all enjoyed his (her teacher) class so much the first year that I found myself wanting to keep going so that, I don't know, to make him proud or not disappointed or so.

Selecting the situation to influence emotions is found in five interviews, it including avoiding stressful situation and selecting emotional friendly situations. For instance, choose a language partner who is in a similar level with the learner helps for relieve the pressure to practice.

Jane: I think if they only speak Chinese to me, it would be very hard to communicate at first. But I think I would have to get used to it if that is the only way we can communicate. I can't, you know, there's no way to walk around that. I think I'd be most comfortable with someone who is like my friend who is the same level as me, and that would be easiest.

Modulating my emotional responses is found in five interviews, including the responses that the participants will do when they are in a stressful situation, such as taking a deep breath. Or when the conversation is not successful, just slow down and repeat. Modulated responses will help them to calm down and face the difficult moments better.

Frank: (A whole paragraph of reading) scares me sometimes. I take a deep breath like, no, it is not read the whole thing at once.

Deploying my attention to control emotions is found in four interviews. Some of the participants have noticed that thinking much might cause stress, so they would tell themselves to calm down and focus on what they need to do right now. And sometimes, learning language can be a way to help them reduce the stress from other subjects. Oxford's (2017) examples suggest that Deploying attention to control emotions can include avoiding stressful tasks by engaging in more relaxing or entertaining activities. However, this tactic was not observed in the interviews. There are two possibilities: either learners do not use this method to relieve pressure, or they used it and find it ineffective and therefore do not consider it as a tactic to mention.

Lisa: So don't focus on the emotions, just do it like, you know, it is going to be done anyways. Yeah. So just don't be scared. Don't be stressed. Just sit down.

Charles: When I was pursuing my PhD in Beijing, I would often read in Chinese or jot down new words and concepts. Every time, I felt relaxed. I believe that compared to writing my PhD dissertation, this was a relaxing activity that allowed me to learn new things simultaneously.

Modifying External situations to control emotions is only found in three interviews. The occurrences overlap with the items in Organising strategies in metacognitive strategies, which aim to create a relaxing environment for learning. In Oxford's examples, this

category also includes choosing to study with "smart" people in the class, listening to songs, or watching movies in the target language to make one feel better. However, these tactics might work for a certain period, but the comfort may fade away when they find it is not helping to improve proficiency, as mentioned by Charles:

Charles: Another way is to turn on the TV, so I can always hear the sound from the TV. But I found that even if I did it for a long time, I still couldn't understand it (Chinese). Then I told myself, it doesn't matter if I can't understand it, maybe after a few more months I will be able to. But I found that, after one year in Qiqihaer, I still couldn't understand it eventually.

Although all the strategies are found in the interview data, it can be seen that the distribution is not very even. Whether this is due to the unique characteristics of multilinguals remains to be further discussed.

In the next section, we will discuss the tactics used by multilingual participants and the patterns discovered from the data.

4.4.2 Positive reward system and language learning affective strategies

By thematic analysis, there are 12 tactics that are found mentioned by the different learners, see in table 4.13.

Table 4.12

Emerged tactics and occurrences under Affective Strategy

Tactics	Occurrences
Positive self-talk and positive imagination	20 occurrences in 10 interviews
Thinking from others' perspective to relieve the pressure	9 occurrences in 4 interviews
Choosing learning environment/partner to feel less stressful or more comfortable	8 occurrences in 5 interviews
Using deep breath or certain steps to calm down	5 occurrences in 4 interviews
Focusing on small goals or steps	18 occurrences in 8 interviews

Aware about minor improvements or positive feedback	21 occurrences in 9 interviews
Cherishing the chance to learn new things even if it is hard	25 occurrences in 8 interviews
Learning language in a easy and fun way	13 occurrences in 10 interviews
Expressing that they love learning languages	25 occurrences in 10 interviews
Gaining confidence from their past learning experience	39 occurrences in 11 interviews

“Positive self-talk and imagination” has been mentioned in both Oxford’s (1990) earliest version of categorisation and the first version of S²R model (Oxford, 2011). It is also a important composition of O’Malley and Chamot’s (1990) social/affective strategies. In the latest version of S²R model (2017), self-talk is one of the tactics mainly under Changing cognitive appraisals of situations (internal or external) to shape emotions. As Iris stated, everyone occasionally experiences frustration when trying to complete tasks. However, using self-talk and encouragement can provide the motivation needed to overcome the frustrated mood and get things done.

Iris: Yeah, I mean, we all have a small bit of time where you become annoyed about it. But then at the end of the day, you're kind of like, OK, well, I need to learn it. To do well in the exam, you know, just learn, learn what it is, and then it is kind of nice.

“Thinking from other’s perspective can relieve the pressure” is also a tactic under Changing cognitive appraisals of situations (internal or external) to shape emotions. Knowing that your pressure is normal, and others are all stressed makes you handle the feeling better, because you are not alone, and you know it will pass. The situation is not exclusive to pre-exam nerves. It also occurs when language learners attempt to speak in a target language. Knowing that people are generally kind and won't laugh at your mistakes can help to dispel this fear.

Kate: But, usually, it (exam pressure) passes fairly fast. So I'm, you know, of course, for exams and stuff, everybody gets stressed exams. But yeah, sometimes. But it passes.

Evan: ...you know, and the biggest thing is getting over the fear. All the fear is of speaking and people not understanding what you say, and people laughing at you... but they don't, you know, they don't, apart from a few Singaporeans. Nobody in China ever laughs at me, and no one here in Chinatown in Chicago ever laughed at me, you know, ever.

“Choosing learning environment/partner to feel less stressful or more comfortable” is a tactic that can be found under two strategies Selecting the situation to influence emotions and Modifying External situations to control emotions in the S²R model. As mentioned above, choosing a language partner at a similar level can make the learner feel less stressed. Learners can also select an environment that generates positive mood or feelings, which can improve learning. Organising the learning environment to minimise interruptions can also help maintain focus, promoting a calm and tranquil mood.

“Using deep breath or certain steps to calm down” is a tactic that only found under Modulating emotional responses strategy. Modulating a emotional response including metacognitive processes, one need to aware about the emotion first by monitoring and evaluating. The response needs to be effective and should be practiced again when a similar emotion reoccurs. Basically, the response can be anything that helps one reduce the emotional arousal and remain calm down. Thus, except the commonly used tactic, deep breathing, there can be all kinds of tactics, such as rubbing one’s hands, stamping one’s feet, drinking water, even including all the tactics mentions in this section, such as positive self-talk, for instance, “there is nothing to be nervous about”. Consciously following these steps can create a sense of control. The effectiveness experienced the first time can instil confidence for overcoming future nerve-wracking situations.

“Focusing on small goals or steps” can be found under two strategies Deploying attention to control emotions and changing cognitive appraisals of situations (internal or external) to shape emotions. It is reflected from eight interviews that focusing on small goals or steps makes them less worry about their exams or any stressful situations during language learning. It is not difficult to understand that action cures anxiety. Move one’s attention from what I haven’t complete to when I am doing now is a good way to reduce the stresses.

Achieving small goals can generate confidence to complete the next ones, initiating a positive cycle.

Frank: I think generally thinking too far in the future can just make you more stressed or whatever. So I just like to take a small piece at a time and just small goals for like a week or two weeks or something. Hmm. Generally, that is what I do.

“Aware of minor improvements or positive feedback” this tactic can be found under two strategies Changing cognitive appraisals of situations (internal or external) to shape emotions and Making meaning as a means of handling emotions. The improvements can be noticed by the learner himself/herself, and feedback are from the interactions with others. The awareness about the progressing and encouraging feedback is like a power bank, keep providing positive effects and motivation for the learners to learn more. During the interview whenever the participants were talking about their achievements, the happiness showing on their face is beyond words.

George: At the start probably (I had some negative feelings), because of the workload. But that wasn't... I wouldn't say, that was a universal thing. That was just because of my situation where I was having to catch up. But once I really started to kind of grasp the language, I found it was really easy. Well, not entirely easy, but in the sense of I never felt overwhelmed.

Nadia: I really like it (communicating with people). I think actually, it is been really helpful for my spoken Chinese as well because I wasn't confident speaking in it before, because we'd only had like a year of online classes with Zoom, so I wasn't really used to speaking it with people in person. But now I'm just kind of like communication more than like having it being perfect. When people understand... So that helped a lot.

“Cherishing the chance to learn and practice even if it is hard” is a tactic can also be found mainly under the two strategies, changing cognitive appraisals of situations (internal or external) to shape emotions and Making meaning as a means of handling emotions. Challenges in the learning process may result in negative emotional responses. However, by altering the cognitive appraisal, one can view these difficulties as opportunities for

learning. The resulting sense of achievement can then become more exhilarating. Sometimes, learners embrace challenges as they see them as stepping stones towards achieving their larger goals, understanding that enduring current discomfort is part of the process. As stated in the above quotation by Adam, the reason he decided to join societies he wasn't really interested in was because he wanted more opportunities to output in the target language. Interestingly, while Chinese is often perceived as a difficult language, learners actually find it easy. Furthermore, they feel a great sense of satisfaction and reward when their friends discover they can speak Chinese.

Daisy: But I think a lot of the time, especially my friends who didn't study languages, they always used to say to me, you do Chinese. They were like, You should be really proud of yourself that you just studying Chinese. That was quite encouraging. Yeah, that was quite encouraging just to kind of keep me going.

“Learning language in an easy and fun way” This tactic was identified in 10 interviews and showed no clear pattern of association with a particular strategy, as it was found in five out of six strategies. It is apparently that learning language in a way that makes you feel happy can generate good emotions. the ways that loved by the learners including watching movies or TV shows, listening to songs or podcasts, using a well-designed app to learn, reading books, joining healthy competitive games in the classroom, doing the exercises that they love to do. Learning with joy is absolutely the best part of learning a language, though it might not always be fun or easy, it is a great antidote to the boring and difficult aspects. While “Expressing that they love learning languages” is not technically a tactic, 10 out of 14 participants stated that they enjoy learning languages. They find it easy and don't typically experience significant stress or feelings of being overwhelmed. This pattern is common among these multilingual participants. And we will discuss about the reason in the later section. Here is just one example from Lisa, she emphasised several times that she feels learning Chinese is fun.

Lisa: I never really have that feeling (that Chinese is difficult). I never actually have that feeling because I just think it's fun to try and learn it. But if I ever do have that feeling, to motivate myself, I'm just thinking, "OK, let's just do it" , just to get it done. You know, I just think it's fun. I don't really have that feeling, though, you know? Yeah, I just think it's fun. You know, acknowledging the words and applying

them to your speaking and oral practice, I just think it's fun. I feel like the more I know, the better, because I will be able to do that.

“Gaining confidence from their past learning experience” this is the item that occurs most frequently (39 occurrences in 11 interviews). Though confidence is not typically viewed as a kind of affect, it is a state of being certain about the truth of something or having faith in one’s own abilities, usually be considered as self-efficacy. Confidence can lower feelings of stress and anxiety (Galanakis et al., 2016; Rhee et al., 2013), and contributing to a more positive mood. The confidence gained from past learning experience come from two parts, the first part is as L2 learners, and the tactic mentioned above, by complete small goals or steps. Another part is from the previous language learning success by multilingual learners. As it was mentioned above, the positive cycle helps learners gain more confidence, reduce stress and anxiety, and stay in a positive mood while learning languages. Nadia gives an example here.

Nadia: Yeah, I think especially with Irish, because it is such a challenging language, and Mandarin is also really, really hard. I feel like I have confidence because I got good at Irish at some point. So I know that by using the same techniques, I can get good at Mandarin.

Generally speaking, they affective strategies or tactics found in the interviews are quite positive. The learners may encounter minor affective problems that they need to use some tactics to overcome. From the interview, it can be found that there are typically three kinds of situations that may cause anxious feelings, namely when starting to learn a new language, when exam is approaching, when speaking in target language. However, according to the interview, the affective problems are not severe for the participants, they can usually manage their emotions, put them under control so that the emotions won’t influence their study. Why the multilingual learners seem to have less affective problems? Figure 1 illustrates how multilingual learners benefit from their successful past language learning experiences. This success refers to having learned a language at school and passed the exams. This experience instils confidence in them to learn new languages and tackle challenges during the process.

When difficulties arise (represented by the orange part in Figure 4.1), learners employ various tactics to manage their emotional problems (shown in the pink section in Figure

4.1). These strategies help direct their attention towards smaller goals or the immediate task at hand. After overcoming these difficulties, they experience a rewarding feeling which further boosts their confidence and emotional state.

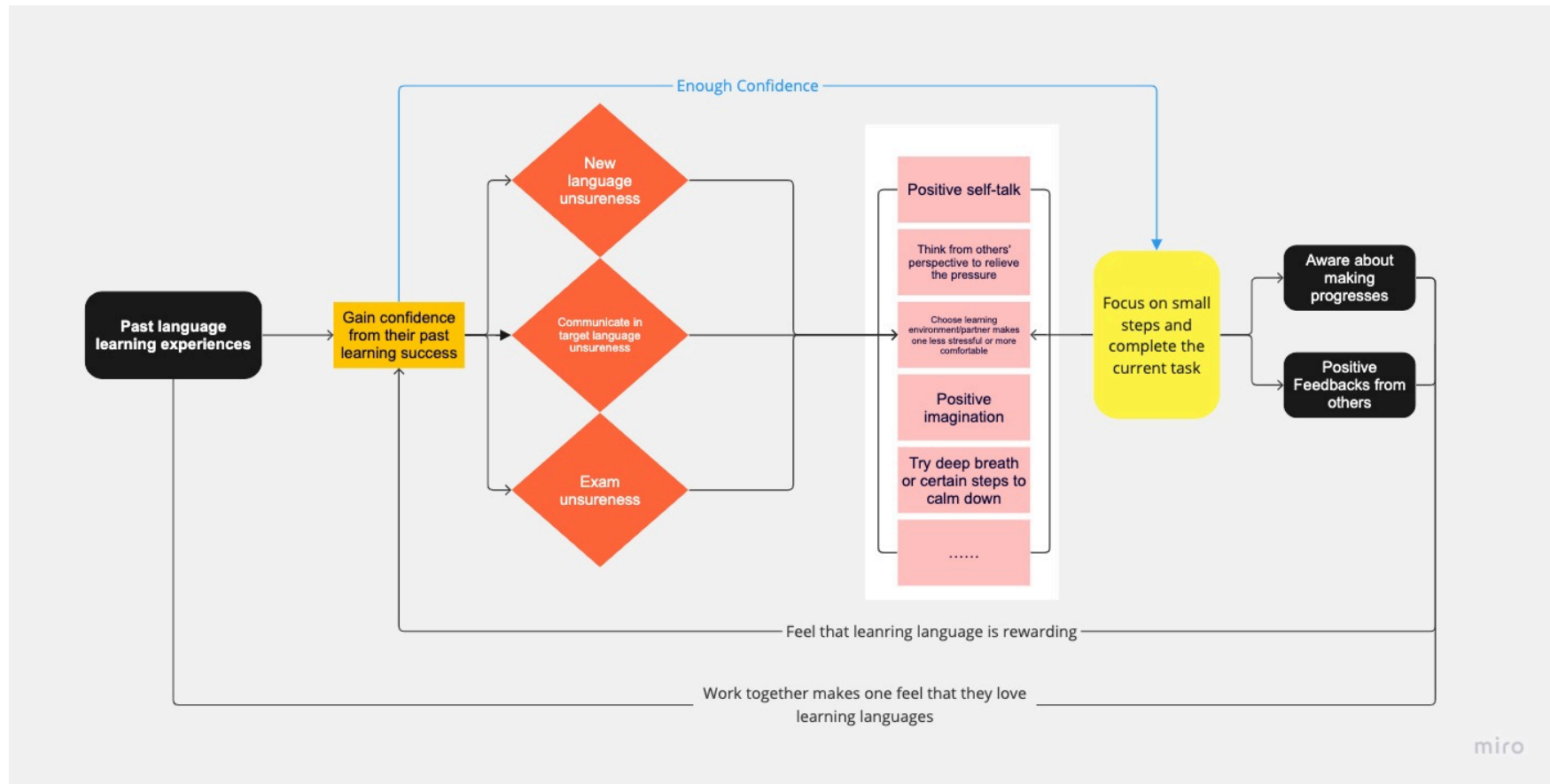
With increased confidence, these problems become less daunting. Learners then experience less negative emotions, focusing instead on completing tasks step by step. This cycle generates positive feelings that enhance their learning experience. They find learning languages rewarding, thereby strengthening their love for language learning.

From this perspective, there may be a survivor bias in accounts of using affective strategies for multilingual learners. Similar to the regulation of motivation, the amount of motivation and the use of motivation regulation strategies do not have a completely positive correlation. Those with less motivation may not use motivation strategies simply because they do not want to learn. People with a lot of motivation also may not use them, because their motivation is sufficient. Only those in a middle state may need to employ more motivation strategies to help improve their motivation (Wolters, 2013). Similarly, in the case of using affective strategies, people with fewer emotional problems may use fewer affective strategies or tend to use more positive emotional strategies, such as activating a positive cycle. Conversely, people with more emotional problems may tend to use more affective strategies, or more negative strategies such as avoidance. So, if one's emotional problem is severe, such as an anxiety disorder, the likelihood of learners adopting affective strategies to solve it on their own will be lower. In short, the relationship between a learner's emotional problem and the use of affective strategies needs to be examined in further studies.

The previous literature review section found that learners from an Indo-European language background, who are studying Chinese, seem to use affective strategies less frequently (See Chapter 2, Section 2.3.1). Chinese is often studied as a third language or additional language in Ireland and many other countries (Lei & Xie, 2017). Given this, it is likely that the learners in those studies are mainly multilingual, even though their language background wasn't considered in those studies. Their previous language learning experiences may create a positive cycle and help reduce emotional issues during the language learning process. This might explain why affective strategies are found to be used less frequently in these studies.

Figure 4.1

Positive cycle of affective tactics of multilingual learners



4.5 Motivational Strategies

As reviewed in Chapter 2 Motivational strategies are added to the S²R model in the second edition. It was separated from Affective strategies. Motivational strategies are adopted by learners to generate and maintain motivation in their language learning. The qualitative data analysis revealed that, in total, 83 occurrences were coded from 14 interviews about motivation strategies.

4.5.1 The Results with Oxford's Motivational Strategy Set

As shown in Table 4.14, the strategy of *self-consequating*, which involves setting personal rewards or consequences, was noted 9 times across 5 interviews, indicating its moderate usage among learners. The most frequently reported strategy was using positive *self-talk and positive self-image*, with a notable 38 occurrences in 12 interviews, highlighting its popularity and importance. Interestingly, the strategy of *using defensive pessimism*, where learners set lower expectations to prepare for the worst-case scenario, was not observed at all, with 0 occurrences in the interviews conducted. *Enhancing learning*, a strategy involving the use of diverse and engaging learning methods, was also commonly reported, with 29 occurrences in 11 interviews, suggesting its significant role in maintaining learner interest and engagement. Lastly, *controlling attribution*, which is about how learners attribute their successes and failures, was mentioned 6 times across 5 interviews, showing a relatively less frequent but still present use among learners.

Table 4.13

Oxford's (2017) Motivational Strategies set and occurrences

S ² R Model (2017) Motivational Strategy Set	Strategies		Occurrences
	Self-consequating		9 occurrences in 5 interviews
	Using Positive Self-talk and Positive Self-image		38 occurrences in 12 interviews
	Using Defensive Pessimism		0 occurrences in 0 interviews
	Enhancing Learning		29 occurrences in 11 interviews

Controlling Attribution	7 occurrences in 6 interviews

While positive self-talk, self-image, and learning enhancement are preferred motivational strategies, four out of five learners reported using the *self-consequating* strategy in learning languages prior to Chinese. Among these respondents, four cited passing an exam, with the reward being college admission, as a motivating factor, as exemplified by Iris. Another participant, Adam, mentioned the survival need in a target language environment as his motivation when he first started learning the language, viewing this as the worst outcome if he failed to learn the target language.

The use of *self-consequating* aligns with the discussion in Chapter 2 about the relationship between motivational theoretical frameworks and is often associated with the 'ought-to self'. Furthermore, the lack of defensive pessimism suggests that these L3/AL learners are generally confident in their language learning abilities.

Iris: You have to keep one language because it is usually a requirement for getting into college.

Adam: At the beginning of learning Chinese in China, I didn't care about the grammar, (I learn it) just because I don't want to get lost, I don't want to be deceived for money, I don't want to die.

4.5.2 Motivational strategies emerged from the data

As indicated in Table 4.15, the data does not wholly align with the motivational strategy outlined in Oxford's S²R model. This suggests that L3/AL learners might employ a different motivational pattern. Therefore, a thematic analysis was conducted, using the motivational theory frameworks (SDT, L2 MSS) discussed in Chapter 2 (See Section 2.2.4). This analysis revealed three main themes: *identify and enhance intrinsic motivation*, *think about the ideal L2 self*, and *strengthen the ought-to L2 self*.

Table 4.14

Motivational strategy themes identified in the interviews of L3/AL learners

	Strategies	Occurrences
Motivational strategies	Identify and enhance	54 occurrences in 13
	intrinsic motivation	interviews

emerged in data	Think about the ideal	42 occurrences in 12
	L2 self	interviews
	Strengthen the ought-to	20 occurrences in 9
	L2 self	interviews

Identify and Enhance Intrinsic Motivation emerged as the most frequently mentioned strategy, appearing 54 times across 13 interviews. This high occurrence suggests that the majority of participants actively work to recognise and strengthen their inherent interest and enjoyment in learning the L3/AL language. As Iris noted, learning Asian languages has always been her interest. Driven by this passion, she chose to study Chinese in college. This intrinsic motivation remains her primary driving force.

Iris: For me, it was to do with... Well, I always had an interest in Asian languages, because they're just completely different. Like, I kind of thought, you know, it's something where I wanted the chance for a native speaker to be able to teach me, whereas with something like French or German, I thought, "OK, I could probably maybe self-study those if I wanted to," because they're somewhat similar to English and make more sense. But obviously, Chinese is completely different. Like, you know, it would be hard to take it upon yourself to start learning. It's kind of easier to be taught by someone else. So that was something I really wanted to try.

Think about the Ideal L2 Self was noted 42 times in 12 interviews. The high occurrence suggests that many learners are motivated by the aspirational image of themselves as successful language users. They use this vision as a driving force in their language learning journey. Daniel and George's quotations are typical examples of how the ideal L2 self-influences a learner's motivation.

Daniel: I started with Spanish and Chinese. And again, I think I made the better choice with Chinese because I already have the Spanish. So to build up a second language is extremely beneficial. And I think just personally, in the future, I would have a preference towards living abroad, possibly in Asia, because I have a lot of family. I have cousins in Singapore, Bangkok, Hong Kong and Shanghai, so I would have a preference towards living in Asia when I'm older.

Charles: Actually, at that time, my idea was to study international relations together with Chinese students at a Chinese university. I really wanted to understand China's perspective on international politics and understand it from this angle. Because I remember back then when we were in university, we read many books and articles about international politics in English or German. But this way, if you want to understand the perspective of China or Russia, it's quite difficult - I felt you really need to go there yourself. Later, after having exchanges there, I realised that was the main reason why I wanted to study at Peking University - to understand China's perspective on international relations and political science, to understand their interpretation, and to see how these courses are taught there.

Adam: When I was 18, in China, I told myself... oh, when I was a junior in college, I wanted to be able to understand every character on store signs. That was my input goal, and when I went back, I could understand most of them, so I think that strategy worked really well. I didn't worry about things like "oh what does this radical mean," I just focused on being able to understand.

Strengthen the Ought-to L2 Self was mentioned 20 times across 9 interviews. While less prevalent than the first two strategies, it still represents a significant motivational factor for a subset of learners. This finding implies that though most of the learners can identify their intrinsic motivation for learning the L3/AL, some external pressures and obligations also play an important role in motivating them to achieve their short-term goals. As George said, he was afraid of being left behind, and after a while, when he managed to keep up, his motivation became getting a good grade. As mentioned earlier, this part of occurrences includes motivations related to previous language learning experiences. These motivations were influenced by college entrance exams. However, even though learners also face exams when studying Chinese as a L3/AL in college, the pressure is typically less intense than the stress of gaining college admission.

George: My motivation then was because I thought everyone else was studying, and I just didn't want to be the person who couldn't speak Chinese in the class...I want to get an A overall in the module by the end.

Table 4.16 presents a matrix that displays Oxford's motivational strategy set and the themes that emerged from the interview data. There is some cross-coding, thus the numbers of the

two sets are not completely the same as in the previous tables. The pattern of the relationship is shown in Figure 4.2. There are four solid lines and three dotted lines. The solid lines indicate a strong relationship, while the dotted lines suggest a potential relationship based on a relatively small number of occurrences.

Table 4.15

Matrix present of Oxford's motivational strategy set and the motivational strategy set emerged in L3/AL learners' interviews

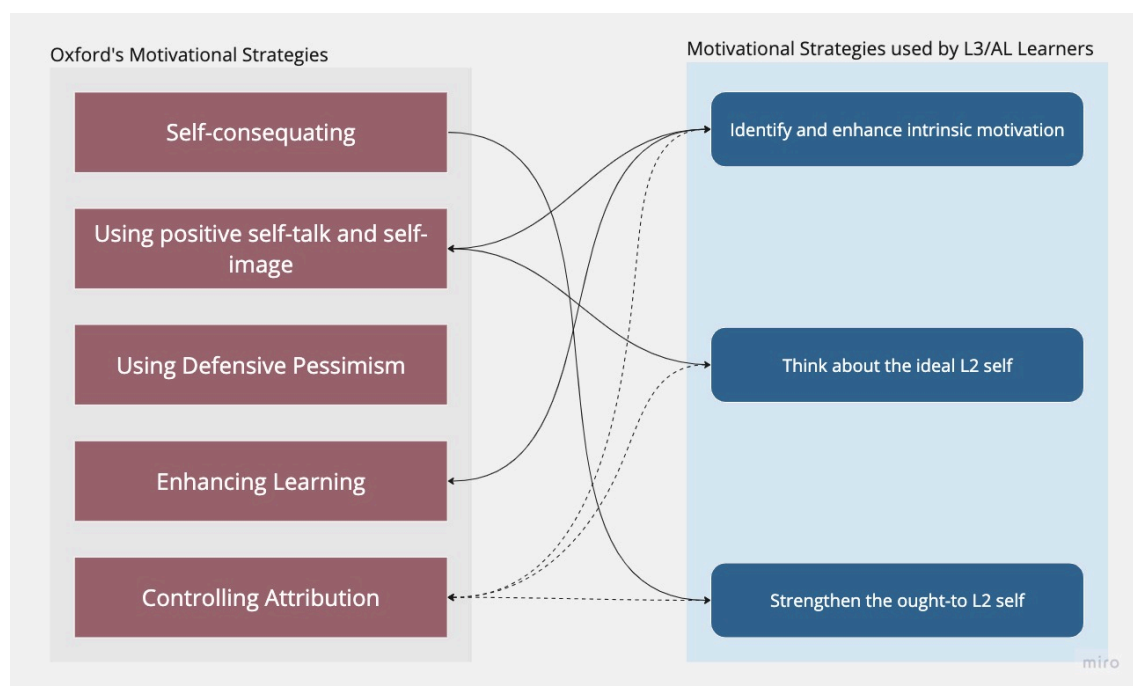
Occurrences	Controlling Attribution	Enhancing Learning	Self-consequating	Using defensive pessimism	Using positive self- talk and positive self-image
Identify and enhance intrinsic motivation	3	24	0	0	12
Think about ideal L2 self	2	6	1	0	26
Strengthen the ought-to L2 self	3	3	8	0	4

Note. The table is generated by using NVivo.

The head row cells are Oxford's (2017) motivational strategy set and the head column cells are the strategy set emerged in the interview data.

Figure 4.2

Mapping between Oxford's motivational strategy set and the motivational strategies employed by L3/AL learners



The occurrences under the theme *Identify and Enhance Intrinsic Motivation* are primarily combined by **Enhancing Learning** and **Using Positive Self-talk and Positive Self-image** in Oxford's motivational strategies. The strategy of **Enhancing Learning** is mainly associated with **Identifying and Enhancing Intrinsic Motivation**. As stated by Charles, his intrinsic motivation for learning Spanish is to communicate with classmates who were exchange students from Argentina. The motivation to make friends enhances his learning of Spanish as well.

Charles: At that time, I didn't just want to learn the language. I wanted to converse, to truly understand people. Who are they? What are they doing? Where do they come from? Are they also interested in my country? I wanted to share my thoughts with them. So, from a conversational perspective, I wouldn't be too nervous. I then realised that language is just a tool. Yes, the most important thing is communication and conversation, where two people can discover new things together.

Using **Positive Self-talk and Positive Self-image** is also a component of **Identifying and Enhancing Intrinsic Motivation**. This typically occurs when learners affirm their

motivation and perceive it to be at a high level. These affirmations are considered positive self-talk. As depicted by Henry, this affirmation talk would also enhance his intrinsic motivation as well as his instrumental motivation.

Henry: For learning Chinese? Em, honestly, I just wanted to learn it. I like having languages. You know, people like having knowledge, but I think it is cool to have a lot of languages. And I mean, because it is the most spoken language in the world. Maybe. Yeah. Well, you know, it is useful as well for career prospects, it is a good language to have. I don't think many people in Ireland would have that, you know, that is kind of the part, but really, I just thought it would be fun to learn.

Think about the Ideal L2 Self mainly consists of ***Using Positive Self-talk and Positive Self-image***. It reflects the importance of positive psychological approaches in forming and maintaining an ideal L2 self-image. Self-image accounts for most of the occurrences in this part, as reflected in what Kate said about her future vision of herself.

Kate: And maybe in the future, I might be interested in doing a master in translation. And so, you know, it has to have quite a good level for that (Chinese). So I guess that could be a long term goal to get a high level so that I'd be able to study that in China.

The relationship between ***Self-consequating*** and ***Strengthen the ought-to L2 self*** has been discussed in the previous part of this section, that ***Self-consequating*** is mainly a motivation generated from the ought-to L2 self. As there are other ways to strengthen the ought-to L2 self as shown in the above quotation from George, the solid line has only one direction.

The three dotted lines all originate from control attribution. The attribution theory (Weiner, 1985) suggests that each factor, which people perceive as contributing to their successes or failures, has three dimensions: locus, stability, and controllability. Attributing successes or failures to factors within their control, such as their effort, which are changeable and internal, could potentially boost students' resilience and determination to reach their learning objectives more effectively (Dörnyei, 2001; Mori et al., 2010). The data shows that the three occurrences of control attribution related to intrinsic motivation come from learners' affirmation that they can learn language well because they like it. This is a stable, intrinsic factor. This assertion is mainly based on their previous language learning

experiences. Two occurrences are associated with the ideal L2 self. The reason might be that, at this stage, the learner has a clearer vision of themselves, exemplified by Adam's statement about why he doesn't practice as much as he used to. The last three occurrences are associated with the ought-to L2 self because the learners have psychological preparation for failures. They have had similar experiences from previous language learning processes, and they already know that failure is not unchangeable. The situation will improve as long as they keep working on it. Thus, failure is under control, and it indicates that you need to work on it, as seen in the quotation from Frank.

Adam: I have an interest in languages, but that is not my biggest interest, so I won't practice every day.

Frank: Because I've failed and passed exams with other languages, I've been completely confused in different situations, so I'm used to that feeling of being confused about that. So for me, I'm used to the negative feeling so I can move on without worrying about it too much, knowing that it is all right. So get to my goal or whatever. I just think put a bit more work in. Whereas I think other people, for instance, if they only have English and they're learning Chinese and they feel that they're failing in learning Chinese and negative feelings because of that, I think it is much easier for them to give up. Whereas I know that if I keep putting the work in from my past experience with Irish and French that I will learn and get better at the language.

However, the occurrences of control attribution are few, it is not enough to conclusively associate it with the three themes. More data and further studies are needed to validate their relationship, and further discussion can be found in Chapter 5 (section 5.4.3).

4.6 Social strategies

The qualitative data analysis utilised Oxford's (2017) social strategy set, as reviewed in Chapter 2. In total, 224 occurrences were coded from 14 interviews about social strategy (Table 4.17). The bracket shows the number of interviews and occurrences related to Chinese language learning. Table 4.17 shows that the social strategy *Interacting to learn and communicate* was the most commonly used, mentioned in all 14 interviews with a total of 168 occurrences, 98 of these occurrences were related to Chinese language learning,

which means 70 of them are used for learning other languages. The other two strategies, *Learning despite knowledge gaps in communicating* and *Dealing with sociocultural contexts and identities*, were mentioned in 9 interviews, with 28 occurrences each. However, *Learning despite knowledge gaps in communicating* had more occurrences related to Chinese language learning (24) than "Dealing with sociocultural contexts and identities" (13).

Table 4.16

Oxford's (2017) Social Strategy set and occurrences

	Strategies	Occurrences (Chinese)
Oxford's (2017) Social strategy set	Interacting to learn and communicate	168 (98) occurrences in 14 (14) interviews
	Learning despite knowledge gaps in communicating	28 (24) occurrences in 9 (9) interviews
	Dealing with sociocultural contexts and identities	28 (13) occurrences in 9 (6) interviews

4.6.1 Interacting to learn and communicate

The strategy *Interacting to learn and communicate* was mentioned most frequently in the interview data. Many tactics were identified within this category. From a contextual perspective, learners interact not only with peers and teachers in class or on campus, but also with people outside school or on the internet. The learners actively engage in interaction and collaboration, benefiting from other's response and feedback. For instance, Iris found that searching questions and read the answers written by other people are helpful, and she would also reach out to the teacher for help.

Iris: A lot of people on different forums also ask the same questions, and then native speakers can refer to them and give you a more personal kind of explanation of things as well. So I would look something up if I wasn't sure about it or just email the teacher to go over it in the next class.

Kate received corrective feedback from her teacher and gradually mastered the pronunciation.

Kate: I guess a lot of that is going to main class that, you know, the teachers will correct me if I'm saying things wrong. So I guess that gradual correction really helps with the tones anyway.

Eight out of 14 participants have lived in the country of the target language. Those who haven't had the opportunity to visit the country have used digital platforms and resources to practice with native speakers. For example, George has had both online and offline interactions with native speakers.

George: Like, I'm always on, like iTalki (an online language live tutoring platform) and talking to Chinese native speakers or even just say, Chinese students in university.

Nadia has made a friend who speaks her target language, and they meet regularly for language exchange.

Nadia: Um, it is like it is hard, like after I meet with her, my brain is so tired because it is like it, like a few hours of like just like listening really, really hard to what she's saying, but we can actually communicate pretty well, because her English when she first came here was not completely fluent. And obviously my Mandarin is not fluent, but we could kind of fill in the gaps of what each of us think. Yeah. So I feel like I can communicate OK with her. Like we manage, we get by.

Learners all admitted that they benefited from the interaction and communications, even some of them feel it is hard at first, like stated by Jane.

Jane: I think if they only speak Chinese to me, it id be very hard way to communicate at first. But I think I would have to get used to it if that is the only way we can communicate.

Adam also indicated that he forced himself to participate in some activities to practice the language.

Adam: When I was in my third year of college in China, I joined every club, many of which I had no interest in at all, such as dancing and filmmaking. I had no interest in these, but I told myself that I just wanted to practice the language, and I would participate in any activities.

Active engagement in interaction not only reflects learners' autonomy but also indicates that they possess the psychological resilience to cope with moderate pressure and nervousness.

Learners extensively employ the social strategy of *interacting to learn and communicate* in various ways. This strategy, applied both within and outside educational settings, facilitates a rich spectrum of language learning experiences. It encompasses peer learning, collaboration, and receiving feedback from teachers, all of which enhance learners' language competencies. Even though some learners initially find this strategy challenging, they acknowledge the substantial benefits it provides in their language acquisition journey. Ultimately, "interacting to learn and communicate" is proven to be the most popular strategy among these L3/AL learners, and it allows them to more clearly appreciate the role of language learning and enjoy the pleasure of communicating with others.

4.6.2 Learning despite knowledge gaps in communicating

The strategy *Learning despite knowledge gaps in communication* was identified in nine interviews with 28 occurrences. This strategy was adapted from *Overcoming Knowledge Gaps in Communication* from the old version of S²R (Oxford, 2017). This modification aligns with Burch's (2014) perspective that language learning strategies are products of the social context of interaction, not pre-planned or compensatory tactics for language deficiencies.

Most occurrences of the *Learning despite knowledge gaps in communication* strategy are associated with Chinese language learning (24 out of 28). This is likely because Chinese is the most recently learned language for most participants and this study focuses on Chinese language learning. Four occurrences are related to learning other languages, suggesting that learners also employ this strategy when studying different languages.

Six tactics emerge from the data under this strategy category: (1) repetition, adjustment in pronunciation, and simplification (2) use of digital translation tools, (3) body language and gestures, (4) code-switching, (5) active use of contextual cues and partial understanding, (6) seeking clarification and alternative explanations.

Repetition, adjustment in pronunciation and simplification. Learners attempt to repeat words or phrases when faced with misunderstandings, sometimes adjusting their pronunciation based on feedback or simplifying their expressions. This illustrates an iterative approach to communication that also improves their pronunciation and develop more ways to express themselves.

Daisy: I think I will often try to repeat it. And then like if they were like, I don't know what you're saying, I would often like that.

Evan: I just say it another way. Then always, they will always understand, you know? I have never... like you can use a hand gesture or whatever you know or point something out. But generally, what I found is that if they don't understand, I say I will try to say it in another way, you know, I use some other words or some other basic words in my vocabulary.

Utilisation of Digital Translation Tools: participants frequently mentioned turn to apps for instant translation services to bridge communication gaps. This reflects an integration of technology into learning and communication processes, facilitating immediate clarification and learning opportunities.

Henry: I hope I would try just to get across my point. But if they couldn't, I don't know, I'd probably go to Google Translate or I'd try and really simplify it, with the keywords which I knew were correct.

Body Language and Gestures: The use of non-verbal communication, such as facial expressions and hand movements, is a common strategy to overcome verbal communication barriers.

Daisy: I thought it was really useful to use like facial expressions and also things like hands where you kind of move your body or you use your hands. Because I think back in (China) that can help a lot. Yeah, but yeah, but oftentimes when... Yeah, I think that was only you can only do that for certain situations really, not a lot of situations you can use your hands.

Code-Switching and Simplification: learners sometimes switch to English when facing difficulties. The use of English seemingly relying on English as a Lingua Franca.

Nadia: Um, I will try and say in Chinese. And then if she doesn't understand, I'll switch to English.

Active Use of Contextual Cues and Partial Understanding: Some learners rely on their ability to grasp the gist of conversations with partial understanding, using context clues and known vocabulary to infer meanings. This strategy demonstrates a reliance on cognitive and inferential skills to navigate language use in complex social interactions.

Evan: And actually, I mean, I notice as everyone says this, you really only need to understand half of what is being said to understand the meaning, that is all. I can follow the conversation, even though I only understand half what is being said. I can still understand the conversation, you know?

Seeking Clarification and Alternative Explanations: Asking for clarification or alternative expressions is another strategy, indicating an active engagement with the learning process and the social context of language use. This not only aids immediate communication but also contributes to long-term language acquisition by expanding the learner's linguistic and cultural knowledge.

Frank: I will look confused at them; I might be like probably scratch my head or something. And then generally, I ask, I probably ask, what is that mean? Or like, if they could like, say it in a different way then I might be able to understand it. But generally, it is like I will ask, what does that mean that I might they'll tell me and that I might know for next time kind of thing.

In Oxford's S²R framework (2011b), she includes two tactics: *topic avoidance* and *pretending to understand*. However, these tactics were not observed in the interview data. This might be because learners do not view them as methods to bridge knowledge gaps during communication, and a partial understanding doesn't significantly obstruct their ongoing interaction.

In conclusion, the strategy ***Learning Despite Knowledge Gaps in Communication*** is effectively employed by learners in a variety of ways. These strategies, often used in

combination, allow learners to navigate communication complexities and continue learning in the face of linguistic gaps.

4.6.3 Dealing with sociocultural contexts and identities

The strategy *Dealing with sociocultural contexts and identities* was mentioned in nine interviews, appearing 28 times. This strategy involves exploring the culture and customs of the target language, adjusting one's social roles, identity, power, and media presence while learning a new language, and negotiating community integration and sociocultural acceptance. Throughout the interview data, learners exhibit openness and curiosity towards the culture of the languages they are studying. They also demonstrate confidence in their identities and generally do not show concerns about integration and social acceptance.

Based on the interview data, five learning tactics emerge under this strategy category *Dealing with sociocultural contexts and identities*. They are: (1) cultural immersion through media and personal interests, (2) strategic language choice for social integration, (3) interacting to develop understanding of a cultural group, (4) overcoming challenges through positive reinforcement, and (5) leveraging language for cultural exploration and expansion of worldview.

Cultural immersion through media and personal interests: Learners immerse themselves in the target language and culture through media and activities aligned with their personal interests, an appreciation for the target culture serves as a significant motivator for language learners. For instance, Jane demonstrates using personal interest in anime as a method of language learning, suggesting engagement with Japanese culture.

Jane: And I mean, sometimes when I'm watching anime I can play on my phone, and I don't look at the subtitles.

Strategic language choice for social integration: learners strategically choose languages to learn based on social and professional contexts they anticipate engaging with, demonstrating an adaptive approach to navigating sociocultural landscapes. Adam shared a story about speaking Chinese with natives and receiving appreciation.

Adam: Previously, I worked at a security company, and most of the camera manufacturers were Chinese... there was a group of visitors came from China one day, My dad is the manager, and his boss, knowing I could speak a bit of Chinese,

had me come in to be a guide. I explained what the system can do, everyone was like “amazing”.

Interacting to develop understanding of a cultural group: Interactions with native speakers and using the language in social settings play a crucial role in language acquisition, enhancing both linguistic skills and cultural understanding. One example is shared by Evan about his experience of learning Mandarin in Singapore and China, noting that people in different places may have different attitudes towards new language learners.

Evan: And interesting about Singapore is that Singaporeans actually prefer to speak English to foreigners, you know, and what I used to find is that, even at work, I have a lot of Singaporean colleagues that, when I speak Mandarin. They'd sometimes, I think they would laugh at me, but they found it amusing, you know, and then they'd say, like, we test you, you know, and I don't want to be tested, all I want to do is speak.

Overcoming challenges through positive reinforcement: though learners in this study do not usually have identity conflicts, they would express feelings of self-consciousness or embarrassment when speaking a new language, especially in front of native speakers or peers. Strategies to overcome these feelings include focusing on personal progress, seeking supportive learning environments, and emphasising the importance of effort over perfection, this is also an affective strategy. As Jane illustrated how she encouraged herself.

Jane: I said to myself, It is OK, like, take your time, you're still you're in. You have other things you're doing too. It is OK if you're not totally focused on it, just because I'm starting off. And that if I wasn't able to do this much yet, it is fine. And then I would like I progressed after, changing the way I was thinking, and I met this teacher again a few years later, and she was teaching a class, taking over at one day and she was listening to me speak and then she after class, she told me like I had improved. So, I think it was a good thing that I like, took a step back and took it slowly at the start because then after made a lot easier and more enjoyable.

Leveraging language for cultural exploration and expansion of worldview: Language learning is not only about acquiring communication skills but also about exploring and

connecting with different cultures, expanding the learner's worldview. A typical example is given by Charles about how he found language learning is meaningful to him.

Charles: So, at that time, I went to Spain in early June, to study for four weeks, I went to Malaga. And then at that time, I developed a very strong interest in Spain and Latin America, their language, culture and lifestyle, that is right, I felt that through language, I could discover a new universe, a new world.

In conclusion, the strategy of *Dealing with sociocultural contexts and identities* plays a crucial role in language learning. Although the learners in this study do not show strong identity conflicts which might found with some immigrant language learners (Adamuti-Trache et al., 2018; Duff, 2015), the use of this strategy aids them in cultural exploration and the derivation of meaning from their learning experiences. It fosters openness towards the culture of the target language and cultivates intercultural empathy and competences. By immersing themselves in the culture and interacting with native speakers, learners enhance their understanding and appreciation of the target culture, which serves as a significant motivator for language learning. Therefore, this strategy not only contributes to language acquisition, but also to the development of a broader worldview and deeper intercultural understanding.

4.7 Conclusion

This chapter analysed the qualitative data collected from 14 semi-structured interviews. The analysis, conducted using NVivo software, incorporated both framework analysis based on Oxford's S2R Model and thematic analysis, reported the analysis result in five sections including cognitive strategies, metacognitive strategies, affective strategies, motivational strategies and social strategies.

In cognitive dimension, key findings include the adaptation of strategies to the unique challenges of learning Chinese, such as activating knowledge of similar vocabulary across languages, and the importance of visual and auditory senses in learning Chinese characters. Participants also employed various metacognitive strategies like planning, monitoring, and evaluating their learning processes. The analysis result highlights the complex interplay of strategies in multilingual language acquisition and the critical role of self-awareness and reflection in effective language learning.

The analysis of Affective strategies identified several key affective strategies from interviews with multilingual learners. The most common strategies include changing cognitive appraisals to shape emotions, positive self-talk, and making meaning from learning experiences. These strategies help learners maintain positive emotions and motivation, contributing to their success in language learning. A result reveals that multilingual learners often employ tactics like focusing on small goals, recognizing minor improvements, and expressing a love for learning languages. These learners' confidence, built from prior successful language learning, enables them to handle emotional challenges effectively.

The next section of the study focuses on motivational strategies in language learning, specifically how learners generate and maintain motivation. The research utilizes Oxford's (2017) motivational strategy set, identifying key strategies such as using positive self-talk, enhancing learning through diverse methods, and self-consequating, which involves setting personal rewards or consequences. The most frequently mentioned strategy is positive self-talk and maintaining a positive self-image, highlighting its importance in sustaining motivation. The study finds that multilingual learners often draw on their previous successful language learning experiences to boost their confidence and motivation in learning new languages. However, the relationship between different types of motivation and the strategies used to regulate it is complex and warrants further investigation.

Last but not least, the social strategy section follows the S²R model framework, the three primary strategies are identified in the interview data and discussed. Interacting to Learn and Communicate is the most frequently used, involving learners actively engaging in communication with peers, teachers, and native speakers. Whether through classroom collaboration, feedback from instructors, or real-life conversations, these interactions are crucial for improving language skills. The analysis found that L3/AL learners are actively looking for interaction opportunities. They also have a positive attitude toward interaction and consider it beneficial to language learning. They exhibit openness, curiosity, and empathy towards other cultures, reflected in their use of social strategies.

Overall, the qualitative analysis uncovered nuanced insights into learners' strategy use in acquiring Chinese as an L3/AL, providing a strong foundation for developing the questionnaire for the quantitative research phase. The next chapter will report the analysis and findings of the quantitative study.

Chapter 5 Quantitative study Findings

5.1 Introduction

Chapter 5 delves into the quantitative analysis of the LLS employed by multilingual learners of Chinese in Ireland. Building upon the qualitative insights provided in the preceding chapter, this section aims to present a statistical exploration of the patterns and frequencies of strategy use among learners, offering a comprehensive overview of how demographic variables, such as gender, age, academic grade, and linguistic background, influence LLS application.

The chapter begins by presenting the statistical procedures employed, including descriptive statistics, tests of normality, correlation analyses, and assessments of validity and reliability. These methods facilitate an in-depth examination of the relationships between learner background variables and strategy use across cognitive, metacognitive, affective, motivational, and social dimensions.

Of particular note is the focus on motivational strategies, which emerged as a crucial element in the context of L3 or AL acquisition. Descriptive data, such as mean and standard deviation, are used to provide an overarching view of strategy use, while tests of normality, correlation analyses, and group comparisons are employed to identify deeper patterns.

Significantly, the correlation analyses revealed noteworthy relationships between background variables and LLS use. Gender was found to have a significant positive correlation with affective and metacognitive strategies, with female learners reporting higher levels of engagement in emotional regulation and strategic planning ($p < .01$). Learners with prior experience in learning multiple languages demonstrated increased use of cognitive and compensation strategies ($p < .05$), suggesting that multilingual learners draw upon a broader repertoire of problem-solving techniques and linguistic knowledge, consistent with the findings of Jessner (2006). Moreover, a negative correlation was observed between the length of immersive experience in Chinese-speaking environments and the use of metacognitive strategies ($p < .05$), possibly indicating a developmental shift from conscious strategy deployment to more automatic processing as learners adapt to immersive contexts.

Group differences were also explored, such as those between male and female learners, native Irish and non-Irish speakers, and learners with and without Chinese immersive experience. These comparisons offer insights into how various learner characteristics may shape strategic approaches in learning Chinese as a foreign language.

The chapter concludes with a comparison of the quantitative findings with the qualitative themes discussed in Chapter 4, highlighting areas of convergence and divergence. This synthesis offers a holistic view of how multilingual learners navigate the complexities of Chinese language acquisition, setting the stage for further discussion in the subsequent chapter.

5.2 Descriptive statistics

This section will report the descriptive statistics of the collected data, including the mean and standard deviation for each dimension and sub-dimension. Additionally, Kolmogorov–Smirnov tests and Shapiro–Wilk tests are used to examine the normality of each item, dimension, and sub-dimension; the normality will influence the choice of the other analytic tests.

5.2.1 Mean and Standard deviation

Table 5.1 details the mean scores and standard deviations for each dimension and sub-dimension. The overall average score (ALL_AVE) across all dimensions is 3.8717 with a standard deviation of .39731, indicating a generally high level of agreement among respondents. The motivational dimension (D1_AVE) has the highest mean score of 4.3546, with its sub-dimensions in identifying and enhancing intrinsic motivation (D1_1), thinking about the ideal AL self (D1_2), and strengthening the ought-to AL self (D1_3) showing consistently high scores, indicating a strong positive response in this dimension. The metacognitive dimension (D2_AVE) displays a lower mean score of 3.7311, with sub-dimension Planning (D2_2) having the lowest mean of 3.4056, suggesting some variability in responses within this dimension. The Cognitive dimension has a mean score of 3.9256, with its sub-dimensions showing relatively close mean scores, reflecting a consistent response pattern. The Affective dimension (D4_AVE) has a mean of 3.6764, with the sub-dimension maintaining overall calmness (D4_2) showing a higher mean score compared to reducing stress, pressure, and anxiety (D4_1), indicating varying levels of agreement within this dimension. The Social dimension (D5_AVE) presents a mean score of 3.6756; however, the means of sub-dimension interacting to learn and communicate (D5_1) and learning

despite knowledge gaps in communicating (D5_2) are relatively low. The sub-dimension dealing with sociocultural contexts and identities (D5_3) has a higher mean score which reaches 4.3148, indicating participants' preference.

Table 5.1

Descriptive statistics of each LLS dimension and sub-dimension

	N	Mean	Std. Deviation
ALL_AVE	90	3.8717	.39731
D1_AVE	90	4.3546	.40625
D1_1	90	4.2422	.47071
D1_2	90	4.5667	.48562
D1_3	90	4.3361	.54587
D2_AVE	90	3.7311	.50806
D2_1	90	3.7833	.63401
D2_2	90	3.4056	.78126
D2_3	90	3.6778	.69715
D2_4	90	3.9254	.53932
D3_AVE	90	3.9256	.52028
D3_1	90	3.8278	.63720
D3_2	90	4.0722	.58329
D4_AVE	90	3.6764	.59548
D4_1	90	3.5356	.61868
D4_2	90	3.9111	.72549
D5_AVE	90	3.6756	.55674
D5_1	90	3.3472	.80352
D5_2	90	3.4741	.73265
D5_3	90	4.3148	.64837
Valid N (listwise)	90		

5.2.2 Normality

Both the Kolmogorov-Smirnov and Shapiro-Wilk tests indicate significant deviations from normality for all items ($p < 0.05$). This result is expected given the use of a five-point Likert scale, which often does not meet normality assumptions due to its ordinal nature (Jamieson,

2004). Additionally, Likert scale responses often display positive skewness, partly as a result of acquiescence or agreement bias, where participants tend to select more agreeable or positive options (Winkler et al., 1982). The test result of the sub-dimensions (Table 5.2) showed that only D2_2 and D4_1 exhibit less significant deviations in certain tests, indicating closer adherence to normality.

Table 5.2

Normality test result of sub-dimensions

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
D1_1	.131	90	<.001	.958	90	.005
D1_2	.258	90	<.001	.819	90	<.001
D1_3	.140	90	<.001	.919	90	<.001
D2_1	.102	90	.021	.972	90	.048
D2_2	.099	90	.030	.976	90	.099
D2_3	.125	90	.001	.961	90	.008
D2_4	.161	90	<.001	.934	90	<.001
D3_1	.111	90	.008	.972	90	.050
D3_2	.153	90	<.001	.937	90	<.001
D4_1	.092	90	.058	.981	90	.197
D4_2	.171	90	<.001	.943	90	<.001
D5_1	.102	90	.021	.973	90	.061
D5_2	.135	90	<.001	.958	90	.005
D5_3	.162	90	<.001	.875	90	<.001

Note. Lilliefors Significance Correction

The average score of all the items (ALL_AVE) does not significantly deviate from normality based on both tests ($p > 0.05$), suggesting a normal distribution (Table 5.3 and Figure 5.6). Table 3 shows that the normality test of the average score of Motivational dimension (D1_AVE) is significantly deviates from normality in both tests ($p < 0.05$), indicating a non-normal distribution. The average score of Metacognitive dimension (D2_AVE) and Cognitive dimension (D3_AVE) shows significant deviation from normality in one test but not in the other test, suggesting a borderline case. The average score of Affective dimension (D4_AVE) and Social dimension (D5_AVE) do not

significantly deviate from normality in either test ($p > 0.05$), indicating a normal distribution.

The normality test determines if the data distribution should be considered in subsequent tests. If the data deviates from normality, tests that assume normality should not be used.

Figure 5.1

Strategy scale mean score normality distribution histogram

ALL_AVE

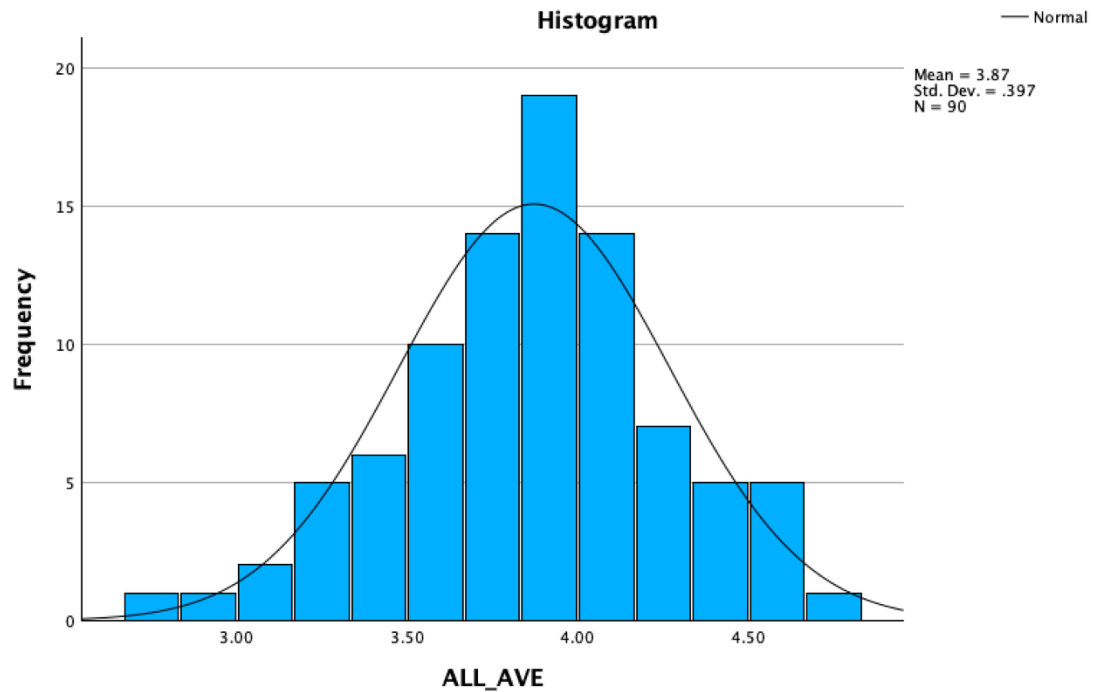


Table 5.3

Normality test result of each dimension and average mean

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ALL_AVE	.073	90	.200*	.989	90	.653
D1_AVE	.124	90	.002	.960	90	.008
D2_AVE	.098	90	.033	.983	90	.290
D3_AVE	.067	90	.200*	.961	90	.009
D4_AVE	.088	90	.083	.975	90	.085
D5_AVE	.059	90	.200*	.986	90	.458

Note. *. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

5.3 Reliability

The reliability of the Likert scale was evaluated using Cronbach's alpha to assess internal consistency. The overall Cronbach's alpha value was 0.91, indicating excellent reliability for the entire set of items of dimensions, suggests that the questionnaire consistently measures the intended constructs. To further evaluate the reliability within each conceptual area, we calculated Cronbach's alpha for each dimension and sub-dimension (See Table 5.4).

The analysis was conducted both with and without the inclusion of reversed questions (negative worded items) to determine their impact on reliability.

Table 5.4

Cronbach's alpha for each dimension and sub-dimension with and without reversed questions

Dimensions	With reversed question		Without reversed question	
	N of items	α	N of Items	α
Dimension 1	12	0.774	11	0.754
D1-1	5	0.568	4	0.494
D1-2	3	0.648	-	-
D1-3	4	0.584	-	-
Dimension 2	20	0.826	19	0.825
D2-1	4	0.427	3	0.612
D2-2	4	0.547	-	-
D2-3	5	0.651	-	-
D2-4	7	0.650	-	-
Dimension 3	10	0.693	9	0.713
D3-1	6	0.617	5	0.633
D3-2	4	0.578	-	-
Dimension 4	8	0.712	7	0.708
D4-1	4	0.512	-	-
D4-2	4	0.704	3	0.685
Dimension 5	10	0.677	9	0.732
D5-1	4	0.466	3	0.550
D5-2	3	0.436	-	-

D5-3	3	0.717	-	-

The above results show that while most dimensions show high reliability, the inclusion of reversed questions slightly decreases the reliability scores in some dimensions, such as Dimension 1 and Dimension 3. These values in the table also highlight the internal consistency within the finer-grained sub-dimensions. Only one sub-dimension D5-2 exhibits lower reliability, even without the impact of reversed questions, suggesting the need for potential refinement.

The comparison between including and excluding reversed questions indicates that including reversed questions generally results in slightly lower Cronbach's alpha values for certain dimensions and sub-dimensions, such as the Dimension 3 and Dimension 5. It will be discussed in the next Chapter.

Overall, the reliability analysis reveals that the questionnaire exhibits excellent reliability with an overall Cronbach's alpha of 0.91. Most dimensions and sub-dimensions demonstrate acceptable (0.5-0.69) to high internal consistency (0.7-0.89), the dimension item set contain fewer items, such as Dimension 3 and Dimension 5, each contains 10 items (9 without the reversed item). Thus, it is acceptable that the alpha is slightly lower than 0.7 (Schmitt, 1996). though some areas may benefit from further refinement to enhance reliability (such as D5-2). The inclusion of reversed questions slightly reduces the reliability scores in some dimensions, highlighting the potential need for careful consideration of reversed items in future iterations of the instrument.

5.4 Correlation tests

A correlation analysis was conducted to understand the relationships between various variables in the study. This test aimed at exploring the relationships between dimensions, sub-dimensions, items, and external variables. The external variables include:

1. Multi-choice selections (ways_count): this variable counted how many options were selected by the respondents among 24 options and 1 open question. They could add tactics used by themselves but not listed in the options.
2. Number of languages spoken (LXcount): this variable indicates the number of languages spoken by the respondents, including their first language(s) and languages learned after.
3. Multilingual proficiency (Multilevel): this variable is determined from the respondent's self-reported language proficiency, ranging from A1 to C2 (Council of

Europe, 2001), with assigned values from 1 to 6. If one's L1 including heritage language have reached a very high proficiency level are assigned a value of 7. This variable sum all the values of their language proficiencies.

4. Immersive learning experiences (Imm_count): this variable counts the languages in which the respondent has had immersive learning experiences.
5. Chinese proficiency levels (PL_CN): this variable represents the respondent's self-reported current proficiency in the Chinese language.

Since the normality test showed that the distribution of the items and the average scores of dimensions and sub-dimensions deviate from a normal distribution, Kendall's tau-b test was used for the correlation analyses. Kendall's tau-b is a robust non-parametric measure of correlation that is suitable for data that do not meet the assumptions of normality, making it ideal for the ordinal nature of the Likert scale responses and the presence of non-normally distributed data (Corder & Foreman, 2014; Hollander et al., 2013; Kendall, 1948; Sheskin, 2003).

5.4.1 Multi-choice selections

The correlation analysis between multi-choice selections and the Likert scale results aims to confirm the content validity and reliability of the Likert scale. Tables 5-5 and 5-6 display the correlation analysis results, highlighting a moderate positive relationship between the multi-choice selections and the overall average value of all items, with a correlation coefficient of 0.309 ($p < 0.001$). This indicates that participants who selected a higher number of tactics tend to have higher overall average scores on the Likert scale questionnaire.

Table 5.5*Correlations between multiple-choice selections and average scores overall and for each dimension*

Kendall's tau-b		ALL_AVE	D1_AVE	D2_AVE	D3_AVE	D4_AVE	D5_AVE
Ways_count	Correlation Coefficient	.309**	.227**	.282**	.210**	.099	.277**
	Sig. (2-tailed)	<.001	.003	<.001	.006	.196	<.001
	N	88	88	88	88	88	88

Note. *. Correlation is significant at the 0.01 level (2-tailed).

Table 5.6*Correlation between multi-choice selections and average score of sub-dimensions*

Kendall's tau-b	Multilevel		
	Correlation Coefficient	Sig. (2-tailed)	N
D1_1	.172*	.029	88
D1_2	.206*	.013	88
D1_3	.200*	.011	88
D2_1	.268**	<.001	88
D2_2	.229**	.003	88
D2_3	.178*	.021	88
D2_4	.238**	.002	88
D3_1	.179*	.020	88
D3_2	.194*	.014	88
D4_1	.136	.400	88
D4_2	-.078	.086	88
D5_1	.272**	<.001	88
D5_2	.182*	.021	88
D5_3	.174*	.030	88

Note. *. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Four out of five dimensions exhibit a weak positive relationship with the multi-choice selections, as indicated by the following correlation coefficients: Motivational dimension (D1_AVE) 0.227 ($p = 0.003$), Metacognitive dimension (D2_AVE) 0.282 ($p < 0.001$), Cognitive dimension (D3_AVE) 0.210 ($p = 0.006$), Social dimension (D5_AVE) 0.277 ($p < 0.001$).

However, Dimension 4, the Affective dimension, does not show a significant correlation with multi-choice selections ($p = 0.196$, $p > 0.05$).

The correlation results between the multi-choice selections and the sub-dimensions reveal a similar pattern. There are weak correlations between most of the sub-dimensions and the multi-choice selection, but insignificant correlations between the sub-dimensions of Dimension 4 (D4_1 and D4_2) and the multi-choice selections. This suggests that the lack of significant correlation in the Affective dimension might be due to the nature of the

behaviours listed in the multi-choice question, which are primarily focused on cognitive strategies rather than affective tactics.

These findings imply that respondents who select more tactics in the multi-choice question tend to have higher average scores on the Likert scale, supporting the validity and reliability of the questionnaire.

The item-level correlations are significant for 23 items, all showing weak positive correlations (see Table 5.7). The correlations between items in sub-dimensions D1-3, D2-3, D2-4, and D5-1 stand out.

Table 5.7

Item level significant correlation with multi-choice selections.

Item	Correlation Coefficient	Sig. (2- tailed)	N
D1_1_3 - I believe that I can learn Chinese well.	.218*	.011	88
D1_3_1 - I am committed to learning Chinese, even if I make mistakes during the process.	.177*	.046	88
D1_3_2 - I want to get a good grade in my Chinese language class.	.227**	.010	88
D1_3_4 - I work hard on learning Chinese to pass the exam.	.189*	.024	88
D2_re - I never think about how I can learn Chinese language better.	.311**	<.001	88
D2_2_1 - I set proficiency goals for my Chinese language learning.	.182*	.027	88
D2_2_4 - I prepare myself to participate in Chinese language or cultural activities.	.298**	<.001	88
D2_3_2 - I actively search for Chinese learning materials.	.200*	.015	88
D2_3_3 - I find resources to answer my questions in Chinese language.	.173*	.040	88
D2_3_4 - I seek learning materials from various sources to improve my Chinese language skills.	.182*	.029	88
D2_4_2 - I try to get a sense of whether I'm doing well or not when learning Chinese.	.211*	.015	88

D2_4_3 - I evaluate whether the study method I'm using works for me when learning Chinese.	.166*	.050	88
D2_4_4 - I track my Chinese language learning progress through practices and exams.	.180*	.032	88
D2_4_5 - I occasionally assess whether the effort I put into Chinese language learning is enough.	.190*	.025	88
D2_4_7 - I occasionally review whether I am working towards accomplishing my Chinese learning goals.	.271**	.001	88
D3_1_4 - I integrate the linguistic knowledge I've learned from all my other languages to learn Chinese.	.177*	.036	88
D3_1_5 - I try out new methods to learn Chinese, even if I haven't used them in learning other languages.	.211*	.012	88
D4_1_5 - I gain confidence from my previous language-learning experience to learn Chinese.	.200*	.019	88
D5_1_1 - I actively seek opportunities to use Chinese outside of the classroom.	.191*	.020	88
D5_1_2 - I actively engage with peers and teachers to learn Chinese.	.270**	.001	88
D5_1_re - I would rather learn Chinese alone than practice with others.	.170*	.038	88
D5_2_3 - I use various ways to continue my conversation with Chinese native speakers.	.212**	.010	88
D5_3_3 - I try to understand the differences in Chinese culture.	.211*	.018	88

Note. *. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

5.4.2 Number of languages spoken

The purpose of the correlation test between the number of languages spoken (LXcount) and the average scores (both overall and for each dimension) is to investigate whether a learner's

strategy use when learning a new L3/AL is influenced by the number of languages they already speak.

The Kendall's tau-b test results (Table 5.8) indicate that there is no significant correlation between the number of languages spoken and the average scores, both overall and for each dimension. Additionally, when examining the sub-dimensions, the results are consistent, with one exception. Sub-dimension D5-2 shows a very weak negative correlation with a coefficient of -0.164 ($p = 0.049$). This suggests that while the overall strategy use is not significantly impacted by the number of languages spoken, there may be a slight, specific influence in certain areas, as reflected by D5-2.

The detailed item analysis further explores the relationships between the number of languages spoken and specific questionnaire items. there are 5 items showed significant weak positive correlations (see Table 5.9).

The item-level correlation indicates that the more languages a learner has, the more they will enjoy their Chinese language class, tend to relate their linguistic knowledge to the new language, and may be more active in using certain communicational tactics.

While the overall correlation between the number of languages spoken and the average scores is not significant, the item-level analysis reveals that learners who speak more languages tend to show slight positive correlations with specific language learning behaviours and attitudes. These findings highlight the nuanced impact of multilingualism on language learning strategies and experiences.

Table 5.8

Correlations between number of languages spoken and average scores overall and for each dimension

Kendall's tau-b		ALL_AVE	D1_AVE	D2_AVE	D3_AVE	D4_AVE	D5_AVE
LXcount	Correlation Coefficient	-.022	.055	-.017	.064	-.043	-.129
	Sig. (2-tailed)	.779	.496	.832	.422	.596	.108
	N	90	90	90	90	90	90

Table 5.9

Item level correlation with number of languages spoken

Kendall's tau-b			
Item	Correlation Coefficient	Sig. (2-tailed)	N
D1_1_2 - I enjoy my Chinese language class.	.233*	.013	90
D3_1_4 - I integrate the linguistic knowledge I've learned from all my other languages to learn Chinese.	.210*	.018	90
D3_re - I seldom think about the linguistic similarities between Chinese language and the languages I previously learned.	.190*	.026	90
D5_1_3 - I initiate conversations with a native Chinese speaker.	.172*	.044	90
D5_2_3 - I use various ways to continue my conversation with Chinese native speakers.	.187*	.029	90

Note. *. Correlation is significant at the 0.05 level (2-tailed).

5.4.3 Multilingual proficiency

Multilingual proficiency is calculated by summing up the proficiency levels of all the languages spoken by the respondents. The aim of this correlation test is to explore whether a learner's previous language proficiency influences their strategy use when learning a new language. Because the Likert scale collected learners' strategies in learning Chinese, to explore if their proficiency in other languages influences Chinese language learning, a related variable is calculated without the proficiency level of Chinese (Multilevel 2). The correlation test is conducted with both multilingual proficiency values.

Table 5.10 displays the correlation results between multilingual proficiency and the average scores overall and for each dimension. The results suggest that multilingual proficiency does not significantly influence the overall strategy use or the use of motivational ($p = 0.259$, $p > 0.05$), metacognitive ($p = 0.908$, $p > 0.05$), cognitive ($p = 0.742$, $p > 0.05$), or affective ($p = 0.066$, $p > 0.05$) strategies. However, there is a significant weak negative correlation between multilingual proficiency (whether counting Chinese proficiency level or not) and the use of social strategies ($r = -0.206$, $p = 0.006$, $p < 0.05$), indicating that learners with higher multilingual proficiency might use fewer social strategies when learning the Chinese language. However, when comparing the coefficient values, the negative coefficient value slightly rises when the Chinese proficiency level is counted, which may suggest that a higher proficiency level in Chinese leads to more usage of social strategies.

In the test of sub-dimensions (Table 5.11), weak negative correlations were found in sub-dimension D4_1 Reducing stress, pressure, and anxiety ($r = -.152$, $p = .047$), D5_1 Interacting to learn and communicate ($r = -.176$, $p = .021$) and D5_2 Learning despite knowledge gaps in communicating ($r = -.211$, $p = .007$).

Table 5.10*Correlations between Multilingual proficiency and average scores overall and for each dimension*

Kendall's tau-b		ALL_AVE	D1_AVE	D2_AVE	D3_AVE	D4_AVE	D5_AVE
Multilevel	Correlation Coefficient	-.083	-.009	-.024	.003	-.138	-.206**
	Sig. (2-tailed)	.259	.908	.742	.966	.066	.006
	N	90	90	90	90	90	90
Multilevel 2	Correlation Coefficient	-.073	-.006	-.012	-.066	-.100	-.218**
	Sig. (2-tailed)	.324	.933	.872	.383	.185	.004
	N	90	90	90	90	90	90

Note. **. Correlation is significant at the 0.01 level (2-tailed).

Table 5.11*Correlations between Multilingual proficiency and average scores of sub-dimensions*

Kendall's tau-b					
		Correlation Coefficient	Sig. (2-tailed)	N	
D1_1	Multilevel 2				
	Multilevel	.036	.641		90
D1_2	Multilevel 2	.054	.482		90
	Multilevel	-.105	.195		90
D1_3	Multilevel 2	-.112	.168		90
	Multilevel	.025	.745		90
D2_1	Multilevel 2	.007	.932		90
	Multilevel	.020	.797		90
D2_2	Multilevel 2	.031	.685		90
	Multilevel	-.076	.320		90
D2_3	Multilevel 2	-.053	.486		90
	Multilevel	.019	.798		90
D2_4	Multilevel 2	.027	.720		90
	Multilevel	-.026	.733		90
D3_1	Multilevel 2	-.046	.549		90
	Multilevel	.011	.883		90
D3_2	Multilevel 2	.086	.259		90
	Multilevel	-.010	.901		90
D4_1	Multilevel 2	-.034	.663		90
	Multilevel	-.152*	.047		90
D4_2	Multilevel 2	-.127	.095		90
	Multilevel	-.078	.319		90
D5_1	Multilevel 2	-.031	.694		90
	Multilevel	-.176*	.021		90
D5_2	Multilevel 2	-.177*	.021		90
	Multilevel	-.211**	.007		90
D5_3	Multilevel 2	-.231**	.003		90
	Multilevel	-.053	.505		90

Note. *. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

The item level (Table 5.12) correlation test revealed two significant yet weak negative correlations. The data suggests that multilingual learners with higher multilingual proficiency feel less need to focus on small steps to reduce pressure (D4_1_2: $\tau b = -.255$, $p = .002$). Additionally, they show less willingness to use various methods to continue conversations with native speakers when learning Chinese (D5_2_3: $\tau b = -.176$, $p = .029$). These findings highlight specific areas where previous language proficiency could have a subtle impact on strategy use, particularly in affective dimension and social interactions. This part will be further explored in different group of learners in section 6.1.5.

Table 5.12*Item level correlation with multilingual proficiency*

Item	Variable	Correlation Coefficient	Sig. (2-tailed)	N
D4_1_2 - I focus on small steps in learning to reduce pressure when learning Chinese.	Multilevel	-.255**	.002	90
	Multilevel 2	-.219**	.009	90
D5_1_1 - I actively seek opportunities to use Chinese outside of the classroom.	Multilevel	-.125	.120	90
	Multilevel 2	-.166*	.040	90
D5_1_3 - I initiate conversations with a native Chinese speaker.	Multilevel	-.156	.051	90
	Multilevel 2	-.199*	.013	90
D5_2_3 - I use various ways to continue my conversation with Chinese native speakers.	Multilevel	-.176*	.029	90
	Multilevel 2	-.227**	.005	90

Note. *. Correlation is significant at the 0.05 level (2-tailed).

**.. Correlation is significant at the 0.01 level (2-tailed).

5.4.4 Immersive learning experience

This section will present a correlation analysis between immersive language learning experiences and Likert scale results. The aim is to examine the relationship between a multilingual learner's immersive language learning experience and their use of strategies. The variable 'Immersive learning experiences' (Imm_count) represents the number of languages in which the respondent has had immersive learning experiences. A related variable, Imm_count 2, is calculated excluding Chinese immersion experiences to determine if the influence remains substantial without the inclusion of Chinese language immersion experiences.

The correlation results in Table 5.13 indicate significant negative relationships between the number of immersive learning experiences and average scores of all items (ALL_AVE). A moderate negative correlation with both Imm_count ($\tau = -.272, p < .001$) and Imm_count2 ($\tau = -.260, p = .001$) suggests that more immersive learning experiences are associated with lower overall strategy use. The significant negative correlation can also be observed in Dimension 2 Metacognitive dimension ($\tau_b = -.279, p < .001$) and Dimension 4 Affective dimension ($\tau_b = -.253, p = .002$) with or without Chinese language immersive learning experience. However, the significance levels vary for Dimension 3 Cognitive dimension and Dimension 5 Social dimension, with the former only significant with Chinese immersive learning experience ($\tau_b = -.166, p = .041$), and the latter only significant without Chinese immersive learning experience ($\tau_b = -.184, p = .024$). The results indicate that more immersive language learning experiences lead to less strategy use, especially in the metacognitive and affective dimensions, and could also impact the cognitive and social dimensions.

Table 5.13

Correlations between Immersive learning experience and average scores overall and for each dimension

Kendall's tau-b		ALL_AVE	D1_AVE	D2_AVE	D3_AVE	D4_AVE	D5_AVE
Imm_count	Correlation Coefficient	-.272**	-.147	-.279**	-.166*	-.253**	-.152
	Sig. (2-tailed)	<.001	.072	<.001	.041	.002	.060
	N	90	90	90	90	90	90
Imm_count2	Correlation Coefficient	-.260**	-.147	-.258**	-.152	-.221**	-.184*
	Sig. (2-tailed)	.001	.076	.001	.065	.007	.024
	N	90	90	90	90	90	90

Note. *. Correlation is significant at the 0.05 level (2-tailed).

**.. Correlation is significant at the 0.01 level (2-tailed).

Table 5.14 offers a more detailed examination of the correlations between immersive learning experiences and specific sub-dimensions of language learning strategies. Overall, immersive experiences in multiple languages exhibit negative correlations with nearly all sub-dimensions; however, only certain relationships are statistically significant. Specifically, significant negative correlations are observed in D2-2 (planning), D2-3 (organising and obtaining resources), D2-4 (monitoring and evaluating), D4-1 (reducing stress, pressure, and anxiety), D4-2 (maintaining overall calmness), and D5-2 (Learning despite knowledge gaps in communicating) and D5-3 (relating to navigating sociocultural contexts and identities). These findings suggest that immersive learning experiences may be associated with a reduced use of metacognitive and affective strategies in the context of learning Chinese.

Further comparison between the two variables, Imm_count and Imm_count2, provides insight into the specific impact of Chinese language immersion. Imm_count reflects the total number of languages in which the learner had immersive experiences, including Chinese, while Imm_count2 excludes immersive experiences in Chinese. The results indicate that all the significant sub-dimensions except for D5-2 show consistent significant negative correlations with both Imm_count and Imm_count2. This consistency suggests that immersive experiences in other languages, regardless of whether Chinese was one of them, have a measurable impact on learners' strategy use when studying Chinese. It implies that past immersion experiences, beyond the specific context of Chinese, exert a cross-linguistic influence on how learners engage with strategies in Chinese language learning. One possible explanation for these negative correlations is that learners with rich immersive experience may have developed habitualised approaches to language learning, thereby reducing the need for deliberate metacognitive control at the conscious level. In other words, strategy use may become more automatised, diminishing the active deployment of metacognitive strategies. At the same time, the significant associations observed in the affective domain suggest that these learners might be more attuned to their emotional responses, becoming more susceptible to the pressures and anxieties emerging from both languages learning itself and the immersive environment. These preliminary interpretations highlight the nuanced interplay between experience, strategy, and emotion. A more detailed exploration of these dynamics will be provided in Chapter 6.

Table 5.14

Correlations between Immersive learning experience and average scores of sub-dimensions

Kendall's tau-b	Variables	Correlation Coefficient	Sig. (2-tailed)	N
D1_1	Imm_count	-.228**	.007	90
	Imm_count 2	-.202*	.017	90
D1_2	Imm_count	-.019	.030	90
	Imm_count 2	-.047	.596	90
D1_3	Imm_count	-.046	.583	90
	Imm_count 2	-.062	.468	90
D2_1	Imm_count	-.123	.139	90
	Imm_count 2	-.104	.215	90
D2_2	Imm_count	-.247**	.003	90
	Imm_count 2	-.199*	.017	90
D2_3	Imm_count	-.319**	<.001	90
	Imm_count 2	-.323**	<.001	90
D2_4	Imm_count	-.211*	.011	90
	Imm_count 2	-.226**	.007	90
D3_1	Imm_count	-.139	.092	90
	Imm_count 2	-.120	.149	90
D3_2	Imm_count	-.124	.140	90
	Imm_count 2	-.147	.084	90
D4_1	Imm_count	-.227**	.006	90
	Imm_count 2	-.208*	.013	90
D4_2	Imm_count	-.249**	.003	90
	Imm_count 2	-.203**	.017	90
D5_1	Imm_count	-.059	.477	90
	Imm_count 2	-.088	.289	90
D5_2	Imm_count	-.149	.078	90
	Imm_count 2	-.174*	.041	90
D5_3	Imm_count	-.184*	.031	90
	Imm_count 2	-.202*	.019	90

Note. *. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5.15 highlights item-level correlations between immersive learning experiences and specific items within the questionnaire, provided a more detailed view for the above result. These results indicate that respondents with more immersive learning experiences in other languages tend to use fewer strategies related to planning, resource management, and emotional regulation in learning Chinese. The findings are consistent across various dimensions and sub-dimensions, emphasising the nuanced impact of previous immersive experiences on current language learning strategies.

Table 5.15*Item level correlation with Immersive learning experience*

Kendall's tau-b Item	Imm_count		Imm_count 2		N
	Correlation Coefficient	Sig. (2- tailed)	Correlation Coefficient	Sig. (2- tailed)	
D1_re - When I feel unwilling to learn Chinese I do nothing to improve this situation.	-.222*	.012	-.201*	.024	90
D1_1_2 - I enjoy my Chinese language class.	-.257**	.120	-.179	.062	90
D2_2_2 - I set short-term (daily/weekly/monthly) study plans to help me manage my Chinese language learning.	-.220*	.011	-.129	.141	90
D2_2_4 - I prepare myself to participate in Chinese language or cultural activities.	-.255*	.004	-.292**	.001	90
D2_3_3 - I find resources to answer my questions in Chinese language.	-.258**	.004	-.303**	<.001	90
D2_3_5 - I organise my study environment to fit my learning habit.	-.297**	<.001	-.311**	<.001	90
D2_3_6 - I organise my Chinese learning materials for better understanding.	-.239**	.007	-.222*	.014	90
D2_4_6 - I evaluate my current Chinese language level through feedback from others.	-.154	.082	-.260**	.004	90
D3_2_4 - I use various ways to remember Chinese characters, words, pronunciations, and grammar.	-.258**	.005	-.279**	.002	90
D4_1_re - I usually get overwhelmed by my anxiety when taking Chinese language exams.	-.243**	.005	-.230**	.009	90
D4_2_1 - I maintain calm when I am learning Chinese.	-.268**	.003	-.241**	.007	90
D4_2_2 - I study Chinese in an environment where I feel comfortable.	-.207*	.027	-.170	.072	90
D5_1_3 - I initiate conversations with a native Chinese speaker.	-.086	.320	-.175*	.045	90

D5_2_2 - I manage the anxiety of making mistakes while communicating in Chinese.	-.222*	.012	-.193*	.031	90

Note. *. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

5.4.5 Chinese proficiency level

The correlation test between Chinese proficiency level and the Likert scale results are mainly with no significant correlations, only two items revealed weak negative correlation.

Table 5.16

Item level correlation with Chinese proficiency level

Kendall's tau-b			
Item	Correlation Coefficient	Sig. (2-tailed)	N
D1_1_2 - I enjoy my Chinese language class.	-.209*	.030	90
D2_4_5 - I occasionally assess whether the effort I put into Chinese language learning is enough.	-.224*	.014	90

Note. *. Correlation is significant at the 0.05 level (2-tailed).

The lack of correlation between proficiency and learners' strategy use may be due to the broad six-level proficiency division, which doesn't provide detailed insights. The significant correlation between two items could be attributed to the insufficiency of classroom content for higher-level proficiency learners. These learners might not assess their effort, possibly because they are more satisfied with their investment in effort.

5.5 Differences between groups

To identify potential differences in responses between distinct demographic groups, comparative analyses were performed. This section will report the test results to compare the means between different groups. The groups include:

1. Female vs. Male
2. English L1 group vs. Other language L1 group
3. Irish speakers/learners vs. Non-Irish speakers/learners
4. Chinese language learners with immersive learning experience vs. Chinese language learners without immersive learning experience

The comparison between groups was conducted using the Mann-Whitney U test because most of the variables did not meet the normality assumption. The Mann-Whitney U test is a non-parametric test that does not require the assumption of normality and is suitable for comparing differences between two independent groups when the data are not normally distributed.

5.5.1 Female vs. Male

The Mann-Whitney U test was conducted to compare the overall average scores, average scores of different dimensions, and sub-dimensions between female (n=58) and male (n=27) respondents. The results indicate no significant differences in the average scores of overall strategies use and individual dimensions between female and male respondents.

However, the test results show significant differences in Dimension 2 (Metacognitive Strategies) and specific sub-dimensions. Females use significantly more metacognitive strategies than males ($p = .021$). The difference is especially reflected in two sub-dimensions: females score higher in Planning strategies D2_2 ($p = .022$) and Organising and Obtaining Resources D2_3 ($p = .038$).

Table 5.17 shows the results of further analysis at the item level; it reveals additional significant differences between female and male respondents.

Table 5.17

Item level Mann-Whitney U test result of Female and Male groups

Item	Mann-Whitney U	Asymp. Sig. (2-tailed)
D1_2_4 - Being able to speak Chinese makes me proud.	598.000	.035
D2_2_2 - I set short-term (daily/weekly/monthly) study plans to help me manage my Chinese language learning.	573.000	.042
D2_3_5 - I organise my study environment to fit my learning habit.	564.500	.031
D3_1_1 - I compare elements such as grammar, pronunciation, words, and expressions across different languages.	593.500	.049
D3_1_5 - I try out new methods to learn Chinese, even if I haven't used them in learning other languages.	583.000	.044
D4_1_1 - I use positive self-talk to encourage myself when learning Chinese.	496.000	.005

The Mann-Whitney U test results reveal significant gender differences in the use of metacognitive strategies, with females employing these strategies more frequently than males. Additionally, significant differences were observed in specific items related to pride in language skills, study planning, organising the study environment, comparing linguistic

elements, experimenting with new learning methods, and especially using positive self-talk. These findings highlight the nuanced differences in strategy use between female and male learners of Chinese.

5.5.2 English L1 group vs. Other language L1 group

This part will report the Mann-Whitney U test results conducted to compare the overall average score of the Likert scale, dimensions, and sub-dimensions in strategy use between respondents whose L1 is English (n=69) and those whose L1 is another language (n=21). The results indicate no significant difference in the above comparison of the two groups. However, significant differences were found in specific items in table 5.18.

Table 5.18

Item level Mann-Whitney U test result of English L1 group and other language L1 group

Item	Mann-Whitney U	Asymp. Sig. (2-tailed)
D1_1_4 - I try to learn Chinese in a fun way.	532.500	.047
D2_3_2 - I actively search for Chinese learning materials.	519.500	.043
D2_3_4 - I seek learning materials from various sources to improve my Chinese language skills.	480.500	.013

In these items, the Other Language L1 group had significantly higher mean scores compared to the English L1 group, indicating that statistically respondents with a first language other than English are more likely to engage in these specific learning tactics.

5.5.3 Irish speakers/learners vs. Non-Irish speakers/learners

The Mann-Whitney U test was conducted to compare the strategy use between Irish speakers/learners (n=52) and non-Irish speakers/learners (n=38). The results show significant differences in the Social Dimension (D5), with non-Irish speakers/learners scoring significantly higher ($p = .040$). Additionally, non-Irish speakers/learners score higher in the sub-dimension D1_2, which involves thinking about their ideal L3/AL self ($p = .030$). Beyond these differences, Irish speakers/learners have significantly more languages ($p < .001$), higher multilingual proficiency ($p = .037$), and more immersive language learning experiences ($p = .037$) compared to non-Irish speakers/learners.

Further analysis at the item level (see Table 5.19) reveals specific differences. Non-Irish speakers/learners have higher mean ranks in several items, including "I picture myself using Chinese in real life" (D1_2_1, $p = .025$), "I try out new methods to learn Chinese, even if I haven't used them in learning other languages" (D3_1_5, $p = .042$), "I actively seek opportunities to use Chinese outside of the classroom" (D5_1_1, $p = .032$), and "I actively explore Chinese culture and society" (D5_3_1, $p = .031$). On the other hand, Irish speakers/learners have higher mean ranks for "I occasionally assess whether the effort I put into Chinese language learning is enough" (D2_4_5, $p = .047$).

Table 5.19

Item Level Mann-Whitney U Test Results for Irish Speakers/Learners vs. Non-Irish Speakers/Learners

Item	Mann-Whitney U	Asymp. Sig. (2-tailed)
D1_2_1 - I picture myself using Chinese in real life.	745.000	.025
D2_4_5 - I occasionally assess whether the effort I put into Chinese language learning is enough.	760.000	.047
D3_1_5 - I try out new methods to learn Chinese, even if I haven't used them in learning other languages.	754.500	.042
D5_1_1 - I actively seek opportunities to use Chinese outside of the classroom.	734.000	.032
D5_3_1 - I actively explore Chinese culture and society.	742.000	.031

Given these differences, particularly in multilingual proficiency level and immersive language learning experiences, a correlation test was conducted to examine the relationships between these variables and LLS use within these groups. The correlation test employed Kendall's tau-b test.

The results (see Table 5.20) reveal that for the non-Irish speakers/learners group, multilingual proficiency level significantly positively correlates with the average score of Dimension 3 (Cognitive Dimension) (correlation coefficient = .298, $p = .012$) and two sub-dimensions, D1_1 (Identifying and Enhancing Intrinsic Motivation) (correlation coefficient = .303, $p = .013$) and D3_1 (Integrating All Language Learning Experience) (correlation coefficient = .358, $p = .003$). There is also a negative correlation with sub-dimension D5_2

(Learning despite knowledge gaps in communicating) (correlation coefficient = $-.324$, $p = .008$). However, these significant correlations are not identified in the Irish speakers/learners group. On the other hand, there is a negative correlation between multilingual proficiency level and Dimension 4 (Affective Dimension) (correlation coefficient = $-.217$, $p = .031$) and D4_1 (Reducing stress, pressure, and anxiety) (correlation coefficient = $-.240$, $p = .018$).

As shown in Table 5.21, immersion experience negatively correlates with overall strategy use for both groups, with a stronger negative correlation for affective strategies among Irish speakers/learners. For this group, immersion experience negatively correlates with Dimension 2 (Metacognitive Dimension) (correlation coefficient = $-.237$, $p = .025$) and Dimension 4 (Affective Dimension) (correlation coefficient = $-.318$, $p = .003$). In contrast, for non-Irish speakers/learners, the negative correlation exists only with Dimension 2 (Metacognitive Dimension) (correlation coefficient = $-.299$, $p = .019$), but not with Dimension 4 (Affective Dimension) (correlation coefficient = $-.129$, $p = .320$).

Moreover, the correlation test for the non-Irish speaker/learner group revealed a significant positive correlation between immersion experience and Chinese proficiency level (correlation coefficient = $.333$, $p = .018$).

The Mann-Whitney U test reveals significant differences in strategy use between Irish and non-Irish speakers/learners. Irish speakers/learners excel in the Social Dimension and sub-dimension involving thinking about their ideal L3/AL self. They also have higher multilingual proficiency and more immersive language learning experiences. Item-level analysis indicates that non-Irish speakers/learners are more proactive in practical applications of Chinese learning and cultural exploration.

The correlation analysis highlights an interesting finding: multilingual proficiency has a positive impact on strategy use, but only within the non-Irish speakers/learners group. For these learners, higher multilingual proficiency is positively correlated with the mean of Dimension 3 (Cognitive Dimension) and specific sub-dimensions such as D1_1 (Identifying and Enhancing Intrinsic Motivation) and D3_1 (Integrating All Language Learning Experience). However, for Irish speakers/learners, these positive correlations are absent. Instead, multilingual proficiency is negatively correlated with the Affective Dimension (D4_AVE) and sub-dimension D4_1 (Reducing stress, pressure, and anxiety). These results will be discussed in the next Chapter.

Table 5.20

Comparison of the Correlation Test result of Multilingual Proficiency Level and LLS Use of Irish Speakers/Learners and Non-Irish Speakers/Learners and the whole group

Kendall's tau-b								
	Irish speakers/learners n=52			Non-Irish speakers/learners n=38			Whole group n=90	
	Multilevel			Multilevel			Multilevel	
	Correlation Coefficient	Sig.	(2-tailed)	Correlation Coefficient	Sig.	(2-tailed)	Correlation Coefficient	Sig. (2-tailed)
ALL_AVE	-.166	.091		.113	.331		-.083	.259
D1_AVE	-.175	.083		.217	.071		-.009	.908
D2_AVE	-.096	.333		.148	.206		-.024	.742
D3_AVE	-.154	.123		.298*	.012		.003	.966
D4_AVE	-.217*	.031		-.060	.612		-.138	.066
D5_AVE	-.158	.114		-.195	.099		-.206**	.006
D1_1	-.136	.185		.303*	.013		.036	.641
D3_1	-.191	.059		.358*	.011		.011	.883
D4_1	-.240*	.018		-.028	.818		-.152*	.047
D5_1	-.164	.107		-.128	.289		-.176*	.021
D5_2	-.069	.508		-.324**	.008		-.211**	.007

Note. The table ignored non-significant result in sub-dimensions.

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5.21

Comparison of the Correlation Test result of Immersive language learning experience and LLS Use of Irish Speakers/Learners, Non-Irish Speakers/Learners and the whole group

Kendall's tau-b								
	Irish speakers/learners n=52			Non-Irish speakers/learners n=38			Whole group n=90	
	Imm_count			Imm_count			Imm_count	
	Correlation Coefficient	Sig.	(2-tailed)	Correlation Coefficient	Sig.	(2-tailed)	Correlation Coefficient	Sig. (2-tailed)
ALL_AVE	-.273**	.009		-.222	.079		-.272**	<.001
D1_AVE	-.163	.131		-.111	.395		-.147	.072
D2_AVE	-.237*	.025		-.299*	.019		-.279**	<.001
D3_AVE	-.171	.110		-.111	.390		-.166*	.041
D4_AVE	-.318**	.003		-.129	.320		-.253**	.002
D5_AVE	-.145	.176		-.075	.563		-.152	.060
D1_1	-.249*	.024		-.222	.079		-.228**	.007
D2_2	-.154	.155		-.342**	.009		-.247**	.003
D2_3	-.319**	.003		-.249	.061		-.319**	<.001
D2_4	-.155	.155		-.331*	.012		-.211*	.011
D4_1	-.298**	.006		-.048	.715		-.227**	.006

D4_2	-.341**	.002	-.138	.310	-.249**	.003
D5_2	-.126	.259	-.099	.463	-.149	.078
D5_3	-.094	.403	-.257	.059	-.184*	.031

Note. The table ignored non-significant result in sub-dimensions.

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Furthermore, immersion experience shows a negative correlation with overall strategy use for both groups, aligning with the whole group correlation result, but this effect is more pronounced in the affective strategies for Irish speakers/learners. For this group, immersion experience significantly negatively correlates with the metacognitive dimension(D2_AVE) and the Affective Dimension (D4_AVE). In contrast, for non-Irish speakers/learners, the negative impact of immersion experience is primarily observed in the metacognitive dimension(D2_AVE) with no significant effect on the Affective Dimension. These findings indicate the complex interplay between language learning strategies, multilingual proficiency, and immersive experiences, and highlight the differing impacts these factors have on Irish and non-Irish speakers/learners, possibly influenced by their actual immersive experiences and language states. This will be further discussed in the Chapter 6.

5.5.4 Immersive Chinese language learning experience

This section compares the groups with and without Chinese immersive learning experience to determine the relationship with the strategy use of Chinese as a L3/AL learner. The analysis involves learners with immersive experience (n=30) and learners without immersive experience (n=60).

The Mann-Whitney U test results indicate no significant differences in the overall average score and the five dimensions of strategy use between the two groups. However, a significant difference was found in one sub-dimension: D2_2 (Planning), where learners without immersive experience had a higher mean rank ($p = .045$).

Item-level analysis reveals additional significant differences (see Table 22). Learners without immersive experience had higher mean ranks for several items, including "I enjoy my Chinese language class" (D1_1_2, $p = .012$), "I set short-term (daily/weekly/monthly) study plans to help me manage my Chinese language learning" (D2_2_2, $p = .009$), and "I evaluate whether the study method I'm using works for me when learning Chinese" (D2_4_3, $p = .026$). Conversely, learners with immersive experience had a higher mean rank for "I evaluate my current Chinese language level through feedback from others" (D2_4_6, $p = .038$).

Table 5.22

Item Level Mann-Whitney U Test Results for groups with and without Chinese immersive learning experience

Item	Mann-Whitney U	Asymp. Sig. (2-tailed)

D1_1_2 - I enjoy my Chinese language class.	680.500	.012
D2_2_2 - I set short-term (daily/weekly/monthly) study plans to help me manage my Chinese language learning.	603.500	.009
D2_4_3 - I evaluate whether the study method I'm using works for me when learning Chinese.	662.500	.026
D2_4_6 - I evaluate my current Chinese language level through feedback from others.	670.500	.038

The comparison between learners with and without Chinese immersive learning experience reveals no significant differences in the overall average score and the five dimensions of strategy use. However, a notable exception is in the sub-dimension D2_2 (Planning), where learners without immersive experience show higher strategy use. At the item level, learners without immersive experience also tend to enjoy their Chinese classes more, use more metacognitive tactics such as setting short-term plans and evaluating their study methods. Meanwhile, learners with immersive experience are more likely to evaluate their Chinese language level through feedback from others. These findings suggest that while immersive learning experiences may not significantly impact overall strategy use, they do influence specific planning and evaluative strategies in learning Chinese.

5.6 Structure validity test and construct refining insights

The Likert scale instrument has five dimensions and 14 sub-dimensions, resulting in a complex model. With a sample size of less than 100 ($n=90$), running a confirmatory factor analysis proves difficult. The results suggest the model does not converge, meaning the estimation algorithm cannot find a solution. Given that there are only an estimated 300 learners in Ireland studying Chinese at third-level institutes, the sample already represents 1/3 of the total population, making it challenging to collect more data in a short period. Thus, EFA is used to identify the underlying structure for the construct validity test, as EFA is more forgiving with smaller sample sizes.

The EFA employed Principal Axis Factoring extraction method because it is suitable for Likert scale data and robust to non-normality (Schreiber, 2021). This method focuses on common variance and is suitable when the goal is to identify latent constructs (Tabachnick et al., 2013). Because the sample size is not very large, the analysis includes a rotation step, which aims to improve the interpretability of the result. The rotation method is Promax

Rotation, which is an oblique rotation that allows for correlated factors, as in the theoretical model the dimensions of the strategies are highly likely correlated.

Two rounds of EFA were processed in SPSS as the first round was far from desirable. In the first round, the Kaiser-Meyer-Olkin (KMO) value was 0.564, which fell to the miserable level (Schreiber, 2021), and the Factor Matrix listed 19 factors, but most of the items were in factor 1; the rotation failed to converge. Based on this result, five items were removed due to their communalities being lower than 0.5. After the removal, the second round of EFA was processed. The result showed that the KMO improved to 0.636, an acceptable level, and the rotation converged in 37 iterations. The EFA listed 15 factors; the total variance explained by the factors is 62.871%, and the rescaled total variance is 60.927%.

The factor analysis revealed that both the rescaled Pattern Matrix and rescaled Structure Matrix deviated from the original constructs. In the Pattern Matrix, 42 items have loadings over 0.4, reflecting the unique contributions of each item to the factors. Although there is a deviation from the original constructs, many items within the same dimension or sub-dimensions are grouped together (see Appendix IV), such as sub-dimension 5-3 (Dealing with sociocultural contexts and identities), 3-1 (Integrating all language learning experiences), and 4-1 (Reducing stress, pressure, and anxiety). In the Structure Matrix, 54 items have loadings over 0.4, representing simple correlations between items and factors, which showed similar patterns (see Table 5.29). However, several items demonstrated significant cross-loadings, indicating overlapping dimensions. This suggests that the original constructs may need revision to reflect the empirical data more accurately. The Pattern Matrix and Structure Matrix revealed some discrepancies. For example, in the Pattern Matrix, D1_1_2 (I enjoy my Chinese language class), D1_3_3 (I work hard to improve my performance in my Chinese language class), D1_1_1 (I am learning the Chinese language because I am interested in it), and D3_1_3 (I am cautious about transferring grammatical concepts from other languages to Chinese) are grouped together. However, in the Structure Matrix, there are two additional items: D1_3_1 (I am committed to learning Chinese, even if I make mistakes during the process) and D1_3_2 (I want to get a good grade in my Chinese language class). These discrepancies suggest that the original constructs may need revision to more accurately reflect the empirical data, as the Pattern Matrix and Structure Matrix indicate different groupings of items, highlighting the complexity of the underlying factor structure.

The factors also showed that the items may need some revision in dimension assignment. For example, in both the Pattern Matrix and Structure Matrix, D4_1_re (I usually get overwhelmed by my anxiety when taking Chinese language exams), D4_2_1 (I maintain calm when I am learning Chinese), D4_2_3 (I effectively handle the negative feelings when I learn Chinese), and D5_2_2 (I manage the anxiety of making mistakes while communicating in Chinese) are grouped in one factor. Although D5_2_2 is originally grouped in the Social Dimension, it is about anxiety control in social communication scenarios and could be regarded as part of the Affective Dimension. This revealed that the item assignment needs to be revised.

Although the EFA is undesirable and the instrument may need some revision in the future, some insights can be identified from the EFA results. After comparing the Structure Matrix and the original constructs and examining the items, a new structure and set of items are suggested, as shown in Table 5.23. After removing seven items, the remaining 48 items are organised in a more interpretable way and closer to the original construct of the sub-dimensions. Under the Motivational Dimension, there are two distinctive factors: Factor 1 (Identifying motivations) and Factor 2 (Establishing self-efficacy and taking a positive attitude). Under the Metacognitive Dimension, there are three distinctive factors: Factor 3 (Organizing and evaluating), Factor 4 (Monitoring), and Factor 5 (Consciously and actively planning and taking action). Under the Cognitive Dimension, there are two distinctive factors: Factor 6 (Integrating all language knowledge and learning experience) and Factor 7 (Using cognitive tactics to learn Chinese). Under the Affective Dimension, there are three distinctive factors: Factor 8 (Using tactics to reduce stress), Factor 9 (Managing negative feelings and anxieties), and Factor 10 (Getting support from previous language learning experience and external environment). Under the Social Dimension, there are three distinctive factors: Factor 11 (Actively engaging in communication), Factor 12 (Interacting to learn and communicate), and Factor 13 (Dealing with sociocultural contexts and identities).

The factor correlation matrix revealed more information about the relationships between the factors (Table 24). Correlations greater than ± 0.30 are considered significant and meaningful in the context of educational research, as supported by established guidelines and literature (Cohen, 1988; Hattie, 2009; Fraenkel, Wallen, & Hyun, 2011; Ferguson, 2009; Field, 2013). Based on this, it can be identified that Factors 1 and 2 are both under the motivational dimension and are significantly positively correlated (0.400). Additionally, both Factor 1 and Factor 2 are positively correlated with Factor 5 and Factor 12, indicating

that motivations are highly related to actively taking actions and interacting to learn and communicate.

The two metacognitive dimension factors, Factor 3 and Factor 4, are significantly correlated (0.447). Furthermore, the factors under metacognitive factors are likely to have significant positive correlations across several dimensions, including Motivational Dimension, Affective Dimension, and Social Dimension.

Factor 6 is only significantly positively correlated with Factor 13 (0.309), probably due to learners with more languages being more sensitive to cultural elements. Factor 7 is only significantly positively correlated with Factor 10 (0.321), indicating that the affective dimension may influence the cognitive dimension.

Factor 8 has no significant correlation with the other factors. Its two highest negative correlations are with Factor 3 (-0.226) and Factor 9 (-0.228). The negative correlation is probably due to the fact that when people have more negative feelings or stress, they would need more strategies to reduce them; however, people who are overly calm may not use those tactics.

Factor 11 and Factor 13 are significantly positively correlated (0.301), indicating that learners who actively find opportunities to communicate in the target L3/AL are also actively exploring the target culture. Factor 12 and Factor 13 are significantly correlated with several factors in Motivational Dimension and Metacognitive Dimension. In addition, Factor 12 and Factor 10 are positively correlated (0.327), indicating the importance of internal and external support for social interaction.

Table 5.23*Factor Correlation Matrix*

Factor Correlation Matrix														
		Motivational Dimension		Metacognitive Dimension			Cognitive Dimension		Affective Dimension			Social Dimension		
	Factors	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12	Factor 13
Motivational Dimension	Factor 1	1.000	.400	.143	.144	.308	.124	.191	.002	.175	.261	.130	.364	.234
	Factor 2	.400	1.000	.385	.326	.420	.161	.277	-.043	.229	.230	.132	.365	.462
Metacognitive Dimension	Factor 3	.143	.385	1.000	.447	.270	.223	.286	-.226	.120	.207	.079	.090	.316
	Factor 4	.144	.326	.447	1.000	.253	.083	.207	-.127	.163	.307	-.110	.243	.106
	Factor 5	.308	.420	.270	.253	1.000	.083	.149	-.053	.342	.356	.272	.323	.354
Cognitive Dimension	Factor 6	.124	.161	.223	.083	.083	1.000	.272	.159	-.199	.048	.048	-.074	.309
	Factor 7	.191	.277	.286	.207	.149	.272	1.000	.136	-.024	.321	.019	.221	.297

Affective Dimension	Factor 8	.002	-.043	-.226	-.127	-.053	.159	.136	1.000	-.228	.029	.129	.035	.022
	Factor 9	.175	.229	.120	.163	.342	-.199	-.024	-.228	1.000	.267	.003	.219	.065
	Factor 10	.261	.230	.207	.307	.356	.048	.321	.029	.267	1.000	.197	.327	.235
Social Dimension	Factor 11	.130	.132	.079	-.110	.272	.048	.019	.129	.003	.197	1.000	-.031	.301
	Factor 12	.364	.365	.090	.243	.323	-.074	.221	.035	.219	.327	-.031	1.000	.099
	Factor 13	.234	.462	.316	.106	.354	.309	.297	.022	.065	.235	.301	.099	1.000

However, the above results are not stable, and the new construct cannot be confirmed by a third round of EFA analysis for several reasons:

1. Items with low communalities (<0.4) persist in the second round of EFA. Removing these items does not significantly improve the Total Variance Explained.
2. The items were not originally designed to measure the new constructs, leading to factors with only two items, which increases instability and reduces reliability.
3. Several item loadings in the current factors are near the threshold of 0.4, which is not ideal and suggests weak associations.

Therefore, the EFA results should be viewed as preliminary and can provide insights for future revisions of the model and the questionnaire.

In summary, the factor analysis revealed deviations from the original constructs. In the Pattern Matrix, 42 items had loadings over 0.4, while the Structure Matrix showed 54 items with loadings over 0.4, indicating discrepancies and suggesting the need for construct revision. Specific items grouped differently across matrices, highlighting the complexity and potential overlap in dimensions.

Despite these challenges, the EFA provided valuable insights for future revisions. A refined structure with 48 items grouped into more interpretable factors was proposed, aligning closer to the original constructs. The factor correlation matrix further indicated significant correlations among several factors, supporting the need for theoretical and item-level revisions.

Overall, while the EFA results indicate instability and the need for further refinement, they offer a foundational basis for improving the instrument and enhancing its construct validity.

5.7 Conclusion

This chapter presents a comprehensive quantitative analysis of data collected from a survey of 90 multilingual university students studying Chinese as a third or additional language. The chapter begins by detailing the demographic and linguistic backgrounds of the participants, including variables such as gender, age, academic grade, institutional affiliation, and language repertoire.

The study explores the use of various LLSs across five key dimensions: motivational, metacognitive, cognitive, affective, and social strategies. Descriptive statistics indicate that the participants generally exhibit a high level of strategy use, with the motivational dimension showing the highest mean scores. The chapter also employs statistical tests to assess the normality of the data, revealing that while some items display normal

distributions, others deviate, necessitating the use of non-parametric tests in subsequent analyses.

The chapter further explores correlations between strategy use and external variables, such as the number of languages spoken, multilingual proficiency, and immersive learning experiences. The findings highlight significant positive relationships between multi-choice selections and overall strategy use, particularly within the motivational, metacognitive, cognitive, and social dimensions. However, affective strategies show weaker correlations with these external variables.

Additionally, the chapter reports on the reliability of the Likert scale used in the survey, confirming high internal consistency across most dimensions. However, some sub-dimensions exhibit lower reliability, suggesting areas for potential refinement in future research.

While these findings provide valuable insights into the strategic behaviours of multilingual learners in a Chinese language learning context, it is important to acknowledge that the use of self-reported data may introduce certain biases, such as social desirability and recall bias. Although measures were taken to minimise these effects, such as ensuring participant anonymity and aligning questionnaire items with validated frameworks, such biases cannot be entirely eliminated. Therefore, these results should be interpreted with appropriate caution, and future studies may consider complementing self-report instruments with observational or longitudinal methods to enhance validity.

Overall, the quantitative findings provide valuable insights into the strategic behaviours of multilingual learners in a Chinese language learning context, emphasizing the importance of motivational and metacognitive strategies while identifying areas where learners may require additional support or different approaches.

Chapter 6 Discussion

6.1 Introduction

This chapter presents the discussion of the findings derived from both the quantitative analysis of questionnaire data and the qualitative analysis of interview narratives, exploring the strategic behaviours of multilingual learners of Chinese as a L3/AL. By integrating both data strands, the chapter provides a layered and nuanced interpretation of how LLS are employed, shaped, and experienced across different dimensions.

The discussion first focuses on the five dimensions of strategy use identified through the S²R Model: motivational, cognitive, metacognitive, affective, and social. Quantitative analysis highlights broad trends across the learner sample, while the interview data offer deeper insights into the beliefs, goals, and personal experiences that influence these strategic choices. This integrated approach highlights the ways in which learners draw on both internal and contextual resources to navigate their language learning journeys.

A particularly intriguing finding relates to the role of immersive language learning experiences. Interview participants frequently described immersion as highly beneficial to their learning, associating it with increased confidence, engagement, and language use in authentic contexts. However, the quantitative data revealed a negative correlation between immersive experience and the reported use of metacognitive and affective strategies. This contrast presents an interesting interpretive aspect: while immersion may reduce the need for conscious strategic regulation, it may also lead to a shift towards more intuitive or automatic language processing. The chapter unpacks this complexity to explore how immersion may simultaneously support and obscure strategic behaviours.

Further attention is given to how individual learner characteristics, such as gender, first language, and sociolinguistic identity, shape the way strategies are used. Statistical differences between groups are explored alongside qualitative insights, revealing how learners' backgrounds influence not only their perceived challenges but also their preferred learning approaches. These findings show the interplay between sociocultural factors and strategy deployment.

The final part of the discussion draws on motivational theories such as SDT and L2 MSS to consider how the satisfaction of BPNs, including competence, autonomy, and relatedness,

drives motivation and strategy use. Interview accounts are especially rich in illustrating how learners perceive progress and empowerment, particularly when prior multilingual experiences reinforce confidence and sustain engagement with Chinese language learning. Through this integration of quantitative trends and qualitative depth, the chapter offers a more in-depth understanding of LLS use among multilingual learners. It also highlights the value of mixed-methods research in capturing the complexity of strategic learning behaviours, while identifying implications for pedagogy, learner support, and future research on multilingual acquisition.

6.2 The LLS used by the multilingual participants when learning Chinese as an L3/AL

This section combines qualitative and quantitative data to answer Research Question 1: "How do learners with English as their first language and Irish as their second use LLS when learning Chinese as a L3/AL?" It also outlines the general characteristics of multilingual learners studying Chinese in Ireland, focusing on their use of LLSs.

From the mean and standard deviation of overall strategy use, each dimension, and sub-dimension in section 5.2.1 (Table 5.1), it is clear that multilingual respondents consistently use a moderate level of strategies (mean = 3.87, SD = 0.40). There are slight deviations in each dimension.

6.2.1 Motivational dimension

Among the five dimensions, the highest mean score is in the Motivational Dimension (mean = 4.35, SD = 0.41), with high agreement across its three sub-dimensions. This result aligns with the interview data in section 4.4 that shows multilingual learners studying Chinese are highly motivated. Their motivation comes from identifying intrinsic motivation, creating a positive vision of their ideal language selves, and enhancing their ought-to language selves.

A correlation test was conducted to examine how do learners' motivational strategy use. The result indicates that the average score of the Motivational Dimension shows no significant correlation with age or grade, maintaining a consistently high level. This differs from Zhang's (2020) findings with Irish university students, which showed that Chinese language learners' demotivation followed a wave pattern over time. Although demotivation and motivation strategy use are distinct constructs, they are closely interrelated, as demotivating factors may reduce learners' motivation. The curve in Zhang's study

illustrates that the early stage (around the second year) is the most demotivating period compared to later stages (such as year four). However, in this study, the results are not statistically significant. Takahashi's (2022) longitudinal case study on Japanese multilingual learners also reported a case of a college student learning L3/AL who exhibited a high level of internal motivation and a continuously developing ideal multilingual self: a self-concept representing their desired future identity as a proficient user of multiple languages. This ideal multilingual self, shaped by personal goals and internalised values, served as a sustained source of motivation and aligns with the consistently high motivation observed among the participants in the current study (Takahashi, 2022, p. 115).

The interview data tells the same story. The quantitative data analysis indicates that L3/LN learners generally generate autonomous motivations rather than controlled motivations. The data show that the two most frequently used strategies are *using positive self-talk and positive self-image* and *enhancing learning*. These strategies help identify and enhance autonomous motivation, as well as build the ideal L2 self.

From the perspective of SDT, autonomous motivation is understood as comprising intrinsic motivation and two forms of internalised extrinsic motivation, identified and integrated regulation (Deci & Ryan, 2012). These forms differ in their degree of volitional endorsement and psychological integration. OIT, one of SDT's six mini-theories, conceptualises motivation on a continuum from controlled to autonomous, where introjection represents a partially internalised but still pressuring form of motivation, and identification and integration reflect a more self-determined alignment with the learner's values and identity. In language learning, this distinction is particularly relevant: when learners internalise their reasons for study, they are more likely to persist, perform well, and experience positive affect (Noels et al., 2000).

The data from this study reinforce the centrality of internalisation processes among L3/AL learners. Nadia, for instance, expressed a deep personal interest in language learning: "I do just like learning languages," signalling strong intrinsic motivation. Her narrative reflects satisfaction of SDT's three BPNs: autonomy, competence, and relatedness, which underpin autonomous motivation. Autonomy is reflected in her volitional engagement, competence in her self-reported ability to manage cognitive demands, and relatedness in her enjoyment of the language learning process itself.

Nadia: Um, not really (feel pressure or stressful). I feel like I'm really lucky because I do just like learning languages. So like, I don't really be like, Oh, I don't want to study this today. I feel like sometimes it like it makes my brain very tired because it is a lot of like, if I've been doing it for a long time, it is a lot of brainpowers. But not really. No, I just like it.

Moreover, learners such as Daniel (See section 6.5.2) illustrated a dynamic shift from controlled to autonomous motivation. Initially motivated by external goals (grades and performance), Daniel later reported that “now it is just, I love it,” showing a transition towards intrinsic enjoyment. This process reflects the internalisation pathway described by SDT, where motivation evolves through experiences that meet psychological needs, especially within supportive learning environments. Chapter 4 also discusses how prior multilingual learning experiences contribute to a sense of competence, reinforcing internalisation through positive affective cycles. Further discussion is presented in section 6.5.

From the L2 MSS perspective, the ideal self is a person's idealized perception of themselves, constructed from the beliefs a person holds about their own abilities and qualities (Dörnyei & Ushioda, 2009). Thus, the level of internalization of the motivation generated from the ideal L2 self should be relatively high, as the individual needs to realize and accept the value of the behaviour or action. The data proved that the L3/AL learner group has more autonomous motivation than controlled motivation, many of them reported a clear vision of themselves (See the quotations in Section 4.5.2 under the subtitle “Think about the Ideal L2 Self”).

This strong presence of the ideal L2 self among participants aligns with previous empirical studies that have adopted the L2 MSS framework. For example, Al-Shehri (2009) demonstrated that Saudi learners with vivid ideal selves exhibited higher levels of strategic engagement and persistence in L2 learning. Similarly, Csizér and Kormos (2009) found that the ideal L2 self significantly predicted language learning strategy use among Hungarian secondary school students, particularly cognitive and metacognitive strategies. These findings mirror the pattern observed in the current study, where learners with a clear self-image tend to adopt strategies that enhance autonomous motivation. However, unlike these studies where the ideal self was often linked to external goals such as studying abroad or employment, the participants in this research, particularly those like Nadia and Daniel,

were primarily driven by internal satisfaction and personal fulfilment through language learning.

Furthermore, Henry (2011) argues that multilinguals may have more complex and dynamic ideal selves, shaped by their experiences in multiple language contexts. This aligns with the data from this study where multilingual learners learning Chinese (as an L3/AL) appear to draw on a cumulative sense of linguistic identity, forming what Takahashi (2022) refers to as “ideal multilingual selves.” This more nuanced ideal self may explain the strong autonomous motivation reported by most participants, even in the absence of external rewards. It also reflects the importance of considering multilingual learners’ ideal selves as plural and evolving, rather than fixed and target-language specific. This theoretical stance may be particularly useful for future studies that aim to examine strategy use through the lens of both identity construction and motivation.

Therefore, integrating the ideal self into the interpretation of language learning strategy use enriches our understanding of how learners engage with Chinese as an AL, highlighting the interplay between self-concept, autonomy, and strategic action in multilingual settings.

In addition, the learning context might also play an important role. The interview participants are primarily learning the L3/AL at a university. Before that, each of them had learned at least two languages in their primary and post-primary schools. When learning the previous languages, they were coping with the pressure to pass exams in order to enter a university. However, once they got into the university, the participants could choose their own modules, creating an autonomous atmosphere at the very beginning of their L3/AL learning journey. The SDT suggests that an autonomous environment supports cultivating intrinsic motivation (Deci & Ryan, 2012), which aligns with our findings. 13 out of 14 participants identified that their language learning comes from their intrinsic motivation. By analysis the reason of why multilingual learners has such high motivation standing out, this part will be detailed discussed and presented in Section 6.4.

6.2.2 Cognitive dimension

The second highest mean score in the five dimensions is the Cognitive Dimension (mean = 3.92, SD = 0.52). This dimension is composed of two parts: "integrating all language learning experiences" and "using cognitive tactics to learn Chinese." The latter even reached a high level of agreement (mean = 4.07, SD = 0.58). This result indicates that multilingual learners agree they are using various and effective cognitive tactics and synthesizing their previous linguistic knowledge when learning Chinese. This aligns with

the interviews, where almost all participants mentioned using different cognitive tactics in their Chinese language learning.

The multiple-choice question further confirmed the result. The number of selections has a weak but significant positive correlation with the Cognitive Dimension (Coefficient = 0.210, $p = 0.006$) and its sub-dimensions. For the item "D3_1_5 I try out new methods to learn Chinese, even if I haven't used them in learning other languages," 73% of respondents agreed. This aligns with the interview findings, where 10 out of 14 participants mentioned using new tactics to learn Chinese, especially in learning Chinese characters (see section 4.1.1 and section 4.1.5).

In past literature, cognitive strategies are usually assessed by the SILL (1990) or its adaptive versions to collect the frequencies of related behaviours. The literature in section 2.3.1 shows that cognitive and memory tactics are used at a low to medium frequency when learners are learning Chinese (Ding, 2019; Fan, 2014; Hou, 2016; Hu, 2014; Jia, 2017; Jiang, 2000; Li et al., 2011; Liao, 2020; Ran, 2018; Wu, 2007; Xu, 2011; Xue, 2018; Zeng, 2011). Only one study reported a high frequency of cognitive strategies use when learners are learning Chinese in China (Ding, 2019). Compared to those studies, this study's scale focuses on learners' self-perceived effectiveness and practicality, which reached a medium to high level of agreement. The result further reflected that learners may use different tactics, but all are perceived as effective for their own learning.

Cognitive strategies and tactics are infinite, the interview data analysis reflected that each one has his unique way to learn and remember linguistic knowledge. It is highly dependent on one's learning style and learning habit.

The cognitive strategies listed by Oxford (2011, 2017) are identified in the interviews, except Going Beyond the Immediate Data. The reason, as discussed in Section 4.1, could be retrospective interviews cannot evoke the memory of solving a particular language task. Multilingual learners would Activate Knowledge not only about the language they are learning, but also the languages they have learnt before, the grammar, pronunciation, vocabulary to help them learn or remember the L3/AL. The multilingual effect can also be identified in Conceptualising Broadly and Conceptualising with Details these cognitive activities would include more resources from multiple languages. They are synthesising the language information and at the sometimes synthesise their own learning style and methods they would analyse them, compare them, connect them.

Chinese learning is different from the Indo-European languages mainly on character learning, Chinese characters have its unique nature, as an ideo-phonograph writing system,

learners would analyse them and try to understand each part of the character. Associate them with pictures or a scene would be another commonly used tactic in learning characters as a part of the Characters are based on pictographs. More haptic senses were used in learning the characters as well, such as writing the characters repeatedly. Learners also found that there is a “net” or an inner logic in Chinese characters, and it will get easier after mastering a certain number of Characters.

The orchestrating of strategies is obvious, for example, when learning a new character, learners should first analyse the character. Then, activating their knowledge about the meaning of different parts in the character, perhaps associate the character with another character they know or the character they collocate with. And after that, they would read it out, or write it down, or associate the shape of the character with an image. At last, they would try to use it, first talk to themselves, and then, in a conversation, or trying to identify the character in a listening task. The strategy using sometimes occurred simultaneously, sometimes appeared consecutively (Wang, 2015).

6.2.3 Metacognitive Dimension

As discussed in Section 2.1.1, this study continues to use the term 'metacognitive strategies' rather than 'meta-strategies' as originally proposed in the S2R model. One reason is that the conceptual understanding of the term remains the same. Another reason, based on the analysis of the interview data, is that not only does the metacognitive dimension apply to other dimensions, but all dimensions interact with each other, as illustrated in Figure 3.2. For example, the motivational dimension significantly correlates with other dimensions. The interview analysis also revealed that metacognitive strategies are applied in different ways. As mentioned in Section 2.1.1, learners approach planning and implementing plans differently: some rely heavily on course structure, while others prefer flexible planning or do not plan at all. These habitual metacognitive preferences are also evident in how learners organise and obtain resources. Additionally, learners demonstrated a high level of monitoring, frequently reflecting on their learning processes and evaluating their learning outcomes.

The mean score for the metacognitive dimensions 3.73 (SD = 0.51), with the lowest sub-dimension being D2_2 Planning at 3.4 (SD = 0.78). This finding is also reflected in the interviews. Learners who prefer loose plans may not see them as specific plans, as discussed in the Implementing Plans section (Section 4.2.1), even though they engage in habitual learning activities. As Nadia puts it, "I like studying it, but if I make a plan, it

makes me feel I have to do this." This usually happens when they are highly motivated. Another reason, discussed in Section 4.2.1 too, is that the questionnaire was conducted with university students. The language modules are structured by the school, reducing the burden of making plans for the students. In the interview, several participants expressed their appreciation and dependency on their Chinese language course structure, textbooks, and teachers.

Although the mean of the Planning sub-dimension is relatively low compared to the other sub-dimensions in this category, it is still at a moderate level. This indicates that the respondent group uses reasonable metacognitive strategies in their Chinese language learning. The correlation test between the strategy dimensions showed a significant positive moderate correlation between the metacognitive dimension and Motivational Dimension (Coefficient = 0.484, $p < 0.001$), as well as the Cognitive Dimension (Coefficient = 0.418, $p < 0.001$). A weak positive correlation was found between the metacognitive dimension and Affective Dimension (Coefficient = 0.360, $p < 0.001$), and the Social Dimension (Coefficient = 0.241, $p = 0.001$). In Oxford's (2017) S²R model, metacognitive strategies function as "Overarching Guides," guiding the use of cognitive, affective, motivational, and social strategies.

6.2.4 Affective dimension

The Affective Dimension (mean = 3.68, SD = 0.60) consisted of two sub-dimensions: "D4_1 Reducing stress, pressure, and anxiety" (mean = 3.54, SD = 0.62) and "D4_2 Maintaining overall calmness" (mean = 3.91, SD = 0.72). The second sub-dimension has a higher mean value, confirming the assumption from interview data that these multilingual learners are generally positive, have few affective problems, and can handle these problems through their affective resources, possibly collected from past language learning experiences. In the question "D4_1_5 I gain confidence from my previous language learning experience to learn Chinese," 83% of the respondents agreed, 11% stayed neutral, and no one chose "strongly disagree." This result further confirmed the finding in the interview that most multilingual learners are affectively benefiting from their previous language learning experience, and further solidifies the positive cycle hypothesis.

Unlike the mostly positive responses in this dimension, the reversed question "D4_1_re I usually get overwhelmed by my anxiety when taking Chinese language exams" showed a different pattern. Here, 30% of the respondents somewhat agreed, and 20% strongly agreed,

indicating that half of the respondents' experience exam anxiety and might lack effective ways to handle it.

Although anxiety is often perceived as a harmful factor to language learning, a growing body of literature indicates that moderate levels of language learning anxiety can enhance both performance and motivation by fostering greater alertness and goal-oriented behaviour (Marcos-Llinás & Garau, 2009; Oxford, 2017; Pawlak, 2011; Wang et al., 2023). In the present study, several participants reported experiencing such moderate anxiety, particularly in classroom-based oral tasks and immersion settings. Rather than hindering their learning, this form of anxiety appeared to function as a motivational driver, prompting more deliberate strategic choices, such as increased rehearsal, planning, and metacognitive monitoring, especially among learners with clearer multilingual goals. This aligns with the self-regulatory dimension of the S²R model and further suggests that anxiety, when not overwhelming, can stimulate strategic engagement. The nuanced relationship between affective feelings and affective strategies among multilingual learners warrants further investigation in future research.

Additionally, another possible reason for the different pattern in the exam anxiety item is that one of the universities was entering exam weeks during the data collection period, which might have influenced the respondents' subjective feelings.

6.2.5 Social dimension

The Social dimension has a medium mean value (mean = 3.68, SD = 0.56). However, the sub-dimensions show variation in their mean values. The first two sub-dimensions, "D5_1 Interacting to learn and communicate" (mean = 3.35, SD = 0.80) and "D5_2 Learning despite knowledge gaps in communicating" (mean = 3.47, SD = 0.73), have relatively lower mean values compared to "D5_3 Dealing with sociocultural contexts and identities" (mean = 4.31, SD = 0.65).

The results indicate that although learners are actively engaging with the L3/AL culture and using strategies to explore and understand the target culture, they are not very skilled in communicating in the target language. Interview data revealed that some interviewees mentioned they do not have many opportunities to meet and speak the target language in their daily lives. For example, Henry mentioned that he sees some Chinese people around but doesn't initiate conversations in Chinese because he is unsure if it is appropriate. Lisa also mentioned that she doesn't want to communicate solely for the purpose of practicing the language; she prefers communication to happen more naturally.

Despite their concerns about finding opportunities to use the target language, almost all interview participants agreed that communication is an important part of learning a language. They expressed their willingness to communicate positively at different levels. The interviews also highlighted differences among groups; interviewees still in university tend to have fewer opportunities and experiences compared to those who have already graduated.

Studies on willingness to communicate (WTC) have found that a learner's WTC is influenced by multiple factors, including motivation, communicative competence, and social context (Kirkpatrick et al., 2024; MacIntyre & Charos, 1996; Rezaee & Ghanbarpoor, 2022). The social context might influence learners' chances of communicating to learn and using social strategies. This influence is evident in two items: Regarding the statement “D5_1_2 I actively engage with peers and teachers to learn Chinese,” 73% of respondents either agreed or strongly agreed. In contrast, only 34.4% of respondents agreed with the statement “D5_1_3 I initiate conversations with native Chinese speakers.” Previous studies found that an immersive learning context leads to more frequent use of sociocultural strategies (Ding, 2019; Liao, 2020). However, the influence of immersive language learning experience seems more complicated in this study and will be detailed discussed in the next section.

As reported in Chapter 5, Section 5.4.3, multilingual proficiency shows a significant negative correlation with the Social Dimension ($p = 0.006$, coefficient = -0.206). This result is unexpected, as it is commonly assumed that multilingual individuals, due to their exposure to multiple languages and cultures, would be more likely to engage in social strategies. However, this was not the case in this study. A possible explanation could be the increased cognitive load (Paas et al., 2003); multilingual learners, having already acquired multiple languages, may experience a cognitive burden when studying and maintaining their existing languages, which limits the time and effort they can dedicate to practising and using an L3/AL.

Another useful theoretical lens is the expertise reversal effect (Kalyuga, 2007; Sweller et al., 2003), which posits that as learners become more experienced, they tend to discard novice-level strategies, such as collaborative learning, peer discussion, or reliance on teacher scaffolding, but in favour of more internalised, efficient techniques that require less external input. In the context of language learning, this suggests that social strategies, typically valuable for early-stage learners to build confidence and receive feedback, may

become less central as learners develop stronger metacognitive awareness and self-regulatory capacities.

While the expertise reversal effect has been most widely demonstrated in domains like mathematics and science instruction, its principle can be also applied to multilingual learners. For instance, Kalyuga (2007) examined how advanced learners began to skip verbal explanations provided by instructors, preferring instead to rely on their own problem-solving routines. In a language learning context, this shift might manifest in the form of experienced multilinguals choosing to study independently, drawing on previous learning schemas, rather than engaging in collaborative or interactive learning situations. These learners may perceive that the time and cognitive resources required for socially mediated learning are disproportionate to the benefits, especially when immediate communicative needs or immersive environments are unavailable.

Thus, for multilingual learners acquiring an additional language, social strategies may no longer serve the same function they once did during initial language learning. Instead, they may rely on personalised, internalised frameworks, refined across multiple prior learning experiences, such as “self-talk” which is mentioned multiple times by several participants in the interview data. This shift does not imply that such learners undervalue social interaction per se, as some interview participants noted its importance, but rather that in their current learning context, they have adjusted their strategy use toward approaches they perceive as more efficient or under their direct control.

Considering the period during which this study was conducted, another practical factor may be relevant: the limited opportunities for learners to practise the target language with proficient speakers. The COVID-19 pandemic significantly restricted travel, and as a result, many learners were unable to go to China, reducing their exposure to authentic language contexts. This limitation occurred shortly before the data collection, which took place in 2024.

6.3 Influence of Immersive Language Learning Experience

The correlation test revealed an unexpected result: multilinguals' previous immersive language learning experiences negatively correlate with their strategy use (section 5.4.4). This negative correlation is significant ($p < 0.05$ and coefficient > 0.2) for overall strategy use, the Metacognitive Dimension, and the Affective Dimension. At the sub-dimension level, significant negative correlations were found with D1_1 Identify intrinsic motivation, D2_2 Planning, D2_3 Organizing and Obtaining Resources, D2_4 Monitoring and

Evaluating, D4_1 Reducing stress, pressure and anxiety, and D4_2 Maintaining overall calmness. These significant negative correlations suggest that learners with immersive learning experiences in more languages tend to use fewer metacognitive strategies and are less effective in using affective strategies to manage negative emotions during L3/AL language learning.

The following discussion will focus on the Metacognitive and Affective Dimensions to explore possible reasons for these results.

6.3.1 Immersive experience and Metacognitive dimension

Item-level correlation further confirmed the results in the Metacognitive Dimension. Significant negative correlations were found with items related to planning, obtaining, and organising resources. The items are: D2_2_2 I set short-term (daily/weekly/monthly) study plans to help me manage my Chinese language learning”, “D2_2_4 I prepare myself to participate in Chinese language or cultural activities”, “D2_3_3 I find resources to answer my questions in Chinese language”, “D2_3_5 I organise my study environment to fit my learning habit”, and “D2_3_6 I organise my Chinese learning materials for better understanding”. The above items are relevant with planning, obtaining and organising resources.

Jessner (2008) suggests that multilinguals possess a dynamic and interconnected linguistic system, enhancing their cognitive flexibility and metacognitive abilities. The dynamic model of multilingualism implies they are likely to use more metacognitive strategies. However, this assumption is not confirmed by our quantitative data. Multilinguals with immersive learning experiences in several languages may not use more metacognitive strategies as expected.

In the interview data, several participants reported not having a clear plan for their language study. They prefer learning freely and using fragmented time wisely (see section on implementing plans). Some form habits around their learning activities and consider this process as occurring without planning. Organising strategies can be found in the interview data for cognitive, affective, and social purposes, but mostly for cognitive purposes, such as organising vocabulary and class notes. However, not all participants mentioned use this strategy (28 occurrences found in 12 interviews), and some only used it minimally. For example, some participants chose their studying environment (library or their own room) rather than actively organising it.

The reduction in the use of metacognitive strategies may be because immersive learning experiences help turn learners' metacognitive strategy use from conscious processes into unconscious processes. In the research field of LLS, how much consciousness is necessary to assert that a learner is using a learning strategy is still debated (Oxford, 2017, p. 63). Several scholars suggest that strategies must be used intentionally and consciously (Bialystok, 1981; Dörnyei & Scott, 1997; Oxford, 2017; Schmidt, 1994). Gass and Selinker (1992) noted that language use tends to become automatic with frequent elements, and the learning process can also become routinised, so some strategies are used unconsciously. After systematically analysing the definitions proposed by different researchers, Oxford (2017) addressed this automatization or proceduralisation process as "if a strategy has been used so often that it has been lost to consciousness, it is no longer a strategy."

From a cognitive theoretical perspective, Schema Theory posits that our mental schemas are continuously updated as we encounter new experiences and knowledge, thus enhancing our cognitive efficiency and ability to retrieve and use information automatically (Bartlett, 1932). This automatization is fundamental to learning autonomy, as it allows learners to manage their learning processes independently and effectively, making decisions and taking actions without conscious effort, thereby reducing cognitive load (Holec, 1981; Little, 1991).

Several studies have found evidence that immersive language learning can foster learners' metacognitive awareness and learning autonomy, as learners often engage in self-directed learning activities outside formal instruction (Benson, 2011; Little, 1991; White, 2008). Immersive language learning experiences may catalyse this automatization of the metacognitive process, reducing the conscious use of metacognitive strategies. Of course, this doesn't mean that these learners' learning processes do not include sufficient metacognitive engagement; they are just turned into an unconscious level, and this may indicate a higher level of learning autonomy.

6.3.2 Immersive experience and the Affective dimension

The item-level significant negative correlation in the Affective Dimension can be found in the following items: "D4_1_re I usually get overwhelmed by my anxiety when taking Chinese language exams" (the result has been reversed), "D4_2_1 I maintain calm when I am learning Chinese", "D4_2_2 I study Chinese in an environment where I feel comfortable", and "D5_2_2 I manage the anxiety of making mistakes while communicating in Chinese" (this item has an affective element). The negative correlation indicates that

learners who have immersive language learning experiences with more languages may have higher language anxiety or affective arousal and are not effective enough in using affective strategies to manage their emotions.

Combining the interview data, it is clear that L3/AL learners encounter affective arousal situations during their learning. For instance, Daisy mentioned her fear and embarrassment about making mistakes when she first went to China. She also emphasized that an immersive learning experience is crucial for overcoming these psychological and emotional barriers. Evan and Jane shared their experiences of being laughed at when they practiced their language with more proficient speakers. Although these learners expressed that these negative experiences no longer influence their emotions, and they were found to use the strategy "Changing cognitive appraisals of situations to shape emotions" to minimize the negative impacts, it can be speculated that those experiences did affect learners' feelings at the time when they were happening. Adam noted that when he was in China, at first, his purpose for learning Chinese was survival. He didn't worry about whether his grammar was accurate; he just wanted to avoid being deceived, getting lost, or being trafficked. These worries and associations reflect a learner's anxiety in a foreign and immersive environment. Previous studies on immersive language learning have different opinions on the impact of learning context on learners' emotions and affects. Ó Muircheartaigh and Hickey (2008) found that post-primary school students in early and late Irish language immersion programs exhibited different levels of classroom anxiety. Late immersion students had significantly higher anxiety compared to early immersion students. Macintyre and colleagues (2011) investigated French immersion program learners' WTC and found that learners might be unwilling to speak with speakers whose language proficiency is more advanced, as they feel less secure (Kang, 2005). These findings suggest that the immersive learning experience can bring negative experiences and feelings to learners, however, the impacts are changing over time. Thompson and Lee (2014) studied the influence of abroad learning experiences on language learning anxiety and found that the duration of the experience is a factor. The abroad experience should be more than several months to reduce various types of language anxiety, and the longer the experience, the more pronounced the reducing effect. Zhang (2020) found that the demotivation of Chinese language learning followed a flipped U-curve along with the length of learning, aligning with the curve of cross-cultural adjustment, which indicates that learners' feelings may also be influenced by their adjusting to the target culture in a immersive environment.

In this study, we collected data on learners' immersive language learning experiences across different languages. However, we lacked specific information about the settings and durations of these experiences, an aspect that future studies could refine. The study also confirms that placing learners in an immersive environment without adequate support can be problematic. Research on language anxiety and emotions suggests that a supportive classroom environment fosters strategy use and reduces language anxiety (Aragão, 2011; Chamot & El-Dinary, 1999; MacIntyre & Gregersen, 2012). To address these challenges, more intentional affective strategy training is necessary within immersive learning programmes. Pedagogical interventions could include structured reflection activities, explicit instruction in emotion regulation techniques (e.g., reappraisal or mindfulness strategies), and scaffolded exposure to high-stakes communicative tasks to build emotional resilience gradually. Furthermore, educators and programme designers should consider the importance of safe and supportive learning environments that validate learners' affective experiences while promoting adaptive coping strategies.

It is noteworthy that the impact of immersion experiences on a learner's affect can be long-lasting. The negative correlation we found isn't limited to current or recent immersion experiences but extends to all past experiences. Even learners with multiple language immersion experiences may find their effects in learning a new L3/AL influenced by these past experiences. On a positive note, our interview data revealed that most participants viewed their immersive learning experiences favourably, emphasizing the beneficial effects on their language learning. Despite reporting some negative events and feelings, their overall attitudes remained largely positive.

Research on emotions and metacognition has found a significant positive correlation between perceived negative emotions and metacognition levels (Spada et al., 2008). Moreover, worry can enhance confidence and metacognition quality (Massoni, 2014). These findings suggest that learners with more immersive language learning experience may have higher metacognitive and affective awareness. Language acquisition studies have also noted that moderate anxiety can benefit a learner's language performance and motivation (Marcos-Llinás & Garau, 2009; Oxford, 2017; Pawlak, 2011; Wang et al., 2023). However, our quantitative data showed no significant correlation between the Affective Dimension and learners' Chinese language proficiency levels. The complex relationship between affective strategy use, language learning anxiety, and learner performance in immersive environments warrants further investigation.

6.4 Characteristics of Different Learner Groups

Section 5.5 reported the results of Mann-Whitney correlation tests among different demographic groups. The tests compared groups such as female vs. male, English L1 vs. other language L1, Irish vs. non-Irish speakers/learners, and Chinese learners with vs. without immersive learning experience. The following discussion will be based on the comparison test results of each group pair. This part is also trying to answer the Research Question 1.1 and 1.2 and research question 2. As it was reported in Chapter 5 that the age and school grade were not significantly influence learners' strategy use, thus this section will focus on the gender difference and language background influences.

6.4.1 Gender differences

The finding that female learners reported significantly more frequent use of metacognitive strategies, particularly in planning, organising, and obtaining resources, emerged from the quantitative phase of this study. This result aligns with a substantial body of literature in L2 acquisition, where female learners have been found to engage more actively with metacognitive strategies than males (Bacon, 1992; Ehrman & Oxford, 1989; Green & Oxford, 1995; Liyanage & Bartlett, 2012; Sheorey, 1999). However, the findings across previous studies have not been unanimous: while some confirmed significant gender differences, others reported no such distinction (Salahshour et al., 2013), and still others found males outperforming females in specific skill-based strategies, such as in reading comprehension tasks (Phakiti, 2003).

The present study contributes to this ongoing debate by situating the investigation in a multilingual learning context, where learners possess diverse linguistic repertoires and draw upon prior experience in more than two languages. Such a context may reshape how learning strategies are perceived, deployed, and reported. Therefore, differences in strategy use observed here might not reflect the same underlying mechanisms as those documented in monolingual or bilingual settings. The multilingual nature of the participants, along with the cognitive demands of learning Chinese as an L3/AL, may have influenced how learners of different genders approached strategic learning and how they reflected upon their strategy use.

In the current study, gender imbalance was also observed in terms of participant composition. Of the 90 participants in the quantitative phase, 64.4% were female ($n = 58$) and 30.0% were male ($n = 27$). This discrepancy is unlikely to be accidental. Research on gendered subject choices has shown that female students are more likely to choose for

language-related subjects, while male students are more inclined towards technical or science-oriented fields (Colley & Comber, 2003; Sunderland, 2000). Given that this study focused on learners of Chinese as a L3/AL, it is possible that females, who may already possess higher metacognitive awareness and more positive prior language learning experiences, are more inclined to opt into such learning contexts. In this sense, the sample itself may reflect a form of self-selection: those who enjoy language learning or have previously benefitted from it are more likely to pursue Chinese as an additional language. This might help explain the overrepresentation of female learners and their reported strategic engagement.

However, it is crucial to note that no significant differences were found between male and female participants in terms of language proficiency. This indicates that gender-based preferences in strategy use do not equate to inherent differences in learning outcomes. Male learners, despite reporting less frequent metacognitive strategy use, performed at comparable levels. This finding indicates that it is important to avoid deterministic interpretations of gender in language learning. Instead, educators should consider how strategy awareness and instructional design might be tailored to support all learners. Understanding gender-related patterns in strategy use can enable more differentiated and responsive pedagogical.

6.4.2 Does English as L1 have an impact on learners' strategy use

Section 5.5.2 compared the English L1 group with the non-English L1 group, revealing no significant differences in various LLS dimensions. Only minor variations were found in three tactics, with two related to obtaining resources, non-English L1 learners reported using these more frequently. These findings suggest that for multilingual learners with English in their language background, whether as L1 or not, their LLS use in learning Chinese as an L3/AL shows no substantial difference.

6.4.3 Do Irish learners/speakers act differently in their strategy use

In section 5.5.3, the results of the Mann-Whitney U test showed differences between Irish speakers/learners and non-Irish speakers/learners on the Social Dimension and a Motivational sub-dimension, "thinking about ideal L3/AL self." Non-Irish speakers/learners scored higher on both. The item-level comparison also reflected these results. One item from the Motivational sub-dimension and two items from the Social Dimension were significantly different between the two groups (see Table 5.19). Additionally, one item from the Cognitive Dimension, "I try out new methods to learn

Chinese, even if I haven't used them in learning other languages," was agreed with less by the Irish language learners/speakers. Meanwhile, another metacognitive dimension item, "I occasionally assess whether the effort I put into Chinese language learning is enough," was agreed with more by them.

A follow-up correlation test was conducted within the two groups to reveal more differences. For the non-Irish speaker/learner group, the learner's multilingual level has a significant positive correlation with the Cognitive dimension. While for the Irish speakers/learner's group, there is a significant negative correlation found between the learner's multilingual level and the Affective dimension. Immersion experience also found variations regarding correlations with the two groups. Though immersion experience has an overall negative correlation with the strategy use dimensions, the Irish speakers/learners group shows significance in the Metacognitive dimension and Affective dimension, while the non-Irish speakers/learners group shows significance only in the Metacognitive dimension. These correlation results show that multilingual level and immersion experience with all their languages may affect Irish speakers/learners' affective strategy use and efficiency.

The quantitative results highlighted several differences between the two groups, two most obvious ones are 1. Irish speakers/learners use fewer social strategies than non-Irish speakers/learners when learning Chinese language, 2. Multilingual level and immersive learning experience has significant negative affect on Irish speakers/learner's affective strategy use and efficiency, while this is not found on non-Irish speakers/learners group. Why do the two groups show such variations, the answer might be hiding in the interviews with Irish speakers/learners.

In the interview data, 12 participants are Irish language speakers/learners. Among them, two participants stated that they went to Irish immersion schools, and three participants shared that their parent(s) can speak Irish, so they can practice at home. The rest of the participants had experiences of learning Irish in English-medium schools. This sample distribution reflected the population; about 5% of students received their education in Irish immersion schools, and a further 2.5% went to Gaeltacht schools in Irish-speaking communities (Máirtín, 2006, as cited in Ó Duibhir, 2011). When talking about their Irish language learning, most of the participants showed positive attitudes towards the language; however, on the other side, they feel sad for not being able to speak it well, as Daisy expressed her feelings.

Daisy: It is quite strange. Like, it (Irish) is a lovely language, and I wish I did keep it up. But yeah, no, I don't really, it is not, my Irish is not very good anyway.

Even learners with immersion learning experiences don't think their Irish is perfect, as Frank stated that he would make mistakes and in daily life he speaks English primarily because speaking Irish needs effort.

Frank: I would consider myself fluent, but sometimes I still make mistakes here and there...I could speak it, but obviously I'm more accustomed to speaking English, I much prefer it, not because I dislike Irish, but it is just easier for me to speak. I don't need to think as much to think of words and all this.

Another immersion learner, Adam, said he didn't have many chances to use Irish outside educational settings.

Adam: Maybe all Irish people have a strange relationship with the Irish language, because it is a language that I only used in school, no any other occasions, unless you go to the west of Ireland, but, why are you going to those places?

These sentiments are consistent with Ó Duibhir's (2011) study, which found that even immersion students often express dissatisfaction with their spoken Irish, attributed to insufficient exposure beyond the classroom. The study concluded that limited out-of-school practice and a focus on form over function may hinder language development.

Further, Walsh (2020) examined the identity struggles of new Irish speakers. Their study revealed that many learners perceive themselves as distinct from native Gaeltacht speakers, often due to greater fluency in English or the belief that Gaeltacht communities have greater ownership of the Irish language. Ó Murchadha and Flynn (2022) reinforced these findings, highlighting how immersion educators often display hyperawareness of linguistic norms, leading to rigid ideologies about language use.

This internalised pressure to adhere to "correct" linguistic forms may explain the heightened affective sensitivity observed among Irish speakers/learners. The aspiration to achieve idealised language performance in Irish, shaped by immersion schooling and dominant ideologies, may be transferred to their learning of Chinese. Consequently, these learners may experience increased anxiety or reduced confidence, particularly when faced with the challenges of acquiring a linguistically distant language. As affective strategies are

closely tied to self-confidence, emotional regulation, and motivation (Oxford, 2017, p. 193), these identity-related factors provide a highly possible explanation for the reduced affective strategy use observed in the Irish group.

This framework helps clarify the observed negative correlation between multilingual level and affective strategies. Instead of being empowered by prior multilingual experience, Irish speakers/learners may encounter identity tensions and linguistic insecurity, which in turn impede affective engagement in the learning process. The identity conflict, between perceiving oneself as a language user versus an ideal speaker, may lead to avoidance behaviours and a reliance on internalised, individual strategies over socially mediated ones. The discrepancy in social strategy use is less readily explained. While interviews showed that Irish speakers/learners attempted to use social strategies, many expressed reluctances to initiate interactions with Chinese speakers. This hesitation may stem from a combination of cultural norms, lack of exposure, or past experiences of language learning that did not emphasise communicative practice. A Chi-square test revealed no significant difference in access to Chinese immersion experiences between the two groups ($p = 0.549$), suggesting that opportunity alone does not explain the variance.

A plausible explanation may lie in previous language learning contexts. Irish learners may have internalised more traditional, individualised learning models focused on grammar and accuracy, rather than on interactive communication. These tendencies are consistent with lower social strategy use, which involves seeking help, initiating conversations, or forming study groups, actions that require confidence and an outward-looking approach. Learners whose identity formation is tied to linguistic accuracy may fear negative evaluation and thus avoid interaction, even when motivated. However, given the limited data from non-Irish speakers/learners on past language learning, further investigation is required to explore this hypothesis.

In sum, differences between Irish and non-Irish speakers/learners reflect not just linguistic profiles but also deeper sociolinguistic and identity-based factors that directly influence LLS choice. The perceived inadequacy in Irish, despite educational investment, may foster self-doubt and inhibit learners from fully engaging affectively and socially in subsequent language learning contexts. These findings challenge assumptions that multilingualism uniformly supports additional language acquisition and highlight the importance of considering the qualitative nature of learners' previous language experiences. By linking identity constructs with LLS preferences, this study shows how internalised beliefs and

emotions shape the strategies learners deploy, especially in demanding L3/AL learning environments.

6.4.4 The influence of immersive Chinese language learning

The quantitative result of the comparison between learners with and without immersive Chinese language learning experience showed that the difference between the two groups is not significant in overall strategy use and in the five dimensions. Only a few subtle differences are found at the sub-dimension and item levels. These differences mostly fall in the Metacognitive dimension, where the group without immersion learning experience tends to use more metacognitive strategies to help them regulate their study. This result further confirms the previous discussion that immersion learning experience could reduce the conscious use of metacognitive strategies (see Section 6.2.3).

Another difference can be found on the item "I enjoy my Chinese language class," which is agreed with significantly less by learners who have had immersive Chinese learning experience. This result may indicate that immersion learning experience changed learners' expectations toward the structured course content. The decline in interest towards classroom learning may be attributed to the contrast between two learning environments, which has led students to experience a psychological gap, feeling a disparity between language learning in real-world settings and that in classroom environments. In an immersion learning environment, learners can identify their learning progress quickly and get immediate feedback from direct interaction with local people (Savage & Hughes, 2014). In Zhang's (2020) study on demotivation factors of Irish learners in learning the Chinese language, it was found that short-term immersion learning experience was beneficial in helping learners deal with demotivation issues in the course design, which could be good news, even if they feel less interested in their classroom learning, the demotivation may be less influential.

In summary, the analysis of different learner groups revealed nuanced differences in language learning strategies and outcomes, influenced by factors such as gender, native language, cultural background, and immersive learning experiences. While female learners demonstrated a higher use of metacognitive strategies, particularly in planning and organising, no significant differences were found between English L1 and non-English L1 learners in overall strategy use. The study highlighted distinct challenges faced by Irish speakers/learners, particularly in social strategy use and affective strategy effectiveness,

likely influenced by their unique language learning experiences and perfectionism awareness, however this influence needs further confirmation. Additionally, immersion in Chinese language learning environments showed limited impact on overall strategy use but did influence learners' perceptions of classroom learning. These findings emphasise the importance of considering diverse learner backgrounds in language education. For instance, although immersion learning experiences bring many beneficial aspects to learners' language learning, it is still necessary to provide students with more support in terms of learning strategies from the perspectives of the affective dimension and the social dimension. Furthermore, the results highlighted the influence of immersion learning on learners' LLSs. Future research could explore the impacts of different immersive learning experiences on language proficiency and strategy use.

6.5 L3/AL learners generate positive cycle by satisfaction of BPN

As it was reported in both qualitative analysis and quantitative analysis, the multilingual learner's motivation in learning L3/AL is quite high. This section will discuss the possible reason from a psychological perspective.

6.5.1 L3/AL learners' competence need are satisfied through their previous language learning experience

The data analysis suggests that L3/AL learners tend not to use strategies that could potentially undermine their competence. One possible reason is that their competence need may already be satisfied. Both Oxford's original version of S²R model (2011b) and Wolters' (2003) strategies for the regulation of motivation mention tactics like "seeing self-handicapping as a positive challenge" and "using defensive pessimism as a motivator". These strategies are identified in empirical studies of L2 language learners. However, they are not found in the interview data of L3/AL learners.

Self-handicapping is a strategy where individuals create obstacles and excuses to avoid blame for potential failure. Defensive pessimism, on the other hand, involves setting lower expectations and preparing for the worst-case scenario (Wolters, 2003). Both strategies suggest a fear of failure and a lack of learner confidence.

On the upside, self-handicapping can increase the sense of accomplishment and resilience when a challenge is overcome and provide an excuse when it is not. Defensive pessimism can encourage learners to prepare extensively for challenges, potentially leading to success.

However, in the long term, self-handicapping can impede a learner's ability to optimally complete a task (Urdu & Midgley, 2001). Defensive pessimism can also increase a learner's anxiety level (Martin et al., 2001), negatively impacting their well-being.

Therefore, these two strategies can harm the learner's need for competence in the long run. L3/AL learners may not use these strategies because their competence need might be fulfilled by their previous language learning experiences, having built enough resilience and confidence to handle future challenges in learning a new language.

Figure 6.1 illustrates how past language learning experiences contribute to learners' BPNs satisfaction. University students have typically already passed the language exams required for admission. For instance, eight out of eleven Irish language learners pursued the higher-level Irish language in their Leaving Cert exam. These successful exam experiences enhance learners' self-efficacy and fulfil their competence needs.

From the self-reported language learning experiences of the participants, eight out of fourteen had immersion language learning experiences. This included bilingual schooling, studying or living abroad, traveling, and attending summer camps. These experiences provide an opportunity to connect with the culture and people of the target language, satisfying their relatedness needs. They also provide a sense of how language operates in an authentic environment, and most reported positive feelings after these immersion experiences.

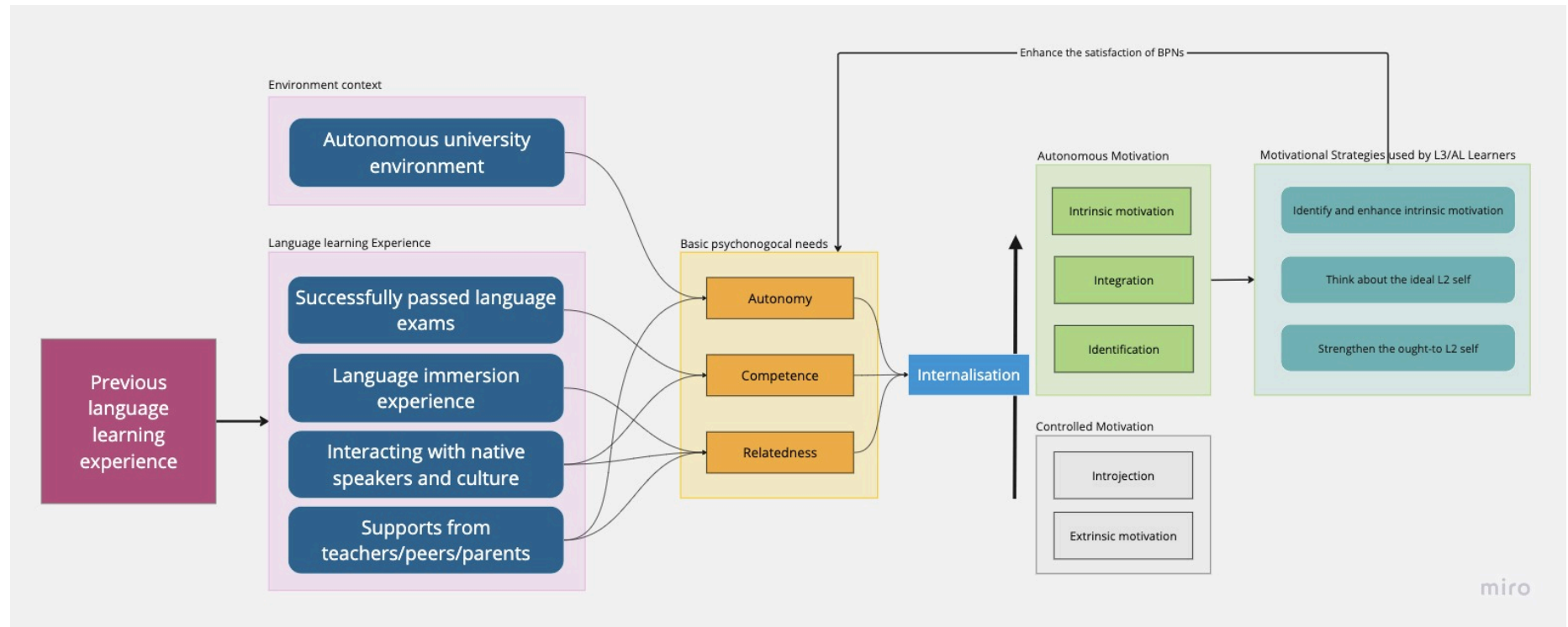
All participants had opportunities to communicate with native speakers, which will be discussed in more detail in section 5.5. This interaction satisfies the need for relatedness, and positive feedback from native speakers also fulfils the need for competence.

Some participants highlighted the support or influence they received from their parents, teachers, and peers. For example, Henry chose to learn Japanese because his friend enrolled in a Japanese course on Saturday.

Henry: Actually, I wanted to learn it because I watched anime, and that was really it. I thought it would be cool to learn. I wasn't even going to learn it, but my friend saw a sign-up form for a free class on Saturday. My friend asked, do you want to do this with me? And I agreed because it sounded fun.

Figure 6.1

The positive cycle for BPN satisfaction and motivational strategy



Note. The left side of the figure indicates multilingual learner's past language learning experience satisfy the BSNs to generate autonomous motivations and use healthy motivational strategies on the right side of the figure.

The using of motivational strategies on the other hand providing more power for satisfying the BSNs and eventually creating a positive cycle.

The term 'influence' here implies subtle connections rather than firm control. Some learners, like Henry, are swayed to learn a language by the people they know. However, learners must make this decision independently. Such influence or support encourages them to 'want to' learn a language, rather than feeling obligated to do so.

The satisfaction of BPNs fosters autonomous motivation. Consequently, learners can identify their intrinsic motivation, propelling them towards their ideal L2 self while experiencing positive emotions. When faced with difficulties or tedious parts, they can overcome these hurdles by reinforcing their ought-to L2 self, holding a belief that it is the route to their ideal L2 self. These motivation strategies and positive beliefs help overcome obstacles and enhance learning performance. This, in turn, boosts the satisfaction of BPNs, creating a positive cycle as illustrated in Figure 6.1.

6.5.2 Attribution, BPNs satisfaction and Motivation internalisation

Attribution theory in education, primarily developed by Weiner (1985), explains how individuals infer the causes of events, others' behaviour, and their own behaviour. This theory identifies three dimensions of attributions: locus (internal vs. external), stability (stable vs. unstable), and controllability (controllable vs. uncontrollable). These attributions impact student emotions and motivation, shaping their expectations for future success or failure.

According to Attribution Theory, if an individual attributes their achievements or failures to internal, stable factors such as ability, it will influence their sense of competence and self-esteem. On the other hand, if successes or failures are consistently attributed to external, stable and uncontrollable factors like luck, the individual is more likely to feel helpless, lower their expectations of success for future attempts, and may eventually give up (Weiner, 1985).

In the interview with the L3 learners, their attribution to learning performance wasn't a structured question. However, some learners revealed their perceived attributions during the conversation. Seven items related to attribution were identified in the data.

Table 6.1*Learner's statement and their attribution of language learning success and failure*

Name	Statement	Outcome	Attribution
Adam	I am interested in languages, but it is not my biggest interest, so I won't practice everyday.	Success/failure	Interest, Effort, Goal setting
Nadia	I feel like I'm really lucky because I do just like learning languages. So like, I don't really like being like, Oh, I don't want to study this today. I feel like sometimes it like it makes my brain very tired because it is a lot of like, if I've been doing it for a long time, it is a lot of brainpower. But not really. No (pressure), I just like it.	Success	Interest, Effort
Jane	I think it is maybe just because I like learning the language that I want to do it. What other people say doesn't really matter, because I know it is like skills that are very useful having a language. And I know I want to be able to speak to my family in Chinese or try to understand them when they speak to me. So I guess, that is probably it yeah.	Success (keep learning)	Interest, Connection
Jane	I think it is not. I'd say it is probably not strong enough to overcome like exam stress and stuff like that. Back then, I prioritised everything to do with going into getting into	Failure	Effort, Goal setting

	college in Ireland, then learning Chinese about that. I was like, Oh, this is not as important. Like, this is not going to there's not going to affect how I get into college and stuff like that. So I think the motivation at the time wasn't the high first.		
Iris	Even if you did make mistakes like it was a lot of praise because you're starting up something completely different. And when you say something that is correct and you do the right grammar structure, it is really like, you know, it is really praised and it is really recognised.	Failure	Difficulty, Effort
Bill	Your French is not as good as my Chinese, so it is normal that you cannot read that fast. And, I read Chinese slow is normal too, because it is one trait of Chinese, it is hard.	Failure	Difficulty Effort
Frank	Because I've failed and passed exams with other languages, I've been completely confused in different situations, so I'm used to that feeling of being confused about that. So for me, I'm used to the negative feeling so I can move on without worrying about it too much, knowing that it is all right. So get to my goal or whatever. I just think put a bit more work in.	Failure	Difficulty Effort

When examining the attributions of L3 learners, it can be found that all six interviewees attribute success or failure to effort, which is more likely to lead to high expectancy and performance maintenance (Weiner, 1985, p. 182). Looking closer, it seems that there are two patterns for L3 learners' attribution. First, success is ascribed to interest and effort. Interest is an internal, stable, uncontrollable factor, while effort is an internal, unstable, controllable factor. In a previous empirical study, Kálmán and Eugenio (2015) found that interest is one of the key factors (together with ability) contributing to intrinsic motivation. Another study by Peacock (2010) suggested that proficient students are more likely to attribute their success to their own efforts compared to less proficient students. The two factors, interest and effort, are mutually reinforcing. The combination of the two factors makes learners feel that making an effort is not something causing pain. These attributions align with the strategy of "identifying intrinsic motivation".

The second pattern is that failure is attributed to difficulty and lack of effort. The former is an external, stable, uncontrollable factor, while the latter is an internal, unstable, controllable factor. Hsieh and Schallert's (2008) study suggested that attribute failure to lack of effort associate with higher self-efficacy. The combination of these two factors makes learners more easily accept their failure without harming their self-esteem, and work harder. These attributions align with the strategy of "strengthening ought-to L2 self".

From the SDT perspective, the two patterns above support the theory that the satisfaction of BPNs can foster the internalisation of motivation, leading to positive action and effort. The attribution of success to interest indicates that the learner's need for autonomy has been fulfilled. Attributing failure to task difficulty protects the learner's need for competence. As shown in Table 6.1, maintaining connections also supports learning maintenance, as it aligns with the learner's need for relatedness. Goal setting can also be seen as an element of meeting the need for autonomy, as learners have the freedom to prioritise their short-term goals and distribute their efforts.

The fulfilment of competence needs is important to learners. This is evident in interviews where learners (5 out of 14) expressed feeling encouraged when others find Chinese to be a difficult language. Daisy's words is a good example:

Daisy: A lot of other people think so (Chinese is difficult). So when I hear people used to say, Oh, I could never learn Chinese like, it is so difficult, it nearly encouraged me more to learn it because it is everyone said it was so difficult. So I was like, I'll learn it and see if it is difficult. And it is not.

Furthermore, in the interview that learner's motivation internalisation is evident (5 out of 14). Learners mentioned that at beginning, it was mostly instrumental motivations, such as it was depicted by Daniel:

Daniel: I don't know, I don't have any specific goals, but I need to do elements to a certain extent because, you know, it is good for my grades. And if I come out of that, having good luck in the Chinese, that would be good for me. So, you know, that is kind of what I suppose. I suppose I am aiming towards that being able to have a bit of, you know, a decent level of Chinese.

And while learning the language, the intrinsic motivation generally appears:

Daniel: It is interesting because I suppose I never planned on keeping Chinese, I always plan on keeping Spanish. And I just don't know whatever the way the Spanish was taught last year. I didn't like it. I dropped Spanish and got Chinese and it was. I initially picked it because I thought it would be great fun to do for learning Chinese. And now it is just, I love it, You know, it is just, I do it because I enjoy it, I really enjoyed it.

Though, during this process, Daniel's motivation to learn Spanish declined, his motivation to learn Chinese was internalised, shifting from a more controlled or introjected style to a more autonomous style. As discussed in the section of SDT (See Section 2.4.2), the satisfaction of BPNs supports the internalisation of motivation. In the case of Daniel, learning happens in autonomous environment, he found himself progressing fast during the learning, meets his competence need. In addition, Daniel mentioned in the interview that he has relatives living in China, and he is also likely to visit China in the future. These connections meet learners' relatedness needs, which means feeling the language and culture more related to oneself. And that is probably one of the reasons for the internalisation. Of course, the actual factors of the internalisation process could be more complicated and need to be examined in a more detailed interview in future studies.

In summary, L3/AL learners typically exhibit more autonomous motivation and utilise strategies such as positive self-talk and enhancing learning to boost their motivation. Conversely, they seem to prefer less strategies such as "using self-handicapping as a positive challenge" and "using defensive pessimism as a motivator". This could be because

these strategies may jeopardise the learners' competence needs, or their competence needs have already been met, leading them to choose better motivational strategies.

The learning context also plays a role in the analysis of L3/AL learners' BPNs satisfaction, with an autonomous environment fostering intrinsic motivation. Furthermore, L3/AL learners may experience a positive cycle of BPNs satisfaction and autonomous motivation generation. A learner's previous language learning experiences are vital to this mechanism, serving as a catalyst for the positive cycle when learning L3/AL.

In addition, the learners' attributions of success or failure are also discussed. Learners tend to attribute their learning performance to interest and effort, and failure to difficulty and lack of effort. This difference in attribution aligns with the BPNs as well.

Finally, the internalisation of motivation is evident in L3 learners, often shifting from a controlled style to a more autonomous style.

6.6 Conclusion

This chapter delves into the complexities of LLS used by multilingual learners in the context of acquiring Chinese as a L3/AL. The chapter synthesises both qualitative and quantitative data to explore the key dimensions of LLS - motivational, cognitive, metacognitive, affective, and social - and how these are influenced by factors such as multilingual proficiency and immersive learning experiences.

Key findings include the unexpected negative correlation between multilingual proficiency and the use of social strategies, which challenges traditional assumptions about the benefits of multilingualism in language learning. chapter also highlights the nuanced impacts of immersive learning experiences, particularly the reduction in conscious metacognitive strategy uses and the complex relationship between immersion and affective strategies. Differences in strategy use among various learner groups, such as gender and linguistic background, are also discussed, offering insights into how these factors shape learners' approaches to language acquisition.

Overall, the discussion emphasizes the need for a deeper understanding of the dynamic and context-dependent nature of LLSs, advocating for more tailored and supportive educational practices to enhance language learning outcomes for multilingual learners.

Chapter 7 Conclusion

7.1 Overview of Research Objectives and Key Findings

This study set out to explore the intricate dynamics of LLSs employed by multilingual learners in the context of acquiring Chinese as a L3/AL. The study was driven by several key research questions, notably the influence of multilingual proficiency on LLS usage and the impact of immersive language learning experiences on these strategies. Additionally, the research sought to understand the characteristics and behaviours of different learner groups, with particular attention to the Irish context, where the Chinese language is emerging as a significant area of study.

The key findings of this thesis reveal a complex and nuanced understanding of how multilingual learners in Ireland approach learning Chinese as a L3/AL. A moderate use of LLSs was observed, with motivation playing a critical role in driving learners' engagement with cognitive, metacognitive, and affective strategies. Notably, learners often transferred strategies from their previous learnt languages to Chinese. Immersive learning environments, while facilitating intuitive language use, were found to reduce learners' conscious use of metacognitive and influence affective strategy use, presenting challenges in managing emotional pressures such as anxiety. This suggests that although immersion accelerates language acquisition, it may diminish structured planning and monitoring regulation, highlighting the need for additional support mechanisms in such contexts.

Moreover, individual differences in LLS use were evident, as discussed in Chapter 5 and Chapter 6. Gender differences emerged, with female learners showing a greater tendency to use metacognitive strategies than their male counterparts. However, whether learners' L1 was English did not show a significant correlation with LLS use, likely because all participants had high proficiency in English, which may have standardised strategy use across the group. Learners with Irish in their linguistic background, however, demonstrated distinct patterns in their LLS use compared to non-Irish speakers/learners. Notably, Irish-speaking learners were found to be less effective in their use of affective strategies. Furthermore, learners who had immersive Chinese learning experiences used fewer metacognitive strategies than those without immersion, confirming the negative correlation between immersion and metacognitive strategy use. These findings highlight the

importance of recognising individual differences in LLS use, adapting language instruction to fit specific learner profiles, and promoting both motivation and the effective transfer of strategies across languages.

7.2 Multilingualism and Strategy Use

One of the central findings of this research is the identification of a significant yet complex relationship between multilingual proficiency and the use of language learning strategies. Contrary to the commonly held assumption that higher multilingual proficiency would correlate positively with the use of social strategies, this study found a significant negative correlation between multilingual level and the Social Dimension of LLS. This unexpected result challenges existing theories that suggest multilinguals who are learning L3/AL, due to their broader linguistic and cultural exposure, would naturally engage more with social strategies in learning a new language.

Several possible explanations for this finding have been proposed. Cognitive load theory (Paas et al., 2003; Sweller, 1994) suggests that the increased cognitive demands of managing multiple languages may reduce the capacity or willingness to engage in same amount of social activities to learn each of their languages in order to reduce cognitive burden. Moreover, learners with more languages in their repertoire may face growing pressure to maintain proficiency across those languages, potentially limiting the time and energy they can devote to socially engaging strategies for acquiring yet another language. In such cases, more efficient, internally managed strategies may be favoured.

Another theoretical possibility is provided by the expertise reversal effect (Kalyuga, 2007; Sweller et al., 2003), which posits that as learners become more experienced, they tend to discard novice-level strategies, such as collaborative learning or seeking frequent assistance, in favour of more internalised, efficient techniques. For advanced multilingual learners, beginning level of social strategies may no longer serve the same function they once did during initial language learning. Instead, they may rely on well-developed personal frameworks and strategic routines accumulated through previous language learning experiences.

Furthermore, the context of language learning and the opportunities for authentic social interaction in the target language might also play a crucial role. The impact of the COVID-19 pandemic, which limited travel and immersion experiences, could have further exacerbated this effect by reducing opportunities for real-world practice, thereby diminishing the use of social strategies.

7.3 Influence of Immersive Learning Experiences

The study also highlighted the significant impact of immersive language learning experiences on strategy use, particularly within the Metacognitive and Affective Dimensions. Surprisingly, the data revealed that learners with more immersive learning experiences in multiple languages tend to consciously use fewer metacognitive strategies in their L3/AL learning. This finding suggests that immersion might lead to the automatization of certain metacognitive processes, making them less conscious and thus less likely to be reported as strategies by learners.

This observation aligns with Schema Theory (Bartlett, 1932; Rumelhart, 1991), which posits that repeated exposure to learning experiences can lead to the internalization of processes, rendering them automatic and unconscious. Therefore, while learners with rich immersive experiences may still engage in metacognitive practices, these practices might have become so ingrained that they no longer consider them as distinct strategies.

In the Affective Dimension, the study found that learners with more immersive experiences were less effective in using strategies to manage negative emotions during L3/AL learning. This could be due to the heightened emotional and psychological challenges that often accompany immersion in a foreign environment, where learners are exposed to the pressures of real-time communication and cultural adjustment (MacIntyre & Gregersen, 2012). These findings suggest a need for more targeted support in affective strategy training for learners in immersive environments to help them manage anxiety and maintain positive affective states.

7.4 Characteristics of Different Learner Groups

The analysis of different learner groups revealed nuanced differences in strategy use, influenced by factors such as gender, native language, and cultural background. Female learners, for instance, were found to use metacognitive strategies more frequently than their male counterparts, particularly in areas such as planning, organising, and obtaining resources. This finding is consistent with previous research in L2 acquisition (Griffiths, 2013; Liyanage & Bartlett, 2012), which has similarly observed that female learners tend to employ a broader range of strategies.

The study also highlighted the unique challenges faced by Irish speakers/learners, particularly in their use of social and affective strategies. The data suggest that these learners might experience higher levels of anxiety and lower effectiveness in affective

strategy use, potentially due to their heightened awareness of language accuracy and the perceived gap between their language proficiency and that of native speakers (Walsh, 2020). This finding underscores the importance of providing additional support to Irish language learners, particularly in fostering confidence and reducing anxiety in the context of learning Chinese.

7.5 Theoretical and Practical Implications

This study contributes both to the theoretical frameworks surrounding L3/AL acquisition and LLS and provides practical recommendations for teaching in multilingual contexts. The implications span advancements in theory, particularly concerning the S²R Model, and actionable strategies for educators and policymakers.

7.5.1 Theoretical Implications

Expanding the Strategic Self-Regulation (S²R) Model

This research builds on Oxford's (2017) S²R model by emphasising the importance of interlanguage strategy transfer among multilingual learners. As discussed in the literature (Jessner, 2006; Cenoz et al., 2001), multilingual learners exhibit cognitive flexibility, enabling them to draw on strategies from their L1 and L2 when learning a new language such as Chinese. This finding suggests that the S²R model should be expanded to incorporate the role of prior linguistic knowledge and strategy transfer across languages, particularly when learners are acquiring a typologically distant L3. By integrating this transfer process into existing LLS frameworks, the model can better account for the unique strategic behaviours of multilingual learners, providing a more comprehensive understanding of their language learning processes.

Understanding the Role of Immersive Experiences

The study offers new insights into the impact of immersion on strategy use, particularly challenging existing assumptions in the literature (Everson, 1998; Oxford, 1990) that immersive learning environments always enhance LLS engagement. The findings show that immersion, while fostering automaticity in language use, might somehow reduce learners' reliance on affective strategies, especially under high-pressure or anxiety-inducing conditions. This suggests that immersion might diminish the need for explicit strategy use as learners shift towards more intuitive language application such as metacognitive strategies. Theoretical models of LLS need to consider this nuanced effect of immersion,

where automatic language use can coexist with a reduction in conscious strategy deployment, particularly in emotionally charged contexts.

Motivational and Affective Dimensions in LLS

The research highlights the critical role of motivation in facilitating strategy use, supporting theories like Deci and Ryan's (2012) SDT. As shown in this study, high levels of motivation were closely linked to increased use of LLS, particularly in the motivational and cognitive dimensions. This positive feedback loop, where strategy use boosts motivation, which in turn fosters further strategy application, adds a new layer to the existing literature on motivation in language learning (Dörnyei & Ryan, 2015). The findings suggest that LLS theories must place greater emphasis on motivational and affective dimensions, especially in challenging language-learning environments like Chinese, where sustained motivation plays a key role in learner persistence.

Contextualising LLS in Multilingual Settings

This study extends LLS research by situating it within the specific context of multilingual learners in Ireland, where English and Irish are commonly spoken (Cenoz, 2013; Griffiths, 2013). The findings suggest that multilingual learners exhibit distinct strategic behaviours when tackling a typologically distant language like Chinese, particularly in terms of how they draw on their existing linguistic knowledge. Current LLS models, which often focus on monolingual or bilingual contexts (Grenfell & Macaro, 2007), must be adapted to better account for the unique cognitive processes of multilingual learners. This study highlights the need for LLS frameworks that are sensitive to the linguistic backgrounds of learners, especially in multilingual settings where multiple languages interact in the learning process.

7.5.2 Practical Implications

Tailored Language and LLS Instruction for Multilingual Learners

The research shows that multilingual learners benefit from instructional approaches that explicitly promote the transfer of strategies from their L1 and L2 when learning a new language like Chinese. As discussed by Jessner (2006) and Cenoz (2013), multilingual learners have a strategic advantage in their ability to draw on previous language experiences, which can accelerate their learning of a third or additional language. To make use of this potential, teachers should design activities that foster this strategy transfer by encouraging learners to compare linguistic features across their languages, thereby enhancing metalinguistic awareness.

In addition, teachers should create opportunities for learners to reflect on their individual learning histories and identify strategies that have previously been effective to themselves. These reflections can be supported through the use of learner journals, strategy mapping, or language learning autobiographies. Learners should also be encouraged to actively draw upon and share their linguistic resources with peers, promoting collaborative learning and fostering a classroom environment that values multilingual competence.

Moreover, teachers should support learners in recognising the structural and cultural differences between their known languages and the target language, and guide them in adjusting their LLS accordingly. For example, strategy training sessions might focus on when translation is helpful versus when it may impede comprehension, or how to adapt reading strategies when encountering logographic scripts such as Chinese.

Supporting Learners in Immersive Environments

The study also highlights the challenges learners face in immersive language environments, particularly in relation to reduced metacognitive and affective strategy use. Learners with more immersion learning experience may be more sensitive to emotional arousal. As suggested by Oxford (1990, 2017), affective strategies are critical for managing the emotional demands that often accompany immersion, such as anxiety, frustration, and identity dissonance. Educators should equip learners with stress management and anxiety reduction techniques to help them cope with the demands of immersion. Workshops or resources that focus on emotional regulation can provide learners with the necessary tools to thrive in high-pressure environments. Teachers should also be trained to recognise signs of affective and cognitive overload in immersive contexts and respond with pedagogical adjustments. These might include replacing high-demand activities with lower-pressure tasks, offering differentiated strategic support, and promoting learner autonomy through strategy choice and self-evaluation.

In addition to affective support, it is essential to provide learners, particularly those with prior immersion experience, with ongoing guidance in metacognitive strategies. While these learners may develop habitualised learning behaviours over time as discussed in Section 6.3, high-pressure environments can still challenge their ability to self-regulate effectively. Reminding them of metacognitive tools such as planning, goal-setting, self-monitoring, and reflective evaluation can enhance their sense of control over both their learning process and emotional responses. These strategies may be embedded through practical mechanisms such as learning journals, structured progress checklists, or peer

coaching initiatives, all of which encourage learners to critically evaluate and adapt their strategic approach in immersive contexts. Supporting learners in this way reinforces their autonomy and resilience, helping them maintain engagement and well-being during intensive language learning experiences.

Finally, institutions and educators should take active steps to support learners' identity development within immersion settings. This involves not only affirming and validating learners' multilingual identities but also helping them to envision and construct a dynamic and evolving “multilingual self” (Takahashi, 2022). Learners should be encouraged to see all the languages they know or are acquiring as legitimate parts of their linguistic repertoire, not merely those aligned with firmly held identities or dominant sociolinguistic norms. Activities that promote this sense of ownership might include identity-focused reflective writing, classroom-based multilingual showcases where learners use and celebrate all their languages, and peer language exchange schemes for multilingual learners. These practices foster the belief that language ownership arises through use and engagement. Cultivating such inclusive and fluid understandings of multilingualism within culturally responsive environments can strengthen learners' sense of belonging, bolster motivation, and enhance their strategic resilience in immersive learning contexts.

By fostering both emotional resilience, strategic competence and provide multilingual friendly environment, institutions and educators can better prepare learners to navigate the demands of immersive language learning successfully.

Promoting Motivational strategies in Language Learning as early as possible

The findings show that motivation plays a crucial role in sustaining learners' use of strategies, aligning with the SDT (Deci & Ryan, 2012). As discussed in Section 6.5, the interviews revealed that learners who had experienced high motivation in previous language learning were more inclined to pursue additional languages, indicating a *positive motivational cycle* in which early successful learning experiences reinforce learners' confidence and strategic engagement in subsequent language acquisition. This cyclical relationship suggests that fostering motivation at early stages is not only beneficial for immediate learning outcomes but also foundational for building long-term multilingual trajectories.

To support this, curriculum design should explicitly integrate motivational strategies from the outset of language instruction. This may include learner-led goal setting, regular self-assessment practices, and the inclusion of meaningful, interest-driven tasks that allow

students to connect language learning with their personal lives and aspirations. Embedding reflective components, such as progress journals or portfolio assessments, can further reinforce learners' sense of agency and competence, sustaining their willingness to engage with future language learning opportunities.

Teacher training programmes should likewise prioritise the development of motivational teaching practices. This includes training teachers to recognise diverse motivational profiles, use positive reinforcement effectively, and foster students' "ideal multilingual selves" (Dörnyei & Ushioda, 2009) through realistic goal scaffolding, narrative identity work, and autonomy-supportive pedagogy. For instance, educators can be encouraged to design classroom activities that allow learners to imagine themselves using the target language in real-life contexts, thereby strengthening future-oriented motivation.

From a pedagogical perspective, consistent feedback loops, encouragement of peer collaboration, and opportunities for learners to reflect on their growth over time can nurture sustained engagement.

Generally, the early promotion of motivational strategies sets the foundation for a positive and self-reinforcing cycle of language learning, increasing the likelihood that learners will not only succeed in their current language studies but also remain open to acquiring additional languages in the future.

7.6 Limitations and Future Research Directions

While this study has made significant contributions to the understanding of LLS in multilingual learners, it is not without its limitations. These limitations pertain to the scope, methodology, and contextual focus of the study. Alongside these constraints, the findings also suggest promising avenues for future research, which could deepen the understanding of LLS in multilingual contexts.

7.6.1 Limitations

Limitations of Self-Reported Data and Researcher Reflexivity

The study largely relied on self-reported data collected through questionnaires and semi-structured interviews. While these instruments are widely acknowledged for capturing learners' subjective perspectives, they carry inherent limitations such as recall bias, social desirability bias, and inaccuracies in self-assessment (Dörnyei, 2007; Tourangeau & Yan, 2007). These limitations are requiring considerations when investigating less tangible aspects of language learning, such as affective and metacognitive strategies, where

participants may unintentionally miss report their behaviours (Tseng et al., 2006). The cross-sectional design of the study further compounds this issue by providing only a snapshot of learners' strategic behaviours, without accounting for their potential evolution over time or in response to changing learning environments (Oxford, 2017). Building on this, the findings were interpreted with a degree of caution, acknowledging the methodological constraints of self-report data in representing the dynamic and context-sensitive nature of LLS use.

Reflexively, I recognise that my positionality as a multilingual speaker and an insider to some of the participants' linguistic and educational experiences may have shaped both the design and interpretation of the study. While this background facilitated empathetic engagement and deeper understanding during data collection and analysis (Consoli, 2022; Sultana, 2007), it also required ongoing self-awareness to minimise interpretive bias and avoid over-identification with participants. Throughout the research process, steps were taken to enhance transparency and rigour, including triangulation of qualitative and quantitative data, peer debriefing, and iterative consultation with supervisors. These reflexive strategies were employed not only to mitigate bias but also to recognise the value of subjectivity as a resource that can enrich, rather than undermine, qualitative inquiry (Berger, 2015; Bourke, 2014).

Generalisability

Although the sample size is proportionate to the target population and sufficient for meaningful analysis (See Section 3.4), the contextual specificity of the study presents limitations in terms of generalisability. As the research was conducted within the Irish educational context, the findings may reflect context-dependent variables, such as institutional policies, language education practices, or sociocultural dynamics unique to Ireland (Little, 2009; Zhang & Wang, 2018). Consequently, caution should be exercised when applying these findings to multilingual learners in other national or educational contexts. Cross-cultural differences in language policy, educational structures, and learner identities may influence strategy use in ways not captured by this study (Cohen, 2014; Dörnyei & Ryan, 2015). Future research situated in different linguistic and institutional contexts would help to establish the broader applicability of the findings.

Instrument design limitation and further refinement

The design of the LLS Questionnaire for Learning Chinese as a L3/AL is a crucial part of this study. It encompasses not only the collection of biographical information, but, most importantly, the Likert scale concerning language learning strategies. The questionnaire was developed by drawing on three key sources: Oxford's (2017) S²R model, an empirical study based on interview data collected from learners studying Chinese as an L3/AL, and previous research on LLS within the context of second L2 and L3 acquisition, alongside motivation studies and self-regulation theories. Despite these thorough considerations and the scale demonstrating good reliability, the Structure Validity Test results presented in Section 5.4 reveal some issues with the structural validity of the scale. This section will discuss these issues and propose refinements based on the structure validity test.

The EFA results revealed two main issues. The first issue is that within certain constructs, the dispersion of the items is relatively large, which prevents some items from clustering as expected in the original model. For example, in the motivation dimension, the item "Being able to speak Chinese makes me proud" was intended to align with the sub-dimension related to the Ideal L3/AL Self. This item was drafted based on interview data, where several participants expressed pride and satisfaction when others recognised their ability to speak Chinese. According to Dörnyei and Ushoda's (2009) L2 Motivational Self System, a learner's vision of becoming a successful language user significantly enhances their motivation. Additionally, the BPN theory suggests that intrinsic motivation arises from the fulfilment of competence needs (Deci & Ryan, 2012), where a sense of pride and accomplishment contributes to this fulfilment.

However, the analysis results indicate that this item did not load onto any factor with a loading above 0.4, suggesting that it does not align well with the intended sub-dimension. In fact, all items related to the "Ideal L3/AL Self" sub-dimension performed poorly, indicating that they do not adequately represent the construct and therefore need revision. A similar issue was found in the "Planning" sub-dimension and some items in the Cognitive Dimension, where the items also failed to cluster together as expected.

The second issue stems from the intrinsic connections between different dimensions of the questionnaire, which were not adequately captured in the items. Oxford's (2017) model proposes that metastrategies (or metacognitive strategies) influence the other four domains, and this study corroborates that these dimensions interact (see Figure 3.2). Oxford emphasizes that the classification of learning strategies is fluid, varying with context

(Oxford, 2017, p. 142). Consequently, the questionnaire aimed to reflect these connections and mutual influences.

For instance, the item "D5_2_2 - I manage the anxiety of making mistakes while communicating in Chinese" was initially placed in the social dimension. This inclusion was based on interview findings where learners identified communication anxiety as a major obstacle, suggesting that successful interaction results from both social and affective strategies. However, the EFA results revealed that this item loaded onto the affective dimension rather than the social one, highlighting a crucial issue: an item spanning multiple constructs may ultimately reflect only one of them.

This outcome indicates that while the questionnaire intended to capture the dynamic and interconnected nature of learning strategies, individual items should focus on a single dimension. The connections and mutual influences between dimensions cannot be effectively reflected at the item level, necessitating revisions to some of the original items. To address these two issues, the items that failed to cluster together, showed low loading performance, or exhibited cross-loading problems are revised (see Appendix V). The new scale will undergo testing and validation in future studies.

Limited Exploration of Immersion Effects

While the study highlights the relationship between immersion and LLS use, particularly the negative correlation with metacognitive and affective strategies, there are limitations in how the immersion experience was captured. The data on immersive language learning was collected through questionnaires, which, while useful, cannot provide a fully detailed picture of each learner's unique immersion experience. This reliance on self-reported data introduces potential bias, as it may not accurately reflect the depth or complexity of individual experiences in immersion. Additionally, the study focuses on learners' experiences at a specific point in time, rather than examining the long-term effects of immersion on strategy development. A longitudinal approach would offer a more comprehensive understanding of how immersive environments influence LLS use as learners progress from initial exposure to more advanced stages of language acquisition. Moreover, while emotional and cognitive challenges such as anxiety and stress were identified, the study does not fully explore how learners develop coping mechanisms to manage these pressures over time. Future research should address these gaps by employing more detailed qualitative methods and longitudinal designs to track the evolution of learners' strategies in immersive settings.

Contextual Specificity

Another limitation arises from the contextual focus of the study, which took place in Ireland, a country with a distinctive linguistic landscape. While this setting provides a valuable research background, it also significantly shapes learners' experiences and strategic approaches to learning Chinese as an L3/AL. Additionally, the study was conducted during the COVID-19 pandemic, which may have affected learners' opportunities for language exchange and studying abroad. The lack of access to immersive experiences, such as travel to Chinese-speaking regions, could have influenced learners' use of LLS and their motivation, as they were limited to virtual or classroom-based learning environments. This context may further narrow the applicability of the findings to other multilingual settings, particularly in regions where learners engage with different language combinations or where Chinese does not hold the same educational prominence. Although the study offers valuable insights into LLS within this specific context, future research conducted in non-pandemic conditions and in different regions is necessary to determine whether the findings apply to learners from diverse linguistic and cultural backgrounds.

7.6.2 Future Research Directions

Increasing Sample Size and Broadening Demographics

To address the limitations related to sample size and generalisability, future research should involve larger, more diverse participant groups, possibly across multiple institutions or countries. Expanding the sample size would provide a more comprehensive understanding of LLS use among multilingual learners and increase the generalisability of the findings. Future studies could also include participants from a wider range of linguistic backgrounds and educational systems, comparing LLS use in different multilingual contexts. By broadening the demographic scope, researchers could explore whether the patterns observed in Ireland hold true for multilingual learners in other settings, such as continental Europe, Asia, or North America, where learners engage with different sets of languages and educational frameworks.

Exploring Emotional and Motivational Factors

While this study identified the importance of affective and motivational factors in LLS use, there remains much to explore regarding the specific emotional and psychological processes that underpin strategy application. Future research should delve deeper into the emotional and motivational dynamics that affect strategy use, particularly in high-pressure

learning environments like immersion. Studies could investigate the role of emotional regulation strategies, resilience, and learner autonomy in maintaining motivation and managing anxiety throughout the language learning process. Additionally, more research is needed on how learners' self-efficacy and perceived competence influence their strategic behaviours, particularly in challenging language-learning scenarios like Chinese.

Incorporating Experimental Methods

Finally, future research could employ experimental methods to test specific interventions aimed at improving LLS use among multilingual learners. For example, researchers could design experiments that test the effectiveness of different pedagogical approaches, such as explicit strategy instruction or tailored support for anxiety management in immersion settings. By comparing the outcomes of these interventions, researchers could provide evidence-based recommendations for enhancing LLS use in multilingual contexts. Such experimental studies would complement existing qualitative and correlational research, offering more robust findings on how to optimise language instruction for multilingual learners.

7.7 Final Reflections

In conclusion, this thesis has provided a comprehensive exploration of the language learning strategies used by multilingual learners in the context of Chinese language acquisition. The research has uncovered significant insights into the complex interactions between multilingualism, immersion experiences, and strategy use, challenging existing theories and offering new directions for both research and practice. By advancing our understanding of how multilingual learners navigate the challenges of learning a typologically distant language, this study contributes to the broader field of applied linguistics and offers practical guidance for educators and policymakers working to support language learners in increasingly multilingual and multicultural classrooms.

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Appendix I. The List of the Systematically Reviewed Articles

Author and Title	Research questions	Setting	Research methods and instruments
de Zarobe, Y. R. (2017). Improving Reading Strategy Knowledge in Young Children: What Self-Reported Questionnaires can Reveal.	(1) Can a programme of reading strategy instruction produce changes in the reading strategies claimed to be used by children learning English as an L3 in a CLIL context? (2) If there are changes in the strategies claimed to be used, do the effects last over time?	primary school	• Survey for reading strategies • Metacognitive reading test • Metacognitive task
de Zarobe, Y. R., & Zenotz, V. (2015). Reading strategies and CLIL: the effect of training in formal instruction.	(1) Can reading strategy instruction improve the reading competence of students in a CLIL context? (2) Can reading strategy instruction lead to changes in the strategies used?	primary school	• Survey for reading strategies • Metacognitive reading test • Metacognitive task
de Zarobe, Y. R., & Zenotz, V. (2018). Learning strategies in CLIL classrooms: how does strategy instruction affect reading competence over time?	(1) Can reading strategy instruction improve the reading competence of students' learning English as L3 in a CLIL context? (2) Do the effects of reading strategy instruction on	primary school	• Survey for reading strategies • Metacognitive

	the reading competence of students in a CLIL context last over time?		reading test • Metacognitive task
Dmitrenko, V. (2017). Language learning strategies of multilingual adults learning additional languages.	Study 1: adults RQ: Which strategies do the multilingual participants apply for language learning? Study 2: RQ1. Do multilingual learners use the strategies listed in the M-SILL questionnaire? RQ2. Does the reported strategy use correlate with the degree of multilingualism of the participants?		Study 1: pre- and post- test questionnaires semi-structured interviews Study 2: Multilingual SILL
Grenfell, M., & Harris, V. (2015). Learning a third language: what learner strategies do bilingual students bring?	1: do bilingual students outperform their monolingual peers and in which skill areas? 2. If the bilingual students do outperform their monolingual peers, what accounts for their greater progress? Are their strategies different from monolingual students and in what ways? 3. Are there features of the bilingual students' home environment that foster the development of certain strategies?	primary school	pre- and post- tests interviews think-aloud protocols

Kemp, C. (2007). Strategic Processing in Grammar Learning: Do Multilinguals Use More Strategies?	Hypothesis 1. The more languages learners know, the greater the number of grammar learning strategies they will use. Hypothesis 2. The more languages learners know, the more frequently they will use grammar learning strategies. Hypothesis 3. The more languages learners know, the greater the number who will use idiosyncratic grammar learning strategies.	undergraduates and adults	A three-part Questionnaire
Milla, R., & Gutierrez-Mangado (2019). Language learning strategy reported choice by bilingual children in CLIL: The effect of age, proficiency and gender in L3 learners of English.	1) Are there any differences in the reported use of LLSs between grade 5 and grade 6 bilingual learners of L3 English in a CLIL context? 2) Does the reported use of LLSs differ by language proficiency level (low beginners, beginners, and upper beginners)? 3) Does the reported use of LLS differ in males and females?	adults	(a) a background questionnaire to establish the learners' linguistic history (b) a language placement test Cambridge English FLYERS (c) an adaptation of Oxford's (1990) SILL with multi-item scales.

Mitits, L., & Gavriilidou, Z. (2016). Exploring language learning strategy transfer between Greek L2 and English FL in case of early adolescent multilinguals.	R.Q. 1: Is there an LLS transfer between Greek L2 and English FL of multilingual early adolescent school learners? R.Q. 2: Is there a variation in the frequency and type of LLSs used between Greek L2 and English FL of multilingual early adolescent language learners? R.Q. 3: Does gender influence the frequency and type of LLSs used in Greek L2 and English FL of multilingual early adolescent language learners?	post-primary	SILL Version 7.0
Pawlak, M., & Kiermasz, Z. (2018). The Use of Language Learning Strategies in a Second and Third Language: The Case of Foreign Language Majors.	1. Are there differences in LLS use in L2 and L3, both in general and with respect to the six categories of strategies included in the SILL and specific strategic devices? 2. What are the dominant patterns in strategy use in L2 and L3? 3. Are there differences in strategy use between the most frequently learnt L3s?	undergraduates	SILL semi-structured interviews

Vo, T. D., & Jaturapitakkul, N. (2016). The Use of Vocabulary Learning Strategies by Thai EFL Learners Studying Vietnamese as a Third Language.	1. What are the vocabulary learning strategies used by Thai undergraduate KMUTT students when learning Vietnamese as their L3? 2. Is there any relationship between the learners' strategy use and their success?	undergraduates	The Vocabulary Learning Strategies Questionnaire (VLSQ) from Schmitt's (1997)
Yusri, G., & Rahimi, N. M. (2010). Self-Regulated Learning Strategies Among Students Of Arabic Language Course And Intensive Arabic Course In Mara University Of Technology Malaysia (Uitm).	1. To what extent students from both groups use self-regulated learning strategies to master Arabic Oral Skills? 2. Are there any significant differences in the use of selfregulated learning among students of Arabic Language as a Third Language course (AL3) and Intensive Arabic course (IAC)?	undergraduates	The Motivated Strategies for Learning Questionnaire (MSLQ)

Appendix II. Questionnaire Likert Scale Construction

Code	Name	Dimension	Sub-dimension	Related dimensions and concepts
D111	I am learning the Chinese language because I am interested in it.	Motivational	Motivational-Identifying and enhancing intrinsic motivation	Affective
D112	I enjoy my Chinese language class.	Motivational	Motivational-Identifying and enhancing intrinsic motivation	Affective
D113	I believe that I can learn Chinese well.	Motivational	Motivational-Identifying and enhancing intrinsic motivation	Competence need, Self-efficacy
D114	I try to learn Chinese in a fun way.	Motivational	Motivational-Identifying and enhancing intrinsic motivation	Autonomous need, Relatedness need, Social
D115-re	When I feel unwilling to learn Chinese I do nothing to improve this situation.	Motivational	Motivational-Thinking about the ideal L3/AL self	

D121	I picture myself using Chinese in real life.	Motivational	Motivational-Thinking about the ideal L3/AL self	
D122	I believe that Chinese language is useful for me.	Motivational	Motivational-Thinking about the ideal L3/AL self	
D124	Being able to speak Chinese makes me proud.	Motivational	Motivational-Thinking about the ideal L3/AL self	Competence need
D131	I am committed to learning Chinese, even if I make mistakes during the process.	Motivational	Motivational- Strengthening the Ought- to Self	Affective, Self-efficacy
D132	I want to get a good grade in my Chinese language class.	Motivational	Motivational- Strengthening the Ought- to Self	
D133	I work hard to improve my performance in my Chinese language class.	Motivational	Motivational- Strengthening the Ought- to Self	Self-efficacy
D134	I work hard on learning Chinese to pass the exam.	Motivational	Motivational- Strengthening the Ought- to Self	Competence need
D211	I concentrate on a Chinese language task until I complete it.	Metacognitive	Metacognitive-Paying attention	

D212-re	I never think about how I can learn Chinese language better.	Metacognitive	Metacognitive-Paying attention	Cognitive
D213	I pay enough attention to my Chinese studies.	Metacognitive	Metacognitive-Paying attention	Evaluation
D214	I focus on the parts that are challenging for me when learning Chinese.	Metacognitive	Metacognitive-Paying attention	Cognitive, Social
D221	I set proficiency goals for my Chinese language learning.	Metacognitive	Metacognitive-Planning	
D222	I set short-term (daily/weekly/monthly) study plans to help me manage my Chinese language learning.	Metacognitive	Metacognitive-Planning	Evaluation
D223	I always know what I need to do next in Chinese language learning.	Metacognitive	Metacognitive-Planning	
D224	I prepare myself before participating in Chinese language and culture activities.	Metacognitive	Metacognitive-Planning	Social
D232	I actively search for Chinese learning materials.	Metacognitive	Metacognitive-Organising and Obtaining Resources	Cognitive
D233	I find resources to answer my questions in Chinese language.	Metacognitive	Metacognitive-Organising and Obtaining Resources	Social
D234	I seek learning materials from various sources to improve my Chinese language skills.	Metacognitive	Metacognitive-Organising and Obtaining Resources	

D235	I organise my study environment to fit my learning habit.	Metacognitive	Metacognitive-Organising and Obtaining Resources	
D236	I organise my Chinese learning materials for better understanding.	Metacognitive	Metacognitive-Organising and Obtaining Resources	
D241	I identify difficulties in my Chinese language learning.	Metacognitive	Metacognitive-Monitoring and Evaluating	Cognitive
D242	I try to get a sense of whether I'm doing well or not when learning Chinese.	Metacognitive	Metacognitive-Monitoring and Evaluating	
D243	I evaluate whether the study method I'm using works for me.	Metacognitive	Metacognitive-Monitoring and Evaluating	Activating knowledge
D244	I track my language learning progress through practices and exams.	Metacognitive	Metacognitive-Monitoring and Evaluating	
D245	I occasionally assess whether the effort I put into Chinese language learning is enough.	Metacognitive	Metacognitive-Monitoring and Evaluating	
D246	I evaluate my current Chinese language level through feedback from others.	Metacognitive	Metacognitive-Monitoring and Evaluating	Social
D247	I occasionally review whether I am working towards accomplishing my learning goals.	Metacognitive	Metacognitive-Monitoring and Evaluating	
D311	I compare elements such as grammar, pronunciation, words, and expressions across different languages.	Cognitive	Cognitive-integrating previous language learning experience	Activating knowledge, Conceptualising broadly

D312	I compare the methods I use to learn different languages to find the ones that work for me in learning Chinese.	Cognitive	Cognitive-integrating previous language learning experience	Activating knowledge, Conceptualising broadly
D313	I am cautious about transferring grammatical concepts from other languages to Chinese.	Cognitive	Cognitive-integrating previous language learning experience	Conceptualising with details
D314	I integrate the linguistic knowledge I've learned from all my other languages to learn Chinese.	Cognitive	Cognitive-integrating previous language learning experience	Activating knowledge
D315	I try out new methods to learn Chinese, even if I haven't used them in learning other languages.	Cognitive	Cognitive-integrating previous language learning experience	Using senses to understand and remember
D321-re	I seldom think about the linguistic similarities between Chinese language and the languages I previously learned.	Cognitive	Cognitive-Using cognitive strategy to learn Chinese	Metacognitive, Using senses to understand and remember
D322	I use the Chinese words, grammars, and expressions I know in various ways.	Cognitive	Cognitive-Using cognitive strategy to learn Chinese	Conceptualising broadly, Reasoning, Using senses to understand and remember
D323	I associate newly learned information with what I already know when learning the Chinese language.	Cognitive	Cognitive-Using cognitive strategy to learn Chinese	Activating knowledge, Beyond the immediate data, Conceptualising broadly

D324	I use various ways to remember Chinese characters, words, pronunciations, and grammar.	Cognitive	Cognitive-Using cognitive strategy to learn Chinese	Using senses to understand and remember
D325	I effectively use my senses to learn Chinese characters, words, and expressions.	Cognitive	Cognitive-Using cognitive strategy to learn Chinese	Conceptualising with details, Reasoning
D411	I use positive self-talk to encourage myself when learning Chinese.	Affective	Affective-Reduce Stress pressure and anxiety	Motivational
D412	I focus on small steps in learning to reduce pressure.	Affective	Affective-Reduce Stress pressure and anxiety	Metacognitive
D413	I use effective ways to calm myself down when I feel stressed or nervous during Chinese learning.	Affective	Affective-Reduce Stress pressure and anxiety	
D414re	I usually get overwhelmed by my anxiety when taking Chinese language exams.	Affective	Affective-Reduce Stress pressure and anxiety	
D415	I gain confidence from my previous language-learning experience to learn Chinese.	Affective	Affective-Reduce Stress pressure and anxiety	Motivational
D421	I maintain calm when I am learning Chinese.	Affective	Affective-Overall calmness	Evaluation, Metacognitive
D422	I study Chinese in an environment where I feel comfortable.	Affective	Affective-Overall calmness	Evaluation, Metacognitive, Paying attention

D423	I effectively handle the negative feelings when I learn Chinese.	Affective	Affective-Overall calmness	Metacognitive
D511	I actively seek opportunities to use Chinese outside of the classroom.	Social	Social-Interacting to learn and communicate	Metacognitive
D512	I actively engage with peers and teachers to learn Chinese.	Social	Social-Interacting to learn and communicate	Cognitive, Metacognitive
D513	I initiate conversations with a native Chinese speaker.	Social	Social-Interacting to learn and communicate	Cognitive, Metacognitive
D521	I try to minimise the impact of knowledge gaps during my interactions in Chinese.	Social	Social-Learning despite knowledge gaps in communicating	Affective, Cognitive
D522	I manage the anxiety of making mistakes while communicating in Chinese.	Social	Social-Learning despite knowledge gaps in communicating	Affective, Cognitive
D523	I use various ways to continue my conversation with a native speaker.	Social	Social-Learning despite knowledge gaps in communicating	Cognitive, Self-efficacy
D531	I actively explore Chinese culture and society.	Social	Social-Dealing with sociocultural contexts and identities	Autonomous need, Relatedness need

D532	I learn Chinese culture and society from various resources.	Social	Social-Dealing with sociocultural contexts and identities	Autonomous need, Metacognitive, Relatedness need	Motivational,
D533	I try to understand the differences in Chinese culture.	Social	Social-Dealing with sociocultural contexts and identities	Relatedness need	

Appendix III. The Language Learning Strategy (LLS) Questionnaire for Learning Chinese as a third language/additional language (L3/AL)

Q1. Please select your age group:

☐ Under 18	☐ 55 – 64
☐ 18 – 24	☐ 65 – 74
☐ 25 – 34	☐ 75 – 84
☐ 35 – 44	☐ 85 or older
☐ 45 – 54	

Q2. Please select your gender:

- ☐ Male
- ☐ Female
- ☐ Non-binary / third gender
- ☐ Prefer not to say

Q3. Please select your education status:

- ☐ 1st year Undergraduate
- ☐ 2nd year Undergraduate
- ☐ 3rd year Undergraduate

- ☐ 4th year Undergraduate
- ☐ Postgraduate student
- ☐ I have graduated from university

Q4. Please select your Institute:

☐ University College Cork	☐ Technological University Dublin
☐ University College Dublin	☐ South East Technological University
☐ Trinity College Dublin	☐ Dundalk Institute of Technology
☐ University of Galway	☐ Atlantic Technological University
☐ Maynooth University	☐ Not on the List:
☐ Dublin City University	_____
☐ Queen's University Belfast	

Q5. Please select your **first language/s:**

Note: First language is the language that you learned first and/or speak best. It is the language a person learns in their early childhood, and/or develops very high proficiency. **If you have more than one first language/s please select all of them.** You can add your first language to the last three options if it is not on the list.

If you are a **heritage language speaker** and haven't achieved very high proficiency in your heritage language, you should select your heritage language in this question, **AND** in the next one.

☐ English	☐ Lithuanian
☐ Irish	☐ Romanian
☐ Spanish	☐ Other 1_____
☐ Chinese	☐ Other 2_____
☐ Hindi	☐ Other 3_____
☐ Polish	

Q6-Q8 will be complete in the table on the next page:

Q6. In the table on the next page, please select the language/s you have studied AND the language/s you are currently studying.

Note: Please select the language/s you've studied at school or learned outside of school, in which you've attained a degree of proficiency. This includes your heritage language/s in which you haven't achieved a very high level.

Please select all your language/s. You can add your language/s to the last four options if they are not on the list.

Further question please refer to the instruction and definition page (see information page 1)

Q7. In the table on the next page, please select the current proficiency level of your language/s:

Note: The Leaving Cert language test, French, German, Italian, Lithuanian, Polish, Portuguese and Spanish are all broadly assessed at a similar standard to levels A2/B1 of the CEFR, please select accordingly.

HSK (Chinese Language Proficiency Test) and CEFR Levels comparison: HSK1-Below A1, HSK2-A1, HSK3-A1/A2, HSK4-A2/B1, HSK5-B1+/B2, HSK6-B2/C1, HSK7-C1, HSK8-C1/C2, HSK9-C2
JLPT (Japanese Language Proficiency Test) and CEFR Levels comparison: N5-A1, N4-A2, N3-B1, N2-B2, N1-C1

You can also reference the CEFR Level Scale (see information page 2).

Q8. If you have experience with immersive language learning, please select the languages you have learned in this way in the table on the next page.

Note: Immersive language learning refers to a way of learning a language where one is fully immersed in the language environment. This method often involves living in a country where the target language is spoken, participating in intensive language courses, or using the language in daily life. The immersive language learning experience can be a short period, such as a couple of weeks, but it have to be immersive.

Your Language/s	Proficiency level	Immersive experience
☐ Irish	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Chinese	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ French	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Spanish	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ German	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Hindi	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Portuguese	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ English	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Polish	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Japanese	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Russian	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Korean	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Arabic	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Italian	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Romanian	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Latin	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Lithuanian	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Other 1_____	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Other 2_____	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Other 3_____	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No
☐ Other 4_____	☐ A1 ☐ A2 ☐ B1 ☐ B2 ☐ C1 ☐ C2	☐ Yes ☐ No

Q9. Please choose to indicate whether you agree with the statements or disagree, **based on your experience learning Chinese over the past year:**

(there are 60 items, will take you about 10 minutes to complete.)

1=Strongly disagree 2=Somewhat disagree 3=Neither agree nor disagree 4=Somewhat agree 5=Strongly agree	
I am learning the Chinese language because I am interested in it.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
When I feel unwilling to learn Chinese, I do nothing to improve this situation.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I enjoy my Chinese language class.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I believe that I can learn Chinese well.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I try to learn Chinese in a fun way.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I picture myself using Chinese in real life.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I believe that Chinese language is useful for me.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Being able to speak Chinese makes me proud.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I am committed to learning Chinese, even if I make mistakes during the process.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I want to get a good grade in my Chinese language class.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I work hard to improve my performance in my Chinese language class.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I work hard on learning Chinese to pass the exam.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I concentrate on a Chinese language task until I complete it.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I never think about how I can learn Chinese language better.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I pay enough attention to my Chinese studies.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

1=Strongly disagree 2=Somewhat disagree 3=Neither agree nor disagree 4=Somewhat agree 5=Strongly agree	
I focus on the parts that are challenging for me when learning Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I set proficiency goals for my Chinese language learning.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I set short-term (daily/weekly/monthly) study plans to help me manage my Chinese language learning.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I always know what I need to do next in Chinese language learning.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I prepare myself to participate in Chinese language or cultural activities.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I actively search for Chinese learning materials.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I find resources to answer my questions in Chinese language.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I seek learning materials from various sources to improve my Chinese language skills.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I organise my study environment to fit my learning habit.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I organise my Chinese learning materials for better understanding.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I identify difficulties in my Chinese language learning.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I try to get a sense of whether I'm doing well or not when learning Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I evaluate whether the study method I'm using works for me when learning Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I track my Chinese language learning progress through practices and exams.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I occasionally assess whether the effort I put into Chinese language learning is enough.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

I evaluate my current Chinese language level through feedback from others.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I occasionally review whether I am working towards accomplishing my Chinese learning goals.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I compare elements such as grammar, pronunciation, words, and expressions across different languages.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I compare the methods I use to learn different languages to find the ones that work for me in learning Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I am cautious about transferring grammatical concepts from other languages to Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I integrate the linguistic knowledge I've learned from all my other languages to learn Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I try out new methods to learn Chinese, even if I haven't used them in learning other languages.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I seldom think about the linguistic similarities between Chinese language and the languages I previously learned.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I use the Chinese words, grammars, and expressions I know in various ways.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I associate newly learned information with what I already know when learning the Chinese language.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I use various ways to remember Chinese characters, words, pronunciations, and grammar.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I effectively use my senses to learn Chinese characters, words, and expressions.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I use positive self-talk to encourage myself when learning Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I focus on small steps in learning to reduce pressure when learning Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I use effective ways to calm myself down when I feel stressed or nervous during Chinese learning.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I usually get overwhelmed by my anxiety when taking Chinese language exams.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

1=Strongly disagree	
2=Somewhat disagree	
3=Neither agree nor disagree	
4=Somewhat agree	
5=Strongly agree	
I gain confidence from my previous language-learning experience to learn Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I maintain calm when I am learning Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I study Chinese in an environment where I feel comfortable.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I effectively handle the negative feelings when I learn Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I initiate conversations with a native Chinese speaker.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I actively seek opportunities to use Chinese outside of the classroom.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I would rather learn Chinese alone than practice with others.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I actively engage with peers and teachers to learn Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I manage the anxiety of making mistakes while communicating in Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I use various ways to continue my conversation with Chinese native speakers.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I try to minimise the impact of knowledge gaps during my interactions in Chinese.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I actively explore Chinese culture and society.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I try to understand the differences in Chinese culture.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
I learn Chinese culture and society from various resources.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Q10. I have used the following approaches to help me learn Chinese (select all that apply):

☐ Use flashcard website/app	☐ Practice writing (letters/emails/notes/paragraphs/articles) in Chinese
☐ Attend a course	☐ Revise writing in Chinese
☐ Do practice tasks	☐ Think in Chinese
☐ Participate in cultural activities	☐ Summarise what I have read in Chinese
☐ Self-talk to practice oral Chinese	☐ Please add your learning methods if not listed:
☐ Copy write to remember Chinese vocabulary/characters	_____
☐ Write characters from memory	_____
☐ Practice with a native speaker	_____
☐ Watch Chinese movies/TV programs	_____
☐ Listen to Chinese songs	_____
☐ Translate between my other languages and Chinese	_____
☐ Use digital dictionaries to learn Chinese	_____
☐ Use online translation tools to learn Chinese	_____
☐ Learn from other's Chinese learning experience	_____
☐ Use Chinese on social media	
☐ Practice Chinese with AI (Artificial Intelligence)	
☐ Find a language practicing partner	
☐ Read news/articles in Chinese	
☐ Imitate how the native speakers talk	
☐ Take notes in Chinese	

Information page 1: Instruction and Definition

Thank you for consenting to complete this survey.

This survey consists two part, the first part addresses your general language learning experience and language proficiency. The second part will focus on your Chinese language learning experience, please answer the questions based on your Chinese language learning experiences.

Before starting the survey, please familiarise yourself with the meaning of the terms listed below.

Chinese/Chinese Language- Mandarin Chinese Language

Language learning strategy- Language learning strategies are complex, dynamic thoughts and actions, selected and used by learners with some degree of consciousness in specific contexts in order to regulate multiple aspects of themselves (such as cognitive, emotional, and social) for the purpose of (a) accomplishing language tasks; (b) improving language performance or use; and/or (c) enhancing long-term proficiency. (Oxford, 2017)

First language- Someone's first language is the language that they learned first and speak best. It is the language a person learns in their early childhood, and develops native proficiency.

Heritage language- A heritage language is a language that a person learns at home during childhood, but it is not the dominant language of the wider community. It often holds cultural or familial significance.

Third or additional language (L3/AL)- A Third or Additional Language (L3/AL) refers to any language that is learned subsequent to learning a second language. This could be the third, fourth, fifth (and so on) language a person learns, after their mother tongue and second language.

CEFR language proficiency level- The Common European Framework of Reference for Languages (CEFR) is an international standard for describing language ability. It is used around the world to describe learners' language skills. The proficiency levels are divided

into six levels: A1 (beginner), A2 (elementary), B1 (intermediate), B2 (upper-intermediate), C1 (advanced), and C2 (proficient).

Immersive language learning- Immersive language learning refers to a method of language instruction where students are placed in an environment where the target language is used predominantly or exclusively.

Information page 2: CEFR self-assessment grid

PROFICIENT USER	C2	Can understand with ease virtually everything heard or read. Can summarise information from different spoken and written sources, reconstructing arguments and accounts in a coherent presentation. Can express him/herself spontaneously, very fluently and precisely, differentiating finer shades of meaning even in more complex situations.
	C1	Can understand a wide range of demanding, longer texts, and recognise implicit meaning. Can express him/herself fluently and spontaneously without much obvious searching for expressions. Can use language flexibly and effectively for social, academic and professional purposes. Can produce clear, well-structured, detailed text on complex subjects, showing controlled use of organisational patterns, connectors and cohesive devices.
INDEPENDENT USER	B2	Can understand the main ideas of complex text on both concrete and abstract topics, including technical discussions in his/her field of specialisation. Can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party. Can produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.
	B1	Can understand the main points of clear standard input on familiar matters regularly encountered in work, school, leisure, etc. Can deal with most situations likely to arise whilst travelling in an area where the language is spoken. Can produce simple connected text on topics which are familiar or of personal interest. Can describe experiences and events, dreams, hopes & ambitions and briefly give reasons and explanations for opinions and plans.

BASIC USER	A2	Can understand sentences and frequently used expressions related to areas of most immediate relevance (e.g. very basic personal and family information, shopping, local geography, employment). Can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters. Can describe in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need.
	A1	Can understand and use familiar everyday expressions and very basic phrases aimed at the satisfaction of needs of a concrete type. Can introduce him/herself and others and can ask and answer questions about personal details such as where he/she lives, people he/she knows and things he/she has. Can interact in a simple way provided the other person talks slowly and clearly and is prepared to help.

Appendix IV. The new construct revealed from the EFA

Items	Loadings	Factors	Dimensions
D1_1_1 - I am learning the Chinese language because I am interested in it.	.467	Factor 1 Identifying motivations	Motivational Dimension
D1_1_2 - I enjoy my Chinese language class.	.615		
D1_3_1 - I am committed to learning Chinese, even if I make mistakes during the process.	.505		
D1_3_3 - I work hard to improve my performance in my Chinese language class.	.697		
D1_3_2 - I want to get a good grade in my Chinese language class.	.450		
D1_1_3 - I believe that I can learn Chinese well.	.554	Factor 2 Establishing Self-efficacy and taking positive attitude	
D1_1_4 - I try to learn Chinese in a fun way.	.469		
D4_1_1 - I use positive self-talk to encourage myself when learning Chinese.	.765		
D2_2_2 - I set short-term (daily/weekly/monthly) study plans to help me manage my Chinese language learning.	.603	Factor 3 Organising and evaluating	Metacognitive Dimension

D2_3_6 - I organise my Chinese learning materials for better understanding.	.596	
D2_3_5 - I organise my study environment to fit my learning habit.	.574	
D2_4_5 - I occasionally assess whether the effort I put into Chinese language learning is enough.	.595	
D2_4_3 - I evaluate whether the study method I'm using works for me when learning Chinese.	.451	
D3_1_5 - I try out new methods to learn Chinese, even if I haven't used them in learning other languages.	.566	
D5_1_2 - I actively engage with peers and teachers to learn Chinese.	.523	
D2_4_2 - I try to get a sense of whether I'm doing well or not when learning Chinese.	.691	Factor 4 Monitoring
D2_4_4 - I track my Chinese language learning progress through practices and exams.	.621	
D1_3_4 - I work hard on learning Chinese to pass the exam.	.577	
D2_2_1 - I set proficiency goals for my Chinese language learning.	.533	
D2_1_3 - I pay enough attention to my Chinese studies.	.510	Factor 5 Consciously and actively planning and taking action

D2_2_4 - I prepare myself to participate in Chinese language or cultural activities.	.546		
D2_3_4 - I seek learning materials from various sources to improve my Chinese language skills.	.417		
D2_3_2 - I actively search for Chinese learning materials.	.743		
D2_4_7 - I occasionally review whether I am working towards accomplishing my Chinese learning goals.	.628		
D1_re - When I feel unwilling to learn Chinese I do nothing to improve this situation.	.506		
D3_1_1 - I compare elements such as grammar, pronunciation, words, and expressions across different languages.	.618	Factor 6 Integrating all language knowledge and learning experience	Cognitive Dimension
D3_1_2 - I compare the methods I use to learn different languages to find the ones that work for me in learning Chinese.	.814		
D3_1_4 - I integrate the linguistic knowledge I've learned from all my other languages to learn Chinese.	.573		
D3_2_4 - I use various ways to remember Chinese characters, words, pronunciations, and grammar.	.657	Factor 7 Using cognitive tactics to learn Chinese	
D3_2_5 - I effectively use my senses to learn Chinese characters, words, and expressions.	.747		

D4_1_2 - I focus on small steps in learning to reduce pressure when learning Chinese.	.536	Factor 8 Using tactics to reduce stress	Affective Dimension
D4_1_3 - I use effective ways to calm myself down when I feel stressed or nervous during Chinese learning.	.465		
D4_1_re - I usually get overwhelmed by my anxiety when taking Chinese language exams.	.743	Factor 9 Manage negative feelings and anxieties	
D4_2_1 - I maintain calm when I am learning Chinese.	.599		
D4_2_3 - I effectively handle the negative feelings when I learn Chinese.	.583		
D5_2_2 - I manage the anxiety of making mistakes while communicating in Chinese.	.656		
D2_1_1 - I concentrate on a Chinese language task until I complete it.	.762	Factor 10 Getting support from previous language learning experience and external environment	
D4_1_5 - I gain confidence from my previous language-learning experience to learn Chinese.	.646		
D4_2_2 - I study Chinese in an environment where I feel comfortable.	.557		
D5_1_1 - I actively seek opportunities to use Chinese outside of the classroom.	.614	Factor 11 Actively engaging in communication	Social Dimension

D5_1_3 - I initiate conversations with a native Chinese speaker.	.827	
D5_2_3 - I use various ways to continue my conversation with Chinese native speakers.	.798	
D2_4_6 - I evaluate my current Chinese language level through feedback from others.	.645	Factor 12 Interacting to learn and improve
D5_2_1 - I try to minimise the impact of knowledge gaps during my interactions in Chinese.	.523	
D5_3_1 - I actively explore Chinese culture and society.	.805	Factor 13 Dealing with sociocultural contexts and identities
D5_3_2 - I learn Chinese culture and society from various resources.	.801	
D5_3_3 - I try to understand the differences in Chinese culture.	.429	
D1_2_1 - I picture myself using Chinese in real life.	.461	

Appendix V. Revision of the Questionnaire Likert Scale

Code	Item	Dimension	Sub-dimension
D111	I am learning the Chinese language because I am interested in it.	Motivational	Motivational-Identifying and enhancing intrinsic motivation
D112	I enjoy the process of learning Chinese.	Motivational	Motivational-Identifying and enhancing intrinsic motivation
D113	The challenges in learning Chinese make me excited.	Motivational	Motivational-Identifying and enhancing intrinsic motivation
D114	The process of learning Chinese is rewarding in itself.	Motivational	Motivational-Identifying and enhancing intrinsic motivation
D121	I picture myself using Chinese comfortably in real life.	Motivational	Motivational-Thinking about the ideal L3/AL self
D122	I imagine myself speaking Chinese fluently.	Motivational	Motivational-Thinking about the ideal L3/AL self
D124	I want to become someone who speaks Chinese well.	Motivational	Motivational-Thinking about the ideal L3/AL self
D131	I learn Chinese because my career depends on it.	Motivational	Motivational-Strengthening the Ought-to Self

D132	I study Chinese to avoid feeling ashamed if I do not learn it well.	Motivational	Motivational-Strengthening the Ought-to Self
D133	I work hard to learn Chinese because I have to to get a good grade.	Motivational	Motivational-Strengthening the Ought-to Self
D134	I am learning Chinese because I have to pass the exam.	Motivational	Motivational-Strengthening the Ought-to Self
D135-re	I only learn Chinese because I have to, not because I find it interesting.	Motivational	Motivational-Strengthening the Ought-to Self
D211	I pay attention to details in spoken or written texts in the Chinese language I am learning.	Metacognitive	Metacognitive-Paying attention
D212-re	I often lose focus during language tasks and don't realise it.	Metacognitive	Metacognitive-Paying attention
D213	I pay enough attention to my Chinese studies.	Metacognitive	Metacognitive-Paying attention
D214	I consciously focus on understanding words or phrases that I don't know during learning Chinese.	Metacognitive	Metacognitive-Paying attention
D221	I set proficiency goals for my Chinese language learning.	Metacognitive	Metacognitive-Planning
D222	I set short-term (daily/weekly/monthly) study plans to help me manage my Chinese language learning.	Metacognitive	Metacognitive-Planning
D223	I create a study schedule to manage my Chinese language learning time effectively.	Metacognitive	Metacognitive-Planning
D224	I break down complex language tasks into smaller, manageable steps.	Metacognitive	Metacognitive-Planning

D232	I actively search for Chinese learning materials.	Metacognitive	Metacognitive-Organising and Obtaining Resources
D233	I seek out resources to find answers to the questions I encounter while learning Chinese.	Metacognitive	Metacognitive-Organising and Obtaining Resources
D234	I seek learning materials from various sources to improve my Chinese language skills.	Metacognitive	Metacognitive-Organising and Obtaining Resources
D235	I organise my study environment to fit my learning habit.	Metacognitive	Metacognitive-Organising and Obtaining Resources
D236	I organise my Chinese learning materials for better understanding.	Metacognitive	Metacognitive-Organising and Obtaining Resources
D241	I frequently review my language learning goals to make sure I am on track.	Metacognitive	Metacognitive-Monitoring and Evaluating
D242	I try to get a sense of whether I'm doing well or not when learning Chinese.	Metacognitive	Metacognitive-Monitoring and Evaluating
D243	I consider whether the learning methods I use are helping me achieve my language learning goals.	Metacognitive	Metacognitive-Monitoring and Evaluating
D244	I regularly check my understanding of new Chinese language content that I have learned.	Metacognitive	Metacognitive-Monitoring and Evaluating
D245	I assess my performance after completing a language learning task (e.g., reading, writing, or speaking).	Metacognitive	Metacognitive-Monitoring and Evaluating

D246	I regularly evaluate whether I am progressing as quickly as I would like in learning Chinese.	Metacognitive	Metacognitive-Monitoring and Evaluating
D247	I occasionally review whether I am working towards accomplishing my learning goals.	Metacognitive	Metacognitive-Monitoring and Evaluating
D311	I compare elements such as grammar, pronunciation, words, and expressions across different languages.	Cognitive	Cognitive-integrating previous language learning experience
D312	I compare the methods I use to learn different languages to find the ones that work for me in learning Chinese.	Cognitive	Cognitive-integrating previous language learning experience
D313	I evaluate the similarities and differences in grammar between Chinese and the other languages I know before applying them.	Cognitive	Cognitive-integrating previous language learning experience
D314	I integrate the linguistic knowledge I've learned from all my other languages to learn Chinese.	Cognitive	Cognitive-integrating previous language learning experience
D315	I compare the effectiveness of new learning methods in Chinese with those I've used in other languages.	Cognitive	Cognitive-integrating previous language learning experience
D321-re	I do not actively try to connect new Chinese language concepts with what I already know.	Cognitive	Cognitive-Using cognitive strategy to learn Chinese
D322	I have effective ways to remember the Chinese words and structures that I've studied.	Cognitive	Cognitive-Using cognitive strategy to learn Chinese
D323	I make connections between new Chinese words and concepts with what I already know in Chinese or other languages.	Cognitive	Cognitive-Using cognitive strategy to learn Chinese

D324	I use various ways to remember Chinese characters, words, pronunciations, and grammar.	Cognitive	Cognitive-Using cognitive strategy to learn Chinese
D325	I effectively use my senses to learn Chinese characters, words, and expressions.	Cognitive	Cognitive-Using cognitive strategy to learn Chinese
D411	I focus on my achievements rather than my mistakes in learning Chinese.	Affective	Affective-Reduce Stress pressure and anxiety
D412	I try to stay positive even when I find learning Chinese difficult.	Affective	Affective-Reduce Stress pressure and anxiety
D413	I use effective ways to calm myself down when I feel stressed or nervous during Chinese learning.	Affective	Affective-Reduce Stress pressure and anxiety
D414re	I usually feel overwhelmed by the difficulties during learning Chinese	Affective	Affective-Reduce Stress pressure and anxiety
D415	My achievements in my past language learning experience give me confidence to learn Chinese.	Affective	Affective-Reduce Stress pressure and anxiety
D421	I maintain calm when I am learning Chinese.	Affective	Affective-Overall calmness
D422	I have ways to help me get relaxed before stressful situations in learning Chinese (e.g., exams, presentations)	Affective	Affective-Overall calmness
D423	I effectively handle the negative feelings when I learn Chinese.	Affective	Affective-Overall calmness
D511	I actively seek opportunities to use Chinese outside of the classroom.	Social	Social-Interacting to learn and communicate

D512	I actively engage in conversations in Chinese with peers and teachers to enhance my language skills.	Social	Social-Interacting to learn and communicate
D513	I actively seek out opportunities to converse with others in Chinese to improve my spoken Chinese.	Social	Social-Interacting to learn and communicate
D521	I try to minimise the impact of knowledge gaps during my interactions in Chinese.	Social	Social-Learning despite knowledge gaps in communicating
D522	I ask for clarification when I don't understand something in a conversation with a native Chinese speaker.	Social	Social-Learning despite knowledge gaps in communicating
D523	I use various ways to continue my conversation with a native Chinese speaker.	Social	Social-Learning despite knowledge gaps in communicating
D531	I actively explore Chinese culture and society.	Social	Social-Dealing with sociocultural contexts and identities
D532	I learn Chinese culture and society from various resources.	Social	Social-Dealing with sociocultural contexts and identities
D533	I seek opportunities to engage with Chinese culture and understand its social norms and values.	Social	Social-Dealing with sociocultural contexts and identities

Appendix VI. Interview Participant's

Information Leaflet

Research introduction:

The name of this study is Third or Additional Language Learning Strategy: How Learners in Ireland Learn the Chinese Language. We are trying to find out the strategies that learners use in learning a third or an additional language, we would like to know how the learners use their strategies and how do strategies transfer from previous language learning experiences. We plan to collect information about learner's language learning background and their language learning strategies. The reason that we chose Chinese as the third language is that very few studies have been conducted on learning Chinese as a third language, so we hope to fill this gap. Therefore, your contribution as a Chinese language learner will be vital to this study.

It is your choice whether you would like to take part in the study or not. You will have the right to withdraw from the study at any time and will continue to receive the same level of respect.

I would like to invite you to participate in this study by doing an interview. The interview will discuss topics regards to your language background, language learning experience and the strategies you use during learning languages. **The interview will be conducted online and will last approximately 40-60 minutes, it will be recorded. ZOOM will be used as the online meeting tool and the build-in record function will be used to record.** Audio or video recording will depend on whether you are willing to join the meeting with audio or video. The records will be stored securely on the researcher's local device. If the interview is carried out on-site, it will be audio recorded on the researchers' local device and will be securely stored. The recordings will be transcribed and sent back to you for reviewing and the identifying information will be removed and pseudonymized.

We hope the results of the study will help us to understand learners' strategy use when learning a third/additional language. The results of the study will facilitate future language teaching and learning in a multilingual context. It will also be potentially beneficial to you

by raising your awareness of language learning strategies, and that would be helpful in your future language learning.

Information for Participants:

- Your privacy is important to us. You will need to fill out an online consent form to consent to your participation before the interview. The form will use Qualtrics as the distribution platform. It is a professional data collection platform and aligns with the European GDPR. Any data collected online will be downloaded and removed from the database after the data collection process, your identity will remain confidential. The digital files will be uploaded to the Trinity College Dublin Ethical Approval module and stored securely in Trinity College Dublin for up to 7 years. Any information that leaves Trinity will have the name removed so that your identity remains confidential.
- For the audio and video recordings, they will be stored securely in the researcher's local device with double encryption, only the researcher and the research supervisors are able to access them, they will not be shared with any third parties. The recordings will be deleted permanently 13 months after completion of the examination process for the thesis.
- The transcriptions will be anonymised and pseudonymised, any identifying information will be removed. In addition, all the data will be used for academic research purposes only, anonymised data may be shared with the scientific community and industry by published papers and academic conferences presentations. Any publications or presentations will only use anonymised data and will not include any identifying information of you. In this case, your identity will remain confidential, and no one will know that you took part in the study.
- Please check this link for more information about data protection.
- Please note that by law we are obliged to report any inadvertent discovery relating to physical, emotional or sexual abuse, concerns for child protection, rape, self-harm, suicidal intent or criminal activity.

Contact:

If you have any questions about this research, you can contact the researcher:

Qinyuan Li, E-mail: liq3@tcd.ie

If you would like to seek further clarification and information, you can contact the research supervisors:

Dr Noel Ó Murchadha, E-mail: Noel.OMurchadha@tcd.ie

Dr Ann Devitt, E-mail: DEVITTAN@tcd.ie

Appendix VII. Interview Consent Form

**STUDY NAME: Third or Additional Language Learning Strategy:
How Learners in Ireland Learn the Chinese Language**

Consent Form	
There are 13 sections in this form. Each section has a statement and asks you to tick the box if you agree. The end of this form is for the researchers to complete. Please ask <u>any</u> questions you may have when reading each of the statements. Please leave the box blank if you do not agree. Thank you for participating.	
General	Tick box
I confirm I have read and understood the Information Leaflet for the above study. The information has been fully explained to me and I have been able to ask questions, all of which have been answered to my satisfaction.	
I understand that this study is entirely voluntary , and if I decide that I do not want to take part, I can stop taking part in this study at any time without giving a reason.	
I understand that I will not be paid for taking part in this study .	
I agree to take part in this research study having been fully informed of the risks, benefits and alternatives which are set out in full in the information leaflet which I have been provided with.	
I know how to contact the research team if I need to.	
I agree to being contacted by researchers by email as part of this research study.	

I agree to take part in an audio/video recorded individual interview as part of this research study.	
I agree to take part in an audio recorded focus group interview as part of this research study.	
Data	Tick box
I understand that any identifiable information about me (personal data), will be protected in accordance with the General Data Protection Regulation (GDPR).	
I understand that anonymous information from this study may be shared with third party academics worldwide for research and learning purposes.	
I understand that the audio recording of my interview/focus group/thinking aloud protocol will be retained by Trinity College Dublin, stored securely with double encryption and deleted 13 months after completion of the examination process for the thesis.	

Participant Name (Block Capitals) Participant Signature Date

To be completed by the Principal Investigator or nominee.

I, the undersigned, have taken the time to fully explain to the above participant, the nature and purpose of this study in a way that they could understand. I have explained the risks and possible benefits involved. I have invited them to ask questions on any aspect of the study that concerned them.

I have given a copy of the information leaflet and consent form to the participant with contacts of the study team

Researcher name

Title and qualifications

Signature

Date

Appendix VIII. Questionnaire

Participant's Information Letter and Consent Form

Dear participant,

Thank you for your interest in joining this research.

We are inviting you to participate in this survey as we are exploring the strategies adopted by learners when learning a third or additional language. This survey is part of a research project titled **Third or Additional Language Learning Strategy: How Learners in Ireland Learn the Chinese Language**.

Before you decide whether or not you wish to proceed with this survey, it's important to understand how the research is being conducted and what participation involves. Please take the time to read the following information carefully and discuss it with others if you wish. Please ask us if there is anything that is not clear or if you would like more information.

Background information to the study:

This study will focus on third/additional language learning strategies and will collect information relating to participants' language learning backgrounds, including which languages they have learned and their proficiency in each. We are using Chinese as the third/additional language not only because it is typologically different from European languages, but also because it is often learned as a third/additional language. There is a significant knowledge gap in this area, and we hope you can join us to help fill it.

Benefits:

We hope the study's results will enhance our understanding of learners' strategies when learning a third or additional language. These findings will support future language teaching and learning in a multilingual context. Additionally, the study could benefit you by increasing awareness of language learning strategies, assisting in your future language learning endeavours.

Do I have to take part?

It is your choice whether you would like to participate in the study or not. If you do not wish to participate, you do not have to provide a reason and you can change your mind at any time. If you decide that you do not want to be part of the study, now or later, you will continue to receive the same level of respect.

What happens if I take part?

This survey is a part of the research project, it consists of two parts, the first part collects general information including your language background, gender, and age. The second part is a Likert scale which aims to collect your language learning strategies for learning Chinese.

The survey will take approximately 15 minutes to complete. We're using Qualtrics, a professional and secure survey platform that meets GDPR requirements. Rest assured, **this is a completely anonymous survey**, and we will not collect any identifiable information from you.

Contacts:

If you have any questions about this research, you can contact the researcher:

Qinyuan Li E-mail: Liq3@tcd.ie

If you would like to seek further clarification and information, you can contact the research supervisors:

Dr. Noel Ó Murchadha E-mail: Noel.OMurchadha@tcd.ie

Dr. Ann Devitt E-mail: DevittAn@tcd.ie

Consent Form:

Before proceeding, you need to confirm your understanding of all the following statements, and consent your participation.

Please [ask any questions](#) you may have when reading each of the statements.

- ☐ I confirm I have read and understood the Information Leaflet for the above study. The information has been fully explained to me and I have been able to ask questions, all of which have been answered to my satisfaction.
- ☐ I understand that this study is entirely voluntary, and if I decide that I do not want to take part, I can stop taking part in this study at any time without giving a reason.
- ☐ I understand that I will not be paid for taking part in this study.

- ☐ I agree to take part in this research study having been fully informed of the risks, benefits and alternatives which are set out in full in the information leaflet which I have been provided with.
- ☐ I know how to contact the research team if I need to.
- ☐ I agree to take part in a survey as part of this research study.
- ☐ I understand that this survey is anonymous, and the anonymous information from this study may be shared with third party academics worldwide for research and learning purposes.

[Yes, I consent.]

[No, I wish to exit.]

Appendix IX. Screenshot of Ethics Application Approval (Marked on 04-Feb-2022)

AllMarkedUpcomingSubmitted			Order by: Due Date (Oldest First) ▼
ITEM	LAST ACTIVITY	MARK	
Application Status View Description	04-Feb-2022 14:46 MARKED	Approved	
January 13th Ethics Submissions and Resubmissions DUE: 13-JAN-2021 Assignment	04-Feb-2022 14:33 MARKED	Approved	