

**The Affordances of Virtual Exchange for Developing
Global Competence and Active Citizenship in
Content-Based Language Learning**

by

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DECLARATION

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Dedication

This dissertation is dedicated to my family and friends for their endless love and support. It is also dedicated to all my students for inspiring me to pursue my goals.

Alone we can do so little; together we can do so much.

Helen Keller

Summary

In times characterised by constant technological growth and increased mobility of people and ideas within complex societies across the globe, initiatives such as virtual exchange can be seen as attempts to cross global boundaries and meet the demands of 21st century learners as universal citizens (Nicolaou & Sevilla-Pavón, 2016). Virtual exchange is a well-known pedagogical approach which involves engaging classes in online intercultural interaction and collaboration projects with geographically dispersed partners (O'Dowd, 2007; 2019). Also known as telecollaboration, virtual exchange has been mostly embraced by foreign language educators who are increasingly responding to the changing trajectories by adopting new pedagogies for teaching and learning. While the various benefits of virtual exchange have been acknowledged by researchers and practitioners alike, weak approaches to telecollaborative design and implementation have been identified (O'Dowd, 2016), mandating the re-evaluation of this pedagogical approach with a view to making it more sustainable and effective. The 'gaps' that have been identified centre primarily on the failure of virtual exchange to provide students with authentic experiences (Hanna, De Nooy & De Nooy, 2009), similar to the highly complex encounters in which they will engage in their future life and career. Criticisms of virtual exchange lie in the view that this pedagogical approach provides opportunities for a monolithic exploration of culture, overlooking the fluid and versatile nature of this construct. Virtual exchange has also been criticised for engaging learners in surface-level discourse (O'Dowd, 2016), failing to foster substantial collaboration and critical agentive behaviour (Little, 2016). This research aspires to address these gaps and drive the discussion to an emerging model of virtual exchange that will afford opportunities for meaningful interaction enabling learners to understand the potential of global partnerships in response to society's current demands. The research is an attempt to build the learners' global profile through virtual exchange projects that adopt a critical, action-oriented design. The goal is to create a telecollaborative habitat that is rich in affordances for the development of global competences and active citizenship with a view to promoting a democratic culture in internationalised university language education. Considering that learning is most effective if it is relevant to students' needs, this study is situated at the nexus of global competence and content-based learning. In order to realise the objectives of this study, an overarching research question was

addressed: *Does virtual exchange provide measurable affordances for developing university ESP students' global competence and active citizenship?* Additionally, two secondary research questions were formulated:

- 1) *What elements comprising the virtual exchange ecosystem support the development of university ESP students' global competence and active citizenship?*
- 2) *What principles are effective as guidelines for designing and implementing a virtual exchange project aiming at the development of university students' global competences and active citizenship while, at the same time, expanding their discipline-specific knowledge and skills?*

A design-based research methodology was followed which included three phases: the Exploration, the Implementation and the Reflection phase. The Exploration phase aimed at analysing the problem and determining the best intervention design and research methodology. The objective was to gather preliminary information that would help define problems, develop tentative hypotheses, identify the central themes that should be addressed in the study, and determine its feasibility. This phase laid the groundwork that subsequently led to the actual virtual exchange projects. The Implementation phase included three iterative cycles of a virtual exchange project which was successively designed, tested and refined with different cohorts of students. The iterative cycles facilitated the understanding of the virtual exchange ecosystem and the evaluation of the effectiveness of each design through the capturing of moments of perceived competence learning. This led to improved versions of the design which maximised the possibilities of competences to emerge. The three iterations also made a significant contribution to the refinement of theories underpinning the designs which evolved from a constructivist approach to an ecological paradigm. The Reflection phase included an evaluation of the three iterative cycles which resulted in a thorough conceptualisation of the virtual exchange ecosystem and its constituent parts.

The major outcome of this study is an evidence-based understanding of the affordances of virtual exchange for developing clusters of global competences that can be deployed to exercise critical agency in response to society's challenges. In addition, the study concluded with the conceptualisation of the virtual exchange ecosystem comprising six

interrelated elements: Linguistic Mediation, Participants, Technological Mediation, Tasks, Themes, and Artefacts. In order to support the virtual exchange ecosystem, a set of eight design principles was developed.

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Abbreviations and Acronyms

CCA	Critical Cultural Awareness
ICC	Intercultural Communicative Competence
ESP	English for Specific Purposes
CALL	Computer-Assisted Language Learning
DBR	Design-Based Research
CEFR	Common European Framework of Reference for Languages
ELP	European Language Portfolio
L2	Second Language
CMC	Computer-Mediated Communication
ICT	Information and Communication Technology
SCMC	Synchronous Computer-Mediated Communication
ACMC	Asynchronous Computer-Mediated Communication
EFL	English as a Foreign Language
ESD	Education for Sustainable Development
SDGs	Sustainable Development Goals
CDC	Competences for Democratic Culture
FLT	Foreign Language Teaching
IoC	Internationalisation of the Curriculum
IaH	Internationalisation at Home
CBI	Content-Based Instruction
ELF	English as a Lingua Franca
NGO	Non-Governmental Organisation
TA	Thematic Analysis
CDL	Critical Digital Literacies
NNS	Non-Native Speakers
GVT	Global Virtual Teams
CMS	Course Management System
ECTS	European Credit Transfer System
AR	Action Research
PBL	Problem-Based Learning
DST	Digital Storytelling

Chapter 1: Introduction

1.1 Background

In a globalised world, marked by increased mobility of peoples, capital and ideas, and characterised by proliferating international communication and digital connectivity, contemporary societies are becoming more complex, redefining the lives of 21st century citizens in multiple ways. The fact that today there is greater flow of people, knowledge, and ideas across borders (BrckaLorenz & Gieser, 2011), coupled with vast economic and technological changes, has created a world that is ever more interconnected and interdependent (Mansilla, Jackson, & Jacobs, 2013). In response to the changing landscape and the complexity of our world today, there is an increasing need for educational reforms at all levels. Various educational institutions and professional associations are beginning to acknowledge the need to add a global dimension to their education (Cushner & Brennan, 2007) and to enhance interculturality in young people (Jackson, 2011). Bartell (2003) asserts that the present globalised era presents a compelling pressure on students to acquire an intercultural and international understanding and an ability to interrelate as responsible, knowledgeable, and informed global citizens. Along the same lines, Burnouf (2004) recognises that our interconnected, complex and diverse world is faced with many issues that call upon a direction towards global education and the enhancement of global awareness and active citizenship as part of the instruction.

Language teaching has long been associated with culture learning; therefore, an intercultural perspective in language teaching and learning has become salient over the past two decades (Liddicoat, 2011). Many language practitioners appear to share the view that “foreign language education is one of the areas in which intercultural dialogue can find a collocation” (Anikina, Sobinova, & Petrova, 2015, p. 157). As Byram and Wagner note (2018), in our modern world, language teaching should take the responsibility for preparing students for interaction with people of diverse cultural backgrounds. At the same time, the abundance of Web 2.0 technologies has created new teaching and learning opportunities that can be employed to support underpinning pedagogies and accomplish diverse learning goals, including the development of intercultural awareness. Among the recent technologically-mediated pedagogical

approaches that have been practised aiming at building or enhancing students' intercultural communicative competence is telecollaboration or virtual exchange. Telecollaboration (Guth & Helm, 2010), or online intercultural exchange (O'Dowd, 2007) is a form of virtual mobility (O'Dowd, 2013) which is being increasingly employed by university educators in Europe and elsewhere as a substitute or complement for physical student mobility. Foreign language telecollaboration refers to virtual intercultural interaction and exchange projects between classes of foreign language learners in geographically distributed locations (O'Dowd, 2007). The term telecollaboration was firstly coined by Mark Warschauer in 1996 and was further expanded by Belz in 2003 when she defined telecollaboration as being "institutionalized, electronically mediated intercultural communication under the guidance of a languacultural expert (i.e. teacher) for the purposes of foreign language learning and the development of intercultural competence" (p. 2). Research studies have reported on various benefits of virtual exchanges or telecollaboration projects, such as the development of students' target language (Dooly, 2008; Hauck & Youngs, 2008; Lee, 2006). Apart from the linguistic gains, telecollaboration projects have been reported to develop students' intercultural awareness (Fustenberg, Levet, English & Maillet, 2001; Kramsch & Thorne, 2002; Müller-Hartmann, 2000) and intercultural communicative competence as defined in Byram's model in 1997 (O'Dowd, 2006; O'Dowd & Ritter, 2013; Belz, 2007). As Basharina, Guardado and Morgan point out, "telecollaborative projects expand the pedagogical focus beyond language learning to learning culture" (2008, p. 276). Online cultural exchanges have also been reported to successfully accomplish other pedagogical goals, such as increasing student motivation (Ware, 2005) and learner autonomy (Little, 1997; O'Rourke, 2007). In addition, telecollaboration appears to develop students' computer literacy (Shetzer & Warschauer, 2000; Basharina, Guardado & Morgan, 2008; Hauck, 2007) and the enhancement of multiliteracy skills (Fuchs, Hauck, & Müller-Hartmann, 2012) or multimodal communicative competence (Hampel & Hauck, 2006) as defined by Royce to be "the ability to understand the combined potential of various modes for making meaning" (2002, p. 92), thus becoming aware of the affordances and potentials of many different modes (Kress, 2003).

However, while virtual exchange is perceived by teachers and researchers alike to be a constructive and beneficial experience for students in manifold ways, it has received a

considerable amount of criticism in the literature (O'Dowd, 2016). Despite its evidence-based positive impact mainly in language and/or intercultural learning, a number of weaknesses have been pointed out which should prompt researchers and practitioners to make efforts to improve this activity and make it a more sustainable pedagogical approach in foreign language education and in university education at large (ibid.). Researchers who have looked into the limitations of virtual exchange argue that most telecollaborative models that bring together cohorts of students from distant classes do not offer authentic experiences to students who, eventually, lack a genuine interest in exchanging ideas with their partners (Hanna, De Nooy, & De Nooy, 2009). O'Dowd (2016) asserts that the lack of authenticity in online exchanges, along with the possibility of engaging students in friendly conversations and personal genre, results in a superficial approach to culture whereby students are involved in conversations about the self and many times respond to cultural difference with a limited approach, believing that 'deep down we are all the same' (Bennett, 1993 cited in O'Dowd, 2003). This "illusion of commonality" (Kramsch & Ware, 2005. p. 200), coupled with tasks that direct students' attention to superficial communicative themes and limit the discussion to safe topics (O'Dowd, 2016), do not afford opportunities for meaningful interaction and critical international collaboration between students. Therefore, the possibility for students to approach culture with a global perspective and to acknowledge the potential and dynamics of global teams in addressing the critical issues our heterogeneous yet interconnected world is faced with is reduced.

With these criticisms in mind, one could argue that we need to rethink virtual exchange and explore innovative approaches of this, undoubtedly, beneficial pedagogical practice. We need to drive the discussion to virtual exchange models which are designed within a global awareness approach and which are implemented with a holistic scope, offering a more authentic online intercultural experience, aiming at developing critical 21st century competences that will support the effective collaboration of global teams, in an effort to address current social problems in innovative ways. As O'Dowd points out (2016), "it would be regrettable if an activity such as telecollaboration was not to exploit its potential for developing themes of social justice and intercultural citizenship in university education" (p. 5). Researchers and practitioners should, therefore, dare to explore the possibility of designing and implementing virtual exchange projects informed by the principles of global citizenship education. Such

projects would bring critical issues of today's world to the fore of the telecollaborative discussions and would empower students to actively reflect upon their role in a democratic society and in addressing current societal challenges together.

Global competence is a multifaceted set of capabilities. The OECD PISA Global Competence Framework (2018) defines global competence as “the capacity to examine local, global and intercultural issues, to understand and appreciate the perspectives and worldviews of others, to engage in open, appropriate and effective interactions with people from different cultures and to act for collective well-being and sustainable development”. Mansilla, Jackson and Jacobs (2013), delineate the characteristics of globally competent students which include the ability to delve into the world's most significant problems by conducting appropriate research, to recognise and respect others' and their own perspectives, to communicate ideas with audiences of diverse backgrounds successfully, and to be empowered to take action and participate reflectively in order to improve conditions. This approach, if implemented within a dynamic telecollaborative language learning environment, aspires to develop the kind of competences that will enable students to live and work in our interconnected and interdependent world. Within a global competence and active citizenship approach, students will be able to gain substantive knowledge about world issues and understand the importance of international collaborations in addressing current global as well as local challenges. Such pedagogical approaches echo Risager's (2007) ‘translational paradigm’ which “aims to move cultural pedagogy in language education away from a simplistic focus on national identities, by incorporating local, regional national, and global perspectives on cultural practices” (in Menard-Warwick, Heredia-Herrera, & Palmer, 2013, p. 966). Furthermore, such telecollaborative models reflect Byram's Critical Cultural Awareness (CCA), a notion that is included in his model for Intercultural Communicative Competence (ICC). CCA is defined as “the ability to evaluate critically and on the basis of explicit criteria perspectives, practices and products in one's own and other cultures and countries” (p. 53). Nugent and Catalano (2015) assert that when foreign language learning is reinforced by critical cultural awareness, students gain a deeper level of cultural awareness and knowledge and are, therefore, capable of taking part in local and global communities. In his multi-referenced model of ICC, Byram (1997) introduced the notion of criticality, which he later revisited in his concept of intercultural citizenship for foreign language education

as part of a broader citizenship education which transcends national boundaries and places emphasis on teaching and learning which leads to action in the world (2008). In the same lines, van Lier (2004), in his theory of ecology of learning, refers to the inclusion of a “democratic goal in our educational endeavours” (p. 79) and points to critical perspectives in language education which direct teaching and learning “towards understanding and actively improving humanity in a healthy world” (2006, p. 19).

Van Lier’s theory of ecology also discusses the complexity of the learning process and how the different elements of the learning ecosystem interact and are interrelated (2010). This can be particularly important in telecollaborative settings which aspire to accomplish critical goals, such as global competence, active citizenship and community engagement. Such goals require researchers and practitioners to augment the telecollaborative environment beyond the participating classes since activity will be expanded to the partners’ local social contexts. At the same time, when designing and implementing innovative educational experiences embedded in a language course, one should consider both the instrumental purpose as well as the educational value of language teaching (Byram, 2014). Learner needs should be placed in the centre, and learning outcomes, as defined in the curriculum, must be met. With this in mind, in order to optimise the affordances of virtual exchange projects where language learning and global competence intersect, different elements comprising the telecollaborative ecosystem must be carefully explored.

1.2 Statement of Problem

This study will investigate the affordances of virtual exchange projects for developing tertiary education English for Specific Purposes (ESP) university students’ global competence and active citizenship. Having recognised the potential of virtual exchange projects for the development of language skills, cultural awareness, intercultural communicative competence, digital literacy and multimodal communicative skills, as well as skills related to the global workplace, I set out to explore an emerging model of telecollaboration designed and implemented with a global outlook in order to equip university students with the necessary skills to become globally competent and active citizens. The study is informed by the principles of global education under which “students develop attitudes, knowledge and skills necessary to become competent, responsible, and humane citizens of their community and cross-cultural skills and

attitudes in order to become effective citizens in a very diverse and pluralistic world” (Burnouf, 2004, p. 2). At the same time, this research will explore the possibility of the internationalisation of content-based language instruction through virtual exchange as the present study is conducted in the context of ESP learning. Therefore, this study is situated at the nexus of global competence and discipline-specific university language instruction in the context of virtual exchange.

Telecollaboration has developed as a pedagogic paradigm for about two decades and has been implemented in various settings. As Helm (2013) explains, “various models of telecollaboration have emerged, with diverse learning objectives, involving different typologies and configurations of participants, and utilizing a range of languages and modalities of language use” (p. 28). However, despite its well-documented success in promoting linguistic, intercultural and digital competences, many virtual exchange projects appear to fit the characteristics of weak approaches to telecollaborative design as delineated by O’Dowd (2016). Such approaches include task set-ups that engage students in superficial communication, no critical self-reflection, and a focus on stereotyping and forced culture clash. Therefore, building on the positive attributes and outcomes of previous telecollaboration projects, this study intends to learn from the criticisms and move the discussion forward towards new models of virtual exchange that engage students in meaningful discourse, active collaboration and critical reflection, echoing the principles of global competence and active citizenship. The study aims to achieve the aforementioned goals within content-based language instruction in an effort to innovate and internationalise the ESP curriculum with an “action-oriented approach underpinned by citizenship education” (Byram & Wagner, 2017, p. 146).

In addition to this motivation for the study, there is also a need to delve into the theoretical frameworks that support technology-mediated projects. Over the years, research on Computer-Assisted Language Learning (CALL) has concentrated on the learners’ interaction with other learners via the computer instead of the learners’ interaction with the computer (Warschauer, 2003). This shift has provided the theoretical framework to support CALL relying on the constructivist paradigm of learning which emphasises the shared and social construction of knowledge (Hauck & Youngs, 2008). The constructivist framework developed by Piaget shows the value of

collaborative learning that encourages learners to use their prior knowledge and experiences to construct knowledge (Piaget & Inhelder, 1969). Collaborative interaction has also been emphasised in sociocultural theory (Kim, 2014). Sociocultural theorists believe that participants construct learning through collaboration and interaction in a situated context (Vygotsky, 1978). Many telecollaboration projects reflect the principles of social constructivist language learning by means of offering opportunities for authentic communication and co-construction of knowledge. However, this study intends to investigate an alternative theory to guide the design and implementation of virtual exchange, van Lier's ecological theory of learning (2010), which encompasses the notions of context, relations, criticality, and agency, among others. The exploration of these notions will contribute to the understanding and hence to the optimisation of the complex telecollaborative ecosystem. Finally, even though the present study was informed by different approaches and models of intercultural communicative competence, global competence, and intercultural citizenship that have been well-researched and documented to date, a new model of global competence developed by the Council of Europe (2016) - *Reference Framework of Competences for Democratic Culture* - will be explored for its usage in assessing students' perceived enhancement of global competence.

1.3 Objectives and Research Questions

The primary objective of this study is to explore the possibility of developing university students' global competence and active citizenship through virtual exchange embedded in an internationalised ESP curriculum. Specifically, this research aims at examining the unique opportunities afforded by virtual exchange initiatives for enhancing language learners' multiple global skills as well as for deploying those skills in structured social activity and community involvement. Drawing from previous virtual exchange projects which were informed by the values of intercultural education and were designed based on the belief that interaction within diverse groups can have a positive impact on the learners' cultural awareness, this study aims to investigate whether virtual exchange can be scaled up so as to go beyond the intercultural and reach the global sphere by embracing global citizenship values. The underlying goal of this study is to find out whether virtual exchange as a pedagogical approach does provide measurable opportunities for leveraging diversity so as to render learners global citizens who can be empowered to make positive changes in their local communities. With this objective in

mind, the overarching question of this study was formulated as such: *Does virtual exchange provide measurable affordances for developing university ESP students' global competence and active citizenship?*

In order to be able to answer the primary question, two secondary questions were formulated:

- 1) *What elements comprising the virtual exchange ecosystem support the development of university ESP students' global competence and active citizenship?*
- 2) *What principles are effective as guidelines for designing and implementing a virtual exchange project aiming at the development of university students' global competences and active citizenship while, at the same time, expanding their discipline-specific knowledge and skills?*

The first secondary question seeks to establish an understanding of the contextual elements that comprise the virtual exchange environment and of how each element creates opportunities for equipping learners with a global mindset and with a set of competences that can be utilised in order to exercise social agency via meaningful community involvement. Specifically, this question guides a systematic exploration of the affordances of the virtual exchange ecosystem with an emphasis on how learners perceive, utilise and act upon them, and on how the interaction between and amongst these affordances contributes towards the enhancement of global competence and content-based learning. This process is expected to lead to the formulation of a conceptual framework of the virtual exchange ecosystem and its most important constituent parts which act as factors that influence global competence and subject-specific learning.

The second secondary question aims to add to the formulation of the conceptual framework with a set of principles that can be used as effective guidelines for designing and implementing virtual exchange projects which aim at enhancing university students' global competence and active citizenship. These principles are expected to emerge from a deep investigation of how learners perceive and interact with the different elements of the virtual exchange ecosystem, as well as from a systematic examination of how this interaction contributes to the development of clusters of global

competences and active citizenship as well as to the enhancement of understanding of discipline-specific content. The conceptual framework that is expected to arise from this research will not be prescriptive; instead it will be flexible and adaptable to different virtual exchange configurations which aim, however, to reinvent this pedagogical approach in order to meet the demands of today's learners as global citizens and active contributors to social change.

With regard to the terminology, virtual exchange has been referred to with different terms over the years by practitioners and researchers depending on its pedagogical objectives in each context (O'Dowd, 2018). In this dissertation, the terms virtual exchange and telecollaboration will be used interchangeably.

1.4 Methodology and Research Design

With these objectives and research questions in mind, a three-phase Design-based Research (DBR) (Brown, 1992; Collins, 1992) methodology was followed which resulted in the understanding of the affordances of virtual exchange for developing students' global competence and active citizenship embedded in ESP learning, as well as to the identification of the contextual elements of the telecollaborative ecosystem that can support the development of the aforementioned competences. The iterative cycles undertaken within this research methods paradigm facilitated the refinement of the research design, as well as the underpinning theory. Each iterative cycle investigated the context and examined practices that are inadequate and require improvement. This process provided useful design principles and facilitated the gradual evolution towards a critical telecollaborative design which resulted in the development of a flexible framework comprising principles guiding the design and implementation of a virtual exchange project aiming at developing students' global competence and active citizenship within an internationalised ESP curriculum.

1.5 The Importance of this Research

The findings of this dissertation contribute to the discussion of the possibility of expanding virtual exchange towards a global perspective and add to the emerging trends in the design of telecollaboration projects that support the development of global competence and active citizenship. The study, therefore, draws attention to emerging virtual exchange projects that empower young people to become interculturally

competent and active citizens, capable of living and thriving in a largely diverse yet interdependent world. This research is a response to the criticisms of the superficial nature of telecollaborative exchanges which are perceived by some researchers to lead to a limited approach to culture. The present study explores the potential of virtual exchange in using digitally-mediated experiences to gain realistic knowledge and awareness of global issues and collaborate towards addressing those issues through innovative endeavors. A further contribution of this dissertation lies in the insights provided towards blending ESP learning with global competence and active citizenship. The multiple iterations undertaken as part of this research afford a useful understanding of how a university course which synthesises content-based language instruction and interculturality can develop global competence and can critically engage learners with the community.

In addition, this dissertation adds to the discussion on the theories that can be used to guide the design and implementation of virtual exchange projects. The exploration of ecological theory has enabled the examination of the complex telecollaborative context in a holistic way, paying attention to the various interrelated constituent elements of the virtual exchange habitat. In addition, ecological theory has significantly contributed to the inclusion of the notions of criticality and agency in the design and enactment of virtual exchange projects.

Furthermore, this study contributes to the adoption of emerging research methods paradigms that investigate language learning in context. The adoption of design-based research according to which research is carried out in iterative cycles of design, enactment, reflection, refinement, and redesign, has facilitated the recording of evidence of perceived development of global competence and active citizenship, as well as the enhancement of content-based learning. The multiple iterative cycles with different cohorts of students have contributed to the refinement of theory and to the evaluation of the effectiveness of each intervention through the capturing of moments of perceived competence learning. This led to improved versions of the study in an effort to upscale the virtual exchanges and maximise the possibilities of competences to emerge. The adoption of DBR has also resulted in the professional development of the practitioners involved in the virtual exchange projects.

1.6 The structure of this Dissertation

The current dissertation is structured in six chapters in addition to its introduction:

- *Chapter 2: Towards a Global Competence Model of Virtual Exchange:* This chapter provides a comprehensive review of the literature pertaining to global competence and intercultural citizenship as well as related notions and theories that have been studied for the purposes of this research. The chapter also reviews both previous and more recent models of global competence with an emphasis on Council of Europe's (2016) recent model, the *Reference Framework of Competences for Democratic Culture*, which has been used to assess the students' perceived global competence learning, as well as the *United Nation's Sustainable Development Goals Framework* (2016) which has guided the design of the third iterative study. In addition, the chapter presents an overview of previous telecollaborative designs with special reference to their strengths and weaknesses which have helped frame the research questions and conceptualise the preliminary and subsequent design principles of this study. Finally, Chapter 2 delves into the underpinning theories which supported the design of the virtual exchange interventions, particularly social constructivism and ecology.
- *Chapter 3: Methodology and Research Design:* This chapter reports on Design-Based Research as the underlying methodology adopted for the design and implementation of this study. The chapter refers to the characteristics of DBR along with the justification of its adoption as the fundamental methodology for this research. The chapter also provides a detailed description of the three-phase design of this research, with reference to the context of the study, the data collection and analysis methods, and timeline.
- *Chapter 4: Exploration Phase:* This chapter reports on the first phase of the study, the Exploration phase. It presents the findings of this phase and the evolution of the preliminary design principles.
- *Chapter 5: Implementation Phase:* This chapter describes the second phase of the study, the Implementation phase. It reports on the findings from the three iterative cycles and the evolution of additional design principles leading to a complete, integrated design.

- *Chapter 6: Reflection Phase:* This chapter describes the Reflection phase of the study and presents the integrated virtual exchange ecosystem and the complete set of design principles which comprise the conceptual framework developed in this study.
- *Chapter 7: Conclusion:* The final chapter summarises the study outcomes and reports on its limitations, significance and future directions for further research.

1.7 Chapter Summary

Chapter 1 discusses the background of this research with reference to the basic notions and concepts studied. It also presents the rationale of the study and the motivation for this research with reference to the statement of problem. The chapter continues with the description of the objectives and research questions, followed by a brief overview of the methodology and the research design that has been adopted in order to address the research questions. The chapter concludes with the study's contribution to knowledge and the structure of this dissertation.

Chapter 2: Towards a Global Competence Model of Virtual Exchange

2.1 Introduction

The conceptual framework comprising design principles for implementation of an emerging model of virtual exchange explored in this study is informed by research on global competence and active citizenship, intercultural communicative competence and intercultural citizenship, foreign language learning and content-based language instruction, as well as technology-mediated projects and virtual exchange. The framework that emanated from this investigation drew from these theoretical bases as well as from recent models which have been developed within the scope of global education and active citizenship, such as the *Reference Framework of Competences for Democratic Culture* (Council of Europe, 2016) and the *United Nation's Sustainable Development Goals Framework* (UNDP, 2016). The constructivism paradigm provided the initial underpinning theory for this study. However, in line with the theory-driven nature of design-based research which guided the methodology of this study, the theoretical approach was revisited along the way which led to the adoption of an ecological paradigm. The ecological approach contributed to the understanding of the virtual exchange ecosystem and its interrelated constituent parts and affordances, as well as to the integration of central notions in the study, such as context, criticality, and agency.

2.2 Intercultural Competence and Intercultural Education

Globalisation has led to an increase of different types of mobility - of individuals, groups, ideas. This has brought together more culturally diverse people, causing them to interact between and amongst them (Nicolaou, Nitsiou, & Charalambous, 2007). With this reality in mind, the development of intercultural competence has been an important, and in some cases an inseparable, component of education for a number of years now, but it has become even more relevant in the 21st century which has been marked by critical demographic, economic, social, and digital changes. These changes have affected every aspect of our lives and have presented us with new challenges, including that of understanding, communicating, and collaborating with people of diverse cultural backgrounds. Intercultural education, which aims at developing the ability to understand and communicate with each other across cultures, can contribute towards

that direction. However, intercultural competence is not a personality trait; it is a skill and is “not acquired automatically, but instead needs to be learned, practised and maintained throughout life” (Barrett, Byram, Lazar, Momtpoint-Gaillard, & Phillipou, 2013, p. 10). As Deardorff points out, “since intercultural competence is not a naturally occurring phenomenon, we must be intentional about addressing this at our institutions - through curricular and co-curricular efforts” (2006, p. 1).

Intercultural communicative competence was defined by Byram in 1997. According to Byram’s model “intercultural communicative competence in a foreign language classroom consists of a conceptual framework of four interrelated components: knowledge, skills of discovery and interaction, attitudes and critical awareness” (pp. 50-63). Bennett (1993) further explains that interculturally competent speakers exhibit an attitude of openness to people of diverse cultures and demonstrate an understanding of cross-cultural perspectives with a non-judgmental attitude and respect. They also view cultural similarities and differences with a critical thinking perspective and make efforts to develop their cross-cultural awareness through personal discovery and social relationships. Intercultural communicative competence has come to provide a link with communicative competence. Communicative competence is a teaching theory in L2 instruction that was very much embraced by linguists and practitioners and “emphasizes the fact that in order to communicate, language learners do not only need grammatical skills and knowledge but also social knowledge about how and when to use utterances appropriately” (Chun, 2015, p. 7). Byram in 1997 extended this theory by adding further competence requirements having in mind that language and culture must be treated as inseparable constructs (Kramsch, 1993). The move from communicative competence in one’s own culture to communicative competence across cultures is a central concept in Bennett’s *Developmental Model of Intercultural Sensitivity (DMIS)* model (2011). The view that language and culture are intertwined is endorsed by many linguists. As early as 1921, Sapir (2004, p. 221) indicated that “language does not exist apart from culture, that is, from the socially inherited assemblage of practices and beliefs that determines the texture of our lives”, and many applied linguists ever since have argued that meaningful interaction of learners with members of other cultures enables learners to develop a positive attitude towards the cultural viewpoint of members of diverse speech communities (Robinson-Stuart & Nocon, 1996). Deardorff (2006) emphasises that intercultural interactions are at the core of international

education and has framed the ability to engage in successful interactions with those from different cultures in a model comprising the elements of attitudes, knowledge, skills, internal outcomes, and external outcomes. Deardorff's model is conceptualised as a continuous process which includes cognitive, affective and behavioural skills (Perry & Southwell, 2011) which can be developed as a result of intentional curricular and co-curricular efforts (Deardorff, 2006). For Deardorff, even though language does not guarantee the development of intercultural competence, it is an essential skill that can be used as a vehicle in intercultural encounters.

Levy (2007) noted that language interaction is critical to how culture evolves between groups at all levels, echoing the complexity of intercultural encounters between individuals and groups. Barrett et al. (2013) refer to the fluid and dynamic nature of cultural identities and affiliations of people and to the multiplicity of cultures to which people belong. Therefore, intercultural encounters and interactions, which are often dependent on context, are defined by how people respond to each other on the basis of their constructed identities and affiliations (ibid). Byram and Zarate (1997) illustrate intercultural competence as the ability to mediate multiple cultural identities and situations (in Thorne, 2005), drawing the attention to the teaching of culture as per Risager's (2007) 'transnational paradigm' (Menard–Warwick, Heredia–Herrera, & Palmer, 2013) and pointing to the 'intercultural dimension' in language teaching which aims at developing "learners as intercultural speakers or mediators who are able to engage with complexity and multiple identities and to avoid the stereotyping which accompanies perceiving someone through a single identity" (Byram, Gribkova & Starkey, 2002, p.9).

The development of intercultural awareness has been advocated by the *Common European Reference for Languages, CEFR* (Council of Europe, 2001) and by other official documents on language education, such as *the European Language Portfolio, ELP*, (Council of Europe, 1998), a tool developed to help Europeans become plurilingual and interculturally competent citizens and to enhance the deepening of mutual understanding and respect among citizens in Europe, the protection and promotion of linguistic and cultural diversity, as well as the promotion of life-long language and intercultural learning. The Council of Europe (CoE) has been concerned with intercultural awareness for a long time as the development of intercultural

competence is fundamental for achieving the essential principles advocated by the CoE, which include human rights, democracy, and the rule of law (Barrett et al., 2013). The *White Paper on Intercultural Dialogue: Living Together as Equals in Dignity* (2008), the *Charter on Education for Democratic Citizenship and Human Rights Education* (2010), as well as the report of the Group of Eminent Persons entitled *Living Together: Combining Diversity and Freedom in 21st Century Europe* (2011) emphasise the crucial importance of intercultural dialogue in order to ensure and promote human rights, democracy and the rule of law. In these documents, the role of education for developing intercultural competence is highlighted, emphasising that intercultural competence is a skill that is learned, practised and maintained throughout life (Barrett et al., 2013).

2.3 Technology and Computer-Mediated Communication (CMC)

Even though many linguists agree with Thorne (2003) that intercultural competence should be fundamental in foreign language (L2) instruction in the age of globalisation, it is well recognised that traditional L2 teaching cannot sufficiently develop students' intercultural communicative competence. In conventional language learning settings, learners may acquire linguistic skills, but they are unable to succeed in communicating in real-life occasions where they negotiate meaning with others according to various cultural contexts (Lee & Markey, 2014). Therefore, linguists and educators have demonstrated an increasing interest in language pedagogy on culture learning through computer-mediated communication (CMC).

The 21st century has so far been marked by significant developments in technology, economy, politics, and the environment, among others. Our world is characterised by rapid changes in every societal context which direct citizens towards adapting their knowledge and competences in order to be able to accomplish their professional and life goals (Sevilla-Pavón & Nicolaou, 2017). In the last decades, developments in Information and Communication Technologies (ICT) have had an effect on every aspect of our lives. The computer has become an inextricable part of everyday life, changing the way we communicate, the way we interact with others, the way we access information, and the way we acquire knowledge. Since the introduction of electronic media in general, and the Internet in particular, more and more people have been utilising the web as a fast and reliable means of information exchange. Globally, the Internet has qualitatively transformed the activities of everyday communication in

professional, educational, and interpersonal realms (Castells, 2004). Alongside the ever-increasing enthusiasm in electronic media, the Internet has been making progress to satisfy various purposes not only as an intra- and inter-personal communication medium, but also as a pedagogical tool facilitating language learning and teaching (Hosseini, 2015). The rapid increase of digital media has provided learners with the opportunity to adopt new technologies while investigating various pedagogies in language learning (Wang, 2014). Students today are exceptionally open in using many communication technologies and are able, and very willing, to adopt new technologies as part of their learning process (Chang, Pearman & Farha, 2012). Prensky (2001) has created a dichotomy comparing the younger generation, the 'digital natives', with the older generation who are learning and embracing new technology, naming them 'digital immigrants'. This new generation of learners has transformed the learning paradigms and learning styles. "Students today think and process information fundamentally differently from their predecessors" (Prensky, 2001, p. 1) as a result of being encompassed by new technologies. Even though Prensky's discourse about digital natives has been revisited by many scholars (Shah, 2012), claiming that the so-called 'Net generation' (Tapscott, 1999) has lower skills in using technology than is considered to have (Bennett, Maton, & Kervin, 2008), other scholars still believe that there is a difference in skills between young people and their elders. Dudeney (2011) discusses the debate around the digital literacy divide arguing that while most young people today are more connected than ever before, very few of them engage in productive activities on the web. The author explains that even though access to various types of technology is widely available to most young people in developed countries, "there is still quite a gap in what they do with these technologies and what educators in the 'immigrant' fold might otherwise imagine (p. 32). Despite this gap, however, there seems to be some sort of comfort with technology and particularly with its social use, yet this level of comfort does not seem to transfer to learning. With this in mind, 21st century educators can play a significant role in helping learners to go beyond the 'tech comfy' to the 'tech savvy' by transforming technology use from social to more pedagogical (Dudeney, 2011). This will equip 'millennials' (Howe & Strauss, 2000) with transferable skills, such as critical thinking when using web-based sources (Lorenzo & Dziuban, 2006), knowledge creation, problem solving, and authentic learning (Brown, 2000), which are characterised as increasingly important competences in the changed landscape of technology-mediated living and learning.

Some educators have seen these changes and many of them have attempted to cater for the challenges of the new generation of learners. As a result, new terms and practices have evolved, such as Computer-Assisted Language Learning (CALL) and Computer-Mediated Communication (CMC) changing the role of both the instructor and the learner in the classroom. Foreign language instruction has embraced these new learning modes, seeking to explore how new technologies could be successfully utilised in language learning. Colpaert's view that if teaching is good nowadays, it involves technology (2013) has been adopted by many language practitioners. Technology has been applied in foreign language teaching for the last 30 years when Computer-Assisted Language Learning was developed and implemented in education (Domalewska, 2014). At the beginning, CALL was intended at individualised interaction between the learner and the computer program and was used to supplement or substitute the traditional teacher-student interaction (Beatty, 2013). Subsequently, computers changed and as Jarvis and Krashen (2014) assert, because of the Internet, computers do much more than they used to do, affording an extraordinary "variety of kinds of visual, aural, and written input, providing a means of social interaction, as well as information" (p. 1). In addition, the computer is now ubiquitous and it appears in many more mobile forms than the earliest desktop or even laptop – as smartphones, tablets, etc. "These changes have led to the computer being used for language acquisition, not just learning, and as a major source of comprehensible input" (ibid, p. 2). Within this context, researchers and language practitioners view computer-assisted language learning as an expansion of the traditional, classroom-based learning giving students more control of their own learning and enhancing greater interaction and cognitive engagement. Technology helps students in the learning process, transforming the way learning is delivered. Now learning has become a customised and significant experience that meets learners' needs (Domalewska, 2014) rather than a traditional teacher-centred and text-based education that places emphasis on "conveying fixed bodies of information and viewing students as passive recipients of knowledge" (Alavi, 1994, p. 160). This shift towards a more learner-centred education has prompted the adoption of mobile learning technologies (Kukulska-Hulme, 2010), e-learning through virtual learning environments (Mroz, 2014), student-driven learning through personal learning environments (Rahimi, van den Berg, & Veen, 2015), and telecollaborative learning (Dooly, 2011). According to Domalewska (2014), technology-supported learning can also be integrated into classroom teaching, offering a rich curriculum supported with an abundance of face-to-

face and online activities, catering for the needs of every student (blended learning). Blended learning entails affording each student a personalised learning experience using a variety of tools and modalities.

Computer-mediated Communication includes any means by which individuals and groups use the Internet to communicate. CMC has been extensively researched from diverse disciplinary and methodological perspectives (Nguyen, 2008) and has been defined by many scholars from a wide range of contexts. The term CMC was first presented by Hiltz and Turoff (1978) while they were probing computer conferencing on the Internet. They viewed CMC as a means for creating, perceiving, transmitting, decoding, and encoding messages (Hosseini, 2015). Herring (1996) defines Computer-mediated Communication as communication that occurs between human beings via the instrumentality of computers. In the same line, McQuail (2005) says that Computer-mediated Communication is defined as any communicative transaction that happens through the use of two or more networked computers. CMC can be divided into two communicative modes. Rezaee & Ahmadzadeh, (2012) explain the two modes: one is real-time or Synchronous CMC (SCMC), such as Instant Messaging e.g. Yahoo or MSN Messenger, Multi-user domain Object-Oriented (MOO) and audio/video conferencing. The other is delayed time or Asynchronous CMC (ACMC), such as email, blog, Special Interest Groups (SIGs) listserves, newsgroups, and bulletin board. Similarly, Warschauer (2001) defines the three different modes of CMC as: a) synchronous computer-mediated communication, whereby people communicate in real time through chat or discussion applications, with all participants logged on at the same time; (b) asynchronous computer-mediated communication, whereby people communicate in a delayed manner by computer, e.g. by e-mail; and c) the reading and writing of on-line documents via the internet. Various studies have been conducted aiming at exploring the benefits of all communication modes in language learning.

2.3.1 CMC and Language Learning

Many studies have investigated the role of computer mediation in language learning (Kessler & Bikowski, 2010). CMC is extensively discussed in language learning as it affords opportunities for language learners to practice their language (Chun, 1994). Along the same lines, Barson, Frommer, and Schwartz, (1993) say that computer technologies can help learners expand their opportunities to utilise target language. The

effect of CMC on various aspects of language learning has been investigated by many scholars. Warschauer (2001) has defined CMC as on-line communication that refers to reading, writing and communication through networked computers. Others have referred to CMC as a communication process that includes all aspects of interaction, such as the sender, the recipient, the message (Hosseini, 2015). With this in mind, many scholars have emphasised the role of CMC on improving oral fluency (Razagifard, 2013), the effect of CMC on the quantity of total words, lexical range and discourse functions of EFL learners (Ghaleb, 2013), as well as the impact of online technology on second and foreign language writing (Warschauer & Healey, 1998; Griffith, 2014). Similarly, many educators have stressed the importance of computer-mediated communication in promoting connectivity and collaboration among students (Domalewska, 2014; Warschauer, 1997). Belz (2003) and Bikowski (2008) have underlined the role of CMC in setting up and maintaining relationships. In addition, according to Wach (2012), computer-assisted language learning and computer-mediated communication appear to be especially helpful in promoting autonomous learning, “as they naturally incorporate many components of autonomy that give learners control over and responsibility for their own learning, such as choosing the materials used, managing their contact with various genres and types of interaction, often in authentic contexts, and assessing their own progress, measured through their success in understanding and conveying meanings” (p. 367). Chapelle (2011) refers to the efficiency of CMC applications in giving learners more control and autonomy over their own learning. O’Rourke and Schwienhorst (2003) also emphasise the importance of Computer Assisted Language Learning as a dynamic way for developing learner autonomy. Another area that seems to be benefited from CMC learning environments is students’ motivation to learn. CMC has been shown to engage and motivate students, it improves listening and speaking skills, it promotes cooperative intercultural relationships and learning, and it enhances confidence and fluency (Wu, Marek & Chen, 2013). Finally, scholars found that computer-mediated communication can positively affect students’ cultural awareness and intercultural communicative competence telecollaborative initiatives (O’Dowd, 2003).

Both synchronous and asynchronous tools of communication entail perceived advantages and seem to be conducive to learning. However, sometimes more traditional modes of communication are mostly preferred by learners. For example, in a study by

Kim (2014) learners showed higher preference in using specific learning strategies in face-to-face interactions rather than Synchronous Computer-Mediated contexts. This and other similar cases suggest that both synchronous and asynchronous computer-mediated communication modes should be used appropriately depending on the context and the specific pedagogical purposes. A number of studies document the challenges of effectively integrating technology, which should be informed by pedagogical reasoning, in educational contexts. For a variety of reasons many teachers are more prone to incorporate new technologies into existing practice rather than take advantage of their affordances in new pedagogical tracks (Whyte & Alexander, 2014). Levy and Stockwell (2006) create a dichotomy of two different types of CALL practitioners – ‘emergent’ and ‘established’. Emergent practitioners are critical of current technologies and adjust them to their setting, whereas established practitioners adopt, rather than adapt the technologies. According to Bull and Zakrzewski (1997), learning with technology is not effective unless it is integrated into the curriculum with due consideration. Levy, Hubbard, Stockwell, and Colpaert (2015) also discuss CALL design which is about establishing CALL settings with full intent, such that learning does not happen by accident, but through an understanding of the major factors that affect it. At the same time, Hubbard and Levy (2006) stress the need for both technical and pedagogical training in CALL, ideally integrated with one another. The plethora of new technologies, the ubiquity of the Internet and the teachers’ efforts to smoothly integrate various tools in their educational contexts can be frustrating or confusing. Therefore, teachers need to be trained in order to be able to plan and conceptualise the pedagogical implications, the relevant tools, and the strategies that assist them to test their assumptions according to specific learning objectives (Mondahl, Razmerita & Rasmussen, 2009). In the same lines, Kessler and Bikowski (2010) as well as Levy, Hubbard, Stockwell and Colpaert (2015) emphasise that we must prepare students to develop confidence to endeavour within the autonomous space.

2.4 Telecollaboration or Virtual Exchange

Educators worldwide are increasingly working towards developing innovative frameworks and new teaching methodologies in order to effectively respond to their students’ educational, life, and future professional needs. Throughout the years, many educational approaches have been put into practice, embracing a wide array of teaching and learning processes, activities and tasks (Sevilla-Pavón & Nicolaou, 2017). In their

effort to investigate the alternative suitable methods to integrate 21st century skills into the academic curriculum, educators and researchers have attempted to define the learner as well as the teacher of the 21st century and how their profiles and needs have changed with the emergence of new technologies. Antoniadou (2011) emphasises that the exponential use of the Internet and Web 2.0 tools encompasses new modes of living, and thus requires new competences for effective participation in online communities, professionally interacting, and socialising with people from different cultural backgrounds. At the same time, students seem to be constantly immersed in the use of new, sophisticated technologies (Sevilla-Pavón & Nicolaou, 2017).

In this era of globalisation and perpetual technological development, telecollaborative learning can provide a fertile background for transversing global boundaries and meeting the demands of 21st century learners as universal citizens (Nicolaou & Sevilla-Pavón, 2016). “Telecollaboration, or virtual exchange, are terms used to refer to the engagement of groups of learners in online intercultural interactions and collaboration projects with partners from other cultural contexts or geographical locations as an integrated part of their educational programmes” (O’Dowd, 2018, p. 1). Guth and Helm (2010) have defined telecollaboration in language learning contexts as Web-based interaction which is intended to develop both language skills and intercultural communicative competence while Chun (2015) has stressed that telecollaboration is a process that is mediated by technology through online means and it presupposes communicating and working with other people, individually or in groups, in different geographical locations. Consequently, physically connecting students from distant locations, which seems to be challenging due to the high costs entailed and other barriers, has become possible thanks to the technological progress and to the practitioners who “have clearly recognised the potential of virtual exchange projects for the development of foreign language skills, intercultural awareness and skills related to the global workplace” (O’Dowd, 2015, p. 63). Various studies on telecollaborative projects have shown that successful online exchanges can contribute to intercultural communicative competence (O’Dowd, 2006). Intercultural Communicative Competence (ICC) as Byram (1997) has defined it, is at the core of telecollaboration projects, drawing from socio-cognitive paradigms (Kern & Warschauer, 2000) which view language as social and emphasise the role of cultural context and discourse (Chun, 2015). Telecollaboration or virtual exchange has developed as a pedagogical paradigm

for the last two decades and in recent years, different approaches to virtual exchange have been implemented in various contexts with diverse learning objectives and organisational configurations (O'Dowd, 2018).

Telecollaboration projects can be implemented inside or outside the classroom, combining online and offline work, through a variety of Web 2.0 technology tools, such as threaded discussion boards, wikis, blogs, social networking sites, videoconferencing software, virtual learning environments, or 3D virtual worlds. Communication can be asynchronous or synchronous, depending on the objectives of the exchange and on institutional and practical constraints, such as different time zones, class times, teacher and/or student preferences (Helm, 2013). In the field of second language (SL) and foreign language (FL) learning in higher education, telecollaboration has been formulated most frequently from sociocultural perspectives and holds the potential to enrich the learning experience by providing SL/FL learners with opportunities for interaction and communication with others who know the same language (Chun, 2015). There are several different approaches to telecollaboration; while some telecollaborative exchanges run in independent contexts outside of class (O'Rourke, 2007), most of the telecollaborative projects form part of blended-learning structures with online interaction embedded in the activities which go on in class time (O'Dowd, 2011). Earlier models of telecollaboration had the form of e-tandem. Tandem learning means mutual support and instruction between two learners, each of whom is a native speaker of the other's target language. This support could be provided either face-to-face or via any other communication modality (O'Rourke, 2013). Later, online exchanges have expanded and new configurations of telecollaboration have been established involving different types of partners (Helm, 2013). Recent exchanges are usually monolingual or involve the adoption of a lingua franca (Basharina, 2007).

Research studies have documented the continuing development of virtual exchange along with the benefits of this pedagogical paradigm. Guth and Helm (2010) discuss how telecollaboration can support the enhancement of language skills, intercultural communicative competence, as well as various literacies while O'Dowd (2011) argues that telecollaboration enhances cultural learning and critical cultural awareness. Along with intercultural and linguistic learning, telecollaborative partnerships can facilitate critical media literacy, according to Müller-Hartmann (2006). Vinagre (2016) reports on

the acquisition of various key competences for life-long learning through virtual collaboration, such as social, digital, and entrepreneurial skills. Wu, Marek and Chen (2013) argue that telecollaborative exchanges develop learner autonomy while O'Rourke and Stickler (2017) discuss how virtual learning encounters offer authentic places for language learning, as well as for the acquisition of communication skills which are necessary for participation in online platforms. Fuchs, Hauck, and Müller-Hartmann (2012) discuss how cross-institutional exchanges enhance learner autonomy through multiliteracy skills development and O'Rourke (2005) points to increased motivation as a positive outcome of intercultural exchange.

At the same time, while telecollaboration exchanges are perceived by teachers to be a constructive and beneficial experience for their students, they have also been found to be a complicated and tedious process (Guth et al., 2012). Telecollaboration can be difficult to implement and can lead to a failed exchange project for many reasons. According to Hauck and Youngs (2008), success or failure in telecollaboration revolves around various interrelated factors pertaining to the learners themselves, the task design, or the context in which the telecollaboration takes place. Guth et al. (2012) have delineated the reasons why telecollaborative learning can be difficult to integrate and implement successfully: time necessary to set up and run exchanges, difficulties in integration and assessment, lack of pedagogical knowledge, teachers' lack of e-literacies, and difficulty in finding appropriate partners. O'Dowd and Ritter (2013) have identified ten different factors at four different levels that may lead to cases of failed communication, low levels of participation, as well as indifference and tension in online intercultural exchanges. The four levels pertain to individual, classroom, socioinstitutional, and interaction factors. Lamy and Goodfellow (2010) have called attention to a number of factors that may bring about difficulties and tension in telecollaborative projects, such as socio-institutional constraints, differences in communication styles, local institutional learning values, and incompatibilities in worldviews. Other factors that have been reported for failed telecollaboration projects pertain to intercultural misunderstandings (O'Dowd & Ritter, 2013), institutional constraints, misalignment of academic calendars, as well as challenges with scheduling (Belz & Müller-Hartmann, 2003), ineffective task design (O'Dowd & Ware, 2009), differences in time zones and lengths of exchange, differences in project goals due to curricular and institutional constraints, differences in linguistic proficiencies among the

partner classes (Chun, 2015), and different views on appropriate technologies for the telecollaboration project (Thorne, 2003). Ware (2005) also examined the factors that led to missed communication online and concluded that the reasons for tension and low functionality lie in different expectations and norms for telecollaboration, in social and institutional factors, and in individual differences regarding motivation and use of time. Therefore, according to O'Dowd and Ritter (2013), educators who are interested in telecollaborative projects should understand why communication may fail and have backup techniques to use as exchanges go on. O'Dowd (2015) has delineated the telecollaborative competences required for teachers working with intercultural curricula and those setting up and running online intercultural exchanges based on a model with forty descriptors and four sections – organisational, pedagogical, digital competences and attitudes and beliefs. Similarly, Dooly (2010) has focused on the organisational, pedagogical and technological competences which are necessary in order to establish and implement a telecollaboration project and, earlier Berge (1995) had delineated four basic roles taken on by instructors when facilitating online interactions: pedagogical, social, managerial, and technical.

Virtual exchange has generally been positively received by teachers and students (Helm, 2015) and despite its complexities, “the future of virtual exchange appears to be bright” (O'Dowd, 2018, p. 20). However, in a world that is characterised by increased global communication, mobility, and digital connectivity, there is a need to reconsider the role of virtual exchange in education. The development of “active, informed, and responsible citizens who are tolerant of difference and who are actively engaged in political and democratic processes” (ibid, p. 21) seems to be a pressing need in an interconnected and interdependent world. McCloskey argues that “foreign language ability, global awareness, and intercultural communication skills are increasingly recognised as essential dimensions of productive participation in the emerging economic, civic, political and social arenas of the 21st century” (2011, p. 49). With this in mind, virtual exchange can provide a sufficient initiative for enabling learners to cross global boundaries and come to terms with the demands of 21st century as universal citizens who are empowered to respond to diverse global and local problems of our contemporary society through their transnational partnerships. Barrett et al. (2013) have underlined the importance of intercultural competence in facilitating a response to many problems of our modern society. With this perspective of intercultural

competence in mind, and by critically evaluating the criticisms that previous virtual exchange projects have received, one could argue that new models of virtual exchange should be explored that will expand its potential in developing clusters of global competences which can be applied to actively respond to current social challenges.

2.4.1 Towards an Emerging Model of Virtual Exchange

Critically reflecting on previous virtual exchange projects as reported in the literature can facilitate the exploration of emerging models of this pedagogical paradigm, with a view to expanding its affordances and effectively addressing its weaknesses. In his paper *Learning from the past and looking to the future of online intercultural exchange*, O'Dowd (2016) refers to weak approaches to telecollaborative task design which include an over-emphasis on superficial communicative themes, tasks that only require participants to present and report information rather than actively collaborate together, as well as tasks that do not include critical self-reflection, echoing Kramsch's (2006) argument that in language learning "it is no longer appropriate to give students a tourist-like competence to exchange information with native speakers of national languages within well-defined national cultures; they need a much more sophisticated competence in the manipulation of symbolic systems" (p. 251). Earlier, Kramsch (1995) referred to the 'imaginative leap' that will enable learners to contemplate other cultures as different from their own rather than adhere to the belief that 'deep down we are all the same' thinking, this way, that they have managed to break down stereotypes. Furthermore, researchers such as Hanna, De Nooy and De Nooy (2009) have questioned the authenticity of telecollaborative exchanges as learners' interaction is limited to communication among the two partnering groups. This leads to low motivation levels in learners who could ideally benefit from more authentic language practice beyond the classroom walls (Hanna & De Nooy, 2009 cited in O'Dowd, 2016). On the other hand, Little (2016) has referred to emerging telecollaborative practice and its potential to expand the learners' identity as well as their ability to demonstrate agentive behaviour (cited in Helm, 2018) echoing Risager's transnational paradigm which focuses on the multiple identities of learners and a global perspective in intercultural understanding (in Menard-Warwick, Heredia-Herrera, & Palmer, 2013). In addition, O'Dowd (2016) refers to 'critical telecollaboration' which engages students in intercultural dialogue with a view to responding to social and political challenges in an increasingly polarised world.

With these criticisms in mind, one could draw on contemporary theories and frameworks and delve into emerging models of virtual exchange in response to the social role of education and computer-assisted language learning. Recent theories of global competence and active citizenship can ideally be used as a new lens through which virtual exchange projects may be designed and implemented. Similarly, newly formulated frameworks, such as the *Reference Framework for Democratic Culture* (Council of Europe, 2016) and the *United Nation's Sustainable Development Goals Framework* (2016), can be utilised as guiding models for organising, enacting and assessing virtual exchange projects that will go beyond engaging students in superficial discourse and a mere exchange of cultures and civilisations. The new emerging paradigms of virtual exchange can ideally grow this pedagogy in scope and move it towards a global notion of the intercultural (Dooly, 2015) that will afford opportunities for the development of a wide array of critical 21st century competences which can be deployed to address current social challenges in an action-oriented approach. Students can experience learner-centred learning, forming transnational teams and engaging in critical discussions, comparisons and analyses towards achieving innovative solutions to pressing global or local challenges. Within such a virtual exchange paradigm, learners can be empowered to be active citizens and bring positive changes in their local contexts which will be informed by their global encounters and meaningful interactions. Under this paradigm, learners can transform from passive observers or commentators with little or no responsibility to current and future contributors to the global society through the creation of solutions to world problems (Leask, 2015), adding, this way, the notion of criticality in virtual exchange pedagogy with an action-oriented approach directed towards the learners' local communities (Byram, Golubeva, Hui, & Wagner 2016). Therefore, learners can understand how global and local issues intersect and can be addressed only when people collaborate and orchestrate various global competences together in an effort to become instigators of change.

2.5 Global Competence and Active Citizenship

Recently, different notions and concepts such as world-mindedness, global-mindedness and global citizenship have been developed to denote the expected skills for the development of students in the 21st century (BrckaLorenz & Gieser, 2011). Our increasingly interrelated and interdependent world requires the acquisition of knowledge of critical global issues and the enhancement of competences that will allow

them to interact with people of culturally and linguistically diverse origins, function effectively in a global society, as well as assume responsibility to address current social challenges. Global competences have been emphasised in recent efforts for educational reform and are manifested in various educational frameworks aspiring to respond to the changes in society and to the new ways of communicating and interacting that technological developments have brought about. Such rapid changes mandate that curriculum instruction is infused with global awareness and is inspired by a global education focus in order to help students of diverse worldviews to understand the notion of globalisation (Burnouf, 2004).

Acknowledging the responsibility that education must assume in developing learners who are able to participate in interconnected, complex and diverse societies, PISA has developed a framework to delineate, promote and assess adolescents' global competence. The *OECD PISA Global Competence Framework* (2018) defines global competence as “the capacity to examine local, global and intercultural issues, to understand and appreciate the perspectives and worldviews of others, to engage in open, appropriate and effective interactions with people from different cultures and to act for collective well-being and sustainable development”. The framework has been developed in response to the urgent need to live peacefully in multicultural communities, to prosper in a changing professional landscape, and to act as responsible democratic citizens. Education for global competence can promote cultural awareness and challenge cultural stereotypes. Furthermore, it can enhance employability as young people can learn about the complex dynamics of a labour market that is exponentially becoming interconnected across the globe. They will also learn how to transfer their skills and knowledge in new contexts and be enabled to interact and communicate within diverse groups. Educating for global competence can also help students use media platforms in an effective and responsible way by understanding digital spaces and expressing their voice online. Finally, education for global competence can help learners realise their critical role in society in addressing current social, political, economic and environmental problems (OECD PISA Framework, 2018). In the same lines, in its document aiming to prepare learners for the challenges of the 21st century, UNESCO has emphasised a human rights orientation in education by using the term global citizenship, drawing the focus on “understanding, acting and relating oneself to others and the environment in space and in time, based on universal values, through

respect for diversity and pluralism” (2014, p. 14). *UNESCO’s Global Action Programme (GAP) on Education for Sustainable Development (ESD)* recognises the transformative power of education in relation to empowering youth, accelerating solutions at local level (2014) as well as to addressing all *United Nation’s Sustainable Development Goals* (SDGs) (2016). These belong to the 2030 Agenda for Sustainable Development, and comprise a set of 17 ‘Global Goals’ with 169 targets among them. The SDGs include: no poverty, no hunger, good health and education, gender equality, clean water and sanitation, clean energy, good jobs and economic growth, innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption, environment protection and animal rights, peace and justice and international commitment and cooperation towards achieving these goals (UNESCO, 2015). Similarly, the *United Nations Secretary-General’s Global Education First Initiative* underlines the critical role of education in fostering global citizenship:

Education must fully assume its central role in helping people to forge more just, peaceful, tolerant and inclusive societies. It must give people the understanding, skills and values they need to cooperate in resolving the interconnected challenges of the 21st century (United Nations, 2012).

Global education has also been emphasised in the *Framework for State of Action on Global Education* developed by Partnership for 21st Century Learning (P21), a national organisation which provides tools and resources to help the U.S. education system to implement innovative models for every school. According to P21, students need to be proficient in core subjects and knowledgeable about interdisciplinary 21st century themes, such as environmental, financial, economic, business, health, and entrepreneurial literacy, as well as to be capable of thinking critically, problem solving, communicating, collaborating, creating, and innovating. P21 also advocates that learners should be prepared for 21st century citizenship which can be manifested in their ability to be informed, engaged, active, and empowered by global competencies and international understanding (P21, 2014).

Similar competences have also been advocated by the European Council and the Council of European Union’s recommendations on *Key Competences for Lifelong Learning* (2018) which aim at building on the previous recommendation from 2006,

taking account of transformations such as digitisation and constantly evolving labour markets. The new framework makes recommendations updating the previous model and sets out eight Key Competences: Literacy competence, Multilingual competence, Mathematical competence and competence in science, technology and engineering, Digital competence, Personal, social and learning to learn competence, Citizenship competence, Entrepreneurship competence, and Cultural awareness and expression competence. The new key competences are all considered equally important and each one of them contributes to an individual's personal fulfilment and employability, active citizenship as well as a successful life in a peaceful, democratic society and culture (Council of the European Union, 2018).

Mansilla and Jackson (2013) emphasise the necessity for global competence for today's youth due to the transformation of the global landscape which requires new capacities and dispositions. The three areas of transformation lie in the globalised economy which has brought about new demands of work, migration and immigration which have resulted in more culturally and linguistically diverse societies, as well as climate instability which urges for global ecological care. These realities justify the rationale for global competence as a critical outcome of learning which can be delineated in the students' capacity to:

investigate the world beyond their immediate environment, framing significant problems and conducting well-crafted and age-appropriate research; recognize perspectives, others' and their own, articulating and explaining such perspectives thoughtfully and respectfully; communicate ideas effectively with diverse audiences, bridging geographic, linguistic, and ideological, and cultural barriers; take action to improve conditions, viewing themselves as players in the world and participating reflectively (Mansilla & Jackson, 2013, p. 2).

These models and frameworks support the view that 21st century education should focus on increased intercultural learning and global awareness adopting a critical approach towards action in society. Therefore, there seems to be a shift from intercultural communicative competence to intercultural citizenship as part of a broader global competence learning framework. Education currently appears to be situated at the intercultural competence and global citizenship nexus in an effort to respond to the

obvious transformation in society and to the urgent need to address the challenges that come with it through co-operation, engagement and critical agency.

The notions of criticality and agency have been embraced in Byram's earlier model of Intercultural Communicative Competence (1997) through his emphasis on Critical Cultural Awareness (CCA). CCA is defined as "the ability to evaluate critically and on the basis of explicit criteria perspectives, practices and products in one's own and other cultures and countries" (p. 53). Nugent and Catalano (2015) agree that when foreign language learning is reinforced by critical cultural awareness, students gain a deeper level of cultural awareness and knowledge and are, therefore, capable of taking part in local and global communities. In addition, incorporating CCA in the language classroom provides learners with the opportunity to evaluate their skills, and to feel more connected to the material as they view how their increased awareness is related to real-world issues (Kramsch, 2004; Osborn, 2006, cited in Nugent & Katalano, 2015). In his view of criticality, Barnett (1997) identified three domains whereby criticality is situated which include what learners learn about the world in their subjects, what learners think about themselves as individuals, and what learners do as a result of their thinking and learning (cited in Porto & Byram, 2015). Barnett also identified four levels of criticality which include an emphasis on skills of learning how to be critical, reflexivity which refers to the acquisition of knowledge about the self and the world, criticality that results to change, and at a more complex level, transformative critique and reconstruction of the world.

The concept of criticality lies at the core of critical citizenship education, grounded at the critical pedagogy education which is the theory and practice of helping students achieve 'critical consciousness'. According to Freire (1970) critical consciousness results from students' "intervention in the world as transformers of that world" (p. 58) therefore it "cannot exist outside the praxis" (Shor, 1993, p. 124). Shor explains that "the Freirean pedagogy which tries to develop this critical consciousness is a student-centered dialogue which problematizes generative themes from everyday life as well as topical issues from society and academic subject matter from specific disciplines" (p. 32). The development of a critical consciousness is an essential tool to achieve freedom, as social critique is the way to achieve social justice (Freire, 1981, 2003). The gaining of critical consciousness helps us develop a liberating praxis, "a certain type of

reasoning process that is undertaken as part of action both in and on the world” (Shor, 1993, p. 54). Within the critical pedagogy framework, education is seen as a powerful tool which can encourage dialogue and activism (Giroux, 2006), as it "makes clear that schools and other educational spheres cannot be viewed merely as instructional sites, but must be seen as places where culture, power, and knowledge come together to produce particular identities, narratives, and social practices" (Giroux, 2006, p. 4). As Giroux (2004) explains, “critical pedagogy proposes that education is a form of political intervention in the world that is capable of creating the possibilities for social transformation” (p. 34) while Giroux and McLaren assert that schooling should be linked to the values of democracy and the dynamics of critical citizenship (1986). Similar concepts of global citizenship with an action-oriented approach have also been emphasised by Oxfam (1997). For Oxfam, global citizenship aims at encouraging young people to develop the knowledge, skills and values they need to engage with the world.

The notion of criticality and agency were revisited in Byram’s notion of Intercultural Citizenship for foreign language education as part of a broader citizenship education which transcends national boundaries and places emphasis on teaching and learning which leads to action in the world (2008). According to Porto, Houghton and Byram (2017), “intercultural citizenship education acknowledges the instrumental value of learning one or more languages but crucially focuses on its educational worth and potential” (p. 485). The concept of intercultural citizenship is an amalgamation of foreign language education with emphasis on intercultural communicative competence (Liddicoat & Scarino, 2013; Byram, 1997 cited in Porto, Houghton & Byram, 2017) and citizenship education with a focus on civic action in the community (Porto, Houghton & Byram, 2017). Intercultural citizenship entails awareness and respect of self and others, willingness to interact with culturally diverse groups, as well as the acquisition of knowledge and skills that enables learners to actively participate in today’s complex social contexts (Jackson, 2011). According to Byram (2018, p. 73), a good intercultural citizenship project will ideally create a sense of international identification with learners in the international project; challenge the ‘common sense’ of each national group within the international project; develop a new international way of thinking and acting; and apply that new way to ‘knowledge’, to ‘self’ and to ‘the world’ (Byram et al. p. xxviii).

These characteristics echo Nussbaum's definition of the cosmopolitan citizen (2006) as one who is engaged with the global community. Nussbaum delineated four reasons for choosing cosmopolitan citizenship as the basis for education: "1) the possibility of learning more about ourselves; 2) the need to solve global problems through international cooperation; 3) the acknowledgement of moral obligations to the rest of the world; and 4) to be able to prepare a solid and coherent series of arguments based on the differences that we are prepared to defend" (in Boni, MacDonald, & Peris, 2012, p .3). International cooperation towards solving global problems is also emphasised in Byram's notion of internationalism as an approach which is based upon the belief that no independent society can address global matters on its own on a national level and that societies should achieve prosperity through international interaction and cooperation (2018). Byram clarifies that internationalism should be distinguished from internationalisation, the latter being more focused on student and staff mobility, as well as efforts towards an internationalised curriculum in Higher Education (Leask, 2011). Instead, internationalism is associated with democracy and it includes a moral dimension of mutual responsibility reflecting Nussbaum's explanation of democratic citizenship as the citizens' ability "to see themselves as not simply citizens of some local region or group, but also, and above all, as human beings bound to all other human beings by ties of recognition and concern" (2006, p 389).

2.5.1 Competences for Democratic Culture

The development of democratic and global competences has been examined in the recent model devised by the Council of Europe (2016) the *Reference Framework of Competences for Democratic Culture (CDC)*. The aim of this model is to develop a new European framework of the competences that young people need to achieve in order to function effectively as democratic citizens (Barrett, 2016). Barrett clearly explains that even though the CDC model has been developed as a model of competences required for participation in democratic culture, it also represents a model of global competence due to its strong emphasis on intercultural competence. As Barrett says, the framework is inherently a global competence model due to the inclusion of values of human dignity and human rights at the core of the model, as well as due to the special emphasis on cultural diversity and to the incorporation of competences in relation to knowledge and critical understanding of the world and the self. The CDC model was developed by the CoE, building on previous work on democratic and intercultural competence, such as

Oxfam (2006), and UNESCO (2014) and features 20 core competences which have been categorised in four broader categories: Values, Attitudes, Skills, Knowledge and Critical Understanding. Each category includes relevant competences which are considered to enable an individual to participate effectively in a culture of democracy (Council of Europe, 2016). Specifically, the first category, Values, comprises three competences: ‘Valuing human dignity and human rights’, ‘Valuing cultural diversity’, and ‘Valuing democracy, justice, fairness, equality and the rule of law’. The second category, Attitudes, includes six competences, namely ‘Openness to cultural otherness and to other beliefs, worldviews and practices’, ‘Respect’, ‘Civic-mindedness’, ‘Responsibility’, ‘Self-efficacy’, and ‘Tolerance of ambiguity’. The third category, ‘Skills’ includes eight competences. These are ‘Autonomous learning skills’, ‘Analytical and critical thinking skills’, ‘Skills of listening and observing’, ‘Empathy’, ‘Flexibility and adaptability’, ‘Linguistic, communicative and plurilingual skills’, ‘Co-operation skills’, and ‘Conflict-resolution skills’. The last category, Knowledge and Critical Understanding comprises three competences, ‘Knowledge and critical understanding of the self’, ‘Knowledge and critical understanding of language and communication’, and ‘Knowledge and critical understanding of the world’. The full model pack describes the set of 20 competences in depth (Yulita, 2018), and it is supported with relevant documents and validated descriptors. The descriptors can be adapted to fit different contexts and requirements, taking account of the age and academic level of students (Bergan, 2016). The model was developed in response to the important role of education for preparing learners for the labour market, as well as for life as active citizens in a democratic society. It was also devised with a view towards contributing to learners’ personal development and the enhancement of their broader knowledge. The model provides a systematic approach for the design of teaching, learning and assessing of competences for democratic culture and is based on a number of notions, including ‘identity’, ‘culture’, ‘intercultural’, and ‘intercultural dialogue’. It is important to note that the model provides an explanation of the concept of ‘competence’ that is used in this framework. As defined in the framework,

Democratic and intercultural competence is defined as the ability to mobilise and deploy relevant values, attitudes, skills, knowledge and/or understanding in order to respond appropriately and effectively to the demands, challenges and opportunities that are presented by democratic and intercultural situations.

Competence is treated as a dynamic process in which a competent individual mobilises and deploys clusters of psychological resources in an active and adaptive manner in order to respond to new circumstances as these arise (Council of Europe, 2016, p. 6).

Figure 1 demonstrates the *Reference Framework of Competences for Democratic Culture*:

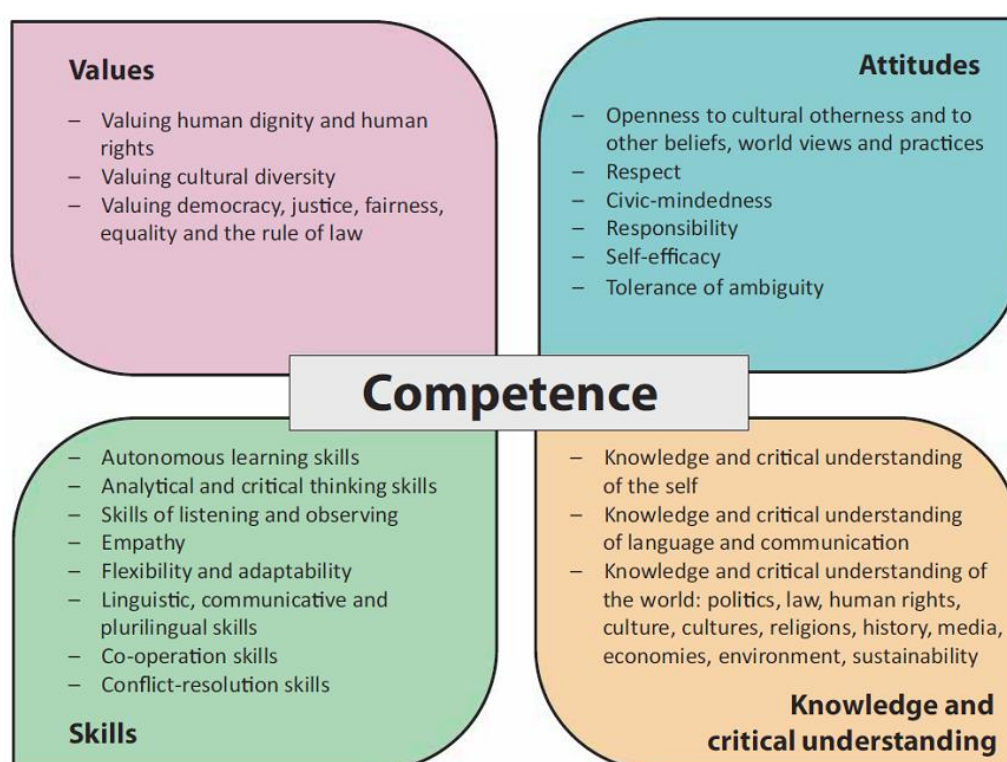


Figure 1: Reference Framework of Competences for Democratic Culture

The Framework has been developed to facilitate education’s contribution towards achieving “a culture of democracy, intercultural dialogue, and respect for the dignity and rights of others” (Council of Europe, 2018, p. 25). Drawing on the Council of Europe’s *White Paper on Intercultural Dialogue* (2008), the CDC model asserts that democratic and intercultural competences are not developed naturally but instead they need to be learned and practised. Education is in a unique position to guide and support learners in this. Therefore, the CDC model can be used in educational planning with a view to empowering learners to become independent and respectful democratic citizens by enhancing the competences required for participation in a democratic society and

intercultural dialogue (Council of Europe, 2018). The CDC model also makes reference to language learning claiming that the development of competences for democratic culture is dependent on the acquisition of language competences. Language learning is critical as it can facilitate communication with others and can lead to learners' awareness of the significance of language competence in practising the democratic and intercultural competences that are incorporated in the model.

2.6 The Humanistic Role of Foreign Language Teaching

The role of Foreign Language Teaching (FLT) in pursuing humanistic purposes rather than simply instrumental purposes has been emphasised in the Norwegian curriculum (Utdanningsdirektoratet, 2006) to which Byram (2018, p. 71) refers underlining that “language competence is a basis for democratic activity beyond the limits of the country or state”. The educational and humanistic responsibilities of foreign language education can be mediated through education for a global citizenship approach, an approach that comprises of the relevant competences that allow learners to be self-reflective and aware of world's interconnectedness. This paradigm allows them to challenge and critically reflect on others' different perspectives and develop the ability to approach conflict in an empathetic way, and to engage in communication, interaction and collaboration with others towards a solution to global or local challenges (Wintersteiner, Grobbauer, Diendorfer, & Reitmair-Juárez, 2014). At the same time, the intercultural citizenship approach can contribute towards the humanistic role of language education. This can be achieved, though, if foreign language teaching places criticality and action in the community at the centre. A pedagogical approach that Byram (2018) suggests is class-to-class exchanges whereby learners are linked in order to compare and act on a critical topic in two or more countries, contributing towards the direction of critical agency. Such exchanges can be physical or can be technologically mediated. Porto (2018) delineates this paradigm as an approach in which students from two or more different countries use a lingua franca while working on a common project and engaging in a process of discussing a social theme or a local problem that needs to be addressed in the community. The students analyse the theme, they compare and contrast their perspectives, they interpret and evaluate their differing perspectives, and finally they engage in critical thinking in solving the particular community problem through critical action. Within this paradigm, learners go through this procedure

through focusing on content from school subjects, such as biology, geography or history.

This pedagogical approach draws attention to implications for incorporating global citizenship in education while at the same time accommodating the relevant curriculum demands. This echoes the notion of Internationalisation of the Curriculum (IOC), “a common strategic goal in modern higher education” (Kirk, Newstead, Gann, & Rounsaville, 2018, p. 989) which signifies efforts to develop a curriculum “with an international orientation in content and/or form, aimed at preparing students for performing (professionally/socially) in an international and multicultural context and designed for domestic and/or foreign students” (Van der Wende, 1996, p. 6). This is particularly significant for university education aiming at adding an international orientation in its objectives and curricular content in order to prepare graduates that will be able to function effectively in a global context and increase their opportunities for employability. Building global graduates and enhancing translational professional skills (Guadamillas Gómez, 2017) should be at the centre of tertiary education institutions’ attention. Lee and Markey (2014) affirm that at university level, ensuring that university students acquire the intercultural communication skills needed in the fast-developing, globalised world we live in is immensely important. Similarly, Leask (2015) suggests that universities are under obligation to increase their students’ awareness of their role as global citizens in an increasingly culturally diverse world and to prepare them for success with international engagement. Therefore, universities around the world are looking for ways to give their students a more universal perspective so as to prepare them for a future that will increasingly involve global problems and partnerships (Lindsey, Cousland, & Welch, 2010). This was to be accomplished through increased outbound mobility, as well as by recruiting international students who can contribute to local students’ preparation for success in global settings (Kirk, Newstead, Gann, & Rounsaville, 2018). International student mobility has always been considered an effective way of expanding higher education systems, helping students indulge in global experiences and attain knowledge and intercultural communication skills. Aiming at increasing international student mobility has been one of the aspirations of university internationalisation policy around the globe in recent years (O’Dowd, 2013) as “international mobility creates opportunities for students to gain first-hand insight into global markets and establish networks that may facilitate future global employment”

(Kirk et al., 2018, p. 994). In the European Union, the desirability for student mobility is linked clearly to preparing students for the globalised marketplace, the development of tolerance and intercultural understanding as well as the establishment of more productive links between higher education institutions (Commission of the European Communities, 2009). However, in spite of universities' efforts at expanding their students' international experiences through physical mobility programs, achieving this aim is proving much more challenging than expected (O'Dowd, 2013). Students' unwillingness to join international mobility programs, financial constraints, and insufficient foreign language skills are some of the factors that keep university students' physical mobility at low levels. Consequently, non-mobile students comprise the majority of the student body at universities. These students could benefit from an internationalised curriculum at home in order to accomplish the global competences they need. Internationalisation at Home (IaH) is the deliberate integration of international and intercultural aspects into the formal and informal curriculum for the benefit of all students of a learning context (Beelen & Jones, 2015). IaH "operates on the assumption that not all students will have mobility opportunities and lies in framing a context for the development of employability skills" (ibid, p. 68). Just as with internationalisation of the curriculum in general, IaH is specific to the context of a discipline and, within that, to a program of study in a given university (Leask, 2012). As Leask (2015, p. 9) explains, "internationalisation of the curriculum is the incorporation of international, intercultural and/or global dimension into the content of the curriculum as well as the learning outcomes, assessment tasks, teaching methods and support services of a program of study". This suggests implications for curricular design linked to a specific discipline, ensuring the development of relevant global skills through meaningful interaction and intercultural learning (Beelen & Jones, 2015). Therefore, in an effort to devise an internationalised curriculum in order to develop globally competent graduates who can understand complex international realities, it is important to consider how students understand those realities within their specific disciplinary settings (Kirk et al., 2018). With this in mind, in the context of foreign language teaching, an internationalised approach to content-based instruction could offer a fertile ground for developing global competences linked to discipline-specific curricular demands.

2.7 Content-Based Language Learning

Brinton, Snow and Wesche (2003 (1989) define Content-Based Instruction (CBI) as the kind of instruction that is based on the acquisition of knowledge related to a certain non-linguistic discipline and target language communication skills. CBI is characterised by teaching that is based on disciplinary knowledge, the adoption of authentic language material, the acquisition of new knowledge, and the addressing of students' various needs (Yuan, & Yu, 2008). Brinton, Snow and Wesche (2003) indicate that the most generally well-known models for CBI are theme-based, sheltered, and adjunct courses with theme-based courses being the most common. Theme-based CBI courses involve the selection of topics or themes which are organised in major curricular units and are appropriate to the students' academic and cognitive interests and needs. In the context of language learning, theme-based CBI can be related to English for Specific Purposes (ESP) teaching (Tarnopolsky, 2013) as it combines the learning of language and disciplinary knowledge (Xi, 2017). Ass Orr explains, "ESP is taught as a tailor-made language package to specific communities of learners with highly specialized language needs" (2002, p. 2). ESP dates from the 1960s and it emerged as a movement designed to appeal mostly to adult tertiary students in non-English speaking countries responding to their needs for communication in specific scientific and professional contexts (Tzoannopoulou, 2015). The development of English for Specific Purposes (ESP) courses, tailored to specific needs of groups of learners, has emerged as a result of the increased need to respond to new ways in which language is actually utilised "in real communication" (Ngan, 2011, p. 91). Abraar-ul Hassan, (2012, p. 4) asserts that "ESP emerged as a consequence of discontent with general-purpose English language teaching, which proved insufficient for language development in an age of specialized human communication". ESP theories are favoured by teachers and learners alike because they focus on the language used in specific disciplines or professions (Yang, & Chen, 2015). According to Chapple and Curtis (2000), what characterises ESP is its purpose to meet foreign language learners' needs and its relationship to professional knowledge. A common ESP course incorporates authentic materials and specialised linguistic resources (Abrar-ul-Hassan, 2012). ESP is essentially a learner-centred approach and its syllabus is "inherently realistic because it is needs-driven (and flexible) due to its alignment with learners' needs and wants" (Abrar-ul-Hassan, 2012, p. 7). In view of the urge to update English as a foreign language to the global context of its users (Candel-Mora, 2015), "ESP teachers have to help their students deal with

global communicative practices online in all their complexities”, (White, 2007, p. 235). As Joose and Heleta (2017) note, we need to empower students to understand the world and their role in it and become competent, ethical, and responsible citizens with global perspectives in their respective fields. Virtual exchange projects can contribute as a technology-based solution towards that direction, yet only a few endeavours have been implemented to date reporting on the development of global competence and active citizenship linked with content-based language learning.

2.8 Virtual Exchange Projects

In the last years, various virtual exchange projects have been implemented addressing different goals and competences. Online intercultural exchanges have been established in various educational contexts, involving different types of partners, web tools, and pedagogical approaches (O’Dowd, 2015). One such exchange was the *Cultura* project (Furstenberg, Levet, English, & Maillet, 2001). The *Cultura* project was a web-based, cross-cultural, curricular initiative which focused on how the web is used to foster cross-cultural understanding between American and French students (Levy, 2007). The project aimed at bringing together the two groups who work in their respective language classes, with the goal of better understanding each others' cultures. Students explored major concepts such as work, race, gender, family, identity, education, government, citizenship, and individualism and progressively constructed knowledge and understanding of each other’s values and beliefs (Furstenberg et al., 2001). Activities undertaken in the framework of the *Cultura* project were embedded in the class time activities. Earlier online cultural exchanges were asynchronous in nature and involved e-mail exchanges (O’Dowd, 2003) or the exchange of messages on a discussion forum (Hanna & De Nooy, 2003). More recent projects, though, have been realised on both synchronous and asynchronous interaction patterns, involving the use of wikis, blogs, microblogging, and social networking services. A project reported by Lee and Markey (2014) involved one advanced English class from a university in Spain and one advanced Spanish class from a university in the United States. Project objectives included the exchange of cultural viewpoints, the promotion of cultural awareness, the development of intercultural understanding and the enhancement of linguistic awareness through peer feedback. The project combined task-based instruction and web 2.0 tools, such as twitter, blogs, Audioboo and video-editing software applications such as Movie Maker or iMovie. Even though the project faced a

number of challenges such as the issue of time and personal commitment to online contributions, the exchange allowed participants to explore cross-cultural perspectives through exchanging viewpoints, and it also benefitted students from a linguistic point of view. Other telecollaboration projects involved the development of bilingual wiki pages where students discussed intercultural issues. Discussions were held via Skype and Facebook (Guth & Marini-Maio, 2010). Blogs have also been used in a number of telecollaboration projects (Ducate & Lomicka, 2008; Lee, 2012; Hauck & Youngs, 2008; Chen, Shih, & Liu, 2013). Fuchs, Hauck and Müller-Hartmann (2012) report on two case studies resulting in task-based telecollaboration projects which involved student teacher trainees, tutors, and language learners from colleges/universities in Germany, Poland, the United Kingdom, and the United States. The projects' objectives included the promotion of learner autonomy and the development of multiliteracy skills based on hands-on analysis of web resources and social networking tools. Van de Zwaard and Bannik (2014) examined the impact of the type of digital medium on language learner communication within a task-based interaction project between native speakers and non-native speakers of English. The project was an attempt to evaluate two forms of synchronous communication: video calling and instant chat-messaging. The study found that negotiation of meaning occurred in both types of interaction; however, different patterns of interaction emerged. A number of telecollaboration projects which exhibited low functionality or "missed" communication were also reviewed for the purposes of this study. A case in point is a telecollaborative project reported by Ware (2005). The exchange connected advanced-level students of English in Germany and advanced-level students of German in the United States. The reasons that led to tensions and limited interactional involvement were observed by the author and they include differences in expectations and norms, social and institutional factors, and individual differences in motivation and use of time.

Online exchanges can be bilingual involving partner classes who are native speakers of the target language (O'Dowd, 2015) or they can involve many partners in different locations with the adoption of a lingua franca. Basharina (2007) reports on a challenging telecollaboration project that connected students in Canada, Mexico, and Russia who were studying English as a second and English as a foreign language and therefore used English as a lingua franca for interaction (Basharina, Guardado, & Morgan, 2008).

While most telecollaboration projects involve students interacting on ‘safe topics’, the *Soliya Connect Program* (SCP) reported by Helm (2013) presents a dialogic model for telecollaboration which aimed at enhancing the development of intercultural competence through dialogue between students from Western and Arab countries. Sessions were led by facilitators and participants interacted through synchronous video communication. Topics discussed were divisive and conflicting in nature, such as terrorism, religion, and current events. The *Soliya Connect Program* offers a different telecollaboration approach that can educate globally competent students and citizens (Elliott-Gower, & Hill, 2015). Another virtual exchange project that echoes global competence by adopting an intercultural citizenship approach is an initiative reported by Porto and Byram (2015) which connected students in Argentina and Britain. The project focused on human rights violations during the football World Cup that took place in Argentina in 1978 and involved discussions using Skype and collaborative work towards the creation of awareness-raising leaflet intended to have an impact in the local community. The particular project was an effort to combine foreign language education and education for citizenship aiming at helping learners identify with their transnational community and become actively involved in the community. A similar initiative reported by (Porto, 2019) revolved around the Malvinas war, which was fought between Argentina and Britain over the Malvinas Islands in 1982. The project connected foreign language students in Argentina and Britain who were involved in online intercultural dialogue using English and Spanish as foreign languages and English as a lingua franca. In this project, students were engaged in the co-creation of bilingual leaflets for peace addressed to their local communities. The Soliya Connect project and the two projects between students in Argentina and Britain were designed with a global competence perspective, the former being mostly a dialogic project while the latter being mostly informed by the theory of intercultural citizenship, implemented in the foreign language classroom and incorporating the notions of criticality and action in the community. The tasks revolved around themes of human rights and included self-reflection and critical evaluation involving students in active cooperation which led to the production of artefacts addressed to the local communities aiming at making an impact on them.

Therefore, it can be argued that these initiatives present examples of strong approaches to telecollaborative task design the characteristics of which have been delineated by

O'Dowd (2016) and include tasks that reflect themes of social justice and intercultural citizenship, engaging students in active collaboration, self-reflection and critical evaluation, and avoiding stereotyping and forced culture clash. A further characteristic of strong approaches to telecollaborative task design is the design of tasks that allow students to reflect upon the mediating role of online communication in their interactions. The paradigms of global competence and intercultural citizenship can be used to guide the design and implementation of emerging models of virtual exchange reflecting these characteristics and offering students enhanced opportunities for meaningful interaction and active engagement with society. Through the development of critical global competences and the acquisition of skills and knowledge, students can be empowered to become active contributors to the creation of solutions of social problems. Implementing this kind of virtual exchange in foreign language learning will position language education in its humanistic rather than simply its functional or instrumental role (Byram, 2018).

2.9 Theoretical Framework

Over the years, research on CALL has concentrated on the learners' interaction with other learners via the computer instead of the learners' interaction with the computer (Warschauer, 2003). This shift has provided the theoretical framework to support CALL relying on the constructivist paradigm of learning which emphasises the shared and social construction of knowledge (Hauck & Youngs, 2008). The constructivist framework developed by Piaget shows the value of collaborative learning that encourages learners to use their prior knowledge and experiences to construct knowledge (Piaget & Inhelder, 1969). In this framework, learning is an active, social and collaborative process through which learners build knowledge with others in order to accomplish a common task (Lee, 2004). According to social constructivists, learning occurs by means of peer interaction, student ownership of learning and learning experiences that are authentic for students (Woo & Reeves, 2007). The central idea of social-constructivism is that knowledge construction is a social process that happens through connectivity and collaboration with others. Constructivism supposes that human knowledge is constructed and that the learner builds new knowledge based on previous learning (Mondahl & Razmerita, 2014). Collaborative interaction has been emphasised in sociocultural theory (Kim, 2014). Sociocultural theorists believe that participants construct learning through collaboration and interaction in a situated

context (Vygotsky, 1978) and that learning occurs through collaborative ‘scaffolding’ which is facilitated by the teacher who assists the learners in expanding their zone of proximal development (ZPD). Various researchers support that CALL provides synergist conditions for active involvement in building knowledge, critical reflection on content, collaborative interaction with peers and autonomous learning (Lee, 2011). “Telecollaboration is of particular interest with respect to social dimensions of language learning and use, since this type of learning environment consists of pairs or groups of distally-located students embedded in different sociocultural contexts and institutional settings” (Belz, 2003, p. 61). Telecollaboration projects are by definition cooperative or collaborative. Dooly (2008) emphasises that “the basis of both collaborative and cooperative learning is constructivism: knowledge that is constructed and transformed by students. Learners do not passively receive knowledge from the teacher; teaching becomes a transaction between all stakeholders in the learning process” (p. 21). In the same direction, social constructivism which indicates that meaningful learning takes place when individuals are involved in social activities can also offer a valid paradigm for telecollaboration projects, which inherently include peer collaboration, reciprocal teaching and learning, and other methods that entail learning with others (Kim, 2001). However, the complexity of telecollaboration as a technologically-mediated pedagogy and the view to widening the scope of virtual exchange projects under a global competence framework, point towards the adoption of a more holistic approach to virtual exchange, such as ecological theory that “goes beyond the comfort zone of constructivism” (Frielick, 2004, p. 328). Ecological Constructivism provides a more holistic approach to the process of learning as it affords “a lens through which to view the processes of language learning, the systems of interaction among different participants or interactors, and a research approach to exploring the mutual exchanges within these emergent systems” (Hoven & Palalas, 2011, p. 701).

2.9.1 Ecological Theory

Language ecology draws from biological theories which define ecology as “the total science of the organism’s relations to the surrounding environment, to which we can count in a wider sense all ‘conditions of existence’” (Haeckel, 1866, p. 286, cited in Steffensen & Kramsch, 2017). The ecological approaches give special importance to the dynamic relations between elements in an environment (Steffensen & Kramsch, 2017). In learning, “an ecological approach aims to look at the learning process, the

actions and activities of teachers and learners, the multilayered nature of interaction and language use, in all their complexity and as a network of interdependencies among all the elements in the setting, not only at the social level, but also at the physical and symbolic level” (van Lier, 2010, p. 3). The ecological theory is related to Gibson’s theory of affordances (1997). An affordance is the possibility of an action on an object or environment; however, the centrality of Gibson’s theory is not whether affordances exist in the environment, but whether information is available in ambient light for perceiving them (p. 60). Leo van Lier (2004) expands Gibson’s theory from human development to learning, asserting that “the affordance perspective assumes an active learner establishing relationships with and within the environment” (p. 92). The author further explains that in language learning, affordances and learning opportunities emerge as a result of participation and use and he refers to the rich complexity of environmental factors that are determined by the learner’s activity. Van Lier (2010) asserts that “affordances are relationships of possibility, that is, they make action, interaction and joint projects possible (p. 4). This is particularly valid in an educational context that is technologically mediated. As Warschauer notes (1998, p. 760, cited in Belz, 2002, p. 60), in order to “fully understand the interrelationship between technology and language learning, researchers have to investigate the broader ecological context that affects language learning and use in today’s society, both inside and outside the classroom”. The ecological approach sees learning as an emergent phenomenon which is activated by available affordances in the environment that can be symbolic and non-symbolic and by the ability of agents to perceive them and socially engage in the process (Steffensen & Kramsch, 2017). However, learning today can take place online, involving agents from diverse contexts. Therefore, ecology can facilitate an understanding of the relationship of individuals and diverse learning environments beyond conventional educational settings, including computer-mediated learning environments (ibid).

The main characteristics of ecology as outlined by van Lier (2006, p. 18-19) are: relationships, context, patterns, emergence, quality, value, critical, variability, diversity, and activity. Frielick (2004) explains that an ecological perspective places emphasis on seeing wholes together with parts forming relationships which are situated in a context where complex interactions take place having an impact on what is learned. This echoes the Activity Theory which, as Blin explains, sees relationships between students

(subjects), the object they are engaged in, and the larger context of community as interconnected (in Dooly & O'Dowd, 2012). The emphasis on quality rather than quantity is also central in ecological theory, and so is diversity which suggests the co-presence of agents of multiple cultural and linguistic backgrounds and the interdependence among them and their trajectories (Steffensen & Kramsch, 2017). The notion of agency is at the core of ecological theory. Agency can be defined as the “socioculturally mediated capacity to act” (Ahearn, 2001, p. 112, cited in van Lier, 2008). In learning, agency is a concept related to autonomy, intrinsic motivation, investment, volition, and intentionality, initiated by social, interactional, cultural, institutional and other contextual factors (van Lier, 2004; 2008). Van Lier (2010) explains that agency can emerge individually or collectively when learners need to make choices and when they are provided with opportunities to work as participants in a community of learners. Creating a learning context that affords the emergence and development of agency is crucial in pedagogical design (van Lier, 2008). The notion of criticality can be linked with an action-based approach to language classroom. Van Lier (2004) emphasised the “democratic goal in our educational endeavours” (p. 79) and explained that the task of democracy that education serves is oriented towards critical activism. Even though “traditionally, the language classroom is about language, not about changing oneself or changing the world” (van Lier, 2004, p. 82), educators should move towards a more critical, democratic direction that will facilitate an understanding of others’ perspectives and participation in local and global contexts. This perspective is at the core of ecological theory that views learning as “a way of being and acting in the world that has an impact on how we conduct our lives, how we relate to others and to the environment” (van Lier, 2004, p. 86). Finally, the notion of value that was introduced by van Lier (2004) signifies ethics and morality, and joint action within the community. The ecological approach, therefore, suggests that language researchers and practitioners are compelled to assume educational responsibility and promote social justice (Steffensen and Kramsch, 2017).

With this in mind, technology-mediated projects such as virtual exchange aiming at developing global competence can be guided by ecological theories in their design and implementation. In addition, as Garner and Borg (2005) note, the ecological approach to language learning provides a dynamic view to content-based instruction, as it positions context, situatedness, interaction and variability at the foreground of the

language theory. Porto (2019) also stresses the significance of adding an ecological view of language teaching by infusing a humanitarian approach to language learning through the teaching of content that is relevant to students' lives and societies and through other subjects so as to facilitate an understanding of the use of language beyond the classroom walls (Byram and Wagner, 2018). Therefore, guided by an ecological approach to learning, I investigate the possibility of developing university students' global competence through virtual exchange embedded in an internationalised content-based ESP curriculum having the following overarching and secondary research questions in mind: *Does virtual exchange provide measurable affordances for developing university ESP students' global competence and active citizenship?*

- 1) *What elements comprising the virtual exchange ecosystem support the development of university ESP students' global competence and active citizenship?*
- 2) *What principles are effective as guidelines for designing and implementing a virtual exchange project aiming at the development of university students' global competences and active citizenship while, at the same time, expanding their discipline-specific knowledge and skills?*

2.10 Chapter Summary

Chapter 2 provides a comprehensive review of the literature pertaining to global competence and intercultural citizenship and to related notions and theories that have been studied for the purposes of this research. The chapter also reviews recent models of assessing intercultural communicative competence with emphasis on the *Reference Framework of Competences for Democratic Culture* which has been used to assess the students' global competence learning and the *United Nation's Sustainable Development Goals Framework* which has guided the design of the third iterative study. In addition, the chapter presents an overview of previous telecollaborative designs with special reference to their strengths and weaknesses which have helped frame the research questions. Finally, Chapter 2 delves into the theories of constructivism and ecology which supported the design of the interventions.

Chapter 3: Research Methods

3.1 Introduction

This chapter reports on Design-Based Research (DBR) as the underlying methodology adopted for the design and implementation of this study. The chapter refers to the characteristics of DBR along with the justification for its adoption as the fundamental methodology for this research. The chapter also provides an overview of the three-phase design of this research, with reference to the context of the study, the data collection and analysis methods, the outcomes, and timeline.

3.2 Research Questions

The objective of this study is to explore the affordances of virtual exchange for developing university students' global competence and active citizenship. To this end, virtual exchange projects were implemented at two geographically disparate tertiary education institutions designed as educational interventions embedded in the respective universities' English for Specific Purposes (ESP) curricula within an internationalised outlook. Through the design, implementation and analysis of the interventions, the study sought to come to a holistic understanding of the telecollaborative ecosystem and the opportunities and limitations that were afforded for enhancing global competences and active citizenship. By studying the constituent elements of the telecollaborative context and their interactions, and through the repeated collection and analysis of multiple data, the study aspired to develop a flexible conceptual framework comprising principles guiding the design and implementation of virtual exchange projects embedded in an internationalised ESP curriculum, with the enhancement of university students' global competence and active citizenship as the overarching objective. In order to realise the objectives described, the following overarching research question was addressed: *Does virtual exchange provide measurable affordances for developing university ESP students' global competence and active citizenship?* This question was complemented by two secondary questions formulated as such:

- 1) *What elements comprising the virtual exchange ecosystem support the development of university ESP students' global competence and active citizenship?*

- 2) *What principles are effective as guidelines for designing and implementing a virtual exchange project aiming at the development of university students' global competences and active citizenship while, at the same time, expanding their discipline-specific knowledge and skills?*

3.3 Design-Based Research

This study adopted Design-Based Research (DBR) as its underlying methodology. Design-based research (Brown, 1992; Collins, 1992) is an emerging paradigm for the study of learning in context through the systematic design and study of instructional strategies and tools. DBR evolved at the beginning of the 21st century and was proclaimed as “a practical research methodology that could bridge the chasm between research and practice in formal education” (Anderson & Shattuck, 2012, p. 16). Barab and Squire (2004) define design-based research as “a series of approaches, with the intent of producing new theories, artifacts, and practices that account for and potentially impact learning and teaching in naturalistic settings” (p. 2), reflecting Anderson and Shattuck’s definition of DBR as a methodology “designed by and for educators that seeks to increase the impact, transfer, and translation of research into improved practice” (2012, p. 16). Not very different from Anderson and Shattuck is the definition by Wang and Hannafin (2005, pp. 6-7) who define DBR as “a systematic but flexible methodology aimed to improve educational practices through iterative analysis, design, development, and implementation, based on collaboration among researchers and practitioners in real-world settings, leading to contextually sensitive design principles and theories”. In design-based research, synergies are created by researchers and practitioners who work together in order to produce change in a learning context. Such partnerships contribute towards an understanding of the relationship and interactions between various elements and factors of the learning context and guide the refinement of the different parts of the intervention thus linking processes to outcomes (Design-Based Research Collective, 2003).

This methodological paradigm has been termed in different ways, such as ‘design research’ (Reeves, 2006) and ‘developmental research’ (McKenney & Van Den Akker, 2005); however, what is at the core of this method, any which way termed, is the aspiration to address complex problems in real settings in collaboration with practitioners (Brown, 1992; Collins, 1992) and develop solutions to those problems by

integrating known and hypothetical design principles with technological affordances (Herrington, McKenney, Reeves, & Oliver, 2007). According to Barab and Squire (2014) design-based research is a methodology that adopts a flexible design process where ‘subjects’ are acknowledged as participants in the design process, and even contribute in the analysis process. Under such methodology, research is carried out in iterative cycles of design, enactment, reflection, refinement, and redesign (Cobb, 2001; Collins, 1992) leading to the production of outputs which can be manifested in the form of scientific outputs (design principles), practical outputs (design artifacts), and societal outputs (professional development of participants) (Herrington et al. , 2007). Figure 2 illustrates the design-based research approach and its cyclical nature as demonstrated by Reeves (2006):

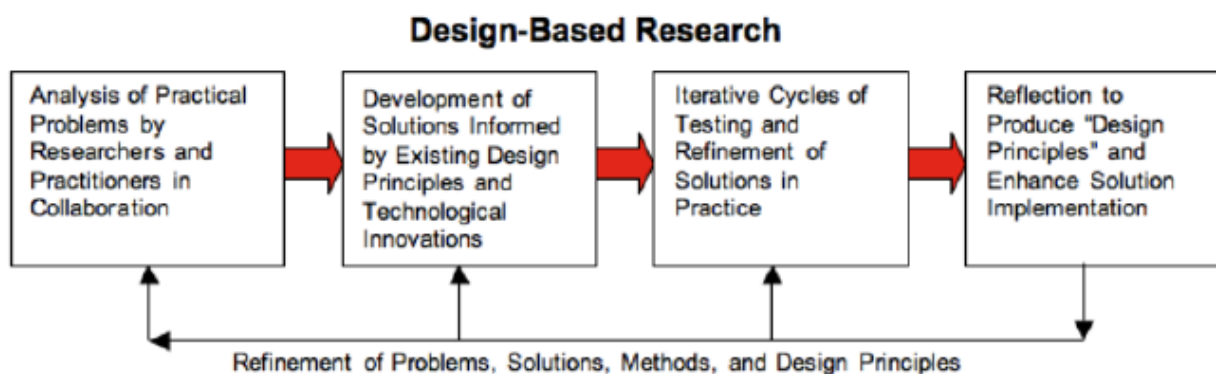


Figure 2: Design-based research approach

Educational interventions following design-based research are viewed with a holistic perspective, and interactions between learners, teachers, artefacts, materials, activity structures, scaffolds and curricula are explored (Design-Based Research Collective, 2003). DBR methodology is characterised by a process of systematic and reflective inquiry aiming at testing and refining the learning environments where the interventions are situated, as well as at defining new design principles (Brown, 1992; Collins, 1992) which may “generate heuristics for those interested in enacting innovations in their own local contexts” (Design-Based Research Collective, 2003, p. 6). The Design-Based Research Collective authors (2003, p. 5) propose five characteristic of good design-based research: a) the connection between the goals of designing learning environments and developing theories, b) the iterative nature demonstrated in continuous cycles of design, enactment, analysis, and redesign, c) the evolution of shareable theories addressed to practitioners and educational designers, d) the focus on interactions that

contribute towards an understanding of learning situated in authentic contexts, and e) the link between processes of enactment to outcomes of interest. Similarly, Anderson and Shattuck (2012, pp. 16-17), describe DBR as a methodology that is:

- (1) *Being situated in a real educational context*, which implies that the outcomes can be used to improve practice in at least the context whereby the study is situated, and possibly in other contexts.
- (2) *Focusing on the design and testing of a significant intervention*, as a collaborative task by both researchers and practitioners informed by relevant literature, theory, and practice from other contexts and developed with a view to overcoming a problem or improving practice in a local context.
- (3) *Using mixed methods*, employing various research tools and techniques to assess interventions.
- (4) *Involving multiple iterations*, in a process of building and testing prototyping solutions, iteratively refining them, and constantly developing the design to the point of reaching a highly improved version.
- (5) *Involving a collaborative partnership between researchers and practitioners*, that develops a cooperative relationship working through the problem from the initial identification, through literature review, to intervention design and development, implementation, and assessment.
- (6) *Developing design principles*, patterns, and/or grounded theorising, reflecting the context in which they operate and enhancing solution implementation.

3.3.1 DBR vis-à-vis Action Research

The development of design principles is a key asset of DBR as “it disadvantages those types of research that unilaterally descend for testing in a classroom and then disappear with the researcher once the experiment has been conducted” (Anderson & Shattuck, 2012, p. 17). DBR resembles other research approaches such as Action Research (AR) which identifies real world problems followed by actions to improve those problems

(Kock, 2003). In both DBR and AR approaches, practitioners are extensively involved in the research process. However, design-based research is different from action research in two ways: its major goal which is theory generation to solve authentic problems, and the continuous collaboration of researchers and teachers in the research process (Oliver, Reeves, & Herrington, 2005; Wang & Hannafin, 2005). In action research, it is usually the practitioners who initiate the research and then the researchers who come to complement the research process. Another difference between the two approaches exists in each one's focal point: in DBR the focus is on the design, while in AR the focus is the action (Andreson & Stattuck, 2012). Finally, while both approaches are situated in specific contexts aiming to improve educational practices by utilising mixed methods methodologies, DBR results in shareable design principles which are informed by frequent refinements (Design-Based Research Collective, 2003).

3.3.2 DBR Challenges and Benefits

The use of design-based research as a methodology leading to the evolution of design principles and the refinement of underlying theories can be challenging. The authors of the Design-Based Research Collective (2003) refer to issues pertaining to objectivity, reliability and validity that can be raised when following this methodological paradigm. Objectivity can be challenging as researchers regularly position themselves as advocates and critics of their own interventions. Barab and Squire (2004) also point to the difficulty faced by the researchers in remaining unbiased in the process of designing, planning, conducting, and evaluating interventions. This issue, though, can be addressed by employing specific research methods such as triangulation from multiple sources and different kinds of data so as to challenge the researchers' assumptions. Triangulation from different data sources can also contribute towards the promotion of reliability of findings and measures. Moreover, reliability can be promoted through repetition of cycles of enactment and through recurrent data analyses. The iterative process followed in design-based research can additionally cater for issues of validity that may arise, eventually leading to increased alignment of theory, design, practice, and measurement. A further challenge faced by design-based research methods concerns the collaborative partnership between practitioners and researchers in a specific learning context. Due to the iterative nature of design-based research, this partnership can stretch over a number of years. This prolonged period of collaboration and interaction between participants and researchers may raise issues of different levels

of commitment across time. This can have an impact on the sustainability of the partnership. Another challenge of design-based research methodology is whether the success of a particular innovation enacted in a local context can be extended to more globally usable knowledge in the field. The authors of the Design-Based Research Collective (2003) argue that this is subject to systematic and rigorous analysis and reflection of each iterative cycle in order to reach a highly refined enactment that can produce usable knowledge in different educational settings. Dede (2004) refers to another challenge of DBR which concerns the management and analysis of large data-sets which emerge from the iterated cycles. DBR creates a huge amount of data that requires rigorous and systematic analysis. Finally, defining what constitutes success in a DBR project can be challenging therefore “having criteria for what we are valuing in the specific DBR project is pivotal (Ørngreen, 2015, p. 32)”.

Despite its various challenges, design-based research methodology presents a number of benefits which urge researchers and practitioners to consider it as a suitable, yet demanding method with a potential to improve educational practice. The authors of the Design-Based Research Collective (2003) delineate four areas demonstrating the prospects of this research methodology: (a) exploring possibilities for creating novel learning and teaching environments, (b) developing theories of learning and instruction that are contextually based, (c) advancing and consolidating design knowledge, and (d) increasing our capacity for educational innovation. Design-based research provides research results that are validated (Messick, 1992), and offers a methodological toolkit to those researchers for deriving evidence-based claims from naturalistic contexts (Barab & Squire, 2004). As Cobb et al. (2003, p. 9) claim,

Prototypically, design experiments entail both ‘engineering’ particular forms of learning and systematically studying those forms of learning within the context defined by the means of supporting them. This designed context is subject to test and revision, and the successive iterations that result play a role similar to that of systematic variation in experiment.

3.3.3 Rationale for the Adoption of DBR

The present study adopted design-based research as the fundamental research methodology mainly due to its interventionist nature. As Ørngreen (2015) asserts,

“DBR is recognized as an intervention method that researches educational designs (products or processes) in real-life settings to generate theories in the domain and to further develop the specific design through iterative processes” (p. 20). In the present study, DBR was used to inform the methodological design of a virtual exchange project conducted between two universities. Due to the inherent complexity of virtual exchange projects in terms of design, implementation and evaluation, it was necessary to situate the study within an appropriate research paradigm that would encapsulate the planning, designing, developing, testing, and refining nature of the project (Cotton, Lockyer, & Brickell, 2009). The aim of the study was twofold: to understand the synergistic relationships of the different components of the virtual exchange ecosystem that lead to competence learning, and to design a virtual exchange, embedded in an internationalised ESP curriculum, that leads to the development of global competence and active citizenship. Therefore, there was a need to explore and apply alternative designs in order to observe contextual interactions and capture the moments of perceived competence learning so as to improve versions of the design, in an effort to scale the virtual exchange and maximise the possibilities of competences to emerge. To do so, the collection of various data in different phases was deemed important in order to understand how learners developed competences, what competences were enhanced, and how the different components of the virtual exchange ecosystem supported the emergence of individual or clusters of competences. As the authors of the Design-Based Research Collective argue (2003), “design-based research, which is a methodology that blends empirical educational research with the theory-driven design of learning environments, is an important methodology for understanding how, when, and why educational innovations work in practice” (p. 5).

In addition, design-based research was deemed to be a useful paradigm in a technologically-mediated project such as virtual exchange where the learning process expands from a traditional classroom and where technological developments support learning and learning processes (Ørngreen, 2015). “Other projects have been explored that use technological developments in educational settings, where the users are primarily online and distributed in space and time” (Ørngreen, 2015, p. 21). According to Juuti and Lavonen (2012), design-based research involves a designer, (researcher), a practitioner, (teacher), and an artefact (web-based learning environment). In the case of virtual exchange projects, the web-based environment plays a crucial role in successful

or failed interaction and collaboration between the learners. As O'Dowd (2019) proposes, emerging frameworks of virtual exchange should offer opportunities for "increasing awareness to how intercultural communication is mediated by online technologies and how social media can shape the creation and interpretation of messages" (p. 23).

Furthermore, the DBR methodology, through its iterative nature, affords opportunities for evaluating the impact of virtual exchange on competence learning in more than one cohort of learners employing the same design across different localised contexts (O'Dowd, 2018). The iterative cycles of design, enactment, evaluation and redesign allow researchers and practitioners alike to look for repeated outcomes in more than one semester which is the typical duration mostly reported in the literature for virtual exchange projects. As O'Dowd (2016) asserts, "it would appear that telecollaborative research studies to date have not attempted to evaluate the impact of virtual contact and exchange on learners over a period any longer than one university semester" (p. 9). With this in mind, researchers and practitioners who are interested in improving and repeating their interventions rather than merely indulging in single one-off projects, should consider design-based research as their underlying methodological approach for virtual exchange which offers the opportunity for validation of the design through multiple iterations. DBR cycles can shed light on how the design works and provide insights on how similar designs and situations would work (Ørngreen, 2015). The refined design can then be utilised by other researchers and practitioners. As Barab (2006) asserts "the goal of DBR is to use the close study of a single learning environment, usually as it passes through multiple iterations and as it occurs in naturalistic contexts, to develop new theories, artifacts, and practices that can be generalized to other schools and classrooms" (p. 153).

Moreover, the continual collaboration between practitioners, researchers and other stakeholders is central in design-based research. This synergistic relationship also characterises virtual exchange projects which inherently mandate the constant cooperation between practitioners and/or researchers in the process of planning, implementation and evaluation of virtual exchange interventions. In virtual exchange, practitioners and researchers may switch roles working together towards achieving improved designs and validated working solutions. This relationship, if sustained,

eventually leads to the practitioners' and researchers evolution of knowledge and to their professional development. This comprises one of the expected outcomes of design-based research methodology which aspires to afford "direct benefits to all stakeholders within the context of the research" (Reeves, 2000, p. 10).

Finally, design-based research was deemed to be in line with the ecological theory that was adopted in this study due to its strong emphasis on the context of learning as well as to the attention it places on how the constituent parts of educational ecosystems form a whole (Blyth, 2009). Barab (2006), who advocates design-based research, argues that the whole person, the environment, and the activity are part of the learning process. "Design-based research views a successful innovation as a joint product of the designed intervention and the context" (Cobb et al., 2003, p. 7) leading to improved theoretical accounts of teaching and learning.

3.4 Research Design

Informed by design-based research, this study adopted a three-phase research design within a virtual exchange project between two universities, the Cyprus University of Technology and the University of Valencia. These phases are: the *Exploration* phase, the *Implementation* phase and the *Reflection* phase. The three-phase methodology facilitated the gradual evolution towards a critical telecollaborative design aiming at developing students' global competences and active citizenship within an internationalised ESP curriculum. The adoption of DBR was anticipated to result in the professional development of the practitioners involved in the virtual exchange projects.

The *Exploration* phase comprised of an investigatory study which included a secondary research with extensive review of similar studies taken, in order to learn from their results, the pilot-testing of the pre-intervention questionnaire with sample population and a short investigation with a purposive sample via focus groups in order to lay the groundwork that subsequently led to the actual study. The Exploration phase was conducted in order to clearly analyse and define the problem and to help determine the best intervention design, data collection method, and sampling. The objective was to gather preliminary information that would help define problems, develop tentative hypotheses, identify the main issues that should be addressed in the survey, and determine the feasibility of the study. In addition, during the Exploration phase, I

sought to establish a telecollaboration partnership with a foreign university in order to carry out the interventions. The Exploration research was an attempt to lay the groundwork that subsequently led to the actual virtual exchange. Upon completion of this phase, the virtual exchange was set up, the virtual exchange ecosystem was initially conceptualised, the preliminary design principles were formulated, the research instruments were identified and constructed, and the first intervention was developed.

The *Implementation* phase comprised three iterative cycles of a virtual exchange projects which were successively designed, tested and refined in three consecutive time periods with three different cohorts of students. The iterative cycles facilitated the understanding of the virtual exchange ecosystem, the recording of evidence of perceived development of global competence and active citizenship, as well as the enhancement of an understanding of content-based learning. The three iterations also made a significant contribution to the refinement of theory and to the evaluation of the effectiveness of each intervention through the capturing of moments of perceived competence learning. This led to improved versions of the study which maximised the possibilities of competences to emerge. The repeated implementation of the initial project in refined forms resulted in the enhanced conceptualisation of the virtual exchange ecosystem and the evolution of additional design principles.

The *Reflection* phase, which included an evaluation of the three iterative cycles, resulted in a thorough conceptualisation of the virtual exchange ecosystem and its constituent parts. This phase led to the integrated conceptualisation of the virtual exchange ecosystem and to the complete set of design principles which comprise the conceptual framework. Figure 3 demonstrates the three-phase research design followed in this study:

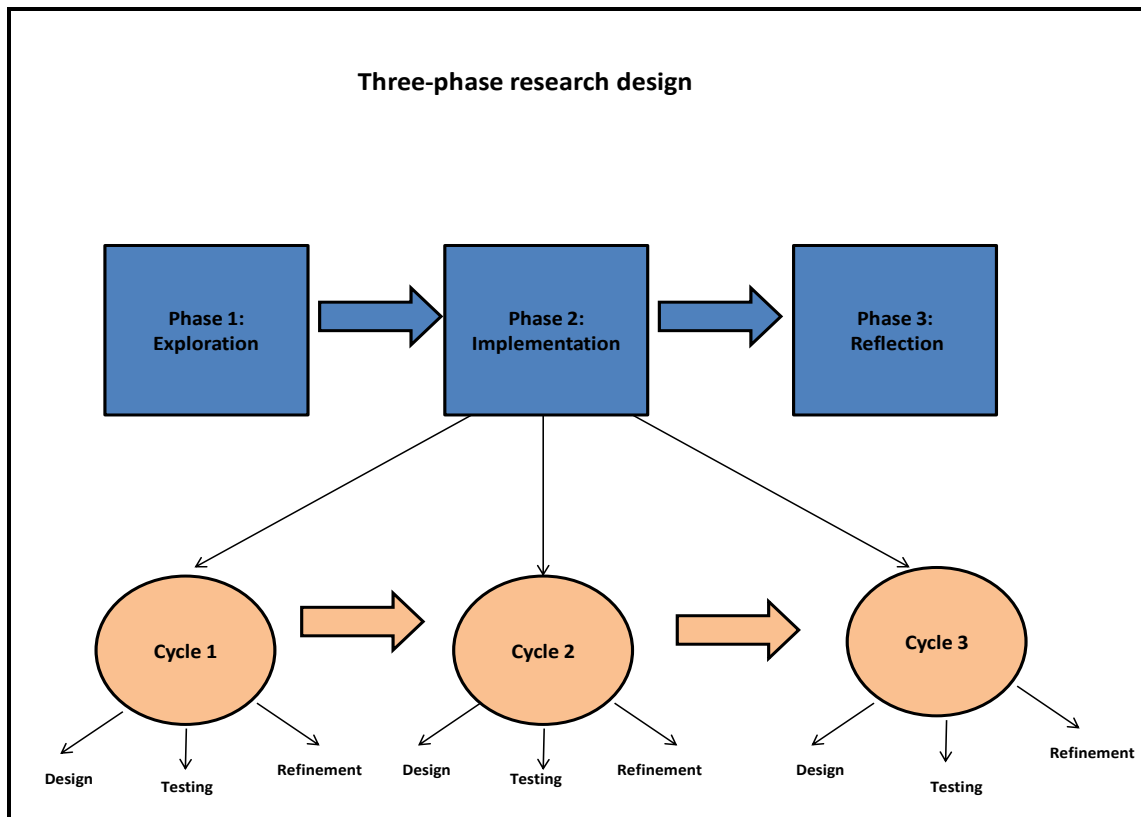


Figure 3: Three-phase research design

3.4.1 Theoretical Paradigm Shift

In this study, design-based research, through its iterative nature, contributed to the understanding of theories that can be used to ground the design and implementation of virtual exchange aiming at developing students' global competence and active citizenship through an internationalised ESP curriculum. Initially, the virtual exchange project was informed by constructivist theory; therefore, a learner-centred, task-based approach to computer-assisted language learning and teaching was followed in the design of the project (Nicolaou & Sevilla-Pavón, 2016). The tasks that were designed encouraged collaborative inquiry and the co-construction of knowledge. The tasks were developed so as to be authentic, challenging, meaningful and engaging while conducive to developing linguistic, intercultural, problem-solving, cooperation, and digital skills (Nicolaou & Sevilla-Pavón, 2017). However, when evaluating the results of the virtual exchange between the two universities in the first cycle, the researchers felt there was a pressing need for modifying the theoretical framework grounding the design of the second iteration in an ecological constructivist approach that would explore the telecollaborative context more holistically and with a view to making it a dynamic learning environment that would be conducive to global competence learning.

Ecological Constructivism as a theory is an amalgamation of Social Constructivism, Sociocultural Theory and Ecological Linguistics (Hoven & Palalas, 2011; Blin, 2016; Blin, Jalkanen & Taalas, 2016). According to ecological constructivism, the systems of language, the processes of language learning, and the systems of interaction among different participants or interactors and their mutual exchanges are viewed holistically (Hoven & Palalas, 2011). Among the principles of ecological constructivism are those pertaining to the affordances that exist in a dynamic environment, such as a language learning environment, and which are likely to be perceived and acted upon by learners both individually and in collaboration with others only when they are perceived as salient by the learners themselves. Hoven and Palalas explain that once perceived and acted upon, affordances are then shared among learners who create an ecosystem comprising new affordances which could not exist without the learners' interactions with other individuals, groups and networks (2011). Finally, the evaluation of the virtual exchange in the second cycle guided the researchers towards the adoption of ecology as the underlying theory for the design and implementation of the project in its third cycle. In this iteration, the researchers had established a complete understanding of the telecollaborative context and its constituent parts and embraced the notions of agency, criticality and engagement so as to maximise the emergence and perception of the affordances of virtual exchange in developing global competence and active citizenship while at the same time enhancing the students' discipline-specific knowledge. Figure 4 demonstrates the theoretical paradigm shift observed in the three cycles of the virtual exchange:

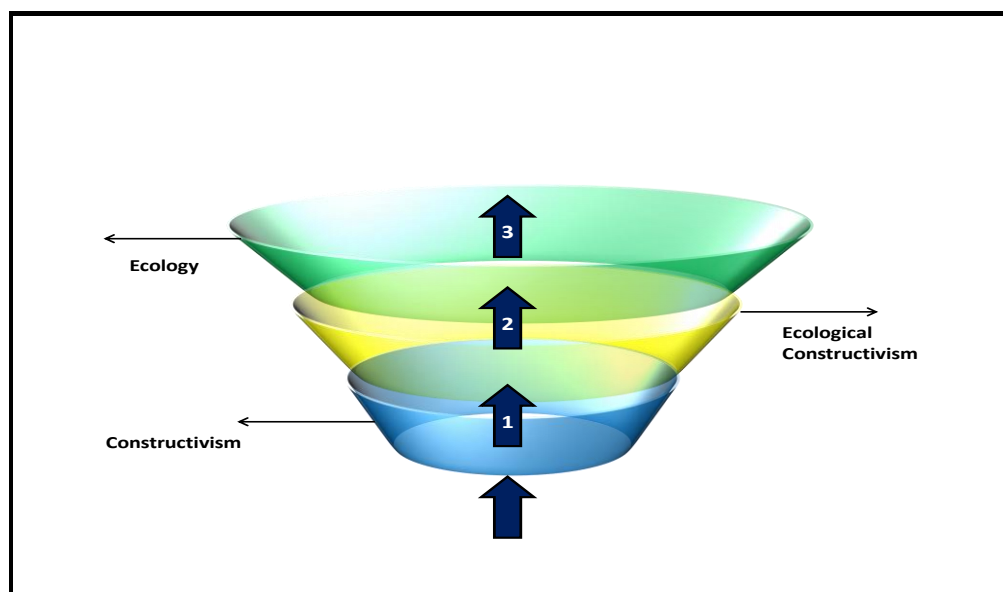


Figure 4: Theoretical paradigm shift

3.4.2 The Interventions

The three-phase research design followed in this study was conducted in the span of four years and involved a substantial number of learners and other stakeholders based in two different geographical locations. The three iterative cycles of virtual exchange projects were implemented at two universities, the Cyprus University of Technology (CUT), based in Limassol, Cyprus and the University of Valencia (UV), based in Valencia, Spain. The CUT is a state university established in 2004. Its first intake of students was in the academic year 2007–2008 and currently has around 3,000 students. It is based in Limassol, the second largest city in Cyprus. The CUT provides six faculties that students can choose from: Faculty of Geotechnical Sciences and Environmental Management, Faculty of Management and Economics, Faculty of Communication and Media Studies, Faculty of Health Sciences, Faculty of Fine and Applied Arts, Faculty of Engineering and Technology, and a Language Centre. Most of the courses are delivered through the medium of Greek and the vast majority of the students enrolled at the CUT are of Cypriot or Greek origin. Therefore, the context is rather monocultural and monolingual, and interaction with and knowledge of other cultures are minimal or even negligible within the university. At the same time, the university is technologically oriented and offers to its students the opportunity to work with various new technologies. The University of Valencia is a public university located in the Spanish city of Valencia. It is one of the oldest surviving universities in Spain, the oldest in the Valencian Community, and is regarded as one of Spain's leading academic institutions. The University was founded in 1499 and currently has around 55,000 students of Spanish or other origin. Most of the courses are given through the medium of Spanish, but the university has promised to increase the amount of courses available in Valencian. Moreover, in some degrees part of the teaching is in English ('The University of Valencia', n.d.).

The three virtual exchange projects were implemented in three cycles with the first cycle being carried out in the academic year 2015-2016 with a pilot intervention comprised of two studies: (a) **Spain-Cyprus Intercultural Telecollaboration Project (SCI-TEL Project)**, an interdisciplinary ESP virtual exchange project between 32 Hotel and Tourism Management students at CUT and 43 International Business students at UV, and (b) **Cyprus-Spain Intercultural Telecollaboration Project (CSI-TEL Project)**, an interdisciplinary ESP virtual exchange project between 30 Mechanical Engineering

students at CUT and 38 International Business students at UV. The evaluation of this intervention led to an enhanced conceptualisation of the telecollaborative ecosystem and to the development of additional design principles which fed into the refined design of the second intervention, **Business English Intercultural Project** (*BEGIN Project*) in 2016-2017, a discipline-specific virtual exchange project around entrepreneurship between 45 Business Management students at CUT and 27 International Business students at UV. The iterative cycles were completed in 2017-2018 with the last intervention, **Youth Entrepreneurship for Society Project** (*YES Project*), a discipline-specific virtual exchange project around social entrepreneurship with community engagement between 39 Business Management students at CUT and 19 International Business students at UV. Each intervention lasted for one academic semester (15 weeks). The ESP modules in all three interventions were led by the author of this dissertation at CUT, Language Instructor and researcher at the Cyprus University of Technology teaching English for Academic Purposes and English for Specific Purposes in tertiary education for many years, and by Dr. Ana Sevilla-Pavón, Assistant Professor at the University of Valencia with extensive experience in research and in teaching languages at secondary and tertiary level.

The projects' tasks followed O'Dowd and Ware's (2009) typology and thus they comprised Information Exchange, Comparison and Analysis, as well as Collaboration tasks. The two practitioners/researchers agreed on a monolingual language configuration with English being used as a *lingua franca*. English as a Lingua Franca (ELF) has been defined by Mauranen as a “vehicular language used by speakers who do not share a first language” (2008, p. 8). The use of ELF as an authentic communicative tool (Grazzi & Maranzana, 2016) allows students to feel confident and less worried about making mistakes in language use (Hoffstaedter & Kohn 2015). In the three interventions, communication modes included synchronous and asynchronous interaction in a blended learning environment. Web 2.0 tools included the use of Google+ Communities for asynchronous interaction, Google+ Hangouts for synchronous communication, and Google Drive (Google docs and Google slides) for collaborative completion of tasks. Asynchronous communication allowed for reflection and exploration of ideas. Synchronous communication was included in order to offer an appropriate level of social presence and to increase interpersonal engagement (Helm, 2013). The two universities' Moodle-based institutional learning management systems,

i.e. E-learning at the Cyprus University of Technology and Aula Virtual at the University of Valencia, were additionally used in order to manage each intervention locally. Participants worked in dyads or groups of four students (local and telecollaboration) on offline and online activities. Both teachers acted as facilitators who introduced and guided students through the tasks, informed about privacy and netiquette rules, and provided scaffolding where necessary, adopting a less interventionist approach whenever possible (Nicolaou & Sevilla-Pavón, 2017). As Hampel and Hauck (2005) say, taking a ‘hands-off’ approach presupposes that teachers understand and accept the differences that exist between face-to-face and online settings and this can minimise feelings of anxiety that teachers may experience when participating as facilitators in new, unexplored online environments. In these interventions, both teachers were well aware of the distinct features of online communication; therefore, anxiety levels were reduced. Students’ participation and level of engagement was monitored continuously and evaluated at the end of each virtual exchange project. Students were assessed based on their level of dedication, responsiveness and task completion. This was done with the use of rubrics which delineated consistent criteria for the various tasks. For example, the students’ online social interaction on the Google+ Community was evaluated based on specific gauges, such as responses to teachers’ posts in the form of comments, responses to peers’ posts as comments, quantity of responses (number of words), quality of responses (constructive feedback, in-depth discussion, relevance), and timely completion. Similarly, the students’ written reflections were evaluated on the basis of criteria such as structure, depth of reflection, content, and orderly completion.

With regard to the structure of the task sequence, Salmon’s (2013) five-stage model for online collaborative learning was adopted. According to this model, the sequence of tasks was structured in five stages: Access and Motivation, Online Socialisation, Information Exchange, Knowledge Construction, and Development. This model provided a framework for increased scaffolding and a balanced task sequence (Nicolaou & Sevilla-Pavón, 2016). Tasks revolved around the respective universities’ ESP curricular requirements with a global outlook and included preparatory, familiarisation, and ice-breaking tasks, followed by interactive exchanges and discussions on languages, cultural stereotypes and global challenges, collaborative problem-solving activities based on intercultural and global scenarios, and the collaborative elaboration

of different documents and multimedia artefacts, such as digital stories. Even though collaborative tasks are the most challenging ones in a virtual exchange project due to their complexity, they can be very effective in developing multiple skills, such as team work, responsibility and respect, productivity and accountability, as well as flexibility and adaptability. These skills, among others, have been identified as critical skills in various competences frameworks, such as the *Reference Framework for Competences for Democratic Culture* (2016). Activities included synchronous exchanges followed by reflection papers as well as the assessment and evaluation of activities in the form of peer-to-peer critical feedback. Generally, the three virtual exchange projects involved frequent synchronous interactions and collaborative tasks with a view towards enhancing communication, interaction, positive interdependency and a sense of connection and bonding among students.

3.4.3 Participants

The sample who took part in the Exploration phase was purposive. The 53 ESP students of Agricultural Sciences, Biotechnology and Food Science and Mechanical Engineering at the CUT who participated in the pilot-testing of the pre-intervention questionnaire, as well as the small sample of 12 ESP students majoring in the aforementioned disciplines at the CUT who participated in the exploratory focus groups, fit the sample of the planned subsequent interventions in terms of ESP specialisation, age, and level of English. As for the Implementation phase, initially interdisciplinary ESP modules were selected (e.g. Mechanical Engineering and International Business) with a view to bringing together learners of diverse educational backgrounds. In the redesigned iterations, the two researchers opted for similar ESP modules (e.g. Business Management and International Business) as this was considered a contextual element that was expected to afford more opportunities for competence learning.

3.4.4 Research Team

To address the research questions, a research team was established composed of the author of this dissertation and the collaborator in the three cycles of the virtual exchange project, Dr Ana Sevilla-Pavón, Assistant Professor at the University of Valencia. The two researchers worked closely in the design of the three interventions, but also adopted the roles of experienced ESP practitioners who were fully in charge of the delivery of the university ESP modules in which the interventions were embedded.

In the last iteration, the research team was broadened as it was complemented by representatives from twenty-four Non-Governmental Organisations (NGOs). Twelve NGOs were based in Limassol, Cyprus and twelve had their operations in Valencia, Spain. The representatives from these organisations acted as mentors in the project and guided the students through their explorations and accomplishments of the third intervention's main collaborative task. Table 1 presents an overview of the main characteristics of each intervention, such as the duration, the participants, the theoretical underpinning that guided the design and implementation of each intervention, as well as the technological tools that were used to mediate the interventions:

Intervention	Duration	Participants (students, teachers, stakeholders)	Theories	Technological mediation
1. Spain-Cyprus & Cyprus-Spain Intercultural Telecollaboration Project (SCI-TEL & CSI-TEL)	Sept. 2015-Dec.2015	• 143 ESP students (Hotel and Tourism Management, Mechanical Engineering, International Business) • 2 teachers (CUT, UV)	Constructivism	• Google+ Communities • Google Hangouts • Google Drive • E-learning platforms (Moodle/Aula Virtual)
2. Business English Intercultural Telecollaboration Project (BEGIN)	Sept. 2016-Dec. 2016	• 72 ESP students (Business Management, International Business) • 2 teachers (CUT, UV)	Ecological Constructivism	• Google+ Communities • Google Hangouts • Google Drive • E-learning platforms (Moodle/Aula Virtual)
3. Youth Entrepreneurship for Society Project (YES)	Sept. 2017-Dec. 2017	• 58 ESP students (Business Management, International Business) • 2 teachers (CUT, UV) • 22 NGOs in Cyprus and Spain	Ecology	• Google+ Communities • Google Hangouts • Google Drive • E-learning platforms (Moodle/Aula Virtual)

Table 1: Main characteristics of interventions

3.5 Methodology

The study combined a mixed methods approach with quantitative and qualitative data collection in order to address the research questions, in line with DBR interventions that are assessed on a wide variety of indices using multiple methodologies and various research tools and techniques (Anderson & Shattuck, 2012). The collection of data was conducted throughout the three phases of the study: the exploration phase, the implementation phase, and the reflection phase, in order to capture evidence of

competence learning. The study involved a serious amount of data obtained from students at both universities and from the local communities which, upon analysis, led to significant results that defined the evolution of the project and its final outcomes.

3.5.1 Quantitative Data Collection

The quantitative data were collected by means of questionnaires which were administered to students via Google Forms. Questionnaires are a research method appropriate for gathering quantitative information from a large sample. Electronic surveys are becoming more and more widespread as more people have access to computers and the internet. In addition, electronic surveys can reduce processing costs because of their capability for automating the transformation of raw data into computer-readable form (Kiesler, & Sproull, 1986). The study adopted a One-Group Pre-test–Post-test experimental design in order to observe the effects of the interventions on the groups of students. As Gribbons and Herman note (1997), “experimental designs are especially useful in addressing evaluation questions about the effectiveness and impact of programs” (p. 1). A One-Group Pre-test–Post-test design is a type of research design that is frequently used by behavioural researchers to determine the effect of a treatment or intervention on a given sample (Allen, 2017). In this study, the One-Group Pretest–Posttest design was adopted in order to observe differences in the students’ level of cultural awareness, motivation for learning English at tertiary level and perceptions of telecollaborative learning before and after the interventions. Therefore, pre- and post-intervention questionnaires were administered to all students participating in the interventions at both universities at the initiation and upon completion of each intervention respectively. The questionnaires were composed of various sections. Specific sections and related questions were identical in both pre- and post-intervention questionnaires to allow for statistical measurement of differences. The pre-intervention questionnaire was pilot-tested during the Exploration phase with a purposive sampling of fifty-three students fitting the characteristics of the target sample group that participated in the three interventions (see Appendix A for Exploration Phase Pilot Questionnaire).

The first part of the pre-intervention questionnaire (see Appendix B for Pre-intervention Questionnaire) collected learners’ demographic data. The questionnaires were anonymous; however, the learners’ date of birth was requested in order to enable the

matching of students' responses in the pre- and post-intervention questionnaires and afford the opportunity for pre-test and post-test analyses for differences. Even though this could be considered as a limitation of the study in terms of anonymity and confidentiality of data, the increased number of the sample in all interventions rendered the identification of learners difficult. The second part of the pre-intervention questionnaire included multiple response questions about the use of social media networks and time spent on the Internet aiming at mapping the learners' online activity and preferences. This part also included Likert-type questions pertaining to the students' motivation to learn English at tertiary level, their attitudes towards the use of technology in language learning, as well as their perceptions about intercultural collaboration in language learning with other learners who are geographically dispersed. The third part of the questionnaire was composed of Likert-type questions with regard to the learners' anticipated benefits of the implementation of telecollaboration in language learning modules. The fourth part of the questionnaire was composed of twenty Likert-type questions pertaining to cultural awareness. This set of questions aimed at exploring the learners' level of cultural awareness, manifested in their views and perceptions of other cultures, their curiosity and willingness to interact with people from diverse cultural backgrounds, as well as their reactions and attitudes in cases of discrimination based on cultural differences. The questions were devised by the researchers, drawing from literature on intercultural awareness and global competence. The last part of the pre-intervention questionnaire included three open questions whereby learners were required to write information about their past experiences of intercultural learning in the context of language learning, their expected benefits and challenges of learning languages in multicultural settings, as well as their own definition of intercultural communication. These questions aimed at gaining more in-depth insights about the learners' views of adding an intercultural outlook in language learning at university education.

As for the post-intervention questionnaire (see Appendix C for Post-intervention Questionnaire), it was structured in the same way as the pre-intervention questionnaire. The first part, demographics, requested general anonymised information about the learners. Similarly to the pre-intervention questionnaire, it required the learners' date of birth for matching purposes in the data analysis process. The second part included multiple response questions regarding the learners' use of social networks and software,

as well as time spent on the Internet. This part was complemented by Likert-type questions regarding the students' perceptions of the digital storytelling task, their motivation for learning English at tertiary level, the use of technology in their language classes, and collaboration with geographically dispersed learners. The third part of the questionnaire was composed of Likert-type questions with regard to the affordances of the telecollaboration project they had participated in. The fourth part of the questionnaire included the same Likert-type questions that composed the cultural awareness part of the pre-intervention questionnaire. The fifth part of the post-intervention questionnaire included the same open questions as in the pre-questionnaire and required learners' views about language learning in multicultural settings. This part was complemented by additional multiple-response and open questions pertaining to the learners' views about the telecollaboration project that had just been completed, with emphasis on the knowledge gained, the usefulness of the various technological tools and the different skills learned.

3.5.2 Qualitative Data Collection

Qualitative data collection was conducted by means of focus groups with learners at both universities upon completion of the interventions. Focus groups are a form of group interview that capitalises on communication and interaction between research participants in order to produce data. This method is considered useful for generating data by exploring people's knowledge and experience and can be utilised for examining what people think, how they think and why they think that way (Kitzinger, 1995). In the Exploration phase (see Appendix D for Exploration Phase Focus Groups Guiding Questions), the focus groups revolved around the use of technology in language learning, opportunities of learning languages in culturally diverse settings, student collaboration, the monocultural character of the university, perceived benefits/pitfalls of telecollaboration, perceived gains, anticipated challenges, feasibility and implementation of virtual exchanges, possible modes and configurations, duration of exchange, possible partner countries, groupings, learner matching, tasks, and expected outcomes. In the Implementation phase, during the focus groups, learners were asked to evaluate the project and engage in a group discussion about the affordances they perceived for developing various skills, as well as the challenges they experienced. According to Kitzinger (1995, p. 299), "the idea behind the focus group method is that group processes can help people explore and clarify their views in ways that would be

less easily accessible in a one to one interview”. Focus groups are considered to empower research participants who can become active contributors in the research process. Kitzinger (1995) also emphasises that focus groups can generate more critical comments than interviews, which makes it a valuable method when the research aims at exploring different solutions in order to improve services. The focus groups consisted of three-five groups in each iteration, and they were made up of three to eleven participants each. Focus groups were conducted after the learners had completed the post-intervention questionnaire and were moderated by the two researchers-practitioners at each university who designed and led the interventions. As for sampling, the two focus groups moderators aimed for homogeneity within each group in terms of gender, cultural background, linguistic level, and overall achievement level “in order to capitalise on people’s shared experiences” (Kitzinger, 1995, p. 300). Groups were “naturally occurring” (Kitzinger, 1995, p. 301), avoiding previously formed groups of learners for the purposes of the virtual exchange collaborative tasks, in order to allow sharing of different perspectives and experiences. The focus groups were guided by open-ended questions aiming at encouraging research participants to explore the issues of importance to them, generating their own questions and pursuing their own priorities (Kitzinger, 1995) (see Appendix E for Intervention Phase Focus Groups Guiding Questions). The discussions were conducted in an open and natural format allowing a wider variety of responses. Participants sat in a circle, establishing the appropriate atmosphere, and were encouraged to talk to each other. The moderators adopted an interventionist role whenever was deemed necessary to keep the conversation going. Discussions were carried out in Greek in the case of the Cypriot university and in English in the case of the Spanish university. In the case of the Cypriot university, the choice of Greek, which was the native language of all participants, allowed learners to express themselves in a comfortable way. The use of English was considered to be inappropriate in the specific context given the particular sample’s insufficient level of English that would possibly hamper the generation of useful information and the sustainability of the conversation. Moreover, it was considered that the use of English would discourage low-achievement students from participating in the discussion, allowing only the most confident ones to take over the talking. In the case of the Spanish university, English was selected as the medium of the focus groups due to the linguistically diversified make-up of the groups. Focus groups were recorded and transcribed by the two researchers. Focus groups carried out in

Greek were translated in English, trying to transfer the content as accurately as possible, capturing emotions, such as humour, and paralinguistic features, such pitch of voice.

Focus groups presuppose the presence of many research participants in the process of expressing ideas and perspectives. While this can enhance group dynamics and facilitate the discussion on ‘difficult’ topics (Kitzinger, 2005), at the same time it can jeopardise the confidentiality and anonymity of the research process, which is a strong characteristic of individual interviews. To accommodate this limitation, and in order to gain insights into learners’ individual knowledge and perspectives, data collection was also conducted by means of gathering learners’ individual written reflections. Learners’ written reflections were requested for creating transparency in the research process (Ortlipp, 2008). Reflective journals are a method of collecting data in qualitative research (Janesick, 1999) designed to promote autonomy and self-direction (Riley-Douchet, & Wilson, 1997). According to Bashan and Holsblat (2017), reflective journals show what occurs during the implementation of any program as well as the participants’ perception of these occurrences. Such data enable the researchers to evaluate the contribution or success of the process or change. In this study, all learners participating in the interventions were requested to compose reflection papers at three stages in the span of each intervention – an initial reflection paper at the beginning of the intervention, an interim reflection paper in the middle, and a final reflection paper upon completion. The reflective papers provided the researchers with a better understanding of the development of competences under investigation and allowed them to examine the complexity of virtual exchange projects and identify the affordances and limitations of each interventional design. The reflection papers were guided by open-ended questions which explored themes such as the students’ overall experience with the virtual exchange projects, the perceived affordances and limitations of the exchange, the contributions of the projects to the development of different competences, as well as suggestions for improving the projects (see Appendix F for Written Reflections Guiding Questions). Through reflection, students became aware of their thoughts and feelings in relation to the virtual exchange, the competences afforded by this experience and its limitations. In the last intervention, learners were required to produce comparative reflection papers which included both theirs and their foreign partners’ experiences, aiming at enhancing the learners’ ability to see things from different perspectives. Reflection papers were composed in English on Google

Documents and were shared on Google Drive with the learners' respective teacher for assessment on the basis of structure, depth of reflection, content, mechanics, and timely completion. The fact that reflection papers were graded was a compelling factor for learners to compose and share the papers with their teachers; however, this practice may have led the learners to "write" for the instructor (Bashan & Holsblat, 2017). A further reason for collecting reflection papers was triangulation. Triangulation is often used in studies that combine both quantitative and qualitative data collection and usually involve examining data from interviews, focus groups, written archives, or other sources. Triangulation is used in order to strengthen the credibility of a study, and it often leads to a more comprehensive understanding of the questions under investigation (Salkind, 2010).

To establish corroborating evidence, additional data were collected in the last intervention by means of structured interviews with NGO stakeholders from both communities upon completion of the project in order to explore the stakeholders' views with regard to their involvement in the third intervention and the usability of the informative data afforded to them by learners (Nicolaou & Sevilla-Pavón, 2018). Structured interviews are interviews in which the interviewer asks a particular set of predetermined questions. The interviews were administered via email to 22 NGO mentors and were composed of open-ended questions (see Appendix G for NGO Interview Questions). Finally, in the last intervention data were collected via learners' self-authored digital artefacts which were analysed thematically in order to identify the extent to which the students managed to address the project's goals.

In the Reflection phase, data were collected via a project evaluation interview. A structured evaluation interview was devised based on the criteria included in the OECD/DAC evaluation criteria included in the Guidelines for Project and Programme Evaluations (OECD, 2009). The OECD/DAC criteria include: Relevance, Effectiveness, Efficiency, Impact and Sustainability. These were adapted to fit the purpose of this study which was to evaluate the affordances of the three interventions for developing the target competences. The criteria were adapted as follows: Design and Relevance, Efficiency and Process, Cooperation and Management, Effectiveness and Impact, Improvement and Sustainability. The evaluation interview was

administered by email to the collaborating practitioner and research partner in the three interventions (see Appendix H for Project Evaluation Interview).

3.5.3 Anticipated Problems

The mixed-methods approach adopted in this research yielded useful information in the span of the study's four-year period; however, some issues were anticipated during this process. The most challenging issue pertained to the size of data collected at each phase, particularly at the Implementation phase that involved a substantial amount of sampling populations from two disparate geographical locations. During the interventions, data collection was performed at different stages which mandated the immediate transferring and organising of quantitative raw data in SPSS, and the transcription, translation and transferring of qualitative raw data in NVivo. This process had to be completed promptly, so as to allow for analysis and refinement of each intervention before the subsequent cycle began. Another challenge was the establishment of a rigorous data collection system at both institutions in order to obtain parallel information from both contexts and allow for merging these data at the end of each intervention. Finally, a significant challenge pertained to the fact that both collaborators adopted a dual role in this project, that of practitioner and researcher. This condition compromised the unbiased collection of data, especially during focus groups.

Nevertheless, despite the challenges reported, the mixed methods approach facilitated the emergence of insightful data and led to useful outcomes. The DBR activities undertaken, as well as the collection of data from multiple sources, fed into each subsequent phase and led to improved versions of the virtual exchange. The ongoing literature review and the continuous collaboration and communication among the stakeholders informed each phase and directed towards an emerging model of virtual exchange guided by theory and evidence-based design principles. The four-year study generated an overwhelming and cumbersome amount of data which required efficient management, processing, and analysis within a short span of time between the phases. However, in the end, the study yielded valuable data which, to the best of my ability, facilitated the conceptualisation of the telecollaborative ecosystem and its constituent parts and the development of design principles for virtual exchange aiming at building global competence and active citizenship within internationalised content-based

language learning. Table 2 demonstrates the timeline of the project, the main DBR activities, the data collection methods and each phase's outcomes:

DBR Phase	Timeline	Research Activities	Data Collection	Outcomes
Exploration	September 2014- August 2015	• Literature review • Investigation of intervention design • Virtual exchange partner search • Online meetings with partner practitioner/researcher • Pilot of pre-intervention questionnaire • Student focus groups discussions • Data analysis	• Pre-intervention questionnaires (quantitative) • Focus groups (qualitative)	• Virtual exchange set-up • Identification and analysis of problem • Preliminary conceptualisation of telecollaborative ecosystem • Preliminary design principles
Implementation	September 2015- December 2017	• Design, testing and refinement of three virtual exchange studies • Pre-and post-intervention questionnaire • Collection of reflection papers • Student focus groups • Data analysis • Online meetings with telecollaboration partner • Ongoing literature review	• Pre- and post-intervention questionnaires (quantitative) • Students' reflections (qualitative) • Focus groups (qualitative) • Students' digital artefacts (qualitative) • NGO stakeholders' interviews (qualitative)	• Enhanced conceptualisation of telecollaborative ecosystem • Enhanced conceptualisation of design principles
Reflection	January 2017- August 2017	• Evaluation interview with telecollaboration partner • Data analysis • Online meetings with telecollaboration partner • Ongoing literature review	• Interview (qualitative)	• Integrated virtual exchange ecosystem • Complete set of design principles

Table 2: DBR phases, timeline, data collection and outcomes

3.5.4 Data Analysis

A deductive approach was followed in the analysis of data in this study. A deductive approach is concerned with “developing a hypothesis (or hypotheses) based on existing theory and then designing a research strategy to test the hypothesis” (Wilson, 2014, p. 7). Snieder and Larner explain that “deductive research starts with a theory and leads to a new hypothesis. This hypothesis is put to the test by confronting it with observations

that either lead to a confirmation or a rejection of the hypothesis” (2009, p. 16) which then leads to modification of theory. In this study, in order to confirm or reject the hypothesis, quantitative and qualitative data were rigorously analysed.

Quantitative data were analysed using the Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics were used in order to summarise the data, and paired-samples t-test analyses were performed in order to compare means and observe statistically significant differences. Cronbach's alpha reliability test was computed in order to measure the internal consistency ('reliability') of the set of the twenty questions comprising the cultural awareness section. This was done in order to understand whether the 20 questions in the cultural awareness section of the questionnaire all reliably measured the same latent variable (cultural awareness). The results in all Cronbach's alpha reliability tests indicated a high level of internal consistency for the scale with each specific sample.

Qualitative data were analysed using the NVivo Qualitative Research Software. Upon completion of each intervention, all raw qualitative data from both universities were merged and entered in NVivo. The method of thematic analysis was used. “Thematic analysis (TA) is a method for identifying and interpreting patterns of meaning across qualitative data”, (Clarke, & Braun, 2014, p. 6626). In order to become familiarised with the data, I first read all the data set meticulously. This enabled me to establish a thorough understanding of the activity taking place and take its background into consideration. After reading and re-reading the dataset items, a process which is known as ‘familiarisation’ (Clarke, & Braun, 2014), I coded all qualitative data based on predefined categories. These categories were deductive as the data were examined through existing theoretical frameworks and theories. While reading the data and searching for themes to be coded in the different categories, I created annotations and memos corresponding to the categories. During the analysis, consecutive sentences that constructed the same meaning were considered as one text unit and coded into a single code. This ensured that each coded segment clearly captured the meaning of described activity and it was still seen within its context (Pfeli & Zaphiris, 2007; Parmaxi et al., 2013). I analysed the data set within the Qualitative Research Software NVivo using the pre-defined coding scheme from the *Reference Framework of Competences for Democratic Culture* (Council of Europe, 2016). When additional themes and

patterns emerged that described the data, additional codes were used. Data were coded based on the affordance of an activity or the perceived benefits of an activity; for example, when participants mentioned that through the activities they valued cultural diversity, I coded the segment ‘*Valuing cultural diversity*’. Saturation was reached when no new codes could be found and the data set could be sorted into the existing codes without any discrepancies. To make the coding scheme as unbiased as possible, a codebook was created, which elaborated on the description of the codes. This codebook included clarifications on the distinct codes so as to be easily discerned from each other and in order to facilitate the analysis process. To measure the inter-coder reliability, the codebook was given to another independent researcher who coded 10% of the data set. Cohen’s KAPPA was calculated to be 0.69 which, according to Stemler (2001), is considered to be satisfactory. The coding system in the Exploration phase data analysis was aligned with the themes included in the focus groups questions. Table 3 presents the NVivo coding scheme used in the Exploration phase:

Exploration Phase NVivo Nodes
Use of technology
• Time spent on technology • Affordances of technology • Pitfalls of technology • Views about technology in language learning
Student collaboration
Perceptions about telecollaboration
Monocultural universities
Learning English in a diverse context
• Opportunities • Opinions
Implementation of telecollaboration
• Challenges • Benefits • Suggestions • Tools • Duration • Groupings

Table 3: NVivo coding scheme for Exploration phase

The coding system in the Implementation and Reflection phase data analysis was aligned with the *Reference Framework of Competences for Democratic Culture* (Council of Europe, 2016) and was complemented with additional pre-defined and

emergent categories. The CDC Framework categories are summarised and briefly described as:

(1) Values

- *Valuing human dignity and human rights*

This value is based on the general belief that every human being is of equal worth, has equal dignity, is entitled to equal respect, and is entitled to the same set of human rights and fundamental freedoms, and ought to be treated accordingly.

- *Valuing cultural diversity*

This value is based on the general belief that other cultural affiliations, cultural variability and diversity, and pluralism of perspectives, views and practices ought to be positively regarded, appreciated and cherished.

- *Valuing democracy, justice, fairness, equality and the rule of law*

This set of values is based on the general belief that societies ought to operate and be governed through democratic processes which respect the principles of justice, fairness, equality and the rule of law.

(2) Attitudes

- *Openness to cultural otherness and to other beliefs, world views and practices*

Openness is an attitude towards people who are perceived to have different cultural affiliations from oneself or towards beliefs, world views and practices which differ from one's own. It involves sensitivity towards, curiosity about and willingness to engage with other people and other perspectives on the world.

- *Respect*

Respect consists of positive regard and esteem for someone or something based on the judgment that they have intrinsic importance, worth or value. Having respect for other people who are perceived to have different cultural affiliations or different beliefs, opinions or practices from one's own is vital for effective intercultural dialogue and a culture of democracy.

- *Civic-mindedness*

Civic-mindedness is an attitude towards a community or social group to which one belongs that is larger than one's immediate circle of family and friends. It involves a sense of belonging to that community, an awareness of other people in the community,

an awareness of the effects of one's actions on those people, solidarity with other members of the community, and a sense of civic duty towards the community.

- *Responsibility*

Responsibility is an attitude towards one's own actions. It involves being reflective about one's actions, forming intentions about how to act in a morally appropriate way, conscientiously performing those actions, and holding oneself accountable for the outcomes of those actions.

- *Self-efficacy*

Self-efficacy is an attitude towards the self. It involves a positive belief in one's own ability to undertake the actions that are required to achieve particular goals, and confidence that one can understand issues, select appropriate methods for accomplishing tasks, navigate obstacles successfully, and make a difference in the world.

- *Tolerance of ambiguity*

Tolerance of ambiguity is an attitude towards situations which are uncertain and subject to multiple conflicting interpretations. It involves evaluating these kinds of situations positively and dealing with them constructively.

(3) Skills

- *Autonomous learning skills*

Autonomous learning skills are the skills required to pursue, organise and evaluate one's own learning in accordance with one's own needs, in a self-directed manner, without being prompted by others.

- *Analytical and critical thinking skills*

Analytical and critical thinking skills are the skills required to analyse, evaluate and make judgments about materials of any kind (e.g., texts, arguments, interpretations, issues, events, experiences, etc.) in a systematic and logical manner.

- *Skills of listening and observing*

Skills of listening and observing are the skills required to notice and understand what is being said and how it is being said, and to notice and understand other people's non-verbal behaviour.

- *Empathy*

Empathy is the set of skills required to understand and relate to other people's thoughts, beliefs and feelings, and to see the world from other people's perspectives.

- *Flexibility and adaptability*

Flexibility and adaptability are the skills required to adjust and regulate one's thoughts, feelings or behaviours so that one can respond effectively and appropriately to new contexts and situations.

- *Linguistic, communicative and plurilingual skills*

Linguistic, communicative and plurilingual skills are the skills required to communicate effectively and appropriately with people who speak the same or another language, and to act as a mediator between speakers of different languages.

- *Cooperation skills*

Cooperation skills are the skills required to participate successfully with others in shared activities, tasks and ventures and to encourage others to cooperate so that group goals may be achieved.

- *Conflict-resolution skills*

Conflict-resolution skills are the skills required to address, manage and resolve conflicts in a peaceful way by guiding conflicting parties towards optimal solutions that are acceptable to all parties.

(4) Knowledge and critical understanding

- *Knowledge and critical understanding of the self*

This includes knowledge and critical understanding of one's own thoughts, beliefs, feelings and motivations, and of one's own cultural affiliations and perspective on the world.

- *Knowledge and critical understanding of language and communication*

This includes knowledge and critical understanding of the socially appropriate verbal and non-verbal communicative conventions that operate in the language(s) which one speaks, of the effects that different communication styles can have on other people, and of how every language expresses culturally shared meanings in a unique way.

- *Knowledge and critical understanding of the world*

This includes a large and complex body of knowledge and critical understanding in a variety of areas including politics, law, human rights, culture, cultures, religions, history, media, economies, the environment and sustainability.

The CDC framework served as the foundation for evaluating the interventions in relation to global competence development. The emergence of individual competences or clusters of competences was recorded and coded in the respective categories in NVivo. The descriptions of the competences, as well as the validated descriptors provided in the CDC pack facilitated the capturing and coding of themes in the respective codes. In this study, the validated descriptors were used in a more generic sense as the emphasis was placed on the overall development of competences rather than on the degree those competences were learned. Even though the CDC framework was deemed suitable for evaluating global competence learning in this study, the coding scheme was complemented with additional pre-defined and emergent categories that were deemed necessary for addressing the research questions. Additional categories in the coding scheme included:

- Technology

As virtual exchange projects are inherently technologically-mediated, the role of technology and how the learners interact with the wide array of technological tools used in the projects was considered to be significant. Therefore, a separate category was created to record learners' perceptions about digital skills development, the development of critical digital literacies (CDL) manifested in the use of technology as social praxis (Ávila & Pandya, 2013), as well as their reflections on the role of technology as a mediating tool in the development and deployment of global competences.

- Content-related knowledge

This study was situated at the intersection of global competence learning and content-based ESP learning. Therefore, there was an interest in observing how content was mastered in the context of a virtual exchange project which aimed at building learners' global competence, and how interculturality and global citizenship can be integrated in ESP learning.

- Motivation

Motivation is considered an essential element in learning. In this study, motivation is linked to the concept of agency (van Lier, 2004; 2008) which is manifested in learners' investment of time and intentional effort to interact, communicate, collaborate, and to act either individually or collectively. The category was used to record learners'

expression of different levels of motivation and fluctuations of motivation levels between the different stages of the interventions.

- General impressions and benefits

This category was created in order to record the learners' perceptions and feelings about the affordances of virtual exchange which were voiced in a generalised or inexplicit way.

- Challenges and problems

This category was added in the coding scheme in order to record the limitations of the interventions. The themes coded under this category provided insights towards the evaluation and refinements of the projects so as to redesign improved versions in the subsequent cycles.

- Suggestions

This category captured learners' suggestions for improvement of the interventions and recorded their constructive feedback that fed into the redesign of the subsequent interventions.

- Partners' perspectives

This category emerged in the last intervention and was used to capture the learners' views about their partners' perspectives. The themes categorised in this code were based on data from final reflection papers which were the output of comparative interviews between the learners at the two universities in order to examine each others' views on the project. Table 4 presents the NVivo coding scheme used in the Implementation and Reflection phases:

Implementation and Reflection Phases	
NVivo Nodes	
Values	
	• Valuing human dignity and human rights
	• Valuing cultural diversity
	• Valuing democracy, justice, fairness, equality and the rule of law
Attitudes	
	• Openness to cultural otherness and to other beliefs, world views and practices
	• Respect
	• Civic-mindedness
	• Self-efficacy
	• Tolerance of ambiguity
Skills	
	• Autonomous learning skills
	• Analytical and critical thinking skills
	• Skills of listening and observing
	• Empathy

• Flexibility and adaptability
• Linguistic, communicative and plurilingual skills
• Co-operation skills
• Conflict-resolution skills
Knowledge and understanding
• Knowledge and critical understanding of the self
• Knowledge and critical understanding of language and communication
• Knowledge and critical understanding of the world: politics, law, human rights, culture, cultures, religions, history, media, economies, environment, sustainability
Technology
Content-based learning
Motivation
General impressions and benefits
Challenges and problems
Suggestions
Partners' perspectives
Attributes of sources
• Type of source
• Gender
• Department
• Interventions

Table 4: NVivo coding scheme for Implementation and Reflection phases

Finally, learners' self-authored digital artefacts, which were collected in the last intervention, were analysed thematically using the framework *United Nation's Sustainable Development Goals* (SDGs) (2015). The digital artefacts were explored in terms of content in order to identify the extent to which the learners had managed to address the last intervention's goals. Each digital artefact's thematic content was coded under the respective Sustainable Development Goal. Figure 5 demonstrates the SDG framework:



Figure 5: United Nation's Sustainable Development Goals

3.5.5 Validity and Reliability

DBR designs can yield issues of validity and reliability. In this study, with regard to the validity of quantitative data, this was increased through the multiple iterations and continuous data collection and analysis in this four-year study. In addition, validity was enhanced through the increased sample populations, particularly in the Implementation phase in which data were collected from more than three hundred participants overall. Finally, the analysis of data was validated through triangulation. Triangulation is perceived as a powerful way of demonstrating validity (Abdallah, 2011). Abdallah explains that “the effectiveness of triangulation rests on the premise that the weaknesses in each single data resource will be compensated by the counterbalancing strength of another (p 66). As for reliability, in quantitative data analysis this was ensured through continuous reliability/consistency tests, such as Cronhbach’s Alpha. In the case of qualitative data analysis, reliability was secured through the inter-rater reliability test which was performed by an independent coder at the level of 10% of the overall data.

3.5.6 Ethical Considerations

This study involved minimal risk given its nature and scope. All data were collected anonymously. In the case of the learners, an informational leaflet was distributed at the beginning of each intervention explaining the purpose of the study, the students’ estimated time and commitment involved, as well as ensuring participants’ anonymity. Students were also informed about how the data collected would be used (see Appendix I for Informational Leaflet). Informed consent was obtained from all learners and signed by both the researcher/practitioners and the participants (see Appendix J for Consent Form). In addition, permission for carrying out the three interventions was granted by each institution’s Head of Student Affairs. As for the NGOs, the stakeholders were informed via email that the information provided to either the learners or the two practitioners would be solely used for the purposes of the project. In addition, an agreement was signed between the two researchers/practitioners. The agreement signed included issues pertaining mainly to the logistics of the exchange, such as duration, starting and closing dates, number of students involved, participants’ consent and confidentiality, secure data storage and access. Finally, learners’ digital data (online communication) was transcribed into a format that precludes identification of participants.

3.5.7 Representing the Data

In this study, data from each phase and intervention will be presented separately in three ways: as text, in tabular form, or in graphical form. All learners are anonymised and the letter *P* followed by a number will be used to refer to a particular participant. To distinguish data between the different phases and interventions of the project, the name of each phase and number of intervention will be used along with each participant's code. For example, to report data from Participant 1 from the Exploration phase, the representation will be *P1, Exploration*. In addition, the two universities' acronyms will be used to distinguish participants from each institution. For instance, to report data from Participant 5 from the Cyprus University of Technology in Intervention 2, the data will be represented as *P5, CUT, Intervention 2*. In the case of data obtained from NGO stakeholders, the stakeholders' names will be excluded from the representation, yet the nature/mission and location of the NGOs will be mentioned; for example, *Cypriot NGO dealing with migration issues*. Finally, in the case of data obtained from the evaluation interview in the Reflection phase, data will be represented as *Evaluation Interview, Reflection*.

3.6 Chapter Summary

Chapter 3 reports on Design-Based Research (DBR) as the underpinning methodology adopted for the design and implementation of this study. The chapter refers to the characteristics of DBR along with the rationale for its adoption as the fundamental methodology for this research. The chapter provides an overview of the three-phase design of this research referring to the Exploration, Implementation and Reflection phases, the theoretical paradigm shift, and the context of the study. Chapter 3 presents a detailed description of the methodology with reference to the data collection and analysis methods, the main DBR activities, timeline and outcomes. The chapter continues with reference to the ethical considerations and concludes with reference to issues of reliability and validity, ethical considerations, and data representation.

Chapter 4: Exploration Phase

4.1 Introduction

This chapter reports on the first phase of the study, the Exploration phase. It presents the design of this phase, the procedure followed, and the findings which led to the evolution of the preliminary design principles. Exploratory research is conducted when problems are in a preliminary state, to generate formal hypotheses. Exploratory studies often rely on secondary research, such as reviewing available literature or adopting qualitative approaches such as focus groups in order to form the basis of the final study. As Singh (2007) explains, exploratory research “can even help in determining research design, sampling strategy, methodology and data collection method” (p. 64). In this study exploration was carried out between September 2014 and August 2015 and involved reviewing previous virtual exchange initiatives which aimed at expanding telecollaboration beyond the intercultural competence scope, adding a global outlook to this pedagogical approach. Furthermore, previous studies that focused on content-based learning and ones that involved the production of diverse genres were explored. The review of previous studies aimed at investigating theoretical paradigms and design principles with an emphasis on the constituent parts of the virtual exchange ecosystem and how these, and interaction amongst them, can support or hamper opportunities for competence learning. Specifically, in the Exploration phase, the elements of technological and linguistic mediation, task design and themes, as well as settings and participants were scrutinised. The Exploration phase also served as a piloting ground for testing the designed research instruments, namely the pre-intervention questionnaire and the focus groups guiding questions. Additionally, administering the pre-intervention questionnaire and rehearsing the focus groups helped gather preliminary information and establish an understanding of the context and target respondents’ attitudes and opinions with regard to the study’s scope and research questions. The approach followed in the Exploration phase is in line with design-based research methodology which begins with a detailed analysis of the problem, context, participants and existing solutions. DBR often includes a pilot study so as to establish an understanding of contextual aspects and requirements. Subsequently, designers analyse the findings using multiple methodologies and based on systematic analysis, reflection, and theoretical guidance, they generate localised design principles (Cobb, et al., 2003).

Apart from the secondary research, exploration also included the quest for a telecollaboration partner to collaborate as a practitioner and a researcher in the planned interventions.

4.2 Review of Previous Studies

The exploration research was initiated with an extensive review of similar studies undertaken in the context of virtual exchange. Virtual exchange is not a completely new pedagogical approach (Helm, 2018), and numerous telecollaboration projects have been established to date in various educational contexts, involving different types of partners, web tools, and pedagogical practices (O'Dowd, 2015). Many virtual exchanges currently reported in the literature describe tandem projects whereby the learners communicate with their partners who are based in a different country in order to practise their language (O'Rourke, 2007). Under this model, learners adopt the roles of peer tutors who provide corrective feedback on their partners' language use (O'Dowd, 2018). A different model of virtual exchange is the telecollaboration model whereby the focus extends from communicative competence to intercultural competence (ibid). Intercultural telecollaborative projects are very often bicultural involving communication in the two partners' target languages.

4.2.1 Lingua Franca Telecollaboration

Lingua franca initiatives are sporadic in the virtual exchange arena despite the acknowledged benefits of using a shared language in intercultural partnerships. Kohn sketches the lingua franca pedagogy adopted in the *Telecollaboration for Intercultural Language Acquisition* project (TILA) whereby “focus is on intercultural communicative exchanges between peers who are in the same language boat” (Kohn, 2016, pp. 4-5). According to Hoffstaedter and Kohn who report on the TILA project (2015), the lingua franca constellation can be highly motivating as it offers authentic communication on an equal footing. Learners seem to feel more confident and less worried to make mistakes as the focus is on getting the message across rather than on producing accurate utterances. Grazzi and Maranzana (2016, p. 105) similarly report on an intercultural telecollaboration project that was configured based on the ELF approach arguing that “this project has shown that the use of English as a lingua franca (ELF) by non-native speakers (NNS) of English within a networked-based context is not a hindrance to communication and mutual understanding. On the contrary, it proves to be an

appropriate affordance that L2-users develop through social cooperative practices in order to carry out pragmatic communicative goals”. With this in mind, a lingua franca approach was considered as an appropriate configuration in an emerging model of virtual exchange which aspires to add a global perspective to telecollaborative learning. As Graddol argues, (2006, cited in O’Dowd, 2019) today’s graduates are more likely to use English as a lingua franca with non-native speakers in their prospective professional careers. Therefore, using a shared language in virtual interactions and in collaborative productions of common artefacts seems to be a suitable approach for affording opportunities to university learners for more realistic intercultural encounters.

4.2.2 Critical Telecollaboration

Despite the recognised benefits of the aforementioned lingua franca initiatives, what seems to be missing from various virtual exchange projects is criticality, a notion that has been emphasised in Byram’s concept of Critical Cultural Awareness (CCA), as part of his broader model of Intercultural Communicative Competence (1997). CCA implies a personal and social transformation through intercultural dialogue. This transformation emanates from critical exploration, analysis and evaluation of self and other (Houghton, 2012). Criticality is at the heart of intercultural citizenship education. In his presentation *Intercultural Citizenship and Foreign Language Education*, Byram (2008, p. 129) refers to citizenship education and its purposes which include:

- Learning to consider personal involvement in political actions as desirable;
- Learning to recognise democratic forms of action as values (and only democratic forms); these can be called democratic ‘virtues’;
- Acquiring interest in public affairs, being prepared to be interested in political resolutions of social problems. (Gagel, 2000).

Very few virtual exchange projects have embraced the notion of criticality in their objectives. One remarkable example is *Soliya’s Connect Program*, a dialogic model for telecollaboration (Helm, 2013) designed to address the tensions between Western and Arab and Muslim societies (Helm, 2018). What differentiates the Soliya Connect Program from more traditional models of telecollaboration is the fact that participants

are gradually taken out of their comfort zones and are encouraged to synchronously engage in discourse on conflicting topics (Helm, 2013). In fact, divisive topics are deliberately addressed and conflict is not considered to be a barrier to dialogue; instead, potential conflicting views are seen as an opportunity for transformation, echoing Barnett's 'transformatory critique' or a 'refashioning of traditions' (1997). The Soliya Connect Program offers a valid pedagogical approach by engaging participants in intercultural dialogue which is not limited to safe topics. Instead, it dares to encourage participants to delve into conversations that may spark conflict. This affords a significant opportunity for participants to "engage with multiple subjectivities and perspectives in a safe environment where they are free to dig deeper to acquire intercultural understanding" (Helm, 2013, p. 42).

In addition, very few virtual exchange initiatives have been framed in the concepts of global interconnectivity (Rizvi, 2009) and critical social engagement. Global competence and active citizenship have been explicitly reported as project goals in limited virtual exchange projects to date. One such project is the Malvinas/Falklands online intercultural citizenship action research project implemented in an EFL classroom in Argentina (Porto, 2014). Through comparative tasks and collaborative artefact creation that revolved around the Malvinas/Falklands war fought between Argentina and the UK in 1982, learners developed a critical perspective on different texts, reaching the highest level of criticality as defined by Barnett (1997) which is the transformatory critique in action especially because the participants' activities were not confined within the partnership; instead they were expanded to the participants' local communities through the creation and sharing of artefacts in the learners' local contexts (Porto, 2014). Such projects place human rights education at the heart of the exchange and empower learners to act as responsible citizens towards addressing global or local conflict and justice. These initiatives take intercultural discourse beyond the 4Fs - Food, Festival, Folklore, and Fashion (Meyer & Rhoades, 2006), which many times results in a reduced perspective of cultural difference. Projects like the Soliya Connect Program and the Malvinas/Falklands online intercultural citizenship initiative are designed with a social perspective, capitalising on international groups' dynamics towards addressing the critical current issues our world is faced with today. These initiatives require the development and deployment of various global competences, such as valuing cultural

diversity, respect, responsibility, empathy, and knowledge of self, among others, which will enable the partners to achieve their common social goals.

4.2.3 Content-Based Telecollaboration

Virtual exchange projects embedded in a content-based language context are also scarce in the literature. Most telecollaborative projects are implemented in general language courses or teacher education programmes. For the purposes of this study, a review of studies reporting on projects undertaken in the context of English for Specific Purposes (ESP) or Language for Specific Purposes (LSP) modules was conducted. Among the studies that have been reviewed is one that concerns a project implemented in an intercultural tandem between language teachers as part of their teacher training or practicum (Krajka et al. 2013). A different project by Rolinska, Guariento and Al-Masri (2016), reports on a telecollaboration between the University of Glasgow and the Islamic University of Gaza. In this twofold project, postgraduate students of Science Engineering and Technology in Glasgow (SET) were mentored by SET graduates with increased language skills in Gaza (EAST 1), while at the same time, postgraduate Biomedical students in Glasgow were paired with Biomed graduates in Gaza (EAST 2). These two projects relied on a lingua franca, subject-specific, peer review telecollaboration model aiming at responding to the students' need to perform effectively in global communication and increase their employability prospects. The EAST projects demonstrated how technology-enabled interventions to subject-specific language courses may positively affect the learning experience enabling participants to start working towards global competence (Guariento, Al-Masri, & Rolinska, 2016).

A different content-based virtual exchange project is a multiliteracies model for telecollaboration which was designed to address the specific needs of students of Business and Economics (Lindner, 2016). The project was grounded in the theories of Foreign Language Learning (FLE) and Global Virtual Teams (GVT) and was carried out between students at the University of Paderborn in Germany and Masaryk University in Brno in the Czech Republic. The exchange was embedded in ESP courses for Business and Economics at each university in a blended learning framework which included elements from both telecollaboration and GVT models, providing students with valuable situated practice for workplace settings that they are likely to come across in their future careers. A final example of content-based telecollaboration is the X-

Culture Project (Taras, et al. 2013). The X-Culture project is an attempt to enhance learning in International Business courses by affording business students the opportunity to experience the challenges and learn best practices of international collaboration by working with their international counterparts. Communication and coordination among the X-Culture participants has been conducted using free online collaboration tools, such as email, Skype, Google+, Facebook, Dropbox, and Doodle. These tools were selected as they are the ones that are commonly used by employees of multi-national companies. The particular project has involved over 4,000 students to date and the results reported so far indicate enhanced learning between pre- and post-project cultural intelligence.

4.3 Research Plan

Drawing from the review of the aforementioned studies and from criticisms that previous telecollaboration initiatives have received periodically, a detailed research plan was developed with a view to scaling the virtual exchange pedagogy in response to the transformed educational needs of learners in the 21st century. The research plan involved the design of an emerging virtual exchange project situated at the nexus of global competence and content-based ESP learning. A three-phase design-based research methodology was developed in order to carry out the plan in sequenced iterations of English as a Lingua Franca (ELF) virtual exchanges with different cohorts of students. Design-based research has been utilised as a methodological paradigm in only one virtual exchange reported in the literature to date, in a project that involved a small-scale pilot eTandem Chinese-French exchange embedded in a writing course (Wang, Berger, & Szilas, 2012). The result of this project is currently being considered for the design of an expanded eTandem project following an iterative design-based research methodology.

The present study proposed three consecutive virtual exchange interventions embedded in English for Specific Purposes modules at two geographically dispersed academic institutions. Through the design, implementation and analysis of the iterated interventions, the study sought to come to a holistic understanding of the telecollaborative ecosystem and the opportunities and limitations that were afforded for enhancing global competences and active citizenship. By studying the constituent elements of the telecollaborative context and their interactions, and through the repeated

collection and analysis of multiple data, the study aspired to develop a flexible conceptual framework including principles guiding the design of virtual exchange projects embedded in an internationalised ESP curriculum. The research plan developed in this study proposed a mixed methods data collection procedure with pre-test and post-test single group experimental design as well as substantial qualitative data analysis at different stages of the project. The targeted modules were benchmarked at B1-B2 CEFR level and the targeted participants were ESP learners majoring in undergraduate degrees at the respective universities. The interventions were designed to last for one academic semester (13-15 weeks) each. Communication modes included synchronous and asynchronous communication in a blended learning environment and a friendly, non-threatening atmosphere.

4.4 Creating Instruments for Analysis

Once the research plan was established, the instruments for analysis were explored. Subjective assessment formats were investigated, such as face-to-face interviews and questionnaires. As far as the questionnaire is concerned, design requirements were considered, such as precision, as well as cultural and discrimination sensitivity. Moreover, ethical considerations were taken into account, such as voluntary consent, confidentiality and means to protect the participants. The pre- and post-intervention questionnaires were created on Google Forms, after careful consideration about question content and wording, response format, question sequence, questionnaire length and questionnaire layout. The content was relevant to the research questions and the wording of the questions was appropriate to the level of the targeted participants, not too simple, but not too complex either. The questionnaire began with non-threatening questions and progressively moved on to more interesting items. The questionnaire was designed with a user-friendly layout, leaving ample space for comments, and required about 20 minutes to be completed. In addition, aspects of reliability, validity and usability were examined. In order to answer the research questions, different methods of experimental design were considered with ‘One group Pre-test, Post-test’ and ‘Two groups, Pre-test, Post-test’ being the most favoured methods. The latter, which involves an experimental and a control group, is the classical type of experimental design and has good internal validity. However, the former method, whereby only a single selected group is under observation, was preferred. Despite this method’s various validity threats, such as history and maturation, ‘One group Pre-test, Post-test’ experimental

design was adopted so as not to deprive any group of learners of the intervention and its anticipated benefits. However, to establish corroborating evidence, the collection of a substantial amount of qualitative data was decided by means of focus groups and written reflections. These instruments were selected for subjective collection of experiences, opinions, values and deep understanding of the affordances of the interventions. The open questions that comprised the focus groups and written reflections were expressed in a way that did not suggest any desirable answers and could elicit a range of deep responses from the participants. As for the analysis instruments, the *Reference Framework of Competences for Democratic Culture* (Council of Europe, 2016) was used, complemented by additional thematic categories that were deemed significant in order to answer the research questions.

4.5 Context Analysis

The Exploration phase included a targeted analysis of contextual elements, aiming at mapping the virtual exchange's ecosystem and its constituent parts. The analysis explored the elements that were considered essential in the design and implementation of the interventions, in an effort to create a supportive telecollaborative habitat that would allow affordances to emerge, to be perceived by participants and to be acted upon. These elements comprised settings and participants, technological mediation, task design, and themes.

4.5.1 Settings and Participants

An exploration of the research settings and the participants was performed in order to identify the dynamics of the classroom, the web facilities afforded, the technical support provided, the profile and needs of the participants, the course curricula and requirements, as well as the learning outcomes of the ESP courses under scrutiny.

4.5.1.1 The CUT Context

The Cypriot participants were two groups of first-year ESP students at the Cyprus University Technology enrolled in English for Hotel and Tourism Management (LCE 105) and English for Mechanical Engineering and Material Sciences (LCE 117) respectively. Both courses were three-hour per week, 4-ECTS (European Credits Transfer and Accumulation System) required degree level courses that concentrated on the learning of English for Academic and Specific Purposes. The courses were

particularly designed to support students' studies by developing their English language to an academic level, equivalent to B1-B2 of the *Common European Framework of Reference* (CEFR) for languages (Council of Europe, 2001). Both courses lasted for thirteen weeks and all sessions took place in dedicated multimedia language classrooms, equipped with instructor's laptop, projector, and PCs for all students with various Web 2.0 applications installed.

The CUT is a Greek-speaking university that admits students from Cyprus and Greece. The context is rather monocultural and monolingual, and interaction with and knowledge of other cultures are minimal or even negligible within the university. Cyprus also ranks very low in Erasmus youth mobility programmes, both inbound and outbound (European Commission, 2016). It is assumed that the students' limited interaction with peers of diverse backgrounds may play a vital role in shaping their attitudes and openness towards difference and it may affect the development of global competences. At the same time, the University is technologically oriented and offers to its students the opportunity to work with various technologies. These technologies could be used as learning spaces and locations of interaction among students in and out of class with an emphasis on the development of global competences. The abundance of the digital technologies that the university offers could be incorporated in students' language courses aiming at promoting their intercultural learning through their collaboration with peers at distant locations. Once the Cypriot participants were identified, permission by the Cyprus University of Technology was requested in order to carry out the project which would be embedded in the two aforementioned university ESP courses.

4.5.1.2 The UV Context

In order to identify the remote participants, a search was made through the UNICollaboration platform. UNICollaboration is an online platform designed to support telecollaboration at university level. The platform resulted from the INTENT (Integrating Telecollaborative Networks in University Foreign Language Education) project (O'Dowd, 2013) and it has been developed in order guide university educators towards setting up, implementing and evaluating telecollaboration exchanges. Educators can find the resources and training materials necessary to learn about and to set up telecollaborative exchanges. The platform includes a partner-finding tool, a task

databank, an e-portfolio for evaluating telecollaborative projects, a databank of sample projects, a project-planning tool, as well as text- and video-based training materials (O'Dowd, 2015). A class was added on the UNICollaboration platform, in search of a partner class. After the initial contact was made by email and several online meetings that followed, a telecollaboration exchange was set up between the Cyprus University of Technology and the University of Valencia. Official invitations were sent by each partner university and an agreement was signed between the two teachers/researchers.

The Spanish participants were two groups of first-year ESP students at the University of Valencia enrolled in two courses of International Business. Both courses were four-hour per week, elective degree level courses that concentrated on the learning of English for Specific Purposes. The courses were particularly designed to support students' studies by developing their English language to an academic level, equivalent to B2+ of the *Common European Framework of Reference* (CEFR) for languages (Council of Europe, 2001). The course lasted for thirteen weeks and sessions took place in auditoriums and in dedicated multimedia language classrooms, equipped with instructor's laptop, projector, and PCs for all students with various Web 2.0 applications installed.

4.5.1.3 Mutual Adaptation and Refinement of Research Plan

The two teachers/researchers conducted numerous online meetings on Skype prior to the initiation of the intervention in order to tune in to each other, discuss the research plan, and negotiate the various elements of the virtual exchange ecosystem. The two partner teachers exhibited openness to alternate pedagogical beliefs, a willingness to adapt to other approaches, compromise in task design, and find common ground (O'Dowd & Waire, 2009). The two practitioners also agreed on their defined role as facilitators who would prepare their students for the exchange, debrief them following contact with their partners, and embed the themes of interaction into their courses (Furstenberg, 2010), ensuring that tasks were well-integrated into the course objectives of both modules (O'Dowd & Waire, 2009). In addition, the two teachers established an agreement on objectives of the intervention, the selection and structuring of task sequence, the technological mediation, the project's timeline, and assessment. Since both teachers were bound by a course syllabus which included other content-based assignments and comprehensive examinations, they agreed to assign a percentage of the total work to active participation in the virtual exchange project and completion of

tasks. Furthermore, the two teachers positioned themselves as researchers in the project who would rigorously observe competence learning via multiple methods.

The teachers recognised the importance of overcoming any asymmetries in their institutional contexts in terms of technological affordances, abundance of resources, learners' intercultural profiles and biographies, as well as the value placed in language learning at each context. Both teachers acknowledged their personal contribution in the success or failure of the intervention; therefore, they committed to continuously monitoring the project in order to achieve the intended learning outcomes. Together they carefully planned the intervention, exhibiting flexibility, adaptability, and willingness to modify the original plans along the way.

4.5.2 Technological Mediation

Since the advent of Web 2.0 at the beginning of the new millennium, social communication via technology has been supported, revolutionising all facets of the teaching and learning process (Dudeney & Hockly, 2013). Several researchers claim that Web 2.0 technologies are among the most popular trends in CALL, carving a new path in CALL research development (Parmaxi et al., 2013). Web 2.0 refers to new Internet tools and technologies that allow their users to progress from simply being passive recipients of information, to becoming active in and related to the process of receiving, digesting and evaluating information (Domalewska, 2014; Wolcott, 2007). Most of the Web 2.0 tools are free and accessible to all (Solomon & Schrum, 2007). Web 2.0 tools and applications provide students with tailor-made learning opportunities and can support a wide range of teaching and learning activities including creative and collective contribution (Twitter, Facebook), knowledge co-producing (wikis, YouTube, Google Docs), communication (Skype), knowledge management and organising (Delicious, Diigo), self-expressing (blogs), creating and managing personal pages (Netvibes), analysing and developing new concepts and ideas (MindMeister), and sharing and exchanging documents (Google Docs, Dropbox) (Rahimi, van den Berg, & Veen, 2014).

The emergence of Web 2.0 technologies has created new teaching and learning opportunities that can be used to support underpinning pedagogies and address objectives and learning outcomes. Based on social constructivist considerations, we

could assume that new learning and teaching strategies may be designed using Web 2.0 applications. Also called ‘social media’, Web 2.0 includes tools that allow individual and collective publishing, sharing of images, audio and video, and the development and maintenance of online and social networks. These tools support the creation of content and facilitate communication and interaction. The instructional potential for Web 2.0 has led to many recent applications in higher education including: social networking, microblogging, wikis, and blogging (Bennett et al., 2012). Many Web 2.0 applications are dynamic socialisation and communication tools. As such, they have an exceptional educational potential for foreign language teaching (Simon, 2008). Mondahl and Razmerita (2014) explain that social media or Web 2.0-based applications, such as online chat forums, wikis, blogs, and social networking sites, may facilitate communication, sharing of information and online socialisation. By using Web 2.0, users may effortlessly express or share their views, ‘think by writing’, pursue others’ opinions and feedback and be connected with the others. Furthermore, multimedia production in the form of audio (e.g. podcasting using mobile technology) or video (vodcasting, YouTube) capabilities continues to grow and afford innovative opportunities for teaching, learning and evaluation. Using social media, students may record discussions and upload them on the platform for further knowledge sharing, evaluation, reflection and feedback from peers and instructors.

McLoughlin and Lee (2010) emphasise how Web 2.0 tools may pass control over to the learner, through promoting learner autonomy and engagement in social networks that alternate between multiple real and virtual learning spaces, unrestricted from physical, geographic, institutional and organisational constraints. Other scholars underline the potential of Web 2.0 tools in the promotion of plurilingual and intercultural competence (Melo-Pfeifer, 2013), independent learning (Lee, 2011) and reflective and collaborative learning (Vurdien 2013). In addition, according to Domalewska (2014), learning with Web 2.0 technologies fosters multiple skills, such as literacy, critical thinking, reasoning, analysing, organising information, selecting valuable information, communication, creativity, autonomy, and collaboration. Web 2.0 tools supply fertile grounds for case-based teaching and problem-solving environments whereby students use the various collaborative applications provided in order to identify the problem, generate possible explanations and hypothetical solutions, set learning goals, research and share the results. This context where the learner manages his/her own learning can

keep the learner motivated and engaged. Research has demonstrated that if students work with language problems in case-based Web 2.0 setting, they become more motivated for collaboration, bringing about successful planning of communication (Ingstad & Mondahl, 2009).

Considering the vast affordances and potential that new technologies offer in learning today, various Web 2.0 applications were examined for the purposes of this study in order to select the most appropriate ones that would serve as the mediating online environment where interaction and communication among students would occur. Tools were examined and analysed in terms of modes and potential for synchronous, asynchronous communication, support of autonomy, interactivity, and multimodality. Technologies exploration was performed having in mind the mediating effect of online tools (Fuchs, Hauck, & Müller-Hartmann, 2012) and their potential to foster sustained communication and interaction between students (Hampel & Hauck, 2006). Web 2.0 tools explored in this phase include threaded discussions, blogs, wikis, video conferencing, and social networking sites, such as Facebook and Google+.

Threaded Discussions

Threaded discussion forums have been available as an Internet-based communication tool for at the last decades (Cameron & Anderson, 2006). These discussion boards could be either integrated in course management systems (CMS) such as Blackboard and Moodle, affording asynchronous communication, or they could be ‘free standing’ running outside the context of a CMS (Chang, Pearman & Farha, 2012). Threaded discussions, as an integral part of CMC, provide participants with an opportunity to discuss a specific topic by posting messages in a chronological order and time-independent mode (Lee, 2009). Research has explored the affordances of threaded discussions in education (Arnold & Ducate, 2006; Meyer, 2004; Mooney, Southard, & Burton, 2014). According to Mooney, Southard and Burton (2014), asynchronous online threaded discussions are broadly recognised as a tool to foster learning in the virtual classroom since they can serve as a tool for supporting material and establishing a deeper knowledge of course content. Sull (2009) emphasises that threaded discussions are considered the beating heart of nearly every online course, and that they shift students into a richer learning experience as they further explore the course subject and its readings through dialogues with their peers and their instructor. Regarding language

instruction, Rizopoulos and McCarthy (2009) claim that these forums give English as a Second Language (ESL) learners an opportunity to participate in conversation that they may not have felt comfortable contributing to in class during face-to-face interactions. Integrating online threaded discussions in language instruction can be an enjoyable, motivating and meaningful experience; however, these discussions must be carefully designed in order to be successful. A study by Lee (2009) suggests three elements that are needed in order to increase the potential gains of discussion board for language teacher training: 1) use of carefully designed tasks that employ critical thinking, 2) scaffolding strategies for keeping account of group discussions, and 3) inclusion of online etiquette to avoid confusion and minimise personal conflicts. Sull (2009) underlines that the success or failure of the threaded discussion depends on the instructor and how effectively he/she manages the discussion. If designed carefully, threaded discussions can be beneficial in language instruction providing students with a positive experience. Lee's study (2009) showed that threaded discussions can result in establishing a common virtual space where students have equal opportunities to express their opinions, offer support and feedback to each other, work collaboratively and build knowledge, and sustain communication beyond the classroom walls.

Blogs

In this era of great technological advancements the weblog or blog constitutes one of the most widely espoused and user-friendly Internet publishing tools (Richardson, 2010) as well as one of the most embraced pedagogical innovations. Even though it may appear that blogs are in decline compared to their popularity in the previous decade, together with other Web 2.0 technologies, "they are becoming a standard component of the classroom environment" (Harris & Rea, 2019, p. 143). A blog can be thought of as an online journal that an individual can continuously update with his or her own words, ideas, and thoughts through software that enables one to easily do so (Campbell, 2003). It is a type of website whereby the entries appear in reverse chronological order, a 'web diary' (Wu, 2006). Amongst the main features of blogs are that they are user friendly, they are interactive as they allow readers to comment on the postings, and they can combine text, podcasts, pictures, music, videos and many other types of visual design (Nicolaou & Constantinou, 2014).

The ways in which blogs can be integrated in the language teaching and learning process are diverse. Throughout the years, blogging has been used either as a sporadic activity, adding to the teaching and learning process or as a tool with a major role in the educational experience (Nicolaou & Constantinou, 2014). Campbell (2003) delineated three types of blogs that have been broadly utilised by language teachers: the tutor blog, the learner blog and the class blog. According to Campbell, the tutor blog is created and run by the tutor and can be used as a means for the tutor to send entries to the learners providing them with the opportunity for repeated reading exercise. Through the tutor blog, learners are encouraged to examine other websites and therefore increase their confidence in exploring the web. Furthermore, the tutor blog provides the opportunity for online verbal communication since blogs allow readers to send comments, and it can also serve as a way for the instructor to provide learners with useful information about the course or the syllabus. Finally, it can be used as a resource of links for individual study (Nicolaou & Constantinou, 2014). The learner blog, on the other hand, is a blog which is created and run by either one learner or a collaborative group of learners. Campbell (2003) asserts that the learner blog supports the students in using search engines and in performing internet surfing in English. This kind of blog can be utilised as a journal for writing practice and personal expression and for this reason, it enhances the learner's 'sense of ownership'. In addition, the fact that the blog can be accessed by anyone affords learners the opportunity for authentic communication in the target language (Nicolaou & Constantinou, 2014). The third type of blog is the class blog. The class blog is created and run collaboratively by a group of learners, i.e. a whole class. This type of blog can serve as a 'free-form bulletin board' for learners to interact and express their views through their posts which are accessible by all blog members. The class blog can also prove useful in cases where learners wish to create online resources for other users. Additionally, the class blog could be used for language exchange among learners from different countries who have been granted publishing rights to the blog (ibid).

Blogs provide students with a flexible platform to share opinions and ideas within the learning context as they explore new concepts and topics in the classroom and extend discussions outside the class (Chang, Pearman & Farha, 2012). In a study investigating how active and creative the students are when they are engaged in a blogging activity by Domalewska (2014) findings show that blogs, as a means of instruction, present

significant opportunities for interaction and learner engagement. Additionally, by using a blog, students can demonstrate critical thinking, take creative risks, and make sophisticated use of language (Duffy, 2007). Various other studies on the use of blogs in language education have demonstrated that blogging can be very beneficial for learning languages. Al-Fadda and Al-Yahya (2010) identify blogs as useful tools in pre-class preparation and post-class reflection. Blogging in English language learning has also been found to be a very interesting activity that enhances learners' motivation because of the interaction with and feedback from classmates and teachers created within the blogging environment (Pinkman, 2005). Most importantly, because of the journal character of blogs, learners are involved in contextualised language learning explorations and they are engaged in real life language use. In addition, managing or participating in a blog provides learners with the opportunity to reflect on their accomplishments. Arena (2008) asserts that blogging also enhances higher order thinking skills as in order for blog users to engage in discourse and create content or knowledge with other blog members, they will have to "go beyond shallow comments, posting entries that encourage reflection, analysis, discussion and synthesis" (p. 3). Moreover, blogging supports interaction with an international audience and therefore the classroom expands, crossing the limiting physical boundaries of the classroom's four walls (Nicolaou & Constantinou, 2014). In addition, blogs can increase students' motivation to produce quality work, they give students' ownership of their learning, they increase digital literacy, and they encourage the development of skills to critically evaluate online resources (Downes, 2009). The use of blogs also develops a strong sense of community among the learners and as Leslie and Murphy (2008) explain, blogging relates to the social and collaborative construction of knowledge. Seitzinger (2006) as well as Richardson (2010) additionally state that blogs enhance constructivist learning according to which learning should be active, constructive, reflective, deliberate, authentic, and collaborative.

The shortcomings of blogs reported in the literature pertain to practical and technical aspects, such as difficulties in creating a blog account especially in cases where students do not possess sufficient technological knowledge (Nicolaou & Constantinou, 2014). Forgotten usernames and passwords and failure to keep the blog updated are some other disadvantages of blogs identified by research conducted in the field (Kavaliauskiene, 2007, in Nicolaou & Constantinou, 2014). In addition, some students might be anxious

about writing and posting a text that contains various errors or they can be inhibited to critically comment on their classmates' blogs (Domalewska, 2014). Amores (1997) agrees that one of the limitations of using blogs in classroom activities are feelings of anxiety when commenting on classmates' papers. Nevertheless, despite the various shortcomings involved, blog assisted learning may be conducive to the development of diverse skills and competences.

Wikis

Social constructivism provides a powerful theoretical background to illustrate learning and collaborative construction of knowledge in a technologically supported setting. Many researchers analysed, evaluated and deployed various popular Web 2.0 tools in order to promote social, collaborative learning. Amongst the tools that have been widely used for educational purposes are wikis. The popularity of wikis has started to draw the attention of teachers and educators in second/foreign language teaching particularly for collaborative projects (Wang, 2014). Considering its ease of use, the wiki is a tool that may be smoothly incorporated into the educational environment. The wiki affords a variety of applications which may be aligned with course objectives and learning outcomes. Leuf and Cunningham (2001) explain that the wiki is a type of software that enables users to freely create content and share it with others on the internet. The word *wiki* is Hawaiian for *quick*. This implies that content may be easily shared as well as changed (Craig, 2013). "This is due to the fact that the software enables open editing which allows many users to revise and edit the original content, therefore creating a community of interaction and communication" (ibid, p. 7). A significant number of studies have been conducted in order to examine the effectiveness of using wikis for language learning. Most of these studies have shown that the use of wikis affords the development of autonomy in flexible learning environments (Kessler & Bikowski, 2010). In a study about non-native speakers of English and EFL candidates Kessler (2009) noted that one of the benefits of wiki use in language learning is that it creates the opportunities for students to use language in authentic contexts, and this in turn encourages students to aim for autonomy in the target language.

The most important reason that wikis have been so widely embraced in language learning is the fact that they facilitate smooth cooperation and collaborative knowledge

construction (Cress & Kimmerle, 2007). Students can create content together, joining their efforts instead of working in isolation. As Wheeler, Yeomans, and Wheeler (2008) explain, wikis enable users to create and edit subject-specific knowledge collaboratively within a shared and openly accessible digital location. Students can engage in meaningful interaction, creating content, editing, re-editing, discussing ideas, and providing feedback to each other. In a study by Richardson (2006), the wikis were found to teach students how to work collaboratively, create knowledge, and operate in a world that values group effort. Duffy and Bruns (2006) refer to more specific potentials of wikis which include research project development, creating summaries, brainstorming, and building annotated bibliographies. Other studies focus on the effectiveness of using wikis on improving learners' language skills. In a comparative study by Chen (2008), the students who were using wikis achieved higher scores on reading and listening tests than the students who were not using wikis. The wiki users also seem to have had a more positive attitude towards collaborative learning. Mackey (2013) claimed that this type of learning, whereby students work collaboratively towards group goals and objectives, encourages online communities where each group member is responsible to contribute with content that would benefit the whole group. These findings are in line with the constructivist theory of learning. In a constructivism approach to learning, the learner is no longer a simple passive receiver of knowledge; he/she is stimulated to play an important role in constructing his/her knowledge. In a social constructivism approach, knowledge construction is a social process that occurs through connectivity and collaboration with others (Mondahl & Razmerita, 2014).

Videoconferencing

Videoconferencing allows two or more locations to connect using the internet, enabling both locations to hear and see each other in real time (Pringle, Klosterman, Milton-Brkich, & Hayes, 2010). Videoconferencing has found fertile ground in the context of education whereby it was used for distance learning, E-learning projects, workshops and seminars, and telecollaboration projects. Videoconferencing is an effective, synchronous communication tool that can be used to develop students' linguistic skills as well as other competences. While online threaded discussions, blogs and wikis are Web 2.0 tools mostly geared toward reading and writing activities, videoconferencing adds the video and audio components to the communication process, which help accommodate different learning styles in the classroom, as well as overcome

geographic distance for real-time language acquisition activities (Chang, Pearman & Farha, 2012). Videoconferencing, either through Skype, Google Hangouts, or any other multimedia conferencing software, affords real-time exposure to authentic language and synchronous interaction which many times is hampered by geographical distance or other constraints. A study by Jung (2013) which examined the benefits and drawbacks of using videoconferencing systems in class, showed that the videoconferencing class was effective in improving students' second or foreign language (L2) skills and provided students with opportunities to enhance language competence, as they gained an understanding of cross-cultural interaction through their participation in bilateral communication with learners from other cultural backgrounds. Other studies showed that videoconferencing can encourage learning interactions within groups (Burke, Beach, & Isman, 1997), increase student motivation and help students achieve greater language, communication, and social interaction skills (Abbott et al., 2004). Finally, videoconferencing can be used as a collaboration tool to involve critical thinking and problem-solving skills among students (Hopper, 2014).

Social Networks

The rise of digital platforms has allowed for communication and representation of knowledge to take place with a different structure, pace, and time than the printed word (Freebody, 2007), making it clear that learning can take place in formal or informal contexts. Along with the advancement of technology, many social environments have provided tools and applications to facilitate second language learning (Derakhshan & Hasanabbasi, 2015). Social networking sites, which are largely immersed in students' personal lives, such as Facebook or Google+, have afforded fertile ground for learning and are currently emerging as new educational contexts. According to Derakhshan and Hasanabbasi (2015), social networks play fundamental roles in fostering second language learning by providing a wide range of authentic materials. Social networking sites facilitate students' interaction in order to share their ideas, and provide an opportunity for learners to experience online tools so as to develop their language learning skills, especially the writing skill. Carmean and Haefner (2002) explain that social networks are applied online technologies which make the second language learning more social, and enjoyable with minimal stress. As Beauvois (1998) states, social networks encourage students to participate in more discussions. Specifically, Facebook has been found to have positive effects on language learning, encouraging

students to do their homework (Kitsis, 2008), and helping them to learn related vocabulary (Shahrokni, 2009). However, despite its continuing popularity as a social networking site, the educational value of Facebook has not been fully defined, and results from the mainstream educational paradigms are contradictory, with some scholars emphasising its pedagogical affordances and others cautioning against its use for educational purposes (Manca, & Ranieri, 2013). Harmful consequences of Facebook include inappropriate behaviour, abuse, cyber bullying and problems related to privacy and friendship (Aydin, 2012). Therefore, such technologies have affordances that can assist certain competencies and constrain others. Because of that, social network tools need to be carefully modelled and linked to desired outcomes (Thibaut, 2015).

Social media are becoming increasingly popular for connecting students in different parts of the world for the purpose of both language and intercultural learning. Before the advent of social media, email exchanges and video conferencing were mainly used for similar purposes, but now with the social media such as Facebook and Google+, the online intercultural experience can be richer and more diverse (Aoki, & Molnar, 2011). Research projects have been carried out investigating the pedagogical value of social networking services in language learning. Studies on the impact of Facebook in language learning have indicated that social media can be effective in improving students' writing skills and in engaging students in meaningful language learning (Yunus & Salehi, 2012; Kabilan, Ahmad, & Abidin, 2010).

Google Applications

Google+ is a relatively new social networking service that was launched by Google Inc in 2011. Despite the fact that Google+ was discontinued in 2019 for business use and consumers, during its short life cycle it provided an alternative to other popular social networking sites, such as Facebook. Google+ is similar to Facebook but with some additional features that can afford a rich and diverse intercultural experience for users. Google+ is free and can be joined with a Google Account. Features include the ability to post photos and status updates to the stream or special interest communities, organise different types of relationships into Circles, participate in multi-person instant messaging, engage in text and video chat called Hangouts, organise events, tag locations, as well as the ability to edit and upload photos to private cloud-based albums (Gundotra, 2011). Google+ Communities allow users to create and sustain

conversations on specific themes and can function as a locus for discussion and exchange of views rather than as a way to teach the language. Posts on the Communities can be liked, responded to or commented on.

Google+ user's profile includes basic social networking services like a profile photo, an About section, background photo, cover photo, previous work and school history, interests, places lived, an updates space, contact information, places visited, and other profiles the user has or pages the user contributes to. Google+ Hangouts are free video conferencing calls with up to 10 people, done through the Google+ website or mobile app. Many apps can be used inside the hangout, allowing users to share documents, a scratchpad, or their screens with other users, as well as many built-in apps such as YouTube, Google Docs, and the new Capture (Diaz, 2011). Google+ has a +1 Button which allows people to recommend sites and parts of sites, similar in use to Facebook's Like button. Finally, Google Drive is a file storage and synchronisation service created by Google. It allows users to store files in the cloud, share files, and edit documents, spreadsheets, and presentations with collaborators. Google Drive encompasses Google Docs, Sheets, and Slides, an office suite that permits collaborative editing of documents, spreadsheets, presentations, drawings, and forms (Pichai, 2012).

For the purposes of this study, Google+ was investigated for its pedagogical value, and its potential to serve as a mediating online milieu for virtual exchange. A careful examination of its features led to the selection of Google+ Communities, Hangouts and Drive as the locus of interaction, communication and collaborative task completion among the telecollaboration partners. Google+ Communities were determined as a free stage for students to voice their views with confidence and creativity. The possibility to respond to or comment on posts was expected to initiate authentic, social interaction and meaningful discussions. Activities on Google+ Communities support peer interaction through informal exchanges and students can be encouraged to share their opinions without worrying about their writing styles, tones of voices, or language errors since lenient ground rules can be established in order to cultivate a freedom-of-speech atmosphere (Chen, Shih, & Liu, 2015).

Google Hangouts were used for synchronous exchanges either via chat, audio, or video interactions. To ensure participation of all learners in the tasks and to accommodate all

participants' preferences or technological limitations, students were allowed to choose between synchronous oral communication sessions or asynchronous written communication. Google Docs were used as cloud-based alternatives for word processing, utilising their feature of simultaneous work on the same document by many users which makes it a powerful tool for collaborative writing. In addition, Moodle, the institutional learning management system used at CUT, and Aula Virtual, the equivalent institutional learning management system used at UV, were included in the technologies used within the interventions in order to manage the project locally. Moodle and Aula Virtual are password-protected, open source platforms that allow for data storage, file sharing and asynchronous and synchronous interaction. Other Web 2.0 tools and applications included Google Forms for completing the pre- and post-intervention questionnaires, Kahoot! and blubbr for playing intercultural games, Moviemaker, imovie, animoto and other multimedia software for creating the digital stories, YouTube for creating and uploading videos , as well as PowerPoint and Prezi for developing and delivering oral presentations.

4.5.3 Task Design

The Exploration phase included an examination and formulation of task design. Task sequence is the backbone of virtual exchange projects. Carefully designed tasks that involve a variety of strategies, techniques and technologies allow for gradual engagement with the partners' culture (Levy, 2007). Therefore, a combination of different activities, both online and offline, synchronous and asynchronous, involving in-class, out-of-class, and between-class work, in a moderated environment was proposed in this study. Various task types were considered, such as discussions, synchronous communication, interactive exchanges, reflective work, and multimedia collaborative tasks, embedded in the respective ESP modules' academic curricula. As Müller-Hartmann (2000) asserts, it is important for telecollaborative projects to be blended with the content of the regular classes.

Task design was aligned with the affordances of the selected technologies to provide opportunities for collaborative work, synchronous and asynchronous interaction and cooperation, creative thinking, problem solving and multimedia production of artefacts. Synchronous communication in pairs or small groups of four learners was considered in order to offer an appropriate level of social presence and to foster interpersonal

connection and engagement (Helm, 2013). As O'Rourke and Stickler (2017) explain, "synchronous tools allow language learners to improve their digital skills, their intercultural communicative competence and their language by intentionally sharing a world (digital, virtual and cultural) with their communication partners across borders" (p. 11). The task sequence was designed around mostly open-ended (Pica et al., 1993), communicative, and collaborative tasks without any attention to focus-on-form oriented activities (Hauck & Youngs, 2008). Multimodality was taken into consideration in task design making sure that learners use all elements available to them in any given online context (Hampel & Hauck, 2006).

Tasks and activities were designed so as to foster the development of clusters of competences demonstrated in the *Reference Framework of Competences for Democratic Culture*, such as openness to cultural otherness and to other beliefs, world views and practices, respect, responsibility, self-efficacy, autonomous learning skills, analytical and critical thinking skills, flexibility and adaptability, cooperation skills, and knowledge and critical understanding of the self and the world, among others (Council of Europe, 2016). Tasks were classified based on O'Dowd and Ware's (2009) typology which comprises three main categories of tasks: information exchange tasks, comparison and analysis tasks, collaborative tasks. Salmon's model for online learning (2000) was adopted in the structuring of tasks and activities. Salmon's model is a five-stage model that can be used for structuring online activities. The five stages comprising the model are: Access and Motivation, Online Socialisation, Information Exchange, Knowledge Construction, and Development. According to Muirhead (2002, p. 1), "Salmon's model reflects a positive progression in the quality and intensity of interaction between students and between students and their teachers". Lisewski and Joyce (2003) agree that the particular e-moderating model comprising five stages offers a useful paradigm for structuring, pacing and situating the developmental experiences of learners.

A constructivist approach to learning was adopted in task design. As Dooly (2008, p. 21) asserts "the premise of constructivism provides an important axis for collaborative and cooperative work". Since virtual exchange projects are inherently cooperative, the selected tasks were determined based on their potential to foster meaningful team work, towards achieving common project goals. Dooly (2008) delineates the constructivist

principles which include integrating authentic activity within a complex learning environment, emphasising social negotiation as integral to learning, juxtaposing content, including multiple modes of representation, keeping instruction relevant to the students' needs, and reflecting on practice. In this study, tasks were carefully sequenced, beginning from simple ice-breaking and familiarisation activities and gradually continuing with more challenging ones, such as collaborative problem-solving tasks and project-based creative activities, such as digital storytelling.

Problem-based learning (PBL) is a teaching approach that is line with the constructivist framework (Savery, & Duffy, 1995) as it requires learners to become autonomous and responsible for their own learning, towards resolving a problem that often resembles one that they might encounter in a real-world working environment (Sevilla-Pavón & Nicolaou, 2019). PBL is a teaching approach which emerged in order to address the perceived difficulties in conventional pedagogical styles (Barrows, 2002), facilitating the development of a thorough set of skills and abilities (Gallagher, 2015), such as reasoning, higher-level thinking skills, creative, critical thinking, and inferential thinking, as well as domain-specific knowledge (Sevilla-Pavón & Nicolaou, 2019). This is achieved by using an authentic, complex, and ill-structured problem in a collaborative learning environment (An & Reigeluth, 2008; Barrows, 1986; Savery & Dufy, 1995). The students are then called upon to solve the problem from the very beginning (Donnelly, 2010) by adopting a problem-solving methodology which comprises a series of steps. What is important in PBL is that the whole procedure is followed collaboratively in small groups. The collaborative nature of PBL provides substantial affordances for the development of critical 21st skills such as flexibility, adaptability, co-operation skills, responsibility and accountability, respect for diverse viewpoints, and critical thinking. This great potential is particularly important when problem-based learning is applied in culturally diverse groups of learners within a discipline-specific learning setting as it empowers learners to become interculturally competent and globally responsible citizens through acquiring domain-specific knowledge.

Another approach that was used in the study which is aligned with constructivist learning is Project-based learning. Project-based learning is a teaching method in which students acquire knowledge and skills by working for a prolonged period of time to investigate and respond to an engaging and perplexing question or problem. Project-

based learning engages learners in authentic and sustained tasks which are designed to intentionally develop 21st century competences. Project-based learning pedagogy comprises a set of key elements: a challenging problem or question, sustained inquiry, authenticity, student voice and choice, reflection, critique and revision, and public project (Larmer & Mergendoller, 2012; Larmer, Mergendoller, & Boss, 2015). These elements echo the principles of social constructivism according to which learners engage in authentic activities collaboratively, using a variety of materials and assuming ownership of the outcomes while critically reflecting on their learning (Gruba, 2004).

Collaborative tasks in virtual exchange can be quite challenging as “such collaboration requires teamwork, reciprocity among learners, a balanced workload, and mutual respect of deadlines” (Harris, 2002, cited in Guth & Helm, 2010, p. 99). However, effective collaborative learning results in increased knowledge and improved development of the learners who engage in social learning and interaction, joint intellectual effort, common pursuit of solutions or meanings and shared product creation (Dooly, 2008). The complexity of collaborative tasks increases when these involve increased technological and multimodal requirements. An example of such a task is Digital Storytelling (DST). DST can be defined as the blend of the longstanding art of telling stories and the 21st century practice of putting together a variety of available contemporary multimedia tools, including graphics, audio, video, animation, and web publishing (Lambert, 2002; Robin, 2009; Robin & McNeil, 2012). Digital storytelling usually takes the form of a film or a first-person narrative resulting from the multimodal combination of different elements, which is in line with today’s technologically-savvy students’ needs, interests and competences (Castañeda, 2013). DST can be used to reinforce learning and to promote higher order thinking skills (Sadik, 2008) as well as communication skills (Robin, 2009; Sadik, 2008). Digital storytelling engages learners in a process of becoming “creative storytellers through the traditional processes of selecting a topic, conducting some research, writing a script, and developing an interesting story” (Robin, 2009, p. 222). Therefore, DST is considered to hone research skills (Lowenthal, 2008; Lowenthal & Dunlap, 2010), as well as writing skills (Sevilla-Pavón, 2015). DST is a technologically challenging task which makes it an activity that fosters digital and technology skills (Darvin & Norton, 2014). Finally, digital storytelling encourages students to demonstrate usability of domain-specific knowledge thanks to the use of their imagination and creativity

(Bruner, 2003). Thus, digital storytelling is an instructional practice with a potential for fostering multiple skills, and it is in accord with 21st century learning which is marked by the proliferating use of technologies and multimodality (Sevilla-Pavón & Nicolaou, 2017). In the present study, digital storytelling was integrated as the culminating main collaboration task.

4.5.4 Themes

Apart from the design of tasks, the underlying themes dealt with in virtual exchange are also central. In the present study, the themes were selected with a global view, reflecting the realities of the 21st century. The selected themes underlined the construct of culture in a transnational perspective, highlighting the interconnectedness and interdependence of the world and the need for learners to consider international dynamics in order to effectively live, work and prosper in the global arena. In addition, a content-based ESP perspective informed the selection of themes in order to accommodate the learners' academic and future professional needs. Themes were informative and motivational, incorporating global and local perspectives, grounded in the respective ESP modules' thematic areas in an effort to afford learners opportunities to relate to the tasks and engage spontaneously. Engagement with the themes did not require any specialised prior knowledge. Students could draw on their personal biographies as well as on the specific course content in order to respond to the topics under discussion. Since motivation is a central factor in virtual exchange, there was an effort to include thematic areas that would sustain the learners' interest, initiate interaction and foster authentic communication (Kohn & Hoffstaedter, 2015). Some examples of the underlying themes were cross-cultural business, international marketing mistakes, problems with stereotypes and single stories, globalisation and how countries contribute to the common good of humanity, as well as the conceptualisation of the ideal country and its distinguishing characteristics in terms of policies and infrastructure.

4.6 Analysis of Initial Data

The Exploration phase included the collection of quantitative and qualitative data in order to develop a well-grounded picture on various aspects pertaining to telecollaboration embedded in content-based learning. Issues explored include expected affordances, limitations, feasibility and implementation, as well as anticipated

challenges. The Exploration phase also served as a useful terrain to test data collection instruments and consider situational factors that could facilitate or hamper the planned interventions. The findings of the research provided a thorough understanding of the telecollaborative pedagogy and formed the basis of a more conclusive subsequent study.

4.6.1 Quantitative Data Analysis and Findings

Quantitative data were gathered by means of questionnaires which were administered to a purposive sample of students that fit the characteristics of the sample of the planned subsequent interventions. In the Exploration phase, the pre-intervention questionnaire was used for piloting purposes, as well as for gaining insights with regard to the target audience's intercultural experiences, motivation for language learning, and perceived affordances of virtual exchange embedded in language learning at university level. The questionnaire was administered to 53 ESP students enrolled at the Cyprus University of Technology. A total of 53 completed questionnaires were returned. All participants were of Cypriot origin and thirty-three students were male while 20 were female. All participants were first-year students at the CUT, with 28 majoring in Agriculture, Biotechnology and Food Science and 24 majoring in Mechanical Engineering and Materials Science. Participation was voluntary and anonymity was ensured. Table 5 summarises the Exploration phase participants' demographics:

Demographics	N	Percent
Nationality		
Cypriot	53	100
Other	0	0
Total	53	100
Gender		
Male	33	62,3
Female	20	37,3
Total	53	100
Age		
17-20	37	71,2
21-24	15	28,8
25+	0	0
Total	52	100
Department		
Agriculture, Biotechnology and Food Science	28	53,8
Mechanical Engineering and Materials Science	24	46,2
Total	52	100

Table 5: Exploration phase participants' demographics

One of the aims of the pre-intervention questionnaire was to collect data pertaining to the learners' perceptions about technological mediation in language learning at tertiary

level. Since virtual exchanges are inherently technologically supported, there was a need to map the learners' online profile with emphasis on their experience with various Web 2.0 tools and the extent to which they felt comfortable with the integration of technology in language learning. The participants in the Exploration phase, as well as in the subsequent interventions in the Implementation phase, comprise the 'digital natives' population (Prensky, 2001); therefore, they are expected to be technologically-savvy. However, the varied technological implications of the planned virtual exchange mandated a deeper exploration of the learners' technological profile in order to facilitate the selection of appropriate tools for the exchange as well as to determine the level of training that might be needed to enable students to carry out the project tasks. A multiple-response analysis was computed to identify the social networks learners were mostly engaged in. The analysis indicated that the most widely used social media sites were Facebook, followed by Skype, YouTube, Oovoo, and Google+. This analysis was taken into consideration during the selection of available social networks to facilitate synchronous and asynchronous interaction between the virtual exchange partners. Table 6 demonstrates the participants' preferred social networks for social engagement:

Social Networks Frequencies				
		Responses		Percent of Cases
		N	Percent	
Social Networks^a	Facebook	52	27,8%	98,1%
	Skype	40	21,4%	75,5%
	YouTube	26	13,9%	49,1%
	Oovoo	23	12,3%	43,4%
	Google+	22	11,8%	41,5%
	Snapchat	5	2,7%	9,4%
	Viber	5	2,7%	9,4%
	Instagram	3	1,6%	5,7%
	Twitter	2	1,1%	3,8%
	Hotmail	2	1,1%	3,8%
	Yahoo	2	1,1%	3,8%
	Email	2	1,1%	3,8%
	Tumblr	1	0,5%	1,9%
	WeHeartIt	1	0,5%	1,9%
	iclouds	1	0,5%	1,9%
Total		187	100,0%	352,8%
a. Dichotomy group tabulated at value 1.				

Table 6: Exploration phase participants' preferred social networks

In this table, percent of responses and percent of cases are displayed. Percent of responses is the percentage of each response out of total responses from the given data-

set whereas percent of cases is the percent of cases or respondents saying "yes" for the particular social network; i.e. 98.1% of cases were mostly engaged in Facebook.

A different type of analysis measured the participants' attitudes towards the integration of technology in their language learning modules at university. On a Likert scale 1-4 whereby 1 meant 'Not at all' and 4 meant 'Very much', students indicated that their previous experience with technology-enhanced language learning was adequate (3.43), and that their attitudes towards the use of technology in language learning were considerably above average. Table 7 demonstrates the participants' attitudes towards technology use in language learning at tertiary education level:

Technology-Enhanced Language Learning	N	M	SD
Previous use of technology	53	3,43	,665
Feeling comfortable using technology	53	3,55	,748
Enjoyment using technology	53	3,36	,653
Perceived benefits for skilled development via new technologies	53	3,28	,794

Note: Questionnaire scale responses were as follows: 1 Not at all; 2 A bit; 3 Quite a lot; 4 Very much

Column heading M refers to the mean responses.

Table 7: Participants' attitudes towards technology-enhanced language learning

The Exploration phase aimed at gaining insight in the participants' views about virtual exchange as a pedagogical practice embedded in university language learning. This information was deemed important as it would give an indication of the students' attitudes towards telecollaboration with emphasis on the expected gains of this approach and was expected to facilitate the smooth integration of virtual exchange in the module under scrutiny. The SPSS analysis indicated that the most anticipated benefit of telecollaboration would be the development of students' linguistic skills, followed by the opportunity to get closer to other cultures. Table 8 demonstrates the participants' anticipated benefits of telecollaboration. Responses were marked on a list of 8 options which had to be ranked from 1-8 whereby 1 meant 'The most important reason for participating in a telecollaboration project' and 8 meant 'The least important reason for participating in a telecollaboration project'. Responses closest to 1 were considered to be more important reasons for students, whereas responses closer to 8 were considered to be less important reasons for students. Responses are presented in this table in order of preference:

Anticipated Benefits	N	M	SD
Telecollaboration would help me improve my skills in English.	51	2,94	2,044
Telecollaboration would bring me closer to other cultures.	51	4,04	2,209
Telecollaboration would be a great way to meet new people.	51	4,18	2,206
Telecollaboration would be fun and exciting.	51	4,41	2,238
Telecollaboration would improve my ICT skills.	51	4,73	2,255
Telecollaboration would help me get a better grade in my English course.	51	5,12	2,503
Telecollaboration would be a great opportunity to experience online interaction.	51	5,29	2,138
Telecollaboration would make me feel part of a community.	51	5,74	1,770

Table 8: Participants' anticipated benefits of telecollaboration

A similar analysis was performed to explore the participants' expected challenges of telecollaboration. This information was considered to be important for the design of the project as it would provide insights into the learners' concerns, inhibitions, or insecurities. The analysis indicated that the participants' most anticipated challenge pertained to individual insecurities or lack of confidence in interacting with people who are not members of their immediate environment. Other anticipated challenges included concerns about an increase in their workload and lack of openness to interact with people of diverse cultural backgrounds. Table 9 demonstrates the participants' anticipated challenges of telecollaboration. Responses were marked on a list of 8 options which had to be ranked from 1-8 whereby 1 meant 'The most important reason for not participating in a telecollaboration project' and 8 meant 'The least important reason for not participating in a telecollaboration project'. Responses closest to 1 were considered to be more important reasons for students, whereas responses closer to 8 were considered to be less important reasons for students. Responses are presented in this table in order of preference:

Anticipated Challenges	N	M	SD
I would feel embarrassed to interact with people I am not acquainted with.	51	3,78	2,221
My workload for the course would increase.	51	3,76	1,976
I'm not really into online interaction.	51	4,25	2,018
I wouldn't feel comfortable to interact with students from different cultural backgrounds.	51	4,29	2,436
I prefer to collaborate with people who speak the same language as me.	51	4,63	2,457
I wouldn't feel confident to come to terms with the technology required.	51	4,29	2,436
It wouldn't help me develop my English.	51	5,29	2,369
It would be a boring task.	51	5,33	2,355

Table 9: Participants' anticipated challenges of telecollaboration

With regard to Cultural Awareness, students were asked to respond to 20 Likert-type questions from 1-4 whereby 1 meant ‘Strongly Disagree’ and 4 meant ‘Strongly Agree’. The questions were devised by the researchers, drawing from literature on intercultural competence and global citizenship. This set of questions aimed at exploring students’ level of cultural awareness and was relevant to their views and perceptions of other cultures, their curiosity and willingness to interact with people from different cultural backgrounds, as well as their reactions and attitudes in cases of discrimination based on cultural differences. Table 10 demonstrates the 20 Likert-type questions measuring the level of cultural awareness:

Cultural Awareness Questions
I think that all cultures have something to offer the world.
When I notice cultural differences, my culture seems to have the best approach.
I think that my culture is the only right one.
Some people have a culture and others do not.
I am aware of my own cultural biases and how they affect my thinking.
I feel uncomfortable when others make racially offensive comments or jokes.
I speak up if I witness another person being humiliated or discriminated against.
Some cultures are more sophisticated than others.
I try to learn about other cultures.
I have many friends from a variety of ethnicities.
Most of my friends are from my own ethnic background.
I’m interested in the ideas and beliefs of people from different ethnicities.
I connect easily with people from different ethnicities and I am able to communicate easily.
I only feel comfortable with people of my culture.
I internationally involve people from many cultural backgrounds in my life.
It’s really hard for me to feel close to a person of another ethnicity.
I frequently interact with people from a different country from my own.
I attend events where I might get to know people from different ethnic backgrounds.
If I could design my own world, I would choose elements from my own culture only.
Getting to know someone of another culture is generally an exciting experience for me.

Table 10: Cultural Awareness Likert-type questions

A Cronbach's Alpha reliability test was carried out in SPSS in order to measure the internal consistency ("reliability") of the set of 20 questions. The analysis indicated a high level of internal consistency for the scale with the specific sample (**0.796**). Table 11 demonstrates the Cronbach’s Alpha analysis computed in the Exploration phase:

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,796	,799	20

Table 11: Exploration phase Cultural Awareness Cronbach’s Alpha analysis

After conducting the reliability test, the participants' level of Cultural Awareness based on the 20 items was measured. The analysis indicated a medium level of Cultural Awareness with a mean score at 2.94. This information was considered important in the design of the intervention as it depicted the participants' intercultural profile. Table 12 demonstrates the learners' level of Cultural Awareness based on the aforementioned set of 20 items:

	N	M	SD
Cultural Awareness	53	2,94	,321

Note: Questionnaire scale responses were as follows: 1 Strongly disagree; 2 Disagree; 3 Agree; 4 Strongly agree

Column heading M refers to the mean responses

Table 12: Exploration phase participants' level of Cultural Awareness

Overall, the quantitative data analysis yielded useful information regarding the targeted learners' attitudes towards technology-enhanced language learning and pointed to a number of technological tools that could be utilised in the planned exchanges. In addition, the attitudes of the learners towards telecollaboration were explored, placing emphasis on the anticipated benefits and challenges. The students' indication of inhibition towards interacting with people of diverse cultural backgrounds, coupled with their medium level of cultural awareness based on the analysis of their responses in the respective 20 items, was taken into consideration in the design of the interventions. Finally, the piloting of the questionnaire led to minor modifications in the wording of a few questions and typographical corrections.

4.6.2 Focus Groups Analysis and Findings

The findings from quantitative data analysis were corroborated in the qualitative analysis which was performed by means of focus groups with a small sample of learners fitting the description of the target group in the planned interventions. The sample comprised of 12 ESP learners at the Cyprus University of Technology. Two rounds of focus group took place which lasted approximately 45 minutes each. Six Agriculture, Biotechnology and Food Science ESP students participated in the first round (4 female and 2 male students), and 6 Mechanical Engineering and Materials Science ESP students participated in the second round (1 female and 5 male students). The focus groups aimed to build a synergistic partnership comprised of the teachers and

learners in order to negotiate the planned study in terms of design and implementation. The focus groups aspired to bring the learners' previous experiences into the research process and utilise them to inform the study. This phase was also an effort to rehearse guided questions with subjects similar to the target group. Questions asked were open-ended, specifically related to the main issues of the survey. Topics discussed included the use of technology in language learning, opportunities of learning languages in culturally diverse settings, student collaboration, the monocultural character of the Cypriot university, as well as anticipated benefits and challenges of telecollaboration. In addition, the focus groups aimed at collecting data regarding the feasibility and implementation of the virtual exchange, with emphasis on configurations and situational factors, such as possible modes, duration, partner grouping, and preferred activities. Data from focus groups were analysed qualitatively in NVivo.

The findings from both rounds of focus groups provided great insights on where students stand on the issue of technology and intercultural learning and formed the basis of the subsequent study. Emergent themes included the extensive use of technology both for educational and recreational purposes and the view that technology-enhanced language learning can be beneficial. At the same time, the participants' limited opportunities for cross-cultural encounters both in their personal and educational lives were highlighted. Table 13 summarises the emergent themes, evidenced by relevant quotes:

Emergent Themes	Participants' Quotes
Extensive use of technology	<i>Nowadays, technology is an indispensable part of our life, especially for students. Every single student uses the internet. Through the internet you can find anything you want, especially information about your discipline; through Facebook you can socialize but up to a point because some people overdo it and in the end it leads to isolation. The appropriate use of technology and the internet can contribute to the life of people in general. (P8, Exploration)</i>
Benefits of technology-mediated language learning	<i>In language courses technology can give us the opportunity to listen to some material, or watch some videos which will help us become more flexible in language use. (P9, Exploration)</i>
Limited cross-cultural encounters at CUT	<i>I think that studying at CUT deprives us of the opportunity to learn more new cultures in foreign countries. We would meet new people, we would talk with each other, we would collaborate with other people, we would learn the language better, and our job prospects would increase. (P6, Exploration)</i>

Table 13: Technology-enhanced language learning and cross-cultural encounters

During the focus groups, positive attitudes towards telecollaborative learning were expressed by the participants referring to the anticipated gains of this pedagogical approach. The benefits reported pertain to the opportunity to meet people from different cultures and learn new things, the encouragement of reserved or low-achieving learners to participate, the challenge of stereotypes and the fight against racism, as well as the potential that telecollaboration may entail in fostering global perspectives. Table 14 summarises the learners' positive attitudes and the expected gains of telecollaborative learning:

Expected Gains of Telecollaboration	Participants' Quotes
Knowledge of other cultures	<i>When you collaborate with people from other countries you learn about their culture and civilisation. (P7, Exploration)</i>
Encouragement of reserved learners	<i>Some students are quite introverted and they are too embarrassed to talk face-to-face, while over the internet they might be able to open up. It would be a benefit for the reserved or weaker students. (P9, Exploration)</i>
Challenging stereotypes and fighting racism	<i>Your mind opens up, you become more sociable, you challenge some stereotypes, and I think it helps against racism. (P7, Exploration)</i>
Fostering global views	<i>I believe it is essential because in our times of technology and globalization being able to communicate with many people and exchange ideas with as many people and groups is possible is very useful. This way you will absorb as much information as possible and you will draw the best conclusions. Being one-sided and staying in your own place... it's not even your own place, there is no 'my', we share everything whatsoever. We are a big village. (P2, Exploration)</i>

Table 14: Perceived gains of telecollaboration

Despite the acknowledged benefits of telecollaboration, some learners exhibited reluctance and feelings of inhibition towards participating in telecollaborative learning. Some of the reasons behind their negative attitudes included the increase of workload, and the lack of technological resources. Other participants expressed feelings of skepticism and doubtfulness with regard to the usefulness of this activity in language and intercultural learning, compared to face-to-face communication which was considered to afford more potential in achieving these goals. Table 15 summarises the participants' perceived challenges and inhibitions towards telecollaboration:

Perceived Challenges of Telecollaboration	Participants' Quotes
Increased workload	<i>With all this workload that we have, all the studying, we would see it as a chore, as a burden because it would keep us behind in our other courses. (P12, Exploration)</i>
Technological limitations	<i>If the conditions were ideal, if we had the appropriate means, the right software, yes, that would be nice...to communicate with another person who is in another country, talk outside of class, but I think it would be too hard under the current circumstances. (P7, Exploration)</i>
Doubts about usefulness of telecollaboration	<i>I don't think it would have significant benefits like a face-to-face collaboration would. I don't see this as beneficial. (P8, Exploration)</i> <i>It won't be of any help in any of these aspects. It will just be a good experience. You can't learn the language by talking to somebody three times or by doing a task together; you won't increase your ICT knowledge either; you won't get to know the other culture because you will speak 3-4 times about the task; it will just be a new experience. (P9, Exploration)</i>

Table 15: Perceived challenges of telecollaboration

With regard to the feasibility and implementation of the telecollaboration project, the focus groups yielded useful data that were considered in the design of the first iterative cycle. This approach is in line with design-based research whereby ‘subjects’ are acknowledged as part of the design process (Barab & Squire, 2014), contributing with their insights and constructive comments. To ensure feasibility of the project, the participants suggested that the telecollaboration should be carefully embedded in the course curriculum. Participant 1 comments: *“Basically this should be part of a program and you should be able to cope in this program because you won't have an alternative time to communicate with the other person”*.

In addition, the students recommended a lingua franca approach which would place all participants “in the same language boat” (Kohn, 2016). A participant explains that *“...it would be much easier to communicate with someone who doesn't speak English well than with somebody who speaks English well because you will be on the same level. Easy stuff will be easy stuff for both”*, (Participant 12, Exploration). In addition, participants exhibited preference for project work rather than isolated tasks, and they would like to be engaged in domain-specific projects which are relevant to their field of study: *“If we had a project, it would be more helpful in terms of motivation. Not just a task in English which is irrelevant to what you are majoring in”*, (Participant 9, Exploration).

As for the mediating tools, the students recommended the usage of multiple technologies in order to benefit from the affordances of each type and achieve the project goals. A participant explains that “...*there should be a combination of technologies, you will connect to Skype to talk, and you will also log on Moodle and see certain things about the tasks. I believe you need more than two-three modes so as to collaborate with someone*, (P9, Exploration). This view is reinforced by another participant who believes that “...*you will definitely want to talk on Skype, but also use email to send a document, show your work to the other person and exchange views*, (P8, Exploration).

As far as the duration of the project is concerned, most participants recommended a three-month period for collaboration with the possibility of sustaining the exchange on a personal basis: “*It could last for three or four months in order to do the assignments, but then you could have the option to continue communicating as friends; that would be even better*”, (P2, Exploration). Finally, discussing the possibility for individual or group work, the participants were in favour of working in groups so as to feel more confident and comfortable: “...*it would be better if you had groups, so as to be able to have conversations together. You might feel scared. Being in a group will make you feel more comfortable*”, (P10, Exploration).

In general, the analysis of both quantitative and qualitative data, as well as the review of previous studies facilitated the identification of the main issues that should be considered in the design of the first intervention.

4.7 Proposed Intervention

The multiple data collected at this phase helped establish an understanding of the target participants’ opinions and attitudes associated with the study’s central themes and questions. The exploration phase contributed to the familiarisation with the settings and the constituent elements of the virtual exchange ecosystem, forming a well-grounded picture of the situation under investigation. The result of the exploration phase was the proposed first intervention which was identified as a pilot inter-disciplinary virtual exchange project between ESP learners at the Cyprus University of Technology and the University of Valencia. The project was two-fold and comprised: the SCI-TEL (Spain Cyprus Intercultural Telecollaboration) Project which connected 32 first-year students

majoring in International Business at the University of Valencia and 43 first-year students majoring in Hotel and Tourism Management at the School of Business at the Cyprus University of Technology, and the CSI-TEL (Cyprus Spain Intercultural Telecollaboration) Project which connected 30 first-year students majoring in Mechanical Engineering at the Cyprus University of Technology and 38 first-year students majoring in International Business at the University of Valencia. Both projects were scheduled to begin in September 2015 and adjourn in December 2015.

4.8 Preliminary Design Principles

The Exploration phase, informed by secondary research and mixed-methods data collection, identified the fundamental components of the virtual exchange ecosystem: the Linguistic Mediation, the Participants, the Technological Mediation, the Tasks, and the Themes. The exploration and conceptualisation of these interrelated elements in the virtual exchange habitat, led to the evolution of preliminary principles which guided the design and implementation of the first intervention aimed at developing learners' global competence through an internationalised ESP curriculum.

Preliminary Design Principle 1: Lingua franca configuration

The first preliminary design principle concerned the adoption of a monolingual configuration whereby participants would communicate, interact and collaborate using a shared target language, English as a Lingua Franca (ELF). This would enable learners to engage in the exchange with confidence, adopting the role of collaborator rather than the role of tutor. The lingua franca approach would render all participants equal in the exchange, and each one would contribute to the discussion constructively without worrying about making mistakes. This was mentioned in the focus groups whereby students highlighted the importance of using a common language for facilitating communication. Therefore, in the planned virtual exchange, language would be viewed as a mediating vehicle that would facilitate the exchange of views, foster meaningful interaction and support the creative collaboration on shared tasks. This design principle was also informed by the extensive review of literature in ELF and global citizenship. The adoption of a lingua franca rather than a bilingual/bicultural configuration is in accord with a 'global' paradigm in learning, shifting away from the 'intercultural' paradigm, offering a more realistic opportunity for interaction, which resembles the kind of encounters learners will engage in their future life and career. As Lenkaitis and

Loranc-Paszylk (2019) argue, the use of a common language between and among interlocutors has the ability to create shared territories and it provides a suitable space to discuss topics that reflect their distinct ideologies. This can be crucial in the enhancement of global citizenship.

Preliminary Design Principle 2: Synergistic partnership of learners and teachers

The second preliminary principle pertained to the participants in the exchange, namely the learners and the teachers who create together synergistic partnerships in order to inform the exchange and contribute towards the success of the intervention. The students are considered as significant stakeholders who contribute to the design, implementation and evaluation of the exchange in an effort to leverage the intervention and allow the affordances to emerge. Similarly, the teachers/researchers are cautious observers, rigorously recording instances of competence learning, and exhibiting flexibility in modifying the design if the need arises. This principle was guided by the methodological approach that was adopted in this study. Design-based research considers students as significant stakeholders who contribute to the design, implementation and evaluation of interventions. This form of participatory design is also in line with a global citizenship approach which advocates democratic participation, experiential engagement, and critical reflection upon learning (Annette, 2002).

Preliminary Design Principle 3: Technological mediation

The third design principle concerned the technological mediation of the exchange. The choice and deployment of technological tools should be examined thoroughly as it might affect the success or failure of the project. The different tools must be evaluated based on their unique features to support the project goals and their appropriateness in relation to the designed tasks and expected outcomes. In a global competence oriented virtual exchange, the tools and technologies selected must facilitate the development and deployment of clusters of competences, such as openness to cultural otherness or skills of listening and observing, via the use of tools that allow synchronous communication in order to establish social presence and a sense of connection with the partners. Similarly, the development of cooperation skills which is central in global competence learning should be facilitated through technologies that afford opportunities for collaborative work and co-creation of meaning and common products. Therefore, as

students mentioned in the focus groups, a combination of technologies should be selected consisting of at least two or three modes, each serving a different purpose and facilitating different objectives. The analysis of the exploratory questionnaire as well as the focus groups highlighted the students' extensive use of technology and the variety of tools and applications they are engaged with. This suggests that a multimodal environment whereby students engage with multiple technologies for interaction and collaboration would be positively received. Therefore, the planned intervention would be mediated by a technology-rich environment, affording an array of opportunities for cross-cultural communication and meaningful cooperation.

Preliminary Design Principle 4: Task design

The fourth design principle concerns the design of tasks. Informed by weak approaches to telecollaborative task design, the planned intervention aimed at bridging the gulf between mere exchange of cultures and real global learning within an international collaboration. Therefore, task design should be established with a social perspective, aiming at facilitating the emergence of affordances for global competence learning. Tasks should be designed with a view to promoting meaningful interaction and collaboration towards achieving common goals which go beyond the sharing and exchanging of cultural information. In addition, as it was emphasised in the focus groups discussions, the tasks should be embedded in the respective courses' curricula and be informed by them in order to place the learners' academic and professional needs at the centre of the exchange. Students clearly highlighted the importance of communicating around tasks that reflect their majors; therefore, this was taken into account in the design of the proposed intervention.

Preliminary Design Principle 5: Themes

The final principle is related to the choice of themes that underpin the exchange. In an emerging model that aspires to develop global competence, the topics should not be limited to the 4Fs - Food, Festival, Folklore, and Fashion. Instead, themes should revolve around critical 21st century issues, highlighting the interconnectedness of our world today and the dynamics of international partnerships in the global arena. This principle was informed by a critical review of previous virtual exchange projects which engaged learners in superficial discourse. In addition, this principle was guided by the

analysis of the focus groups which pointed to the inclusion of themes that are grounded in related domain-specific areas in order to enable learners to relate with the topics.

4.9 Chapter Summary

Chapter 4 reports on the first phase of the study, the Exploration phase. It presents the main stages of this phase, namely the secondary research, as well as the collection of qualitative and quantitative data. The chapter continues with the analysis of the data and the findings which informed the design of the first iterative cycle. Chapter 4 ends with reference to the conceptualisation of the fundamental elements of the telecollaborative ecosystem and the evolution of preliminary principles that guided the design of the first intervention.

Chapter 5: Implementation Phase

5.1 Introduction

This chapter describes the second phase of the study, the Implementation phase. It reports on the design and enactment of the three iterative cycles conducted within a design-based research paradigm, and it demonstrates the findings that emerged from the analysis of the data upon completion of each intervention. The interventions were created collaboratively through a synergistic partnership between two practitioners and researchers and through the contribution of learners by means of quantitative and qualitative data collection. The interventions were also informed by an exploration of the local context, relevant literature, theory, and an examination of practice in other contexts. Each iterative cycle was evaluated for its affordances for global competence and content-based learning. The analysis and reflection that followed each iteration fed into the subsequent cycle and resulted in the adjustment of both the context and the intervention in order to optimise learning. The reflexivity process that characterises design-based research methodologies led to continuous evolution of the design and a refined version of the project.

The chapter will present the three cycles chronologically, beginning with the first intervention, a dual pilot interdisciplinary exchange comprised of the SCI-TEL (Spain-Cyprus Intercultural Telecollaboration) and CSI-TEL (Cyprus-Spain Intercultural Telecollaboration) projects. The discussion of the affordances of this project will culminate with reference to the refinements made, and the evolution of the redesigned project. The chapter will then be directed to the second intervention, the BEGIN project, a Business English Intercultural Telecollaboration project. The discussion of this intervention's affordances will conclude with the contribution of this intervention to a refined design of the project. Finally, the chapter will discuss the third intervention, the YES (Youth Entrepreneurship for Society) project and demonstrate its unique affordances in developing learners' global competence and active citizenship through an internationalised ESP curriculum. The chapter will end with reference to the integration of additional contextual elements and design principles.

5.2 First Intervention: SCI-TEL and CSI-TEL Projects

The SCI-TEL (Spain-Cyprus Intercultural) and CSI-TEL (Cyprus-Spain Intercultural) telecollaboration projects were tailor-made interventions designed to foster global competence and domain-specific learning. In the ESP courses under scrutiny, the students worked collaboratively with remote peers of diverse cultural background through Google applications, allowing them the opportunity to communicate and interact with each other and to get involved in collaborative learning by carrying out tasks together. The SCI-TEL and CSI-TEL projects were developed with an interdisciplinary design in mind as they connected learners who majored in diverse fields of study and therefore were enrolled in different ESP modules. The rationale behind the cross-disciplinary partnering lay in the aspiration to create an educational environment that would afford students the opportunity to exchange different perspectives stemming from their diverse domain-specific knowledge and expertise. The researchers' hypothesis was that learners would bridge the knowledge gap and combine their different academic backgrounds collaborating towards achieving their shared goals, informed by diverse disciplinary perspectives. The project's collaborative tasks were developed within a constructivist approach to learning, designed to foster negotiation of meaning and filling of information gaps. This was deemed conducive to the learners' social development, rendering them as the more knowledgeable others (MKO) who have a better understanding with respect to particular domain-specific concepts and information (Vygotsky, 1978).

A total of 143 students participated in the SCI-TEL and CSI-TEL projects. Each project lasted for one semester (13 weeks), starting in September 2015 and adjourning in December 2015. A project calendar was kept throughout the whole project and kept track of all the activities undertaken. The project was dual as it comprised two cross-disciplinary partnerships: the SCI-TEL (Spain Cyprus Intercultural Telecollaboration) Project which connected 32 first-year students majoring in International Business at the University of Valencia and 43 first-year students majoring in Hotel and Tourism Management at the School of Business at the Cyprus University of Technology, and the CSI-TEL (Cyprus Spain Intercultural Telecollaboration) Project which connected 30 first-year students majoring in Mechanical Engineering at the University of Technology and 38 first-year students majoring in International Business at the University of Valencia. The linguistic level of CUT students ranged between B1-B2 of the CEFR

while the linguistic level of UV students ranged between B2+-C1 of the CEFR. Table 16 presents the participants and settings of the first intervention:

Intervention 1: Participants and Settings	N	Percent
Institutions		
Cyprus University of Technology	73	51,0
University of Valencia	70	48,9
Total	143	100,0
Project		
SCI-TEL	75	52,4
CSI-TEL	68	47,5
Total	143	100,0
Degree		
International Business	70	48,9
Hotel and Tourism Management	43	30,0
Mechanical Engineering	30	20,9
Total	143	100,0
Age		
17-20	123	86,0
21-24	13	9,1
25+	7	4,9
Total	143	100,0
Gender		
Male	63	44,1
Female	80	55,9
Total	143	100,0

Table 16: Participants and settings of first intervention

5.2.1 Project Structure, Tasks and Activities

The SCI-TEL and CSI-TEL projects were structured based on Gilly Salmon's model, a five-stage model that can be used for structuring online activities (2000). The first stage is Access and Motivation whereby the learners access and are introduced into the online environment. At this stage activities are concentrated on providing motivation and clear instructions, accompanied by necessary technical support. The second stage is Online Socialisation during which learners connect with others and create a micro community. Learners bring their own experiences and anxieties into the community through activities that focus on enabling participants to relate to others and on reasonable stretching tasks. The third stage is Information Exchange whereby learners engage in mutual exchange of information and achieve cooperative tasks. At this stage tasks can focus on enabling learners to impart information to each other, explain, clarify and provide feedback. Group working at this stage can prepare learners for the cooperative activities in the next stage. The fourth stage is Knowledge Construction. During this stage interaction and tasks become more collaborative as learners work towards a group

goal. The fifth stage is Development whereby learners build on ideas acquired during the previous phases and reflect on the learning process. Tasks at this phase concentrate on making judgements on the experience and the knowledge built. Learners are encouraged to engage in evaluation and critique of the learning experience as well as explore their feelings and emotions. In Salmon's model of e-tivities, the role of the moderator/facilitator is highlighted in all stages for providing adequate scaffolding and support, for setting the environment tone, the pace and the rhythm of the activities, and for providing information and encouragement. Figure 6 demonstrates Gilly Salmon's 5-stage model:



Figure 6: Gilly Salmon's 5-stage model

In the SCI-TEL and CSI-TEL project tasks and activities were designed with the end goals in mind and were mediated by appropriate technological tools. Table 17 presents an overview of the project's tasks and activities mediated by Google technologies and structured according to Salmon's 5-stage model (Sevilla-Pavón & Nicolaou, 2019):

Intervention 1: SCI-TEL and CSI-TEL Projects	
Structure	Tasks and Activities
Access and Motivation	- Getting to know the project and the technologies - Students (Ss) receive the project information leaflet and sign the consent form. - Ss create a Gmail account and compose their digital profile on Google+ with basic information about education, work, places visited, interesting facts and stories. They upload a photo/avatar or image. - Ss join the Google+ Community which was created by the teachers. - Ss complete the pre-intervention questionnaire. - Ss post ice-breaking questions on Google+ Community.
Online Socialisation	- Meeting the partners - Ss explore their partners' digital profiles on Google+. - Ss play a game on Kahoot! 'What do you know about Cyprus/Spain?' - Ss respond to their partners' ice-breaking questions on the Google+ Community. - Ss form local and telecollaboration groups. - Ss create and upload personal introductory 2-minute long videos on Google+ Community. - Ss view their partners' videos and comment on them on Google+ Community. - Ss organise and conduct their first synchronous exchange on Google+ hangouts. In their conversations they may discuss the ice-breaking questions and personal introductory videos, the Kahoot game, etc. - Ss compose their written reflections individually on Google Docs delineating their impressions of the experience and learning so far.
Information Exchange	- Sharing experiences - Ss share their language experiences by writing a story of a personal good or bad memory related to the use of language. They post their story on Google+ Community. - Ss read their partners' stories, compare their experiences and comment on them on Google+ Community. - Discussing stereotypes - Ss watch Ted Talk 'The danger of a single story' by Chimamanda Adichie and respond to the question on Google+ Community: <i>What is your single story of the 'other country' and where do you think it comes from (e.g. media, books, family, vacations, etc.)?</i> - Ss engage in a discussion on 'Stereotypes' on Google+ Community. - Thinking globally - Ss engage in a discussion on 'Good countries' responding to the questions: <i>Have you ever thought which country does the most good for the world? Which country is the one that contributes something to the world in which we live in? Which country seems to make the world better, safer, richer fairer?</i> - Ss make a list of the Top 5 countries which they think they do the most good for the world. They justify their winners' list with a short explanation on Google+ Community. - Ss watch Ted Talk 'Which country does the most good for the world' by Simon Anholt and visit The Good Country Index website. - Ss reflect on their Top 5 countries winners' list and compare with their partners' list.
Knowledge Construction	- Intercultural/global scenarios problem-solving - Ss read intercultural/global scenarios. - Ss organise the second synchronous exchange on Google Hangouts to discuss the problem-solving task with their partners. - Ss choose one of the scenarios and follow a problem-solving methodology in order to provide solutions to the problem. - Ss work collaboratively on their telecollaboration's shared group folder in Google Drive. - Ss collaboratively elaborate a problem-solving report on Google Docs. - Digital Storytelling: Creating a new country - Ss get a problem to solve. They need to create a new country and consider its main

	features drawing from their domain-specific knowledge and expertise. • Ss play a game on Blubbr about the creation of a new country. • Ss watch examples of digital stories on Google+ Community and write comments. • Ss brainstorm about their topic, structure, software and resources for their digital story on Google Docs. • Ss exchange ideas with their partners on Google Hangouts. • Ss create the storyboard of their digital story on Google Docs. • Ss create their script on Google Docs and share it with their partners. • Ss send and receive feedback on their partners' scripts. • Ss create their digital stories using different media • Ss share their digital stories on Google+ Community.
Development	• Evaluating and reflecting • Ss watch their partners' digital stories and provide feedback on Google+ Community. • Ss assess their partners' digital stories using the assessment sheets and vote for the best digital story on Google Forms. • Ss prepare and deliver oral presentations of their new countries. • Ss assess their peers' oral presentations and vote for the best one on Google Forms. • Ss receive their awards for best digital story and best oral presentation. • Ss complete the post-intervention questionnaire. • Ss participate in focus groups. • Ss film, edit and publish a farewell video on Google+ Community.

Table 17: Overview of SCI-TEL and CSI-TEL project tasks and activities

The SCI-TEL and CSI-TEL projects were designed with a view to developing learners' global competences through information exchange, comparison, and collaborative tasks. Tasks relied on group dynamics, audience awareness and ownership awareness of outputs. Students worked individually and collaboratively in local pairs and in international groups of four students. The familiarisation and briefing activities at the first stage set the scene and the tone of the exchange and introduced the learners to the technological requirements of the project. The socialisation activities were included so as to contribute to the learners' induction in the virtual micro-community. Learners were required to share their digital profiles and personal stories related to language learning so as to facilitate the creation of social presence and help learners become members of this small community bringing their individual experiences to the group. The two technologically-mediated games added the elements of fun and competition in the exchange while building on their knowledge of the other culture and on insights pertaining to the collaborative tasks. As for the two TED Talks, they served as learning stations that preceded or followed discussions on critical issues, such as stereotypes and global awareness. Chimamanda Adichie's 'The Danger of a Single Story' is a culturally relevant and moving TED Talk which utterly illustrates what happens when complex human beings and situations are reduced to a single narrative. The talk is a perfect example of the power of storytelling, summarising people's tendency to view others

through a single lens, a single perspective, a single story. The TED Talk sparked monologic narratives and dialogic interaction on Google+ Community, characterised by deep reflection on the learners' own 'single stories' and how these were created. An example of this kind of discourse is the following Google+ Community post uploaded by a student at UV:

Chimamanda Ngozi Adichie uses her personal experiences in order to get closer to the audience and make us understand how vulnerable we are when we listen to a story. She emphasises that listening to a single story about anybody can create a wrong stereotype about them. And then, it is what they become in our mind. Moreover, these stories can be manipulated by media. For instance, Europe is living a crisis caused by the thousands of refugees that are coming here looking for shelter. Media is telling us how difficult the distribution of refugees has been; however, it doesn't tell us about the bad moment that refugees are living. Consequently, many people think that refugees are immigrants that don't have the right to remain in Europe, because they only disturb. At this moment, it has been created a wrong stereotype about refugees. This is the reason why we should reject single stories because they rob people's dignity, as Chimamanda said in the video. To summarise, we need to avoid single stories because they emphasise how different we are. We should learn more about other cultures and do not believe what people say before confirm that it is true. Personally, travelling more could be one of the best solutions. (P12, UV, Intervention 1)

An example of dialogic discourse that was produced is the following Google+ Community post uploaded by a student at CUT and commented on by a student at UV:

Here's what I've learned from Chimamanda Adichie's speech: the power of the single story paints a false picture of the world. She demonstrates the ways in which our society is a collection of social stories and most of them are made by people with social power. "The problem with stereotypes," Adichie says, "is not that they are untrue, but that they are incomplete. They make one story become the only story." Depending on the social power of those holding and employing these ideologies and stereotypes, they can have significant impact on social structures and the life chances of others. A single story can inspire, it can teach a lesson, provide a personal connection, build respect, or evoke emotions in a way that statistics and cold facts cannot. As a result of that we may create a fake image about the subject of that story. Personally, I am glad that I don't have this ideology of creating an impression just from hearing one version of one thing. I do not have a single story about anything because generally I am a very curious person. From the moment I hear a stereotype about something, I search deeply and I discover many other information which helps me create a complete image about it. In conclusion, you have to know that nothing is defined about the circumstances in which it happened to be in the moment you find out about it. (P22, CUT, Intervention 1)

Very good point! Being a curious person will also make you more empathetic and that is great :) (P15, UV, Intervention 1)

Similarly, Simon Anholt's TED Talk 'Which country does the most good for the world?' anchored the discussion on global problems, such as climate change, terrorism, migration, and economic crisis. As mentioned in the talk, these problems have become too complex for any individual nation to solve. But instead of collaborating, nations spend all their energy and resources competing against each other. The 'Good Country' is a global popular movement which aims to change the culture of nations and their

governments from fundamentally competitive to fundamentally collaborative. As Simon Anholt claims, *this is the only way that we can address the grand challenges currently facing humanity. It's an unexpected side effect of globalization: problems that once would have stayed local now have consequences worldwide. But still, countries operate independently, as if alone on the planet.* The TED Talk and the 'Good Country Index' triggered a reflection on learners' own country's contribution to a better world and initiated a discussion on each country's responsibility towards the rest of the globe. The following comments on Google+ Community illustrate the discussion that took place on global responsibility and each country's contribution to the world:

After watching TED's video, we decided to add Ireland to our list. We agree with the idea of a good country and Ireland is the one that has those characteristics. Now we think that a good country doesn't have to do with economic situation or power, it has to do with humanity, respect and decisions taken to help other countries leaving behind the competition between them. We think that the five top countries that make the world better are: Sweden, Switzerland, Norway, and Finland. They are the least pollutant countries all over the world and all of them have a lot of power and a high economic development. For us Spain would be also one of these countries because of the projects they are involved in internationally. But studies show that Spain is one of the responsible of climate change due to the emission GHG (greenhouse gases). (P38, UV, Intervention 1)

In some cases the discussion on the Community included conflicting views of global responsibility. It is important to note that the Community operated on lenient ground rules, terms of use and conditions with appropriate moderation by the two teachers as moderating the online environment is essential as it requires participants to conform to specific rules and cultural practices (O'Dowd, 2001). Students' opinions, writing styles, tones of voices were not judged, and language errors were neither corrected, nor penalised. The learners' evaluation of their contribution to the Google+ Community was based upon the level of dedication; i.e. timely responses, responsiveness to their partners' inquiries and prompts and tasks completion. The following examples illustrate learners' engagement in constructive discourse on the Community presenting their conflicting views of each country's global responsibility:

I don't really agree with your top 5 list because in my opinion, a country which does the most good for the world is a country which respects the planet and takes care of it. And none of your countries except Sweden does it. I don't think that because of the fact that a country has plenty of rich banks, or because it has a lot of advanced technologies which contaminate the planet it is a country which is good for the world. (P25, UV, Intervention 1)

I don't agree with you guys, because as I see it, for choosing a country that contributes to the world's welfare it has to accomplish being clean, fair, and being involved in education and investments. If a country only invests in their own profit and tries to be the richer, modern and better country, that's not how it works. It has to think of the world as a group and invest in good things for everyone. (P30, CUT, Intervention 1)

The SCI-TEL and CSI-TEL projects aimed at building learners' global competences, such as valuing cultural diversity, responsibility, tolerance of ambiguity, autonomous learning skills, analytical and critical thinking skills, flexibility and adaptability, cooperation skills, conflict-resolution skills, knowledge and critical understanding of the self, as well as knowledge and critical understanding of the world, among others. Through their involvement in interaction and collaborative work with their partners, learners were expected to develop individual competences or clusters of them using the technological mediation provided to them and interacting with the technological tools to allow for more competences to emerge. The collaborative problem-solving task and the digital storytelling project were designed with those competences in mind, while at the same time aiming at building on learners' prior and newly acquired domain-specific knowledge in international business, hotel and tourism management, or mechanical engineering. Learners were expected to apply this knowledge in both their efforts to resolve the problems demonstrated in the scenarios and in the creation of their digital story.

As far as the problem-solving task was concerned, learners were engaged in a process of identifying and providing solutions to context-based intercultural or global situations. This activity mandated the orchestration of multiple skills and the effective communication between the partners in the assigned groups. Learners were required to deploy their critical-thinking and decision-making skills, coupled with creativity, and ability to see things from different perspectives. This task urged the deployment of the ability to compromise within a group, to listen actively, and to accept diverse viewpoints. The problem-solving task was considered by the two teachers who designed it as a reasonable stretching activity which would serve as a precursor of the culminating task, the digital storytelling project, which was deemed more challenging in terms of competence and technological requirements. The problem-solving task was an opportunity for learners to experiment with team work, research, collection, storing and sharing of resources on Google Drive, as well as collaborative creation and sharing of documents on Google Docs. The task also required frequent synchronous or asynchronous communication between the partners in order to complete the activity in steps. Learners were required to follow a problem-based methodology comprising five steps: reading, understanding and selecting one of the scenarios; identifying and describing the problem; deconstructing the problem and providing possible

explanations; thinking of hypothetical solutions; evaluating solutions and selecting the best alternative. The scenarios were either devised by the two partner teachers or they were adapted from various resources. One example of the intercultural/global scenarios given to learners to choose from was the following (Sevilla-Pavón & Nicolaou, 2019):

Title of Scenario: Tower of Babel

You have recently been appointed as Head of the Sales Department in a Portuguese corporation. The employees of the company are mostly Portuguese who speak English as a foreign language at a satisfactory level. Communication during meetings is done in the local language. Recently, two new employees have been recruited in the company. They come from France and their knowledge of Portuguese is at a very low level. During department meetings, the two newly-appointed employees can actively participate only if communication is done in English; otherwise they use French, which is only spoken by very few other colleagues. You, as Head of the Department, have decided to deliver all departmental meetings in English so that everybody can speak and contribute with ideas on the various issues on the agenda. This decision has really satisfied the French newcomers but the local staff feel really upset as they have to switch conversation to a foreign language because of the two new colleagues who refuse to try to communicate in the local language. The whole situation has caused irritation during meetings, leading to misunderstandings and making communication ineffective. You need to take some action to overcome this problem.

With the targeted competences in mind, a digital storytelling group project was designed and assigned to students at the two universities participating in the SCI-TEL and CSI-TEL projects. The students were given a scenario which was inspired by international breaking news at the time and concerned NASA's discovery of the most Earth-like alien planet, a world called Kepler-452b. In this context, the digital storytelling project's scenario presented the possibility of relocating to and settling on this new planet as the Earth's doomsday was approaching due to a collision with a giant asteroid. Therefore, the students were assigned the challenging task of creating a new country there and convincing a national committee that their invented country would be the best place to live and work in, as well as being an appealing tourist destination. Students were given a list of elements to consider when creating their new countries, such as the name of the country, the standard of living, the country's main features, climate, population, urban versus rural areas, mother tongue, the choice between a common language or a mix, engineering infrastructure, political system, established or developing industries, effect on unemployment figures, cost of living, housing, crime rate, penal system, immigration policies, ecology and policies to deal with climate change, healthcare, family structure, marriage laws, religion, and tourist attractions (Sevilla-Pavón & Nicolaou, 2017). "This project was the culminating task of a preceding sequence of tasks, which served as a prelude and which had a global nature

and orientation. Therefore, when students set out to create their new countries, most of them had naturally been put in a global frame of mind and thus created their new countries incorporating elements originating from various countries and cultures” (ibid, p. 48). This echoes Ware and O’Dowd’s reference to careful sequencing of tasks so that they build on the previous interaction (2008).

As for the main steps followed by the CSI and SCI-TEL project’s participants when making their digital stories, these were: pre-writing, including brainstorming, collecting images, researching, outlining, and storyboarding; drafting, which involved the collaborative creation of subsequent versions of a script which was self-corrected using an error self-correcting template; revising, which had to do with modifying images and organisation; editing, which involved the organisation of timing, images, and narration; and publishing, the final step in which participants shared the final product with an authentic audience through social media in the form of a digital story (Sevilla-Pavón & Nicolaou, 2017). The digital storytelling project involved collaboration both within local and telecollaborative groups. Throughout the whole project, students assumed diverse roles, such as the roles of team leader, researcher, writer, editor, reviewer, facilitator, expert, or film director. The various stages of the project from the beginning up until completion required the students to adopt different roles at different times, enabling participants to switch back and forth between them (Sevilla-Pavón, 2015). Students were provided with specific instructions on a weekly basis with a view to guiding them through the completion of the different tasks of the project (Sevilla-Pavón & Nicolaou, 2017). The following scenario was given to students which provided a context for the whole DST project:

Your new job: creating a new country

Life on Planet Earth is about to end. According to NASA scientists, 2 months from now a giant asteroid will collide with our planet at 38,000 miles per hour, destroying everything. To escape a doomsday caused by the collision, humans will flee to Planet Kepler 186f. You have been assigned the challenging task of creating a new country there and convincing a national committee that your invented country is the best place to live and work, as well as being an appealing tourist destination. Therefore, your digital story should be very clear and persuasive, and you will need to make decisions concerning the following questions.

After reading their scenario in their telecollaborative groups, the students were asked to brainstorm and take notes of their ideas and possible answers to the different questions

about the new country. Following this step, students were asked to ponder for a while the type of 4 minute-long digital story they would produce, considering the following aspects: a) how to approach the topic in an authentic and appealing way; b) the general structure of their digital story c) the software or application to be used to create their digital story (Windows Movie Maker, iMovie, Prezi, PPT), and d) the kinds of visual and aural resources needed. Afterwards, they had to start creating a storyboard for their digital story, brainstorming ideas for their script and writing it collaboratively, as well as peer and self correcting the aforementioned subsequent versions of the script. Next, they had to collect all their visual resources and coordinate those with their voice over narration, which they had to record. Once their coordinated visuals and narration were ready, participants were asked to export their digital stories in a suitable format and to share them on the Google+ Community. Finally, they had to evaluate their own as well their classmates' digital stories by exchanging peer review comments and by filling in the assessment sheets. They also had to vote for the best digital stories in the different categories so that the winners could be given awards in the farewell ceremonies which were organised locally at the end of the project. A digital storytelling competition was held in order to foster critical evaluation of learners' outputs, and voting polls and rewards system were included to intrigue and sustain learners' interest in the tasks and the overall exchange projects (Sevilla-Pavón & Nicolaou, 2017).

The design of task sequence in the SCI-TEL and CSI-TEL projects placed emphasis on purposeful communication and skills integration. Within a constructivist paradigm, collaborative tasks promoted positive interdependence as students relied on one another to complete the task. The variety of tasks as well as the multimodal nature of the activities aspired to keep the students' interest, allowing for flexibility while exposing students to a diverse text types and modalities. Groups were randomly created; however, in cases of group asymmetries, the teachers facilitated the reorganisation of teams, helping weaker and less motivated learners to engage in the tasks and benefit from the exchange. The mediation of synchronous and asynchronous interactions and the collaboration on common outputs was achieved through Google applications. This single sign-on system was considered practical and conducive to participation and engagement as learners did not have to switch between different platforms in order to carry out the tasks. Using Google applications also helped in avoiding distractions that might have been common in the case of social networking websites students used in

their personal life on a regular basis, such as Facebook. Most learners did not have a Google+ account prior to their participation in this project; this ensured that they did not disclose any personal information that they did not feel comfortable sharing with their partners.

5.2.2 Data Analysis and Findings

Following a design-based research methodology, the study adopted a mixed-methods approach to collect data aiming at recording perceived competence learning. Data were collected by means of pre-intervention and post-intervention questionnaires, focus groups and learners' written reflections. Table 18 summarises the collection of multiple data during the first iterative cycle:

Intervention 1: Methodology	Data Collected and Sample
Pre-intervention questionnaires	143 returned questionnaires
Post-intervention questionnaires	92 returned questionnaires
Matched pairs	70 matched pairs
Focus groups	88 participants
Written reflections	44 papers

Table 18: Intervention 1 data collection

The quantitative analysis of post-intervention questionnaires in SPSS indicated that the virtual exchange project was positively received by the learners. The learners demonstrated their perceptions pertaining to the benefits of the telecollaboration projects by giving a higher than average score on eight Likert-type questions exploring the gains of the exchange. The Likert scale used ranged from 1-8 whereby 1 meant 'Completely disagree' and 8 meant 'Completely agree'. Table 19 presents the mean scores in the responses of 92 students who completed the post-intervention questionnaire. The mean scores in all eight questions are above 5 which signify positive attributions to the telecollaboration experience and acknowledgment of the benefits of this project:

Intervention 1: Perceived Benefits	N	M	SD
Telecollaboration has helped me improve my skills in English	92	5,11	1,667
Telecollaboration was fun and exciting.	92	5,35	1,794
Telecollaboration has improved my ICT skills.	92	5,54	1,486
Telecollaboration has brought me closer to other cultures.	92	5,29	1,770
Telecollaboration has made me feel part of a learners' community.	92	5,54	1,731
Telecollaboration has helped me improve my intercultural communication skills.	92	5,41	1,638
Telecollaboration was a good way to meet new people.	92	5,74	1,932
Telecollaboration was a good opportunity to experience online interaction.	92	5,70	1,740

Table 19: Learners' perceptions about virtual exchange

With regard to Cultural Awareness, students were asked to respond to 20 Likert-type questions (1-5 whereby 1 meant Completely Disagree and 5 meant Completely Agree) on the pre-intervention questionnaire. This set of questions aimed at exploring students' level of cultural awareness and pertained to their views and perceptions of other cultures, their curiosity and willingness to interact with people from different cultural backgrounds, as well as their reactions and attitudes in cases of discrimination based on cultural differences. The same questions were included in the post-intervention questionnaire which was administered upon completion of the virtual exchange project. A Cronbach's Alpha reliability test was carried out on SPSS in order to measure the internal consistency of the set of 20 questions. Cronbach's Alpha test aimed at understanding whether the 20 questions in the Cultural Awareness section of the questionnaire all reliably measured the same latent variable (cultural awareness). The analysis indicated that Cronbach's Alpha was **0.856**, which demonstrated a high level of internal consistency for the scale with this specific sample. Table 20 presents Cronbach's Alpha reliability analysis:

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,856	,861	20

Table 20: Intervention 1 Cultural Awareness Cronbach's Alpha analysis

A paired-samples t-test was then run to compare the means between the students' level of cultural awareness prior to their participation in the SCI-TEL and CSI-TEL projects

and upon completion of them. The analysis was run for 70 pairs who could be matched in both the pre- and post-intervention questionnaires based on their stated date of birth on both questionnaires. As indicated by the analysis, there was a rise in the level of students' cultural awareness; however, this difference was not found to be statistically significant. As the score is far from significance in this analysis, the results provide no support of any hypothesis that the intervention brought about gains in these score. Table 21 demonstrates the paired-samples t-test analysis:

Differences in Level of Cultural Awareness	N	M	SD	t-value	P
Cultural Awareness					
Pre-intervention	70	3,64	,569		
Post-intervention	70	3,68	,570	-,722	,473

Note: Responses were marked on a Likert scale from 1-5 whereby 1 meant 'Completely Disagree' and 5 meant 'Completely Agree'. Column heading M refers to the mean responses.

Table 21: Intervention 1 paired-sample t-test analysis of cultural awareness level

A substantial amount of qualitative data was collected in order to gain a deeper understanding of global competence development and learning. Qualitative data were gathered by means of focus groups and written reflections. Focus groups were conducted upon completion of the SCI-TEL and CSI-TEL projects while reflection papers were composed by learners at different stages during the intervention. Transcriptions of focus groups with 88 students and reflection papers composed by 44 students were entered in NVivo and were analysed based on the *Reference Framework of Competences for Democratic Culture* (Council of Europe, 2016). The 20 competences delineated in the framework formed the basis of the coding scheme (CDC Competences). During the analysis, patterns (themes) were identified within the data. Themes constituted important statements in relation to the research questions that represented some level of patterned response or meaning within the data set. Themes were assigned a code that corresponded to a competence from the model and were analysed using annotations and memos to capture the researcher's reflective thoughts about the themes under investigation or any emerging themes.

Coding matrices were used to observe intersections between the data. The CDC conceptual model (Council of Europe, 2016) consists of 20 competences which are classified in four broader categories (CDC Categories): 3 competences are under the category ‘Values’, 6 competences are under the category ‘Attitudes’, 8 are categorised as ‘Skills’ and 3 are under the category ‘Knowledge and critical understanding’. A matrix coding was created in NVivo to cross-tabulate the coding intersections between the four broad categories of the CDC model. The matrix indicated that all four categories were coded in the analysis, with ‘Skills’ being the category mostly coded, followed by ‘Attitudes’. The category that was least coded was ‘Values’. Table 22 demonstrates the coding intersections between the four CDC categories:

Intervention 1	
CDC Categories	Number of References Coded
Values	10
Attitudes	139
Skills	144
Knowledge and Critical Understanding	75

Table 22: Intervention 1 coding intersections between the four CDC categories

The analysis of the data separately for each category and its related competences provided insights of the kinds of competences that learners developed through their participation in the SCI-TEL and CSI-TEL projects. The analysis indicated that learners seem to have developed an attitude of openness to cultural otherness and to other beliefs, world views and practices more than any other competence in the CDC model. This competence is described in the model as “an attitude towards people who are perceived to have different cultural affiliations from oneself or towards beliefs, world views and practices which differ from one’s own; it involves sensitivity towards, curiosity about and willingness to engage with other people and other perspectives on the world” (Council of Europe, 2016, p. 8). As shown on Table 23, this competence was the most coded of all competences in the CDC model. The other competences follow with fewer references coded:

Intervention 1	
CDC Competences	Number of References Coded
1 : Valuing human dignity and human rights	1
2 : Valuing cultural diversity	7
3 : Valuing democracy, justice, fairness, equality and the rule of law	2
4 : Openness to cultural otherness and to other beliefs, world views and practices	117
5 : Respect	5
6 : Civic-mindedness	0
7 : Responsibility	8
8 : Self-efficacy	3
9 : Tolerance of ambiguity	6
10 : Autonomous learning skills	18
11 : Analytical and critical thinking skills	5
12 : Skills of listening and observing	11
13 : Empathy	4
14 : Flexibility and adaptability	22
15 : Linguistic, communicative and plurilingual skills	27
16 : Co-operation skills	47
17 : Conflict-resolution skills	10
18 : Knowledge and critical understanding of the self	26
19 : Knowledge and critical understanding of language and communication	7
20 : Knowledge and critical understanding of the world	42

Table 23: Intervention 1 number of references coded in the 20 CDC competences

Drawing from learners' comments in the focus groups and written reflections, it seems that participants in the projects exhibited an attitude of openness to the other culture and showed curiosity about other world views, beliefs, values and practices. They demonstrated an interest in learning about their partners' daily routines, practices, or traditions, making comparisons between the two cultures and reflecting on their own routines and practices. A student explains how the conversations during the exchange

resulted in an understanding that some things may happen differently, and sometimes even better, in another country. This led to developing positive feelings towards other countries and an appreciation of other cultures:

The feelings about what is happening here in Cyprus and what is happening in Spain... I felt that in Spain their standard of living was higher, they had things in order, and they were more organized than us. We are, me in particular, somehow last-minute people. They lived in a crowded city where things were orderly. For instance, his hobby was playing football and he told me about the specific times he trained, and it was as if he was a professional football player, while it was simply a hobby. He was simply well-organized. And I felt that I, living in Cyprus, should improve this, but I wasn't feeling bad because I know he was a young person too, and I could do this just as he was able to do it, and I somehow felt a little better as far as the other countries in the world (P34, CUT, Intervention 1)

The learners' openness to cultural otherness was also demonstrated in their interest in travelling to their partners' country. In addition, many of them expressed appreciation of the opportunity that the project gave them for meeting other people of diverse origins and culture while some of the participants sought contact with their counterparts beyond the scope of the project. This attitude of openness to cultural otherness seems to have developed along the way. Initially, some students exhibited reluctance to interact mainly due to lack of sufficient confidence; however, an attitude of curiosity and willingness to communicate and share information about their culture was gradually observed especially after their foreign counterparts initiated discussion by searching out for them and sending the first messages or invitations to talk on Google Hangouts. This extroverted attitude is in line with the findings from quantitative data analysis which indicated a rise in learners' cultural awareness levels. The learners' quotes on Table 24 demonstrate their open attitude towards cultural otherness and to other beliefs, world views and practices:

Intervention 1	
Openness to Cultural Otherness	Students' Quotes
Expressing an appreciation of the opportunity to experience other cultures	<i>Talking in English was very exciting and impressive, because people with completely different languages and from the other side of the planet collaborate with each other and be able to communicate! Fascinating and strange at the same time. I think that this project is a great opportunity for us to improve our English skills, get to know people from other countries and make new friends. (P3, UV, Intervention 1)</i>
Expressing an interest in learning about partners' traditions, values, languages, symbols	<i>I asked him about their bullfights, unfortunately Spaniards dislike the fact that people abroad recognize Spain for their bullfights. Most of the youth doesn't support this kind of festival and they are against it, because they actually kill animals at the end of each festival and they hope that in the future it could be more aware (P16, CUT, Intervention 1)</i>

Overcoming initial feelings of reservation and reluctance	<i>Basically, when I first heard it, I kept a distance from the Spanish people ... to see if I could make it, if I wouldn't make it. They took the first step, they searched for me, but then.... ok, I responded to them and this way a very nice collaboration developed. I spoke to them about Cyprus, they told me about Spain. (P4, CUT, Intervention 1)</i>
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Table 24: Openness to other cultures

It's interesting to see that students engaged in a comparison between the two cultures and found many similarities. However, it seems that their conversations focused on the things they had in common. Their communication remained at a superficial level and did not include any critical knowledge of each other's way of thinking or any kind of positive interdependence that could possibly promote international collaboration and learning at a more sophisticated level. This echoes Ware and Kramsch's "illusion of commonality" (2005, p. 200) which signifies a reduced approach to intercultural education confined to a view that 'deep down we are all the same' (Kramsch, 1995). Mere communication and exchange of cultures does not constitute intercultural learning. As Liddicoat and Scarino (2013) mention, "the problem is that exposure to interaction itself does not necessarily equate with intercultural learning... to be able to contribute to learning, the interaction must first become available in some way for students to reflect and interpret (p. 112). In addition, it seems that in many cases the learners' openness towards cultural otherness was limited to merely "collecting experiences of the 'exotic'" (Council of Europe, 2018, p. 41) and comprised a superficial exchange of cultural traditions limited to casual themes about the 4Fs - Food, Festival, Folklore, and Fashion (Meyer and Rhoades, 2006). This kind of interaction does not inherently lead to "genuine negotiation of cultural meaning" (O'Dowd, 2019, p. 11) but rather results in communication at surface level that does not include the necessary gap filling, reflection or interpretation. Table 25 demonstrates a reduced approach to culture, evidenced by learners' quotes:

Intervention 1	
Openness to Cultural Otherness	Students' Quotes
Illusion of commonality	<i>It was pretty similar to our culture, They obviously had several differences but it was pretty similar, like in Spain the culture it's almost the same so we had many things in common. (P12, UV, Intervention 1)</i>
Interacting on a superficial level	<i>The conversation switched to traditional food and she sent us a photo of a paella dish. Soon we started talking about local festivals, comparing the Limassol wine festival to Tomatina festival. (P1, CUT, Intervention 1)</i>

Table 25: A reduced approach to culture

The curiosity about other beliefs and the interest in learning about people's traditions and world views was combined with another competence, that of cooperation with people from different cultural backgrounds. The attitude of openness and the skill of cooperation were many times collocated in the learners' opinions both in the focus groups and written reflections. The two competences seem to have developed and deployed as a cluster since, according to the CDC framework, competences are rarely mobilised and deployed individually; instead they are activated simultaneously in a dynamic and orchestrated way (Council of Europe, 2018). In the CDC framework, co-operation skills are described as "the skills required to participate successfully with others in shared activities, tasks and ventures and to encourage others to co-operate so that group goals may be achieved" (Council of Europe, 2016, p. 10). The SCI-TEL and CSI-TEL interventions placed cooperation between partners at the centre of the exchange through the collaborative tasks included in the task sequence. The development of this competence is manifested in the learners' creation of a positive relationship with their fellow students and their willingness to work collaboratively towards the creation of common outputs. A student comments on the importance of collaborative tasks in creating relationships and a sense of connection between the partners: *In the last activity when we collaborated as a team we developed further intimacy amongst ourselves which we didn't have before because we had never been together again in order to work together towards a task. Now that we have collaborated we definitely developed intimacy* (P39, CUT, Intervention 1). Another student discusses the essence of virtual exchange projects which lies in cooperation and working towards shared targets: *I think that the main point of the telecollaboration project is work in teams and try to achieve the goal* (P40, UV, Intervention 1).

Learners' development of co-operation skills is also manifested in their ability to arrange group set-ups, take action together, achieve good coordination and allocation of workload, and provide each other with mutual support. A student refers to the project's contribution in learning how to effectively arrange groups. The student also reflects on mutual responsiveness and equal contribution to the team, realising how important mutuality is in collaborative work and how lack of it can lead to disappointment: *Definitely, you pick people who will be cooperative and those with whom you can collaborate, and who will be willing to help you, and get help from you because if you don't find people who will be by your side ... since you are in the same team, everybody*

must contribute ... so I believe the project helped in this. (P3, CUT, Intervention 1.) In addition, the learners acknowledged the importance of group dynamics and combination of knowledge and strengths to achieve the intended results: *In our case we combined our knowledge and we completed the tasks quite easily sharing relevant and useful information and working together on a common project. We were in the same team and we had to collaborate in order to get to a good result, we didn't feel that they were strangers.* (P20, CUT, Intervention 1). In many cases learners helped each other with the work where appropriate, making improvements. High-achieving students took action to help weaker ones by making revisions on assignments while some students acted as mediators, encouraging and motivating their team members to cooperate. This was acknowledged by the less motivated students: *Basically, for me it was harder because my English is not very ... but my Spanish partner helped me and then it was ok* (P12, CUT, Intervention 1). Furthermore, students took action in order to make adjustments in their daily schedules, which were described as overloaded, so as to complete the collaborative tasks: *Since the tasks were collaborative, we had to coordinate with those in Cyprus and at the same time we had to coordinate with the Spanish students, and time was limited between tasks, and we couldn't meet the deadlines. We were under time pressure because of our other courses too* (P30, CUT, Intervention 1). Despite the challenges, the learners managed to adapt their engagements, making compromises in order to collaborate successfully. A student mentions: *I think she mentioned everything, but we mostly learned to collaborate with other people who are away from us and to compromise* (P25, CUT, Intervention 1). It is also important to note that the telecollaboration contributed to learners' appreciation of all group members' strengths, recognizing the weaknesses, motivating other group members, building a consensus and establishing agreement. *Since we are first-year students, and because these are the first assignments we have done with our fellow students, we got to learn how each one works, what are each one's strong points, weak points, what our strong points are, our weak points, and this project has helped us in that, and it will help us in the future too* (P30, CUT, Intervention 1). These skills were enhanced through the technologies that students used in order to complete the collaborative tasks: *During the time we had to write things or when our partners wrote things, we corrected each other on Google Drive, or we reviewed what was written to make sure it was representative to all of us, the whole team, this way writing is improved* (P28, CUT, Intervention 1.)

Co-operation skills were linked to another competence featuring in the CDC framework, that of Responsibility. According to the model, responsibility is “an attitude towards one’s own actions. It involves being reflective about one’s actions, forming intentions about how to act in a morally appropriate way, conscientiously performing those actions and holding oneself accountable for the outcomes of those actions” (Council of Europe, 2016, p. 9). In the SCI-TEL and CSI-TEL projects, learners expressed their willingness to meet the deadlines, submit work on time and complete assignments at a satisfactory level, recognising their personal or team commitment towards others in the same group. A student mentions: *We had to get it done before the deadline because the deadlines were very close to each other. We had to hmmm try to get into contact with the other partners and make sure that they were in the Hangouts and make sure that they didn't have to do work so we can meet and get it all done before the deadline, our deadline and their deadline which was quite a complicated thing* (P6, UV, Intervention 1).

Despite the project’s requirements which mandated the deployment of responsibility and accountability, these competences were not referenced to a great extent in the analysis. On the contrary, autonomy was perceived to a much greater extent as one of the competences that was developed. “Autonomous learning skills are the skills required to pursue, organize and evaluate one’s own learning in accordance with one’s own needs, in a self-directed manner, without being prompted by others”, (Council of Europe, 2016, p. 10). In this exchange, learners showed ability to organise and participate in online meetings with their partners without any direct oversight. In addition, they demonstrated ability to identify and select relevant information and resources without supervision. To be able to complete the main telecollaboration task which was technologically ambitious, learners engaged in a process of discovering different modes of communication and multimedia: *I had no idea about how to make the video and I had to make it all by myself. By making it I went from knowing nothing to making the video with iMovie* (P7, UV, Intervention 1). Students seem to have made decisions and assumed control of their own learning, managing their time and their academic, telecollaborative and personal engagements effectively.

Similarly, the learners developed skills of flexibility and adaptability as they adjusted to different modes of communication in order to sustain interaction. Learners quickly

adapted to the new intercultural environment, to the different technological demands of the project and to new ways of learning: *To date, we have been learning from a book, from assignments we had to complete, mostly writing. This time we did most stuff electronically and we had to do tasks, no vocabulary or grammar* (P41, CUT, Intervention 1). They also managed to overcome their initial anxieties and stress about meeting and conversing with their foreign partners: *At the start we were nervous and we did not know who we would meet, what kind of people they would be... we had to do tasks together with them, but at least in our case they were really ok, they were like us and we managed to complete the tasks we did together* (P30, CUT, Intervention 1).

SCI-TEL and CSI-TEL projects were lingua franca exchanges which aimed at positioning the learners at an equal status, using the language as a vehicle to mediate their communication and collaborative work. Linguistic, communicative and plurilingual skills are described in the CDC model as “the skills required to communicate effectively and appropriately with people who speak the same or another language, and to act as a mediator between speakers of different languages” (Council of Europe, 2016, p. 10). In this sense, learners seem to have enhanced those skills, demonstrating an ability to communicate clearly, expressing and transmitting ideas. They exhibited capability to meet the communication demands of the intercultural situation they participated in by using a shared language. Some students used skills in translating so as to get the conversation going. Using appropriate vocabulary during their interactions and making an effort to communicate clearly and accurately so as to negotiate meaning is also indicative of their linguistic and communicative competence learning. These skills were mediated by synchronous communication on Google+ Hangouts. The learners’ quotes on Table 26 demonstrate the linguistic, communicative and plurilingual learning:

Intervention 1	
Linguistic, Communicative and Plurilingual Skills	Students’ Quotes
Avoiding communication breakdowns	<i>I also believe that it has helped us develop language in general because when we were having the hangouts, my partner wrote to me certain things that I did not understand and I wanted to translate them in order to understand them</i> (P2, CUT, Intervention 1)
Mediating linguistically by translating	<i>In my case, because my Spanish partner’s English was better than mine, he was able to understand me... ok my</i>

	<i>level of English is not high, each one has his own level, but through Google translate we understood what each one said, and the ideas we had were transmitted.</i>
Modifying communicative behaviour	<i>I think it is also challenging to talk to someone that you don't know Because you don't want to say anything that could offend them So sometimes I feel like I don't know like I don't know whether to tell this to him or not</i>

Table 26: Linguistic, communicative and plurilingual learning

Other skills that were developed are those of listening and observing which are described in the model as “the skills required to notice and understand what is being said and how it is being said, and to notice and understand other people’s non-verbal behavior” (Council of Europe, 2016, p. 10). A student mentions: *We realized that they were friendly with us, they cared, they didn’t just say ... ‘I won’t do it’. They were very friendly, they bothered to talk, or even in the comments we saw that they posted all the time, not just a line or two simply to get over with it... they posted a lot of comments for us. So they got engaged.* (P5, CUT, Intervention 1). This comment signifies that the student observed their partners’ behavior, paying close attention to their attitude. Other competences that were referenced to a great extent fall in the category of Knowledge and Critical Understanding. Two competences in this category seem to have been mostly developed in this project: Knowledge and critical understanding of the self and Knowledge and critical understanding of the world. As for the development of the first one, it is manifested in the learners’ self-evaluation, contemplating on their feelings, emotions, and motivations concerning the breadth and depth of interaction. A student notes: *We viewed this as an opportunity to socialize with people from another country. I don’t know how their teacher conveyed this to them but they were more concerned with writing accurately, getting a high mark since the grades in this project would count in the calculation of the final grade.* (P30, CUT, Intervention 1). As for Knowledge and critical understanding of the world, this competence is demonstrated in an establishment of understanding of the role of media, and a realisation of the process through which media select information they broadcast to the public. After watching the Ted Talk ‘The Danger of a Single Story’, a student (P38, CUT, Intervention 1) writes in his reflection paper: *They (the other stories) were never shown to us because media broadcast whatever they want,* showing understanding of how media can affect our judgments. Finally, ‘Tolerance of ambiguity’ was reported in the learners’ data. This competence is described in the CDC model as “an attitude towards situations which are uncertain and

subject to multiple conflicting interpretations. It involves evaluating these kinds of situations positively and dealing with them constructively” (Council of Europe, 2016, p. 9). In this study, tolerance of ambiguity is demonstrated in the participants’ willingness to suspend their previous judgment and stereotypes and discuss them with their foreign partners. A student mentions: *Afterwards, we started talking about stereotypes. So we told them about the bullfighting that is a famous, tradition of Spain. Our Spaniards friends don’t like it and they are disappointed that people recognize Spain for the bullfights because it consists of pricking the bull and at the end the bullfighter kills it with a sword. But nowadays more and more Spaniards are against of this tradition and in some places is forbidden. Thanks to our partners, we learned the truth* (P4, CUT, Intervention 1.)

There are certain competences featuring in the CDC model that have not been referenced to a great extent, which means that the students did not perceive much development in those skills. These are the three competences under the category ‘Values’: Valuing human and human rights, Valuing cultural diversity, and Valuing democracy, justice, fairness, equality and the rule of law. Similarly, Respect, Civic-mindedness, and Self-efficacy which belong in the category ‘Attitudes’ have been barely referenced, with civic-mindedness not being referenced at all. As for the ‘Skills’ category, the competences of Analytical and critical thinking skills and Empathy were marginally referenced. Finally, from the last category, Knowledge and critical understanding of language and communication was inconsiderably referenced. However, as this project involved frequent tensions at different stages, conflict-resolution skills were deployed to “address, manage and resolve conflicts in a peaceful way by guiding conflicting parties towards optimal solutions that are acceptable to all parties” (Council of Europe, 2016, p. 11). Learners appear to have worked together to resolve the conflicts that resulted from communication breakdowns, lack of mutuality and different levels of commitment in the project tasks (Nicolaou & Sevilla-Pavón, 2016).

Technological mediation was considered as an important element of the telecollaborative ecosystem; therefore, a separate category was added to the coding scheme to record learners’ views about the technological affordances of the intervention and how these created new possibilities once they were perceived and acted upon. The

qualitative analysis of the focus groups and written reflections suggested that the affordances of the technological tools used in the SCI-TEL and CSI-TEL projects facilitated the enhancement of global competences. The choice of tools appears to have been perceived appropriate to the tasks and conducive to the project's requirements. The single sign-on system to access all Google applications was considered useful for synchronous conversations (Hangouts), collaborative writing, viewing and editing each other's work (Google Docs) or for creating presentations together (Google Slides) without having to switch to different platforms. A student explains: *I had no idea about Google + and the use of it was very-very helpful. You logged in Google + and you had everything there, Google Drive, Slides for presentations, you could find everything. Google Drive is better than Word because we logged in, we could chat, and we could write and edit each other's work* (P28, CUT, Intervention 1). Google Hangouts allowed for ubiquitous communication and cooperation as most students had downloaded Google+ on their mobile devices. Google Drive provided a location for students to work collaboratively and learn from each other while engaging in editing and peer error correction so as to complete the task at the desired standard: *Well I learned some digital skills, I didn't know that Google drive existed before and that we could write things at the same time and when he said to me let's create a drive file was like what's that? And I was like amazed (laughs) I can write at the same time as you're writing and I can see what you're writing! Yeah, I'm not very good at technology stuff...* (P33, UV, Intervention 1). Google+ was considered as a suitable medium for interaction and communication while the choice of Facebook was considered to be a more personal social medium, not suitable for the particular project. The digital storytelling project implied substantial technological mediation. The collaborative creation of authentic digital stories from scratch involved technology in a creative way and activated various competences, such as autonomy, self-efficacy, responsibility, adaptability, as well as the orchestration of multimodal skills. A student mentions: *What I liked about the digital storytelling project was that we could decide how to do it, there wasn't just one way. This developed my creativity and the challenge of being creative in a short period of time, trying to put together the variety of ideas people have thought about* (P23, UV, Intervention 2). Technology also contributed to the enhancement of motivation for language learning: *We consider the English course to be more interesting through the use of computers* (P33, CUT, Intervention 1). The enhancement of motivation for learning English at tertiary level of education is also demonstrated in the matched-pairs

t-test analysis that was computed in order to observe differences between the learners' motivation level before and after the intervention. As Table 27 shows, there was a rise in learners' motivation level for studying English at university; however, this difference was not found to be statistically significant. As the score is far from significance in this analysis, it is acknowledged that these results provide no evidence in support of intervention-related gains:

Intervention 1					
Differences in motivation levels	N	M	SD	t-value	P
Are you motivated to learn English at the University?					
Pre-intervention	70	4,14	1,12		
Post-intervention	70	4,25	,845	-,942	,349

Note: Responses were marked on a Likert scale from 1-5 whereby 1 meant 'Not at all' and 5 meant 'Very much'. Column heading M refers to the mean responses.

Table 27: Intervention 1 differences in motivation levels pre- and post-intervention

The SCI-TEL and CSI-TEL projects were embedded in content-based ESP modules in an effort to blend the virtual exchange with the content of the regular curricula, thus placing the learners' academic and future professional needs at the centre. The expectation was that learners' would be enabled to relate to and engage with the tasks more effectively and build their domain-specific knowledge. In addition, learners were expected to benefit from the inter-disciplinary nature of the exchange and expand their experiences through the opportunity to exchange different perspectives and expertise. The data analysis indicated that some students were able to perceive the benefits of working in interdisciplinary teams as this opportunity provided a realistic situation they are most likely to encounter in their future careers: *But I believe working with people who are from a different career and degrees is, well, uhmmm, is great because usually you are going to work with people that have studied different things so it's like... preparing you to the future* (P10, UV, Intervention 1). However, most students did not manage to bridge the disciplinary gap in the partnership and failed to relate to the tasks that included elements stemming from different domains. This seems to have affected learners' motivation levels. A student suggests: *If the course went hand-in-hand, and if*

we had the same topics in the subject matter it could be more motivating, (P41, CUT, Intervention 1). This was a suggestion that was put forward by many participants in the focus groups and reflection papers. Similarly, motivation and rapport within the partnerships seems to have been affected by the observed gap in the linguistic levels of participants. Participants from UV, whose level was obviously higher, indicated that the level gap hindered communication and resulted in frustration and disappointment in many cases: *People from Cyprus had a really bad level of English so it turned out that people from Spain were teaching them English instead of both learning* (P37, UV, Intervention 1). On the other hand, participants from CUT, whose level was admittedly lower, indicated that their counterparts' linguistic competence brought about feelings of embarrassment and intimidation. A student from CUT explains that many times they were reluctant to interact synchronously: *Their (the Spanish students') level in English is higher, and they are more used to talking. They are more comfortable, while we are kind of afraid of talking because we might say something wrong* (P1, CUT, Intervention 1).

Another suggestion that was put forward was to increase synchronous meetings so that they have the opportunity to learn more things about each other. It seems that there was a need for more contact and the establishment of connection between the partners. Google Hangouts was one of the most useful activities of the project as indicated in the multiple-response analysis on the post-intervention questionnaire. Table 28 demonstrates the students' perceptions about useful activities of the project:

Useful Activities				
		Responses		Percent of Cases
		N	Percent	
Useful activities ^a	Digital profile and video	40	12,2%	43,5%
	Google+ Hangouts	43	13,1%	46,7%
	Games (Kahoot!, blubbr)	43	13,1%	46,7%
	Google+ posts and comments	43	13,1%	46,7%
	Ted Talk videos	31	9,5%	33,7%
	Problem-solving scenarios	17	5,2%	18,5%
	Digital stories	49	14,9%	53,3%
	Oral presentations	44	13,4%	47,8%
	Assessment and voting	18	5,5%	19,6%
Total		328	100,0%	356,5%
a. Dichotomy group tabulated at value 1.				

Table 28: Perceptions about useful activities of the virtual exchange

5.2.3 Discussion

The SCI-TEL and CSI-TEL projects seem to have achieved many of their objectives which pertained to the development of global competence and content-based learning. The quantitative analysis demonstrated learners' positive perspectives towards the exchange and a rise in their level of cultural awareness although not statistically significant. Similarly, a rise in the learners' motivation level to study English at university was observed. These attitudes were explored more deeply in the qualitative analysis.

With regard to the global competences featuring in the CDC framework, the analysis indicated that all 20 competences were perceived by the learners except for the development of civic mindedness that was not observed in any of the qualitative data collected. The affordances of the virtual exchange for enhancing all the other CDC competences seem to have been noticed by learners in different degrees. The most salient benefit of virtual exchange was the development of an attitude of openness to cultural otherness and to other beliefs, world views and practices. Students exhibited a willingness to engage with their foreign partners and expressed curiosity in discovering and learning about their cultural orientations, values and traditions. Even though many students were not emotionally ready to relate to their partners, they managed to overcome their initial anxieties and inhibitions along the way, achieving a positive evolution of their feelings and dispositions. However, in many cases students' conversations revolved around surface issues, such as daily routine, hobbies, food, music, fashion, or university life. This seems to reflect weak approaches to telecollaborative design which include an over-emphasis on superficial communicative themes and tasks that only require participants to present and report information rather than actively work together (O'Dowd, 2016). Therefore, one of the refinements of the project that was considered was the involvement of students in more in-depth discussions in order to move the telecollaborative discourse beyond the 4Fs (Meyer and Rhoades, 2006). This was expected to afford the development of competences that were marginally referenced in the first intervention, such as respect, self-efficacy, tolerance of ambiguity, and empathy.

Other competences that were enhanced were co-operation skills, responsibility, flexibility and adaptability, linguistic, communicative and plurilingual skills, as well as

skills of listening and observing. The technological mediation was explored for its contribution to the development of the aforementioned competences. The different Google applications and their features seem to have been conducive to the creation of online presence and connection among the participants and appear to have facilitated the completion of collaborative tasks. Google Hangouts were considered useful, despite challenges in digital connectivity and mutual responsiveness. It is important to note that learners exhibited a willingness to have more synchronous interactions with their partners as this would enable them to learn more about each other. The learners' suggestion to include more activities involving synchronous exchanges indicates a need for the establishment of contact, connection and bonding among the participants. This suggested the increase of required meaningful synchronous exchanges via Google Hangouts or any other tool in order to create more opportunities for intercultural learning and in an effort to create positive feelings and dispositions. Frequent interactions may lead to more efficient collaboration and intercultural learning as learners are provided with more opportunities for fixing misunderstandings and for overcoming barriers. Therefore, in order to enable learners to benefit from the exchange through a process of seamless interaction, collaboration and problem-solving, additional synchronous exchanges were considered for subsequent interventions.

In addition, it appeared that the virtual exchange was considered by some students as an add-on component. The interdisciplinary tasks were not smoothly embedded in the courses' curricula; therefore, in some cases they were perceived as separate, irrelevant activities. This may have contributed to lower motivation levels and points to another refinement which concerns the integration of meaningful, domain-specific telecollaboration tasks in the exchange so that students can feel that the project is part of the regular course and is more relevant to their academic and professional needs. This will probably offer a more authentic and useful experience to students, similar to the real experiences they will encounter in their future careers. In line with this and drawing from the learners' suggestions to form partnerships with students who major in the same or similar fields of study, a virtual exchange designed based on matching curricula was considered for the subsequent interventions. This was expected to foster internationalised content-based instruction and result in more effective collaboration, engagement and rapport in the telecollaborative teams. Apart from matching disciplines, the issue of matching linguistic levels was considered drawing from the

learners' feedback and their reports on feelings of resentment and frustration due to a gap in the participants' level of English. The fact that learners from the UV were positioned at B2+-C1 CEFR level while those from the CUT were positioned at B1-B2 CEFR level seems to have created challenges in the creation of affinity and smooth collaboration. Rapport and positive feelings between the students can bring about skills development and the perception of relevant affordances. The linguistic gap between the partners had a negative impact on the higher-achieving students' motivation levels during the exchange and their perceived affordances. Therefore, the development of partnerships with similar linguistic levels was considered in order to avoid perceiving the exchange as useless, worthless, futile, or happening in vain, and not affording any learning opportunities to students. The alignment of curricular content and linguistic levels also expanded to the alignment of situational factors, such as academic timetables, deadlines, assessment methods which can also be conducive to the development of co-operation skills.

5.2.4 Towards an Ecological Constructivist Approach

The analysis of the quantitative and qualitative data of the intervention provided insights into how the different elements of the telecollaborative ecosystem interact with each other and how they may promote or hinder the development of the targeted competences. This cycle, which was the pilot stage of a sequence of iterative cycles, was examined for its effectiveness to develop learners' global competence and content-based learning. The findings suggest that when an appropriate learning environment is provided, clusters of competences are likely to develop. Emergent conclusions highlight the importance of contextual elements, such as the participants and the designed tasks, and how these intersect and create opportunities for learning. Therefore, the examination of the context compelled a need to reshape the theoretical framework in the design of the second iteration towards an ecological constructivist approach in order to explore the telecollaborative environment more holistically with a view to making it a dynamic learning habitat, rich in affordances that would enhance learners' global competence and domain-specific learning (Nicolaou & Sevilla-Pavón, 2016). Therefore, the researchers set out to redesign the virtual exchange project with the concept of affordances in mind aspiring to transform those affordances into opportunities for competence learning. The redesigned project was informed by ecological theories (Van Lier, 2010; Dey-Plissonneau & Blin, 2016) and was directed

towards the synthesis of an environment that would bring out affordances actualised via technological tools. In order to make the affordances more salient, visible, and perceptible to learners, the researchers engaged in a process of reconceptualising the virtual exchange contextual elements and proceeded with a series of modifications (Nicolaou & Sevilla-Pavón, 2017).

The most important contextual modification on the project was that the learning context was changed in that it aimed at bringing together higher education students majoring in the same or near-same degree. Therefore, while the initially designed online intercultural exchange project connected students studying diverse English for Specific Purposes courses, the redesigned project connected students studying similar ESP course (Business Management and International Business) who were involved in telecollaborative activity with particular emphasis placed on business/international business activities within an intercultural and global awareness perspective (Nicolaou & Sevilla-Pavón, 2017). This contextual modification was expected to impact significantly the establishment of affinity among participants who would feel more related to each other. As far as task design is concerned, the redesigned version consisted of tasks and activities which more transparently connected learners with their partners and with the context in which they were situated by being more purposeful and realistic as well as more relevant to their academic profiles and professional needs. The researchers decided to make this crucial modification in the task sequence acknowledging that “the features of a CALL environment only become affordances when they are related to the users’ needs and activity” (Dey-Plissonneau & Blin, 2016, p. 298).

Another important refinement in the redesigned exchange pertained to the synchronous meetings among interactors. In an effort to increase communication and collaboration among students, the redesigned project required more synchronous exchanges through the assigned tasks that promoted positive interdependency and mutuality between students. In the redesigned project, synchronous exchanges were followed by periodic reflective work, providing opportunities to learners to think about their experiences, interpret and learn from them. In addition, since this project was designed with a *lingua franca* configuration, the students’ level of English was taken into consideration. The two practitioners opted for a close matching of students’ linguistic, as well as academic

competence and performance. Finally, situational factors were considered in the redesigned project, such as the availability of institutional resources and coinciding academic timetables allowing for synchronous and collaborative completion of tasks in class and a plenary meeting at the end of the project. Finally, as learners seemed to have been used to more hierarchical and instructivist learning contexts, enhanced scaffolding was considered in the redesigned project with well-constructed tasks and clear instructions to lead to effective and motivated competence learning (Nicolaou & Sevilla-Pavón, 2017). The modifications aspired to contribute to the development of the CDC model competences, particularly the ones that were marginally developed in the first intervention.

5.3 Second Intervention: BEGIN Project

The second intervention, the BEGIN (Business English Intercultural) project was designed considering the telecollaborative contextual elements which are at interplay with each other. The project was embedded in two similar ESP modules at the same institutions as the first intervention. Specifically, the BEGIN project connected 45 students of Business Management from the Cyprus University of Technology and 27 students of International Business from the University of Valencia. The linguistic level of CUT students and UV students ranged between B1-B2 of the CEFR. The intervention lasted for one semester (13 weeks), starting in September 2016 and adjourning in December 2016. Table 29 presents the participants and settings of the second intervention:

Intervention 2: Participants and Settings	N	Percent
Institutions		
Cyprus University of Technology	45	62,5
University of Valencia	27	37,5
Total	72	100,0
Project		
BEGIN	72	100,0
Total	72	100,0
Degree		
Business Management	45	62,5
International Business	27	37,5
Total	72	100,0
Age		
17-20	69	95,8
21-24	2	2,8
25+	1	1,4

	Total	72	100,0
Gender			
	Male	21	29,2
	Female	51	70,8
	Total	72	100,0

Table 29: Participants and settings of second intervention

Target competences of the BEGIN virtual exchange included global competence and content-based learning with a Business and Entrepreneurship orientation. Business activity is at the core of global encounters of the 21st century. Therefore, the project aspired to engage learners effectively with their foreign counterparts in a business-like international context. Entrepreneurial activity is not taught at schools today and learners are barely exposed to the concept of global business and the growth of economy. As mentioned in Skrbiš (2014, p. 5), “we need to develop globally competent graduates who are sensitive to cultural differences, allowing them to collaborate effectively across different cultures, and across the distinct social and business settings of different countries” (Hunter et al., 2006). Entrepreneurship is an activity that requires the orchestration of multiple skills, such as creativity, innovation, intercultural awareness, cooperation, and critical thinking, among others. Entrepreneurship Competence is emphasised in the European Commission’s Recommendation for Key Competences for Lifelong Learning in which it is described as: “the capacity to act upon opportunities and ideas, and to transform them into values for others. It is founded upon creativity, critical thinking and problem solving, taking initiative and perseverance and the ability to work collaboratively in order to plan and manage projects that are of cultural, social or financial value” (European Commission, 2007). The BEGIN project was re-designed with a view to giving a more global perspective to virtual exchange, related to learners’ academic needs and prospective jobs. Through their interactions and cooperation with their international partners in a business-like context, learners were expected to develop the targeted values, attitudes, skills and knowledge which are particularly essential for “personal fulfilment and development, social inclusion, active citizenship, and employment (Vinagre, 2016, p. 171). In its redesigned form, the project aspired to build learners’ skills of innovation and initiative within a context conducive to global competence learning, development and reflection.

5.3.1 Project Structure, Tasks and Activities

The BEGIN project was structured based on Gilly Salmon's model (2000). Tasks revolved around business, management, entrepreneurship and innovation with a culture view and included preparatory, familiarisation, and ice-breaking tasks, followed by interactive exchanges and discussions on languages, culture and stereotypes, collaborative problem-solving activities based on global business scenarios, and elaboration of business documents, such as an investors report. The project task sequence culminated with a creative collaborative task, the creation of a new product/application/service that was presented in the form of a digital story and an elevator pitch. Activities included regular online meetings between the partners, followed by individual reflection papers as well as assessment and evaluation activities in the form of peer-to-peer critical feedback. Generally, the BEGIN telecollaboration project involved frequent synchronous interactions and collaborative tasks with a view towards increasing communication, interaction, interdependency and a sense of connection among students. Tasks and activities were mediated by Google applications, such as Google+ Hangouts, Google+ Communities, and Google Drive (Docs and Slides). Table 30 presents an overview of the project's tasks and activities mediated by Google technologies and structured according to Salmon's 5-stage model (Sevilla-Pavón & Nicolaou, 2019):

Intervention 2: BEGIN Project	
Structure	Tasks and Activities
Access and Motivation	• Getting to know the project and the technologies • Students (Ss) receive the project information leaflet and sign the consent form. • Ss create a Gmail account and compose their digital profile on Google+ with basic information about education, work, places visited, interesting facts and stories. They upload a photo/avatar or image. • Ss join the Google+ Community which was created by the teachers. • Ss complete the pre-intervention questionnaire. • Ss post ice-breaking questions on Google+ Community
Online Socialisation	• Meeting the partners • Ss explore their partners' digital profiles on Google+. • Ss play a game on Kahoot! 'What do you know about Cyprus/Spain?' • Ss respond to their partners' ice-breaking questions on the Google+ Community. • Ss form local and telecollaboration groups. • Ss create and upload personal introductory 2-minute long videos on Google+ Community. • Ss view their partners' videos and comment on them on Google+ Community. • Ss organise and conduct their first synchronous exchange on Google+ hangouts. In their conversations they may discuss the ice-breaking questions and personal introductory videos, the Kahoot game, etc. • Ss compose their written reflections individually on Google Docs delineating their impressions of the experience and learning.

Information Exchange	• Sharing experiences • Ss share their language experiences by writing a story of a personal good or bad memory related to the use of language. They post their story on Google+ Community. • Ss read their partners' stories, compare their experiences and comment on them on Google+ Community. • Discussing diversity • Ss watch YouTube video 'The DNA Journey' and respond to questions on Google+ Community: <i>Are you interested in finding out where you come from based on your DNA? Would you dare question who you really are? How connected to do you feel to the rest of the world? Is there a country that you feel you are most connected with? Is there a country that you feel you absolutely have no connection with? What if you are genetically related to a certain group of people you normally associate with bad feelings? Would you like to travel to all the countries you are genetically related to?</i> Answers may be responded to by peers. • Ss engage in a discussion on diversity, identity, stereotypes and open-mindedness on Google+ Community. • Thinking globally • Ss engage in a discussion on 'Good countries' responding to the questions: <i>Have you ever thought which country does the most good for the world? Which country is the one that contributes something to the world in which we live in? Which country seems to make the world better, safer, richer fairer?</i> • Ss make a list of the Top 5 countries which they think they do the most good for the world. They justify their winners' list with a short explanation on Google+ Community. • Ss watch Ted Talk 'Which country does the most good for the world' by Simon Anholt and visit The Good Country Index website. • Ss reflect on their Top 5 countries winners' list and compare with their partners' list.
Knowledge Construction	• Global business scenarios problem-solving • Ss read global business scenarios. • Ss organise the second synchronous exchange on Google Hangouts to discuss the problem-solving task with their partners. • Ss choose one of the scenarios and follow a problem-solving methodology in order to provide solutions to the problem. • Ss work collaboratively on their telecollaboration's shared group folder in Google Drive. • Ss collaboratively elaborate a problem-solving report on Google Docs. • Ss compose written reflections about their experiences and learning. • Digital Storytelling: Creating a new product • Ss get a problem to solve. They need to create a new product/service/application. • Ss watch examples of digital stories on Google+ Community and write comments. • Ss brainstorm about their topic, structure, software and resources for their digital story on Google Docs. • Ss exchange ideas with their partners on Google Hangouts. • Ss create the storyboard of their digital story on Google Docs. • Ss create their script on Google Docs and share it with their partners. • Ss send and receive feedback on their partners' scripts. • Ss create their digital stories using different media • Ss share their digital stories on Google+ Community.
Development	• Evaluating and reflecting • Ss watch their partners' digital stories and provide feedback on Google+ Community. • Ss assess their partners' digital stories using the assessment sheets and vote for the best digital story on Google Forms. • Ss prepare and deliver elevator pitches of their new products. • Ss assess their peers' elevator pitches and vote for the best one on Google Forms. • Ss write a collaborative investors' report on Google Docs.

	• Ss receive their awards for best digital story and best elevator pitch. • Ss compose final reflection paper about their experiences and learning. • Ss complete the post-intervention questionnaire. • Ss participate in focus groups. • Ss film, edit and publish a farewell video on Google+ Community. • Ss attend a plenary goodbye meeting.
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Table 30: Overview of BEGIN project tasks and activities

The BEGIN project tasks were designed so as to be relevant to all participants; thus they allowed for the development of mutual understanding among students and a sense of belonging to a community of learners with shared interests and ambitions. The tasks and activities as well as the themes revolving around the whole project aimed at assisting learners in exploring strategies for engaging more effectively with their business counterparts from all over the world. The project afforded opportunities for reflection on one's own behavior and how this is formed by monolithic views of culture and cultural identity. The video featuring the 'DNA Journey' (Sevilla-Pavón & Nicolaou, 2019) was included in the task sequence in an effort to promote diversity and an inclusive mindset and to demonstrate how one's own attitudes and stereotypes are shaped by a narrow-minded and introverted view of cultural diversity. The video was used to anchor a discussion and reflection on the importance of breaking boundaries, being tolerant and respectful to others and embracing diversity. An example of the kind of reflection that occurred on Google+ Community following the viewing of the 'DNA Journey' as a learning station is the following:

I would be interested in knowing which races my ancestors come from. I have questioned who I am, and the question is most likely never going to be answered, the history of my ancestors does not define me. If I, and a woman from across the globe look up at night, we will both be covered by the same coat of stars, galaxies and the same moon, we are all connected compared to how insignificant we are to the Universe. Most connected country is probably Greece, only because we share the same language and customs. We are all Human, same emotions, same expressions, nothing separates us. I don't have bad feelings for anyone; history will be repeated as it has for many years because men and women don't learn from their mistakes, therefore I don't associate with people as a group of a race, just as individuals. I like to travel, so if my DNA reigns from all around the globe I would like to travel to each place and see their customs and history. (P30, CUT, Intervention 2).

The global business scenarios problem-solving activity aimed at contextualising global complexity and intercultural conflict through ill-structured business scenarios that required creative solutions. The scenarios were intended to bring issues of cross-cultural difference, business ethics, responsibility, and cultural empathy to the fore of the telecollaborative partnership's discourse. Learners were required to adopt a global

mindset and cooperate towards overcoming intercultural conflict in business settings they might find themselves in their future careers. Through collaborative work with their partners, learners were directed towards negotiation of meaning and “imagination of business possibilities, paradigms and solutions” (Lilley, Barker, & Harris, 2014, p. 79) situated in ill-structured communication problems that emerge in intercultural business relationships and internationalising companies (Saatci, 2008). The scenarios were either devised by the two partner teachers or they were adapted from various resources (Sevilla-Pavón & Nicolaou, 2019). One example of the global scenarios given to learners to choose from was the following:

A business trip to China

Several years ago, a German company found a profitable project developed by a Chinese company and wanted to invest in the project. The German company then sent a group of workers over China to explore the possibility of the investment. The Chinese company, a big state-owned company, also wanted to do business with the German company. After learning that the German company was sending some workers, the Chinese company did a lot of preparation in order to receive these workers. On the first day the Germans arrived, the Chinese company held a very big welcome dinner, after which they brought the Germans to watch a famous traditional Chinese play. On the second day, the Chinese company arranged a one-day tour around the city for the Germans, including bringing them to visit some historical sites. The day ended up with another big dinner which some local government officials attended. On the third day, the Chinese company showed the Germans their project and indeed they did very well in their presentations and made a very good impression. However, at the end of the third day, the Germans gave up the plan of investing in the project, as they thought that the Chinese company was spending too much on irrelevant activities, such as hosting the big dinners and arranging the one-day tour. They thought the Chinese company merely wanted to get the investment fund from the German side and did not care about the project itself. Therefore, they chose to terminate the business. The Chinese company was shocked when they found out the Germans did not want to make the deal. They really wanted to develop the project with the Germans. And they did not see anything wrong with their reception activities. Should the Chinese and/or the Germans consider reshaping their cross-cultural business policies?

The main telecollaboration task was designed with the target competences in mind and with a view to creating the affordances that would facilitate the development of the project's objectives. The task adopted a project-based learning approach and required learners to collaborate in their international groups towards creating an innovative product and present it as a digital story and in an elevator pitch addressed to potential investors. As the project was an open-ended task, it required the deployment of multiple skills, such as initiative, self-direction and autonomy, analytical and critical thinking skills, co-operation skills, creativity, as well as technological and multimodal skills, among others. The aspiration for the success of this project lay in the learners' constructive collaboration in their international teams, benefiting from group dynamics and multiple perspectives. Learners were expected to adopt a global entrepreneurial

mindset, expanding their knowledge and expertise to broader business contexts. The digital storytelling project was supported by both universities' institutional ESP curricula in relation to the principles of entrepreneurship, start-ups, innovation, marketing, promotion, advertising and distribution of a product, funding, and investment. The collaborative documents that learners were required to produce, such as a well-grounded business plan and an investor's report, reflect the intersection of global collaboration and content-based learning and directed towards the production of different genre of writing within the virtual exchange beyond "the genre of personal conversation and in particular self-presentation in telecollaborative exchange" (O'Dowd, 2016, p. 3).

As for the main steps of the BEGIN digital storytelling project, they followed the same structure as in the first iteration. The digital storytelling project involved collaboration both within local and telecollaborative groups with enhanced interdependence. Students were provided with specific instructions on a weekly basis with a view to scaffolding the activity through the completion of the different steps of the project. The first step was to read the scenario (Sevilla-Pavón & Nicolaou, 2019):

Developing a new product

You are a group of friends and you have decided that you want to become self-made millionaires at the age of 25! All you need to achieve your goal is an idea, an innovative idea for a new product, or a service, or even an app! You also need a lot of hard work, of course. You decide to join forces and enter a competition for young innovators. You need to come up with an idea and win the prize for the most innovative and successful product/service/app! Your idea will be presented in a digital story and an elevator pitch.

Having read their scenario in their groups, the students were asked to brainstorm and note down their ideas and possible answers to the different questions about the new product which can be a good, which is tangible, a service which is intangible, or a hybrid which is a combination of a good and a service. It can also be an App for a mobile phone. Students used their shared folder in Google Drive to brainstorm ideas about their product, considering issues of market segmentation, innovative aspects, feasibility, marketability, competitive advantage, and cost. The learners were required to think of a product that would fill a gap in the market and would be able to sell in both Cyprus and Spain. The next steps included brainstorming on the structure of their story, the required resources and the technological implications. This phase was followed by

the creation of the storyboard and the script. Each local telecollaboration group would deal with half of the items about their product/service/app: UV students were required to deal with the 1. Market research, 2. Business plan, 3. Introduction of the team and type of company, 4. Design, features and consumer benefits, and 5. Feasibility. The CUT students were required to deal with the same product's 6. Pricing strategy, 7. Distribution (sales outlets and channels), 8. Promotion, including advertising, product launch and sales promotion, 9. Competing products or technologies, and 10. Strategies: packaging, branding and other features such as guarantee. Once the script was composed and corrected by their partners, the learners moved on to the production of the story using various multimedia software. When the digital stories were completed, the students were asked to share them on Google+ Community and then deliver an elevator pitch to potential investors, convincing them to fund their new project. Afterwards they had to adopt the role of a strategic investor and elaborate a collaborative investor's report in which they explained which of the innovative projects was more likely to receive funding from them. Finally, they had to assess their own as well their classmates' digital stories by exchanging review comments and by filling in the assessment sheets. They also had to vote for the best digital stories and elevator pitches so that the winners could be given awards in a fictitious business fair organised locally at the end of the project (Sevilla-Pavón & Nicolaou, 2019).

5.3.2 Data Analysis and Findings

The study adopted a mixed-methods approach to collect data aiming at recording global competence and content-based learning. Data were collected by means of pre-intervention and post-intervention questionnaires, focus groups, and learners' written reflections. Table 31 summarises the collection of multiple data during the second iterative cycle:

Intervention 2: Methodology	Data Collected and Sample
Pre-intervention questionnaires	72 returned questionnaires
Post-intervention questionnaires	67 returned questionnaires
Matched pairs	56 matched pairs
Focus groups	41 participants
Written reflections	99 papers

Table 31: Intervention 2 data collection

The quantitative analysis of post-intervention questionnaires in SPSS indicated that the BEGIN virtual exchange project was positively received by the learners. A multiple response analysis on the post-intervention questionnaire demonstrated that learners considered the telecollaboration as a positive experience as they attributed positive descriptions to the whole project in most cases. The most selected description of the project was ‘interesting’, followed by ‘useful’ and ‘fun’ while negative descriptions such as ‘tiring’ and ‘boring’ were hardly selected. Table 32 demonstrates the learners’ selected descriptions:

Learners’ Description of BEGIN Project				
		Responses		Percent of Cases
		N	Percent	
Description ^a	Fun	39	15,1%	58,2%
	Interesting	48	18,6%	71,6%
	Useful	43	16,7%	64,2%
	Enjoyable	34	13,2%	50,7%
	Challenging	31	12,0%	46,3%
	Motivating	18	7,0%	26,9%
	Stressful	18	7,0%	26,9%
	Frustrating	11	4,3%	16,4%
	Tiring	9	3,5%	13,4%
	Boring	7	2,7%	10,4%
Total		258	100,0%	385,1%
a. Dichotomy group tabulated at value 1.				

Table 32: Learners’ descriptions of the BEGIN project

With regard to Cultural Awareness, students were asked to respond to the same 20 Likert-type questions that appeared on the pre- and post- intervention questionnaires of the previous cycle. The Likert scale ranged from 1-7 whereby 1 meant ‘Completely Disagree’ and 7 meant ‘Completely Agree’. A Cronbach's Alpha reliability test was carried out on SPSS in order to measure the internal consistency of the set of 20 questions. The analysis indicated that Cronbach's Alpha was **0.882**, which demonstrated a high level of internal consistency for the scale with this specific sample. Table 33 presents Cronbach’s Alpha reliability analysis:

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,882	,886	20

Table 33: Intervention 2 Cultural Awareness Cronbach’s Alpha analysis

A paired-samples t-test was then run to compare the means between the students' level of cultural awareness prior to their participation in the BEGIN project and upon completion of it. The analysis was run for 56 pairs who could be matched in both the pre- and post-intervention questionnaires based on their stated date of birth on both questionnaires. As indicated by the analysis, there was a rise in the level of students' cultural awareness. This difference was found to be statistically significant. Table 34 demonstrates the paired-samples t-test analysis:

Differences in Level of Cultural Awareness	N	M	SD	t-value	P
Cultural Awareness					
Pre-intervention	56	5,03	,846		
Post-intervention	56	5,15	,778	-1,95	,055

Note: Responses were marked on a Likert scale from 1-7 whereby 1 meant 'Completely Disagree' and 7 meant 'Completely Agree'. Column heading M refers to the mean responses.

Table 34: Intervention 2 paired-sample t-test analysis of cultural awareness level

A similar analysis looked into changes in the learners' motivation level for language learning pre- and post-intervention. The paired-sample t-test analysis indicated a small rise in the motivation levels although this was not found to be statistically significant. Similarly to the analysis in Intervention 1, as the score is far from significance, it is acknowledged that these results provide no evidence in support of intervention-related gains: Table 35 demonstrates the difference in learners' motivation levels:

Intervention 2					
Differences in motivation levels	N	M	SD	t-value	P
Are you motivated to learn English at the University?					
Pre-intervention	56	5,66	1,69		
Post-intervention	56	5,67	1,45	-,074	,941

Note: Responses were marked on a Likert scale from 1-7 whereby 1 meant 'Not at all' and 7 meant 'Very much'. Column heading M refers to the mean responses.

Table 35: Differences in motivation levels pre- and post-intervention

The qualitative data that were collected provided deeper insights into the specific competences that were developed within the BEGIN project. Similar to the first cycle, qualitative data were gathered by means of focus groups and written reflections. Transcriptions of focus groups with 41 students and reflection papers composed by 99 students were entered in NVivo and were analysed based on the *Reference Framework of Competences for Democratic Culture* (Council of Europe, 2016). During the data analysis, special emphasis was given to the competences that were coded in the first intervention on a small scale, as well as to content-based learning which appeared to be a conflicting area in the previous cycle. A matrix coding was created in NVivo to cross-tabulate the coding intersections between the four broad categories of the CDC model. The matrix indicated that all four categories were coded in the analysis with ‘Skills’ being the category mostly coded, followed by ‘Attitudes’. The category that was least coded was ‘Values’. It is interesting to note that the number of references coded was increased compared to the same analysis in the first intervention. Table 36 demonstrates the coding intersections between the four CDC categories:

Intervention 2	
CDC Categories	Number of References Coded
Values	27
Attitudes	291
Skills	391
Knowledge and Critical Understanding	122

Table 36: Intervention 2 coding intersections between the four CDC categories

The analysis of the data separately for each category and its related competences provided insights of the kinds of competences that learners developed through their participation in the BEGIN project. Similarly to the first cycle, the analysis indicated that learners seem to have developed an attitude of openness to cultural otherness and to other beliefs, world views and practices more than any other competence in the CDC model. Other competences appear to have been developed either to a great or moderate extent. Two competences did not receive any references; these were ‘Valuing human dignity and human rights’ and ‘Civic-mindedness’. Table 37 demonstrates the number of references coded separately in the 20 CDC competences:

Intervention 2	
CDC Competences	Number of References Coded
1 : Valuing human dignity and human rights	0
2 : Valuing cultural diversity	26
3 : Valuing democracy, justice, fairness, equality and the rule of law	1
4 : Openness to cultural otherness and to other beliefs, world views and practices	226
5 : Respect	18
6 : Civic-mindedness	0
7 : Responsibility	24
8 : Self-efficacy	19
9 : Tolerance of ambiguity	4
10 : Autonomous learning skills	50
11 : Analytical and critical thinking skills	20
12 : Skills of listening and observing	18
13 : Empathy	14
14 : Flexibility and adaptability	91
15 : Linguistic, communicative and plurilingual skills	103
16 : Co-operation skills	76
17 : Conflict-resolution skills	19
18 : Knowledge and critical understanding of the self	40
19 : Knowledge and critical understanding of language and communication	15
20 : Knowledge and critical understanding of the world	67

Table 37: Intervention 2 number of references coded in the 20 CDC competences

During the qualitative data analysis, special emphasis was given to certain competences that were coded to only a limited extent in the first intervention, but appeared to have been noticed to a greater extent in this cycle. Attention was also drawn to content-based learning which appeared to be a grey area in the previous cycle. With regard to the competences that emerged in the second intervention, ‘Valuing cultural diversity’ was coded to a great extent. According to the CDC model, “this value is based on the general belief that other cultural affiliations, cultural variability and diversity, and pluralism of perspectives, views and practices ought to be positively regarded, appreciated and cherished” (Council of Europe, 2016, p. 8). Following the problem-solving activity, students seemed to have recognised that having culturally diverse groups and pluralism of opinions and world views is an asset in a problem-solving situation as you get different views that help solve the problem effectively. A student notes: *This kind of scenario is good to be solved with foreign students because of the different opinions and views that you can get* (P1, CUT, Intervention 2), showing appreciation of everyone's perspectives and value of diverse viewpoints.

Two additional competences that were developed in this intervention were self-efficacy and analytical and critical thinking skills. The former is under the category of Attitudes in the CDC model and is described as an attitude towards the self. “It involves a positive belief in one’s own ability to undertake the actions that are required to achieve particular goals, and confidence that one can understand issues, select appropriate methods for accomplishing tasks, navigate obstacles successfully and make a difference in the world” (Council of Europe, 2016, p. 9). Participants in the BEGIN project exhibited an attitude of self-efficacy manifested in a positive belief about themselves and their ability to engage in collaboration with foreign partners. Many students expressed feelings of pride and ability to undertake and handle intercultural encounters and work in intercultural teams. A student mentions: *Proudly managed through another language to communicate with my foreign partners. I feel that I did something unique and original. I felt that I could comfortably work together and with other persons in a team project.* (P11, CUT, Intervention 2). Another student refers to satisfaction for managing to achieve the set goals: *I can say now that I feel proud of myself to be able to communicate in a foreign language and to be able to create a product following the "real process" and knowing more about each part of the process. I feel like I am a step closer to my objective so it makes me really happy* (P11, UV, Intervention 2).

As for analytical and critical thinking skills, they are described in the CDC model as “skills required to analyse, evaluate and make judgments about materials of any kind (e.g. texts, arguments, interpretations, issues, events, experiences, etc.) in a systematic and logical manner” (Council of Europe, 2016, p. 10). The problem-solving activity which was discussed during the second synchronous exchange gave students the opportunity to think about different interpretations and evaluations of the best alternatives for effective problem solution and implementation. Students valued each other's ideas and analysed different information. They compared their ideas, reflected on different points of view coming from the two partnering teams and made decisions about solving the cross-cultural business scenarios. A student explains how the problem-solving activity contributed to the development of analytical and critical thinking skills as the activity implied the analysis and evaluation of different viewpoints or arguments. The student also stresses the importance of technological mediation in this task: *The second exchange with the Spanish girls was so exciting because we worked all together to make a project for the English lesson. It was a creative project*

and a new experience for us to do this because all of us gave their opinions and ideas about the scenarios. I think that it was a great team work because we came up with great ideas to solve the problem and we came all together to make a good and strong project to solve this problem. The google hangouts that we used to do the project were constructive as we could communicate with the Spanish girls and have different opinions and views for solving such kind of problems (P1, CUT, Intervention 2).

Finally, the qualitative analysis shed light to the development of Knowledge and critical understanding of language and communication. As defined in the CDC model, “this includes knowledge and critical understanding of the socially appropriate verbal and non-verbal communicative conventions that operate in the language(s) which one speaks, of the effects that different communication styles can have on other people, and of how every language expresses culturally shared meaning in a unique way” (Council of Europe, 2016, p. 11). It seems that the increased interactions in this intervention contributed to the learners’ understanding of the different forms of language used in different cultural contexts. A student reflects on how different communication styles can impact the interaction and the relationship between people: *I think it is also challenging to talk to someone that you don't know because you don't want to say anything that could offend them. So sometimes I feel like I don't know, like I don't know whether to tell this to him or not (P29, UV, Intervention 2).*

Qualitative data analysis aimed at recording evidence of content-based learning. In the BEGIN project, the learners’ academic needs were placed at the centre; therefore, it was important to observe whether the affordances of this intervention for building learners’ domain-specific knowledge were made salient and perceived by the participants and it was equally important to examine how domain-specific tasks contributed to the development of global competences. The analysis indicated that the perceived benefits of the project, such as openness to other cultures and worldviews, were associated with the learners’ current and future careers which mandate the ability to interact and communicate with people from other countries, who live abroad and who have different ideologies. Students found the BEGIN project beneficial as it included situations similar to international life especially in the field of business. Through the project the students received information from different perspectives and that is something they will be called upon to do in their future career in business. The tasks, such as global business

problem-solving, required students to engage in cross-cultural encounters, cooperate and establish agreement towards achieving common objectives. The two videos (introductory digital profile and digital story) built on students' critical thinking and evaluation abilities as they had to think about the content of the digital artefact and the audience to which this was addressed: *Through the collaboration and the making of the videos, surely through the making of the videos as we had to think about the idea, how to promote it, how to make it good. We got ourselves into this mindset. That we have to make it sell to the target market* (P5, CUT, Intervention 2). This shed light on the importance of artefacts as a significant contextual element which affects student cooperation and engagement with the task. Table 38 summarises the learners' perceived benefits of the BEGIN project in relation to content-based learning, evidenced by participants' quotes:

Intervention 2	
Content-Based Learning	Participants' Quotes
Openness to other cultures in the business field	<i>Being more open is part of our degree's themes as well. We deal with customers.... the spectrum is wide and I believe that this project has helped in... Let's say in talking to people you don't know, who are not even living in your own country, who don't have the same ideologies as you</i> (P2, CUT, Intervention 2).
Business skills and internationalisation	<i>Finally, this telecollaboration project has been useful to improve my knowledge and skills related to International Business, as I have had the chance to think like a businesswoman and do some reports about developing a product, which will certainly be helpful in the next years of university. Also, as my degree is oriented towards internationalization, this project has helped me improve my communication skills, not only with my partners from my degree but also with other students from Cyprus.</i> (P22, UV, Intervention 2)
Understanding of language and communication	<i>Another reason why I think this task should be made is that it is useful for this degree's students. Studying International Business means that you are willing to meet foreign people who, for instance, may not have as good a level of English as you expected. Since now we all don't have perfect English, you make a double effort to understand what the other student says and you try to say everything in many ways in order to be understood.</i> (P8, UV, Intervention 2)
Establishing an agreement	<i>But I have also learned some business issues that might be important for my future and for my academic training in my degree, how to deal with foreigners, speak with them and getting a final agreement seems to be easier from the outside, but, I can tell you, it is not.</i> (P3, UV, Intervention 2)
Acquiring new perspectives	<i>Working with this project has been the best idea that teachers could ever have due to the meaning of my objective with International Business. As the name of the degree shows, we have to take information from different countries to get a general view of the International life, Especially about businesses, which is the topic that we have worked as a whole.</i> (P1, UV, Intervention 2)

Table 38: Perceptions about content-based learning

5.3.3 Discussion

The BEGIN project seems to have achieved many of its objectives in relation to global competence and content-based learning. The quantitative and qualitative analyses demonstrated that this project's design achieved to situate the virtual exchange at the nexus of global competence and domain-specific learning effectively. Placing the learners' academic and future professional needs at the centre, the intervention opted for smoothly embedding the project in the academic curricula of both universities. Through carefully constructed content-related ESP tasks and activities, substantial affordances were made salient and therefore perceived by learners. This rendered the virtual exchange project a location of opportunities for competence learning. With regard to CDC global competences, different competences that were not developed to a great extent in the previous cycle seem to have been enhanced in the BEGIN project. These are valuing cultural diversity, self-efficacy, analytical and critical thinking skills, and knowledge and critical understanding of language and communication. These competences and other competences such as cooperative skills, respect for diverse opinions, as well as flexibility and adaptability seem to have intersected with the acquisition of domain-specific knowledge in the field of Business English. The learners seem to have managed to transfer the skills developed through their virtual intercultural encounters to their curriculum-bound academic contexts and also envision the essentiality of those competences for professional success. However, while the virtual exchange appears to have provided a fertile ground for the emergence of many competences in its redesigned version, some affordances still remained unnoticed or not adequately perceived and enacted by participants. Competences such as civic-mindedness, empathy, valuing human dignity and human rights, as well as valuing democracy, justice, fairness, equality and the rule of law, were marginally coded in both interventions. This raised concerns about the project's potential to afford opportunities for enhancing action-oriented approaches to competence learning, such as civic-mindedness, as well as values that are considered essential for building democratic and intercultural competence. As Barrett explains, values are placed at the heart of the CDC model arguing that "a competent democratic citizen is someone who believes that every individual human being (irrespective of their specific cultural affiliations) is of equal worth, has equal dignity, is entitled to exactly the same set of human rights, and ought to be treated accordingly" (2016, p. 1). Civic-mindedness is described in the CDC model as "an attitude towards a community or social group to which one belongs that is

larger than one's immediate circle of family and friends. It involves a sense of belonging to that community, an awareness of other people in the community, an awareness of the effects of one's actions on those people, solidarity with other members of the community and a sense of civic duty towards the community" (Council of Europe, 2016, p. 9). This competence is interrelated to the values described in the model, as well as to the skill of empathy and a sense of responsibility towards the society. Civic-mindedness is an attitude that if activated can lead to resilience and action in response to critical social issues. In the CDC model this competence is described both as an attitude and as an action-oriented skill that enables individuals to acknowledge acceptance of obligations of belonging to a community and to exercise those obligations and responsibilities of active citizenship at either the local, national or global level. An individual who possesses the competence of civic-mindedness takes action to stay informed about civic issues while being actively involved in community issues (Council of Europe, 2018). This echoes the concept of 'action in the community' of citizenship education (Byram, 2008) which is encapsulated in 'thinking' and 'acting', or 'seeing' and 'taking action' (Byram, 2018). Therefore, what seems to be missing in the initial design and the redesign of the virtual exchange projects are the notions of criticality and social agency and their potential to create affordances that equip individuals with *praxis*, the amalgamation of critical reflection and action (Freire, 1970). Acknowledging the potential of virtual exchange in developing critical agency, compelled the researchers to redesign and reiterate aiming at augmenting the affordances of the project, allowing competences to develop to a greater and more critical, action-oriented extent.

5.3.4 Towards an Ecological Approach

The examination of the findings of the second intervention mandated a reconceptualisation of the contextual elements of the virtual exchange and their interrelation with the development of competences. The conclusions drawn also directed the attention to theoretical paradigms that support the humanistic role of language education, such as ecological theory which places criticality and agency at the centre of learning. Van Lier (2010) explains that agency can emerge individually or collectively when learners need to make choices and when they are provided with opportunities to work as participants in a community of learners, linking criticality with an action-based approach to language classroom and a democratic direction in

education that will facilitate an understanding of others' perspectives and participation in local and global contexts. An ecological approach also places emphasis on the relations between language and the world, highlighting the capacity to connect to and engage more effectively with people in the world. Frielick (2004) explains that an ecological perspective places emphasis on seeing wholes together with parts forming relationships which are situated in a context where complex interactions take place having an impact on what is learned. These principles directed the virtual exchange project towards a critical design and a revisit of the telecollaborative ecosystem with particular emphasis on the participants, the task design, the themes, as well as the technological mediation. In addition, artefacts emerged as an additional contextual element in the design of the third iterative cycle.

5.4 Third Intervention: YES Project

The third intervention, the YES (Youth Entrepreneurship for Society) project was designed with a critical approach and was an attempt to expand telecollaborative content-based learning by connecting dispersed, culturally diverse students at two universities as well as by involving local Non-Government Organisations (NGOs) based in the two participating countries, Spain and Cyprus. The YES telecollaboration project was a pedagogical intervention which was implemented with an ecological perspective on learning thus offering multiple opportunities for meaningful interaction, critical co-creation of knowledge and social agency within a dynamic real-life context (Palalas & Anderson, 2013). The project aimed at connecting the classroom with the local community and to enhance students' global competences while promoting equality, social justice and awareness of critical social issues (Nicolaou & Sevilla-Pavón, 2018). These issues were reflected in the *United Nations' Sustainable Development Goals* (2015) which include: no poverty, no hunger, good health and education, gender equality, clean water and sanitation, clean energy, good jobs and economic growth, innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption, environment protection and animal rights, peace and justice and international commitment and cooperation towards achieving these goals (UNESCO, 2015). The YES project was an effort to fill the gaps of the previous iterative cycles by fostering critical attitudes and values while encouraging participants to become active champions of social change.

The YES project was embedded in two similar ESP modules at the same institutions as the first and second interventions. Specifically, the YES project connected 39 students of Business Management at the Cyprus University of Technology and 19 students of International Business at the University of Valencia. The linguistic level of CUT students and UV students ranged between B1-B2 of the CEFR. The intervention lasted for one semester (13 weeks), starting in September 2017 and adjourning in December 2017. Table 39 presents the participants and settings of the third intervention:

Intervention 3: Participants and Settings	N	Percent
Institutions		
Cyprus University of Technology	39	67,2
University of Valencia	19	32,8
Total	58	100,0
Project		
YES	58	100,0
Total	58	100,0
Degree		
Business Management	39	67,2
International Business	19	32,8
Total	58	100,0
Age		
17-20	54	54
21-24	4	4
25+	0	0
Total	58	100,0
Gender		
Male	22	37,9
Female	36	62,1
Total	58	100,0

Table 39: Participants and settings of the third intervention

Target competences of the YES virtual exchange project included global competence and content-based learning with a Business and Social Entrepreneurship orientation. In this project, Business English was viewed through a social lens and an altruistic spirit of confronting the world's problems through social initiative and innovative business solutions. The overarching themes of the project were social entrepreneurship, global challenges, and the exploration of new business opportunities that embrace social transformation. The project brought to the fore the definition of civil society and non-profit organisations as communities of citizens with shared interests undertaking collective activity. It also discussed the role of social enterprises as part of a broader democratic society bridging the gap between business and society. Social enterprises

adopt a global business or corporate business citizenship approach and contribute to the overall well-being of society by discovering business opportunities through social strategic goals. The themes of social justice, responsibility, democratic engagement and diversity underpinned the tasks and activities which required students to draw from their different cultural and academic backgrounds and address global problems.

5.4.1 Project Structure, Tasks and Activities

The YES project was structured based on Gilly Salmon's model (2000). Tasks revolved around business, management, social entrepreneurship, innovation, global challenges and initiative and included preparatory, familiarisation, and ice-breaking tasks, followed by interactive exchanges and discussions on languages, culture and stereotypes, and a main collaborative problem-solving task that spanned the whole period of the virtual exchange. The main task was a social entrepreneurship project designed within a synergistic partnership between the two teachers/researchers and different representatives from organisations and stakeholders from the civil society in Spain and Cyprus who adopted the role of mentors and provided learners with information about their mission and main activities. These mentors guided learners when finding and developing their ideas for the main artefacts they co-constructed: a digital story demonstrating an innovative product aiming at solving a local social challenge. Activities within the YES project included frequent online meetings between the partners, followed by reflection papers as well as assessment and evaluation activities in the form of peer-to-peer critical feedback. Tasks and activities were mediated by Google applications, such as Google+ Hangouts, Google+ Communities, and Google Drive (Docs and Slides). Table 40 presents an overview of the project's tasks and activities mediated by Google technologies and structured according to Salmon's 5-stage model (Sevilla-Pavón & Nicolaou, 2019):

Intervention 3: YES Project	
Structure	Tasks and Activities
Access and Motivation	- Getting to know the project and the technologies - Students (Ss) receive the project information leaflet and sign the consent form. - Ss create a Gmail account and compose their digital profile on Google+ with basic information about education, work, places visited, interesting facts and stories. They upload a photo/avatar or image. - Ss join the Google+ Community which was created by the teachers. - Ss complete the pre-intervention questionnaire. - Ss post ice-breaking questions on Google+ Community
Online	Meeting the partners

Socialisation	• Ss explore their partners' digital profiles on Google+ • Ss play a game on Kahoot! 'What do you know about Cyprus/Spain?' • Ss respond to their partners' ice-breaking questions on the Google+ Community. • Ss form local and telecollaboration groups. • Ss create and upload personal introductory 2-minute long videos on Google+ Community. • Ss view their partners' videos and comment on them on Google+ Community. • Ss are introduced to the Social Entrepreneurship Project and choose one of the NGOs to work with. • Ss organise and conduct their first synchronous exchange on Google+ hangouts. In their conversations they may discuss the ice-breaking questions and personal introductory videos, the Kahoot game, etc. • Ss compose an interview targeted to the NGOs. • Ss visit their selected NGO premises and conduct the interviews. • Ss compose their written reflections individually on Google Docs delineating their impressions of the experience and learning so far.
Information Exchange	• Discussing diversity • Ss watch YouTube video 'The DNA Journey' and respond to questions on Google+ Community: <i>Are you interested in finding out where you come from based on your DNA? Would you dare question who you really are? How connected to do you feel to the rest of the world? Is there a country that you feel you are most connected with? Is there a country that you feel you absolutely have no connection with? What if you are genetically related to a certain group of people you normally associate with bad feelings? Would you like to travel to all the countries you are genetically related to?</i> Answers may be responded to by peers. • Ss engage in a discussion on diversity, identity, stereotypes and open-mindedness on Google+ Community. • Thinking globally • Ss engage in a discussion on 'Good countries' responding to the questions: <i>Have you ever thought which country does the most good for the world? Which country is the one that contributes something to the world in which we live in? Which country seems to make the world better, safer, richer fairer?</i> • Ss make a list of the Top 5 countries which they think they do the most good for the world. They justify their winners' list with a short explanation on Google+ Community. • Ss watch Ted Talk 'Which country does the most good for the world' by Simon Anholt and visit The Good Country Index website. • Ss reflect on their Top 5 countries winners' list and compare with their partners' list on Google+ Community.
Knowledge Construction	• Social entrepreneurship and community involvement • Ss brainstorm ideas and resources for their business solution following a problem-based methodology. • Ss read NGOs websites and write opinions comparing with local initiatives in Cyprus/Spain on Google+ Community. • Ss organise the second synchronous exchange on Google Hangouts to discuss the social entrepreneurship project with their partners. • Ss exchange ideas and resources and give advice to each other on Google Drive. • Ss compose their written reflections individually on Google Docs about their impressions of the experience and learning including their ideas and advice they received from their partners. • Digital Storytelling: Developing an innovative answer to a social problem • Ss watch examples of digital stories on Google+ Community and write comments. • Ss brainstorm about the structure, software and resources for their digital story on Google Docs. • Ss exchange ideas with their partners on Google Hangouts. • Ss create the storyboard of their digital story on Google Docs. • Ss create their script on Google Docs and share it with their partners. • Ss send and receive feedback on their partners' scripts.

	• Ss create their digital stories using different media • Ss share their digital stories on Google+ Community.
Development	• Evaluating and reflecting • Ss watch their partners' digital stories and provide feedback on Google+ Community. • Ss assess their partners' digital stories using the assessment sheets and vote for the best digital story on Google Forms. • Ss prepare and deliver elevator pitches of their new products. • Ss assess their peers' elevator pitches and vote for the best one on Google Forms. • Ss write a collaborative investors' report on Google Docs. • Ss receive their awards for best digital story and best elevator pitch. • Ss send their digital stories to the respective NGOs and receive feedback • Ss visit an innovator and entrepreneurship centre to present their ideas and receive feedback. • Ss have their third synchronous meeting. They interview their partners exploring their impressions about the project. • Ss write a comparative reflection paper. • Ss complete the post-intervention questionnaire. • Ss participate in focus groups. • Ss film, edit and publish a farewell video on Google+ Community.

Table 40: Overview of YES project tasks and activities

The activities included in the YES project clearly reflect the view that critical learning entails “teaching for social justice, in ways that support the development of active engaged citizens” (Crookes, 2013, p. 9). Therefore, through the tasks, learners were supported in becoming active advocates of change and were encouraged to acknowledge both their individual capacity and responsibility to instigate positive transformation at local and global levels. Through purposeful project-based learning, participants became social entrepreneurs, that is, entrepreneurs concerned with developing, funding and implementing solutions to social, cultural, or environmental issues (Bornstein, 2007). The project supported the collaboration and the construction of meaningful artefacts, within an authentic, learner-centred approach, involving students in the active application of discipline-specific knowledge through the co-creation of useful content. In this way, the affordances of technology-based initiatives for the promotion of "social inclusion" (Warschauer, 2003, p. 8) and their usefulness for addressing problems related to discrimination and inequality (Andrejevic, 2007; Menezes de Souza, 2012) were explored. In the social entrepreneurship project, learners were required to read the following scenario (Sevilla-Pavón & Nicolaou, 2019):

Becoming a Social Entrepreneur

You own a successful company and you want to use your skills and experience to become a social entrepreneur and make a positive change in the world! In order to achieve your goal, you need to combine and apply your knowledge of business management principles and your drive to offer to your community. You have decided to explore the needs in your region in order to identify a pressing problem that you would like to address. You need to contact an NGO, association or volunteer group and conduct an interview so as to understand how you can contribute in solving a problem. You understand that this needs a lot of hard work, passion, inspiration and creativity, so you decide to join forces with your young and enthusiastic colleagues and come up with a feasible business idea to help the community. Your idea will be presented in a digital story and an oral presentation to the particular NGO, association or volunteer group that you have selected to support.

Participants worked in international groups of four and interacted both synchronously and asynchronously using English as a lingua franca over the course of one semester. Initially, they were provided with different questions as guidelines. For example:

- Which specific problem can we address?
- What kind of solution can we develop?
- Who will benefit from our solution and how will they benefit?
- What action steps do we need to take in order to implement the solution?
- Who do we need to speak with in order to develop our solution?
- What resources (human, economic) and materials will we need to develop our solution?
- How much will our solution cost?
- How do we intend to raise funds for implementing the solution?
- How long will our solution take to implement?
- How can we monitor the implementation of our solution?

Learners completed a range of tasks which involved getting in touch with 22 local associations and non-governmental organisations (NGOs) from Spain and Cyprus (11 Cypriot and 11 Spanish), identifying the main challenges faced by those institutions, discussing and providing solutions linked to their local communities' social issues through telecollaboration, and presenting their own initiatives in the form of a digital story and an elevator pitch (Nicolaou & Sevilla-Pavón, 2018). Tables 41 and 42 identify the organisations from Spain and Cyprus and their respective missions:

Spanish Organisations	Missions
AESCO	Fostering education and training for entrepreneurship and employability
Jovesolides	Fostering social innovation and entrepreneurship among immigrant population
TALIS	Developing educational projects through world tales, while fostering intercultural education and international cooperation
DESEEA	Raising awareness about environmental issues by means of educational initiatives and eco-activism
Malva Community Radio Station	Raising awareness about environmental issues by means of a radio show in a community radio
Art and Environment Research Centre	Raising awareness about environmental issues by means of educational initiatives combining art and ecology
Unidad de Igualdad UV	Fighting for gender equality, empowering women and fostering gender equality in the academic and university fields
ONG AIDA Books	Fostering cooperation and exchange through a charitable, non-profit library
Adventure Volunteer	Promoting humanitarian tourism initiatives in Central America
Cepaim	Providing legal advice and fostering social economy among immigrants and refugees
Primadomus	Rescuing exotic mammals and advocating for a stricter legislation concerning animal welfare

Table 41: Spanish organisations' names and missions

Cypriot Organisations	Missions
Migrant Information Centre (Mihub)	Helping vulnerable migrants across Cyprus feel protected, safe, informed and supported so that they are able to move forward with their lives
AEQUITAS	Creating a just society through human rights education, intercultural education and citizenship education
Polidinamo Kentro, IERA MHTROPOLIS LEMESOU	Supporting children and adolescents, providing free meals to underprivileged families
Funraising	Helping families with children up to the age of 18 who are in need of basic types of supplies
Dog Valley Rescue Center	Providing hope for dogs who have been abused and/or thrown out and are homeless
Parents' Association Lanitio Primary School	Promoting a close relationship among parents, pupils, teachers and administrators
Centre for Preventive Paediatrics	Implementing universal prenatal and neonatal screening programs
Dancing Queen Foundation	Improving children's psychological health and well-being by supporting programs which raise funds and awareness in support of educational and clinical programs
The Centre for the Provision of Social Services	Improving the quality of life of those who are in need by contributing and raising awareness of various problems and by focusing on the importance of volunteering in society
Friends of the Earth Cyprus	Raising awareness on the importance of preserving the natural environment and to campaign for solutions to environmental and social problems by promoting sustainable policies.
Pets2Adopt	Helping stray or abandoned animals by providing an animal shelter.

Table 42: Cypriot organisations' names and missions

Learning within the YES project was student-centred and tailor-made since students could select from a wide range of issues and challenges connected to the local NGOs, such as animal protection, migration issues, children's well-being, poverty and

marginalisation. Within the YES project, participants were engaged in the exploration of authentic materials, i.e. email exchanges with NGO representatives, browsing the websites and social media sites of local NGOs and volunteer groups, as well as designing, conducting and analysing interviews with a real-life audience, among others, in order to discover gaps in the market and then create innovative business solutions to fill those gaps following a problem-solving methodology (Nicolaou & Sevilla-Pavón, 2018). The solutions were grounded in the basic principles of business and social entrepreneurship and were supported by relevant concepts and lexis included in the specific ESP curricula at both universities. Eighteen unique, authentic stories were created, each one demonstrating an innovative business idea addressing a specific challenge faced by an NGO. The stories were creative and met the guidelines and criteria students were asked to follow regarding their digital stories' duration and main elements. Through their creative and original artefacts, students proposed changes and innovative solutions in an effort to tackle specific problems of discrimination, inequality and poverty. In this way, the 17 *United Nations' Sustainable Development Goals* (2015) were addressed. The digital stories were uploaded on the Google+ Community, the telecollaborative community's shared virtual space. Afterwards, the self-created digital content, which was the outcome of the students' telecollaborative encounters and interactions with the local NGOs, was shared with the respective NGOs, thus becoming informative open data which was useful to them (Nicolaou & Sevilla-Pavón, 2018). The YES virtual exchange aspired to create affordable opportunities for global competence learning through an internationalised and socially oriented ESP curriculum. In addition, the YES project implied the application of various global competences in order to address a problem they observed in their immediate communities. The third iterative cycle also shed light on the learners' created digital artefacts and their potential to have an impact on society by being purposeful, useful, open and shareable.

5.4.2 Data Analysis and Findings

The study adopted a mixed-methods approach to collect data aiming at recording perceived competence learning. Data were collected by means of pre-intervention and post-intervention questionnaires, focus groups and learners' written reflections, interviews with NGO mentors, and students' digital artefacts. Table 43 summarises the collection of multiple data during the first iterative cycle:

Intervention 3: Methodology	Data Collected and Sample
Pre-intervention questionnaires	58 returned questionnaires
Post-intervention questionnaires	55 returned questionnaires
Matched pairs	45 matched pairs
Focus groups	30 participants
Written reflections	98 papers
Interviews	12 participants
Digital artefacts	18 digital stories

Table 43: Intervention 3 data collection

The YES virtual exchange project seems to have achieved its goals to a great extent. With regard to Cultural Awareness, students were asked to respond to the same 20 Likert-type questions that appeared on the pre- and post- intervention questionnaires of the previous two cycles. The Likert scale ranged from 1-7 whereby 1 meant ‘Completely Disagree’ and 7 meant ‘Completely Agree’. A Cronbach's Alpha reliability test was carried out on SPSS in order to measure the internal consistency of the set of 20 questions. The analysis indicated that Cronbach's Alpha was **0.844**, which demonstrated a high level of internal consistency for the scale with this specific sample. Table 44 presents Cronbach's Alpha reliability analysis:

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,844	,848	20

Table 44: Intervention 3 Cultural Awareness Cronbach's Alpha analysis

A paired-samples t-test was then run to compare the means between the students' level of cultural awareness prior to their participation in the YES project and upon completion of it. The analysis was run for 45 pairs who could be matched in both the pre- and post-intervention questionnaires based on their stated date of birth on both questionnaires. As indicated by the analysis, there was a statistically significant difference in the level of students' cultural awareness. Table 45 demonstrates the paired-samples t-test analysis:

Differences in Level of Cultural Awareness	N	M	SD	t-value	P
Cultural Awareness					
Pre-intervention	45	4,73	,855	-2,454	
Post-intervention	45	4,91	,866	-2,454	,018

Note: Responses were marked on a Likert scale from 1-7 whereby 1 meant 'Completely Disagree' and 7 meant 'Completely Agree'. Column heading M refers to the mean responses.

Table 45: Intervention 3 paired-sample t-test analysis of cultural awareness level

The qualitative data that were collected provided deeper insights into the specific competences that were developed within the YES project. Qualitative data were gathered by means of focus groups, written reflections and interviews. Transcriptions of focus groups with 30 students, reflection papers composed by 98 students, and 12 interviews with NGO representatives were entered in NVivo and were analysed based on *the Reference Framework of Competences for Democratic Culture* (Council of Europe, 2016). The learners' 18 digital stories were analysed thematically based on *United Nations' Sustainable Development Goals* (2015). During the data analysis, special emphasis was given to the competences that were infrequently coded in the previous two interventions. A matrix coding was created in NVivo to cross-tabulate the coding intersections between the four broad categories of the CDC model. The matrix indicated that all four categories were coded in the analysis with 'Skills' being the category mostly coded, followed by 'Attitudes'. The category that was least coded was 'Values'. It is interesting to note that the number of references coded was greatly increased compared to the same analysis in the first and second interventions. Table 46 demonstrates the coding intersections between the four CDC categories:

Intervention 3	
CDC Categories	Number of References Coded
Values	59
Attitudes	346
Skills	478
Knowledge and Critical Understanding	223

Table 46: Intervention 3 coding intersections between the four CDC categories

The analysis of the data separately for each category and its related competences provided insights of the kinds of competences that learners developed through their participation in the YES project. It was interesting to observe that all 20 competences of the CDC model were referenced and that some competences that had not been developed in the two previous iterations, such as civic-mindedness, were coded to a great extent in the third intervention. Table 47 demonstrates the number of references coded separately in the 20 CDC competences:

Intervention 3	
CDC Competences	Number of References Coded
1 : Valuing human dignity and human rights	7
2 : Valuing cultural diversity	48
3 : Valuing democracy, justice, fairness, equality and the rule of law	4
4 : Openness to cultural otherness and to other beliefs, world views and practices	184
5 : Respect	26
6 : Civic-mindedness	102
7 : Responsibility	15
8 : Self-efficacy	17
9 : Tolerance of ambiguity	2
10 : Autonomous learning skills	32
11 : Analytical and critical thinking skills	60
12 : Skills of listening and observing	62
13 : Empathy	19
14 : Flexibility and adaptability	84
15 : Linguistic, communicative and plurilingual skills	112
16 : Co-operation skills	107
17 : Conflict-resolution skills	2
18 : Knowledge and critical understanding of the self	83
19 : Knowledge and critical understanding of language and communication	5
20 : Knowledge and critical understanding of the world	135

Table 47: Intervention 3 number of references coded in the 20 CDC competences

The CDC model describes ‘Valuing human dignity and human rights’ as “a value that is based on the general belief that every human being is of equal worth, has equal dignity, is entitled to equal respect, and is entitled to the same set of human rights and fundamental freedoms, and ought to be treated accordingly” (Council of Europe, 2016, p. 8). In the YES project, learners contemplated on the notion of human rights and critically reflected people’s lack of willingness to familiarise themselves with human rights or help others know and protect their human rights: *Another problem raised in our communication was that most people do not show willingness to learn or help other*

people to get to know their human rights (P26, CUT, Intervention 3). Through their involvement in the social entrepreneurship project students learned about different organisations and volunteer groups that promote human rights and shared this information with their partners to inform them and raise awareness. The same student explains: *We informed her that “Aequitas” is a non-profit organisation which has been formed by a group of people aiming to protect the human rights of people aged between 18-30 years.* Another value that was developed in the YES project was ‘Valuing democracy, justice, fairness, equality and the rule of law’ which is described in the CDC model as a set of values “based on the general belief that societies ought to operate and be governed through democratic processes with respect to the principles of justice, fairness, equality and the rule of law” (Council of Europe, 2016, p 8.). Emerging affordances of the YES project relate to the enhancement of the value of democracy, particularly within European countries. The learners’ synchronous interactions quite often revolved around political issues and important symbolic memories for the two countries. Learners became familiar with their partner’s country’s significant historical events and discussed issues of justice and fairness within the European Union: *That was quite astonishing because I didn't expect in the 21st century to, you know, have these kinds of problems yet. Their country, you know, being partially divided I don't think it's quite normal and I mean Cyprus is in the European Union, so it's not very normal. I still think it's unfair* (P35, UV, Intervention 3). Similarly, learners discussed the current political turbulence and discussed the issue of violence exercised by the police: *I also asked the girls to say to me about the incidents at Spain in Catalonia in order to understand better the condition there and they expressed to me their opinions about the police violence and what is on people’s mind there* (P25, CUT, Intervention 3). These discussions also express an attitude of respect of the partners’ political history and current political unrest. The students seem to have provided space to their partners to express themselves about historical issues and current situations that matter to them and express a sense of empathy in the form of sympathy for the bad things that are happening to other people: *We discussed the problem that Spain deals with right now and how that is affecting the life in Spain and if it affects his personal life. We exchanged views about the problem. I enjoyed this synchronous exchange because I and my group learned about problems that trouble people not only in Cyprus, and we created bonds with people that we will be able to help* (P32, CUT, Intervention 3). Learners also demonstrated empathy towards the targeted groups that the NGOs

were dealing with, such as immigrants, children with special needs, and socially excluded individuals: *The telecollaboration project helped us and the Spanish partners in this project to understand and figure out what problems a person who is an immigrant has* (P12, CUT, Intervention 3).

The third intervention aimed at augmenting the scope of virtual exchange by integrating tasks that required the cooperation with stakeholders beyond the customary telecollaborative partnership. It also aimed to revamp the exchange into an action-oriented project in an effort to create measurable affordances for the development of agency-related competences. Civic-mindedness, as described in the CDC model, is an amalgamation of attitude and action, echoing the principles of active citizenship. This competence did not become salient in the two previous iterations; however, it was noticed and acted upon to a great extent in the third cycle. In the YES project, students learned about non-government organisations that have their operations in their local communities. As reported, students were completely unfamiliar about the existence of those organisations or about the social problems they deal with, such as challenges faced by migrant groups, health problems like autism, environmental issues, or social exclusion. Through the project, learners were actively involved in those community issues and they engaged in international collaborations towards addressing them. Together with their foreign partners they embarked on a process of collecting information about the NGOs and the social problems they try to tackle. They prepared interviews and they brainstormed solutions together. Their initial anxiety for this challenging project gave way to confidence as the NGO mentors accepted them with kindness and a willingness to help them in their enquiries by providing them with information about their missions, their operations and the challenges they face. Learners then engaged in a meaningful discussion on Google+ Community or via email exchanges about the humanitarian organisations in the two communities. This way students gained knowledge about the two sociopolitical contexts. Drawing from each other's ideas, as well as from their discipline-specific knowledge and expertise, they created innovative business solutions addressing problems, such as lack of quality education, homelessness, ecological problems, poverty, animal abuse and gender disparity. These solutions were conceptual and took the form of digital stories targeted to the respective NGOs. Upon completion of the project, students expressed the willingness to continue their collaboration with the NGOs and actualise their solutions

into real, usable products rather than simply presenting them as conceptual ideas. Table 48 summarises the development of civic-mindedness evidenced by students' quotes:

Intervention 3	
Civic-mindedness	Students' Quotes
Actively involved in community challenges	<i>Personally, I think that it helped us because I do not think that any of us believed that we would manage to complete the task to the extent we have so far. I mean... from the beginning when we did the interviews, then when we tried to make a product that was conceptual on the one hand, but on the other it covered the social needs to a certain extent, it made an effort to help with the social challenge and we finally made it. (P7, UV, Intervention 3)</i>
Being informed about community issues	<i>We also learned about problems in Limassol, that we did not know of. It was very good to get acquainted with the social setting we live in because we have recently moved to Limassol, so it's good to be aware of the problems that exist here. (P29, CUT, Intervention 3)</i>
Willingness to take further action.	<i>I would like to be more involved with the organization. I loved that part very much, and of course it would have been nice if we really created the products we made, not just talk about them. (P1, CUT, Intervention 3)</i>
Commitment to be involved in community issues	<i>I'm very happy that I've shared all these thoughts and opinions with my partner and we agreed to keep in touch in order to exchange more information about our countries, but most of all to share more information and find better solutions about my NGO which may help other NGOs in the future. (P4, UV, Intervention 3)</i>
Willingness to collaborate with others for common interest causes	<i>Our main discussion topics were on non-profit organisations. We informed her that "Aequitas" is a non-profit organisation which has been formed by a group of people aiming to protect human rights of people aged between 18-30 years. We stated that this organisation faces some financial problems and asked her to give us some guidelines how to deal with this. (P11, CUT, Intervention 3)</i>
Supporting organisations addressing social problems	<i>We are both excited about the NGO's project because the members of the organization were very friendly with us and helpful. We helped them because they were trying to solve some of the existing problems and they were struggling for it. (P6, CUT, Intervention 3)</i>

Table 48: Development of civic-mindedness

The social entrepreneurship project promoted the development of multiple skills, such as creativity, global and local collaboration, as well as discipline-specific learning. Learners adopted a social entrepreneurial mindset and used their knowledge and expertise as students of Business and applied this knowledge for common interest causes. In the end, they felt proud that, at least to some extent, their artefacts could satisfy the needs of the target social group they had worked with. Different academic and discipline-specific language skills were developed, such as composing and addressing an email to a real target audience, receiving, comprehending and processing information via emails, composing a sustainable business plan, creating, rehearsing and delivering an elevator pitch, as well as discipline-specific lexis. In addition, learners

learned to use an array of technological tools and software to achieve goals related to active engagement in society and citizen participation (Ferrari, 2013). Through the YES project, learners experienced human-centred digital learning. An important aspect of the intervention that was conducive to competence learning was the fact that the project revolved around real – not realistic – social issues. This increased motivation and urged learners to be more aware of ownership and the impact of outputs, as well as more accountable for the quality of the self-authored, open and shareable digital artefacts they created. Table 49 demonstrates the rise in the learners’ motivation level pre- and post-intervention which was found to be statistically significant:

Intervention 3					
Differences in motivation levels	N	M	SD	t-value	P
Are you motivated to learn English at the University?					
Pre-intervention	45	5,33	1,50		
Post-intervention	45	5,80	1,27	-2,90	,006

Note: Responses were marked on a Likert scale from 1-7 whereby 1 meant ‘Not at all’ and 7 meant ‘Very much’. Column heading M refers to the mean responses.

Table 49: Differences in motivation levels pre- and post-intervention

Interviews with 12 NGO mentors upon completion of the YES project indicate that the learners managed to satisfy the organisations’ needs and effectively conveyed their messages and mission statements in the digital artefacts they had created. Table 50 demonstrates the NGO mentors’ reactions towards the project and the digital artefacts:

Intervention 3: NGO Mentors’ Quotes
<i>One positive aspects of this program was the opportunity was given to students to get in touch with a migrant center and to discuss with the people who work there for their experiences.</i> Cypriot NGO dealing with migrant issues
<i>We liked communicating with students and the opportunity to pass on them to our experience and how we operate. We have also perceived through the film that children have really understood the Foundation's deepest message of creating a solidarity chain. It is very important to be able to inspire each other for a common good. We see that this has been done with complete creativity and social sensitivity.</i> Cypriot NGO dealing with autism
<i>If this idea materialized, the foundation could use it in collaboration with psychologists and therapists. The application is therapeutic and entertaining and would be a good idea.</i> Cypriot NGO dealing with children’s mental health

<i>The video is very useful for informing the public about the operation of the shelter, its use but especially for the promotion of the adoption of animals. Cypriot NGO dealing with animal protection</i>
<i>The most positive aspect is the contact with students and to be able to raise the awareness about gender equality among the youngest ones. Hearing about their views on gender issues is very important to us in our Gender Equality Unit. Spanish NGO dealing with gender issues</i>
<i>We are grateful for the possibility of transmitting our message in a clear, personal and calm manner. They have understood the importance of sustainable development as well as the preservation of the environment. Spanish NGO dealing with environmental protection</i>

Table 50: NGO mentors' reactions towards the project and the digital artefacts

Finally, the analysis of the students' digital artefacts demonstrates the significant extent to which the current social challenges brought in by the NGOs were addressed by the participants in the YES telecollaboration project. The eighteen digital stories presented innovative business solutions in the form of new products, services or apps and were targeted to specific social challenges identified by the students with the guidance of representatives from the respective 22 NGOs (Nicolaou & Sevilla-Pavón, 2018). The solutions were demonstrated in creative ways, through the co-authoring of inspired authentic scripts and through the use of various multimedia resources. The analysis of the content of the digital stories indicates that each artefact addressed at least one of the 17 United Nations' Sustainable Development Goals. Tables 51 and 52 demonstrate the alignment of the digital stories' content with the organisations involved and with the UN SDGs:

UV Digital Artefacts	Organisations Involved	UN SDGs Addressed
"Marmak, the Water Bubble", a product to reduce plastic pollution	DESEEA	6: Clean water and sanitation 14: Life below water (Environment protection)
"SmartArt", a product to reduce energy consumption	Art and Environment Research Centre	7: Affordable and clean energy 9: Industry, innovation, infrastructure 11: Sustainable cities and communities
"Meet your Foreign Friend", an App to support learning in remote areas	CEPAIM	4: Quality education 10: Reduced inequalities 16: Peace, justice and strong institutions
"Charger Bag", a product to raise awareness about ecology	Malva Community Radio Station	9: Industry, innovation, infrastructure
"Umbrella StanDry", a product to support clean environment	AESCO	7: Affordable and clean energy 9: Industry, innovation, infrastructure 11: Sustainable cities and communities
"University Fair", a service to support university students	Jovesolides	4: Quality education 16: Peace, justice and strong institutions

Table 51: UV's digital stories and their alignment with the SDGs

CUT Digital Artefacts	Organisations Involved	SDGs Addressed
“Play and help”, an online game to support volunteerism and people in need	Funraising	1: No poverty 10: Reduced inequalities (Children rights)
“Child Dash”, an App to support children with mental illnesses	Dancing Queen Foundation	1 & 2: No poverty and no hunger 4: Quality education, 10: Reduced inequalities (Children’s rights)
“ECO-APP”, an App to support animal protection and the environment	Friends of the Earth Cyprus	15: Life on land (Environment protection)
“Cool Car”, an eco-friendly product to support young people with mobility problems	The Centre for the Provision of Social Services	3: Good health and well-being 4: Quality education 10: Reduced inequalities
“SpeakUp”, an App to support isolated people	AEQUITAS	3: Good health and well-being
“Dognder”, an App to support animal protection	Dog Valley Rescue Center	15: Life on land (Animal rights)
“Visa-Kid”, a product to support impoverished children’s needs at schools	Parents Association Lanitio Primary School	1: No poverty 4: Quality education 10: Reduced inequalities
“EasyPaws”, a product to support animals by using recycled materials to make artificial body parts	Friends of the Earth Cyprus	15: Life on land (Environmental protection and Animal rights)
“Mitro app”, an App to support charity organisations and children in need	Polydynamo Kentro, IERA MHTROPOLIS LEMESOU	1: No poverty 10: Reduced inequalities 11: Sustainable cities and communities
“Myportablediary”, an App to support pregnant women and raise awareness about infant screening tests	Center for Preventive Paediatrics	3: Good health and well-being
“Learn Greek”, an App to support newly arrived migrants with learning basic Greek	Migrant Information Center (Mihub)	4: Quality education 10: Reduced inequalities 16: Peace, justice and strong institutions
“Pet Finder”, an App to protect from animal abuse	Pets2Adopt	16: Life on land (Animal rights)

Table 52: CUT's digital stories and their alignment with the SDGs

The social entrepreneurship project was multidimensional and required the orchestration of different competences. Students exercised higher-order skills as they engaged in a process of conceptualising a product, exploring its benefits and drawbacks, evaluating it, designing it and creating it in a digital form. They drew distinctions, made connections, analysed, drew conclusions, examined a problem logically, compared ideas with their partners, and analysed and evaluated different points of view. In the end, the learners experienced satisfaction with the final outcome and its impact.

5.4.3 Discussion

The YES project, which was designed with a critical, social and action-oriented perspective in telecollaborative design, was an attempt to augment the virtual exchange context beyond the two partner classrooms by involving local communities aiming at enhancing students' global competence and active citizenship through social entrepreneurship and meaningful community engagement. Learners were significantly involved in the learning process from the initial stage of discovery through the final phase of sharing useful digital artefacts with a real-life audience. This led to the students' development of various global competences and to increased motivation for language learning (Nicolaou & Sevilla-Pavón, 2018). The project engaged learners in experiential learning, connecting university to society in an effort to create a learning context rich in affordances for the development of global competences and domain-specific learning. The findings of the YES project drive the discussion to the dynamics of bringing critical issues of today's interconnected world to the fore in virtual exchange discourse and to the potential of virtual exchange to empower students to actively reflect upon their role in a democratic society. The critical perspective adopted for the design and implementation of the project realised its full motivational and transformational potential by encouraging students to become social entrepreneurs whose profession entailed making a positive change in their local contexts informed by their virtual international partnerships. The analysis of the data indicates a rise in learners' cultural awareness level and the development of all competences of the CDC model, to a greater or lesser extent. In addition, the analysis indicates a rise in motivation for language learning at tertiary level of education. The YES project was a gradual evolution of the previous interventions and incorporated all the necessary refinements that emerged from the analysis of the preceding cycles. The third intervention was developed with a closer look at the virtual exchange ecosystem and its comprising elements that are in interplay with each other and positively or negatively affect the achievement of the project's objectives. With regard to the participants in the YES project, the synergistic partnership between the two teachers and the learners expanded to each institution's sociopolitical context by including members from the civil society who acted as mentors, bringing to the project a critical perspective through the social challenges they try to tackle in each community. The involvement of local organisations from the civil society, though challenging and demanding, helped bestow the project its social and critical orientation which assisted the learners into producing

artefacts that were meaningful to the learners themselves, to their foreign partners and to their local communities. Another important aspect in the third intervention was the fact that there was a knowledge gap which derived from the condition that each participant only had access to the information related to the kinds of challenges that the local organisations in their area were facing. This meant that students relied on their communication with their foreign counterparts in order to acquire information about those same challenges in the foreign country and then discover possible solutions by exploring the way the same issues were tackled in other countries and contexts. Therefore, even students with a limited linguistic proficiency level were given the chance to become the most-able peer in the exchange, as he/she had a valuable piece of information that their foreign partners needed. By being positively interdependent and by sharing their knowledge, they were becoming empowered when constructing their artefacts, as this process involved their collaboration and co-production of mutual objectives and shared learning (Sadler & Dooly, 2016). The analysis of those artefacts calls attention to the aspect of social impact that must underpin virtual exchange projects. The YES project was an effort to augment the virtual exchange experience beyond the telecollaborative partnership and the two classroom's four walls. Through its critical and action-oriented design, it managed to reach out to the society and become useful to the extended communities through the artefacts that were produced within the scope of the project. Finally, the project drew the learners' attention to the humanistic use of technologies which encourages individuals to use digital tools to achieve goals related to learning and being active social citizens.

The overall impact of the YES project is manifested in the number of people that were involved in this project as well as in the amount and variety of stakeholders who were benefited by the project's outcomes. The YES project involved 58 university students at two different universities, two teachers/researchers, and 22 representatives of NGOs placed at two different cities. Therefore, the project blended the worldviews and cultures of more than seventy people who interacted for a semester and engaged in cooperative activities sharing their sociopolitical contexts. The participants exchanged ideas about universal challenges, acquired knowledge, established an understanding of local and global challenges, and embarked on a journey together to address them through their creative ideas. These ideas took up the form of shareable digital artefacts which were commonly owned by all participants. The conceptual solutions that were

demonstrated in the digital stories were at the disposal of all stakeholders to use or expand. Many of the ideas put forward in the artefacts were very positively received by the NGO representatives who found them very useful, relevant to their missions and operations and with a potential to be adopted as workable solutions. Furthermore, some of the ideas were endorsed by executives at an accelerator space in Cyprus which supports and empowers young and inspiring entrepreneurs. Overall, the YES project managed to rally a diverse group of participants who became informed, engaged and active for a common cause.

5.4.4 Additional Design Principles

The Implementation phase, informed by mixed-methods data collected over three years in three iterative cycles, resulted in the reconceptualisation of the virtual exchange ecosystem. The interrelated components identified in the Exploration phase, a) the Linguistic Mediation, b) the Participants, c) Technological Mediation, d) Tasks, and e) Themes, were revisited and complemented by a sixth element, that of f) Artefacts. The exploration of these interconnected elements led to the evolution of additional principles guiding the design and implementation of a virtual exchange project aimed at developing learners' global competence through an internationalised ESP curriculum. The additional guidelines pertain to the expansion of the synergistic partnership between learners, involving mentors from the local communities in an effort to bring the sociopolitical contexts of each part into the exchange. In addition, the adoption of a critical telecollaborative task design that involves real, not realistic, tasks is crucial in a global competence and active citizenship project. Moreover, the attention is drawn to the assigned outputs produced within the partnership and to the potential of rendering those artefacts as open, shareable and useful data for the community, thus creating an impact on the society through the project. Finally, emphasis is placed on the humanistic role of technology and its potential to develop an understanding of the human-centred affordances of technological media.

5.5 Chapter Summary

Chapter 5 reports on the second phase of the study, the Implementation phase. It presents the three iterative cycles of this research, and it reports on the data analysis, findings and refinements of the three interventions leading to the reconceptualisation of the virtual exchange ecosystem and the evolution of additional design principles.

Chapter 6: Reflection Phase

6.1 Introduction

This chapter describes the Reflection phase of the research and presents the evaluation stage of the study leading to the final conceptualisation of the virtual exchange ecosystem and the complete set of design principles. The aim of this phase was to discuss the salient issues of the three exchanges and revisit the reflections on the data gathered in each iteration, as well as the refinements made for subsequent re-designs, in an effort to optimise the final product and the set of design principles. As Wang and Hannafin (2005) suggest, “in a design-based research study, data are analysed immediately, continuously and retrospectively and that part of this cycle of data collection involves stages, such as a comprehensive literature review coupled with the systematic and purposeful implementation of research methods” (cited in Kennedy-Clark, 2012, p. 2). This iterative process leads to the development of design principles, which are then reflected upon and evaluated through the refinement of the problem, solutions and methods. In design-based research, reflection involves thoughtful consideration of what has come together in both theory and implementation, drawing from literature review, theoretical inputs, and empirical findings with the aim of producing new theoretical understanding (McKenney, & Reeves, 2014) and design principles (Alghamdi, & Li, 2013).

In this study, the reflection phase involved an informal assessment of the three iterative cycles enacted in the implementation phase and a formal evaluation of the three interventions by means of an interview with the partner teacher and researcher in the three virtual exchange projects. The two parts of the reflection phase aimed at reviewing the extent to which the development of the target competences was achieved in the three interventions and exploring the affordances of each project in terms of opportunities and limitations. This process aspired to result into the final conceptualisation of the virtual exchange ecosystem and its interrelated parts and to the development of a complete set of principles for telecollaborative design.

6.2 Assessment of the Three Interventions

The quantitative and qualitative analysis of a substantial amount of data collected from three consecutive iterations indicates that when interventions are carefully designed, opportunities for learning are likely to emerge. In this research, all three interventions achieved the development of target competences. This was measured by using the CDC model as a basis of assessment of the three interventions through referencing themes in the model's four basic categories and 20 related competences. What was observed in the analyses of the three iterations was sufficient referencing in all broader categories in the coding scheme, with a tendency to an exponential referencing along the way. The matrix coding shown on Figure 7 demonstrates the coding intersections among all three interventions:

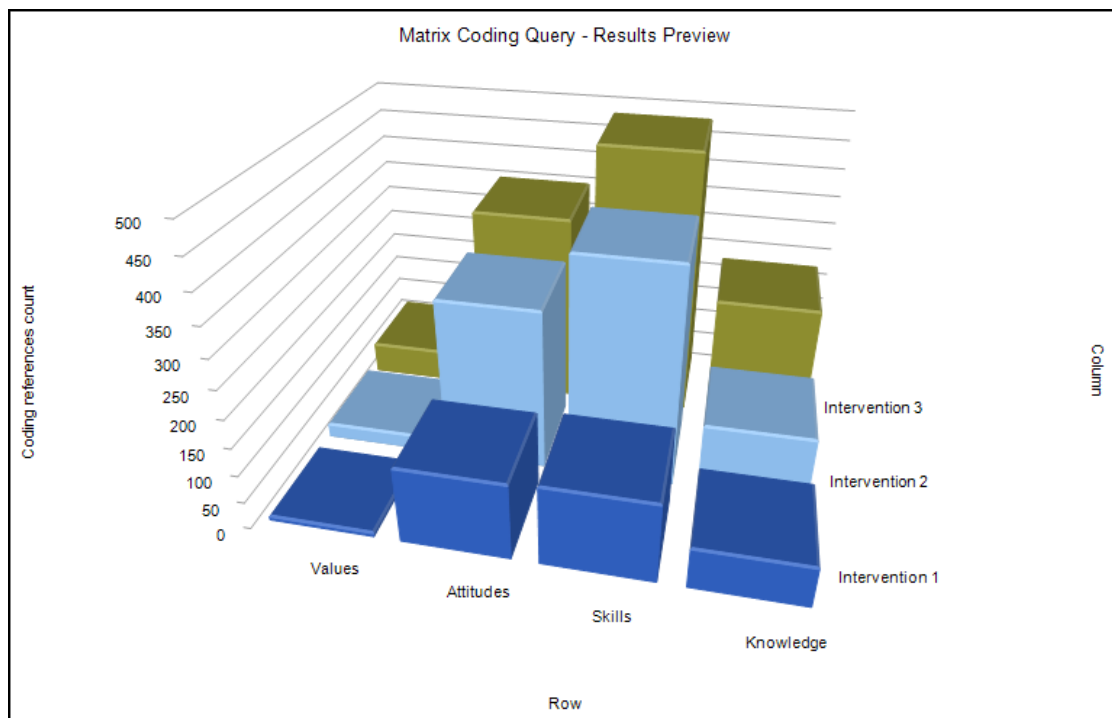


Figure 7: Coding intersections among the three interventions

The qualitative data were corroborated by quantitative data analysis of pre- and post-intervention questionnaires which indicated a rise in the learners' level of cultural awareness and motivation across all interventions. It is interesting to note that the differences between pre- and post-intervention levels observed were found to be statistically significant only in the paired-samples t-test analysis of the last two interventions, substantiating, thus, the increased affordances of the last two iterations as

these are demonstrated in the aforementioned matrix coding. Despite the differences, the affordances of each intervention's design are acknowledged.

The first intervention was designed based on the exploration phase which comprised a secondary research and collection of data from a purposive sample fitting the characteristics of the targeted population. The conceptualisation of the essential elements of the telecollaborative ecosystem as well as the preliminary guiding principles for the design of the first intervention stemmed from insights gained from these sources. The initial conceptualisation of the telecollaborative ecosystem comprised a set of elements which included the linguistic mediation, the participants, the technological mediation, the tasks, and the themes. These conceptual elements were revisited in the subsequent interventions and were expanded or complemented with additional components. The first intervention was designed with a constructivist approach, placing emphasis on the knowledge co-construction that derives from interactions between people. Vygotsky's concept of more knowledgeable others (MKO) was deemed conducive to the learners' social development; therefore the researchers opted for an interdisciplinary design whereby learners acted as the more knowledgeable others and exchanged different perspectives and knowledge stemming from their domain-specific expertise. However, this configuration was not as effective as it was anticipated since learners did not exhibit ability to bridge the disciplinary gap in the partnership and failed to relate to the tasks that included elements stemming from different domains. The interdisciplinary nature of the exchange seems to have created problems in the groups' rapport, mutuality and responsiveness as learners seem to have been unable to tune it to each other. On top of that, the exchange was perceived as an add-on rather than as a smoothly integrated component of the regular curriculum. These weaknesses, coupled with an obvious linguistic gap between the participants from the two universities, were considered as inhibiting factors hindering the development of targeted competences, such as co-operation skills. In some cases, these shortcomings in the design led to lack of mutuality, unresponsiveness, different levels of commitment, or even hostility.

Despite the challenges, the first intervention accomplished its objectives to a great extent. Most of the target competences were developed, with openness to cultural otherness and co-operation skills being the most developed ones. The lingua franca

configuration positioned the learners in an equal stand which rendered them equivalent parts of the partnership who could mutually contribute to the discussions and the collaborative tasks. In addition, the synergistic partnership between the learners and teachers, which informed the subsequent phases of the design via regular reflection papers, was conducive to the implementation of a flexible design that could be adapted or modified along the way. The final reflections and evaluation of the project by means of focus groups and post-tests played a crucial role in the reformulation of the intervention so as to optimise subsequent designs. With regard to the themes, the researchers opted for engagement with activities and topics beyond the common themes of food, festivals, folklore, fashion or football. However, the analysis of data indicated that in some cases discussions were limited to superficial topics and a mere exchange of ‘exotic’ cultural information. This compelled the researchers to redesign so as to make the themes more salient to the participants and drive the discussion to critical topics pertaining to social issues and global or local challenges. As for the task sequence, the researchers selected tasks that did not focus on comparing cultures and exchanging information about traditions. The tasks were designed so as to have international collaboration at the heart of the virtual exchange and aimed at creating international collaborative teams working on meaningful and relevant project work. However, a redesign of tasks was deemed important to include tasks that were carefully embedded in the university’s academic curricula in order to accommodate learners’ academic and future professional needs. Finally, drawing from the learners’ feedback obtained in different stages of the project, the researchers considered the integration of additional synchronous exchanges in order to facilitate more affordances to emerge.

When evaluating the outcomes of the virtual exchange project between the two universities, the researchers felt that there was a need to revisit their theoretical framework in the design of the second iteration towards an ecological constructivist approach that would explore the telecollaborative environment more holistically and in an effort to make it a rich learning context that would reinforce the development of 21st century global competences and discipline-specific skills. The redesign of the second iteration was informed by feedback collected through questionnaires, as well as focus groups and written reflections from learners at both universities. Despite the fact that the first intervention was positively received by the majority of students, the number of shortcomings identified were considered as limitations which may have hindered the

maximal emergence and actualisation of the exchange's affordances, leading to a lower than optimal benefit for the students involved. This is what guided the researchers to reflect on the project, refine and reiterate towards an ecological constructivist approach that would explore the telecollaborative context more comprehensively and with a view to making it a dynamic learning environment that would enhance learners' global competence learning (Nicolaou & Sevilla-Pavón, 2017).

The most significant modification on the project was that the learning context was transformed in that it aimed at bringing together higher education students majoring in the same or near-same degree. Therefore, while the first iteration virtual exchange project linked students studying diverse English for Specific Purposes courses, the redesigned project in the second iteration connected students studying similar ESP courses. As far as task design is concerned, in the first iterative cycle, tasks were interdisciplinary as participants were majoring in varying degrees. However, in the redesigned version, tasks and activities truly reflected the students' common ESP curriculum. This major contextual change, which was implemented in the second iterative cycle, impacted significantly on the establishment of affinity among students-participants who felt more connected to each other. Moreover, it made the whole project more relevant to them as the tasks and activities were suited to their current academic needs, and anticipated future professional careers. Another important refinement in the virtual exchange pertained to the mutual exchanges among participants. In an effort to increase communication and interaction among students, the redesigned project entailed more frequent synchronous meetings. This enabled students to establish bonding and a sense of connection amongst them. The second intervention contributed to the emergence of affordances related to content-based learning, bringing the learners' academic and future professional needs to the centre of the virtual exchange. The tasks and themes promoted the development of the targeted global competences through a curriculum-based design. This was considered an important improvement of the project. However, the second intervention presented different weaknesses regarding the development of action-oriented competences, such as civic-mindedness. This compelled the researchers to redesign the project with a critical and agency-oriented perspective and reiterate in a new cycle (*ibid*).

The YES project which was implemented in the third intervention was developed with a full understanding of the telecollaborative context. This intervention was designed with a critical perspective and encouraged the co-creation and sharing of meaningful artefacts. Students were significantly engaged in the learning process using social technologies that supported the creation of an artefact (Parmaxi, Zaphiris & Ioannou, 2016). The analysis of the artefacts participants produced revealed the project's positive social impact. Thanks to the completion of the different tasks with the mentoring by representatives from different local organisations, the students became more aware of the different societal issues faced in their respective contexts. These issues were linked to the organisations' missions and *the United Nations Sustainable Development Goals* (2015). While carrying out the project's task, participants were guided by these missions and goals when developing their ideas and when creating their artefacts. The quantitative and qualitative analysis of the YES project revealed that the third intervention accomplished clusters of global competences as well as domain-specific learning. This project paved the way to new, engaging opportunities for critical learning through the process of collaborative inquiry, communication, exchange of ideas, problem solving, creative content creation, and generation of informative, accessible, open data which were useful to both the students and the society. The technological mediation, which is at the core of every telecollaboration project, was optimised in the YES project throughout all its phases and in different respects (Nicolaou & Sevilla-Pavón, 2018). The humanistic role of technology emerged as language learning was mediated by resources which were “actively brought in, created, shared and used” (Van Lier, 2006) by the participants. The fact that learners were meaningfully engaged in their learning process, led to the enhancement of multiple competences as “the more active learners are in the learning process, the more likely they are to learn” (Darhower, 2008).

The 'Youth Entrepreneurship for Society' (YES) virtual exchange project aimed to take English for Specific Purposes learning beyond the classroom's four walls through partnerships with local organisations in social entrepreneurial initiatives launched by university students (Nicolaou & Sevilla-Pavón, 2018). The project tasks, completed during a semester by Cypriot and Spanish students participating in a virtual exchange, involved the co-construction and sharing of authentic and meaningful artefacts (Papert, 1980). Furthermore, the artefacts addressed real-world issues and tackled UNESCO's

Sustainable Development Goals in an effort to promote social inclusion (Warschauer, 2003) while addressing problems of discrimination, marginalisation, and inequality (Andrejevic, 2002; 2007; Menezes de Souza, 2015). The results indicate that the project was perceived to have positively contributed to participants' motivation and the development of the different competences under investigation, namely global competences and content-based learning.

6.3 Project Evaluation

The second part of the reflection phase comprised of an evaluation of the three iterative cycles by means of an interview with the virtual exchange collaborator and research partner. A structured evaluation interview was devised based on the criteria included in the OECD/DAC evaluation included in the Guidelines for Project and Programme Evaluations (OECD, 2009). The OECD/DAC criteria include: Relevance, Effectiveness, Efficiency, Impact and Sustainability. These were adapted to fit the purpose of this study which was to evaluate the affordances of the three interventions in developing the target competences. The criteria were adapted as follows: Design and Relevance, Efficiency and Process, Cooperation and Management, Effectiveness and Impact, Improvement and Sustainability.

The evaluation interview was administered by email to the collaborating practitioner and research partner at the University of Valencia. The interviewee's responses seem to corroborate the findings from the previous analyses as they point to the issue of lack of relevance of the initial task design to the learners' academic needs, and the observed academic and linguistic gap. The interviewee also referred to the meaningful communication the learners engaged in the last iterations, as well as to its successful design which involved real-world tasks requiring the application of the learners' domain-specific knowledge and expertise towards addressing social problems. Finally, the interviewee referred to the two practitioners' professional development over the three interventions. Table 53 summarises the interviewees' main comments on the project's evaluation interview:

Project Evaluation	Interviewee's Quotes
SCI-TEL and CSI-TEL projects	<i>Some students felt that the project was too long and did not always see the connection between the different activities they were asked to complete and their degrees and thus in some cases lost their motivation halfway.</i>
SCI-TEL and CSI-TEL projects	<i>An issue that might have affected the relevance of the project and its suitability to meet the needs and expectations of UV students -as reported in some of the questionnaires and interviews- is that there was a level mismatch, both academically: UV students belonged to a "high achieving group" and were very responsive and eager to learn, whereas not all CUT students showed such high level of motivation nor of commitment to the project; and linguistically: overall, the linguistic level of UV students (B2+) was higher than that of CUT students (B1/B2).</i>
BEGIN project	<i>Students found the entrepreneurship project relevant and engaging and thanks to the reorganisation and reduction of the number of activities they were more satisfied with the project and saw a relevance to it.</i>
YES project	<i>Another very positive aspect about this project was that there was a knowledge gap. This made it necessary for them to really communicate and collaborate: CUT students knew about the Cypriot contexts and their social problems, and UV students knew about theirs. Students needed to communicate in order to find out about the situation in their respective contexts so as to create a relevant product/service/app, capable of helping the NGO and thus society as a whole. Therefore, very often they took care of initiating the communication and sustaining it.</i>
YES project	<i>This was the most successful iteration and we could move from "realistic" to "real" (and this highly motivating) tasks addressing real-world issues with the guidance of NGO representatives.</i>
Practitioners' professional development	<i>The practitioners were more experienced and thus could more easily solve any issues or misunderstandings.</i>

Table 53: Project evaluation

6.4 Virtual Exchange Ecosystem

The Exploration, Implementation and Reflection phases of the study, informed by secondary research and mixed-methods data collection, identified the six fundamental components of the virtual exchange ecosystem: the Linguistic Mediation, the Participants, the Technological Mediation, the Tasks, the Themes, and the Artefacts. These elements are interconnected and interdependent and together they allow or hinder further affordances to emerge and opportunities for learning to develop. Figure 8 demonstrates the integrated virtual exchange ecosystem and its interrelated elements:

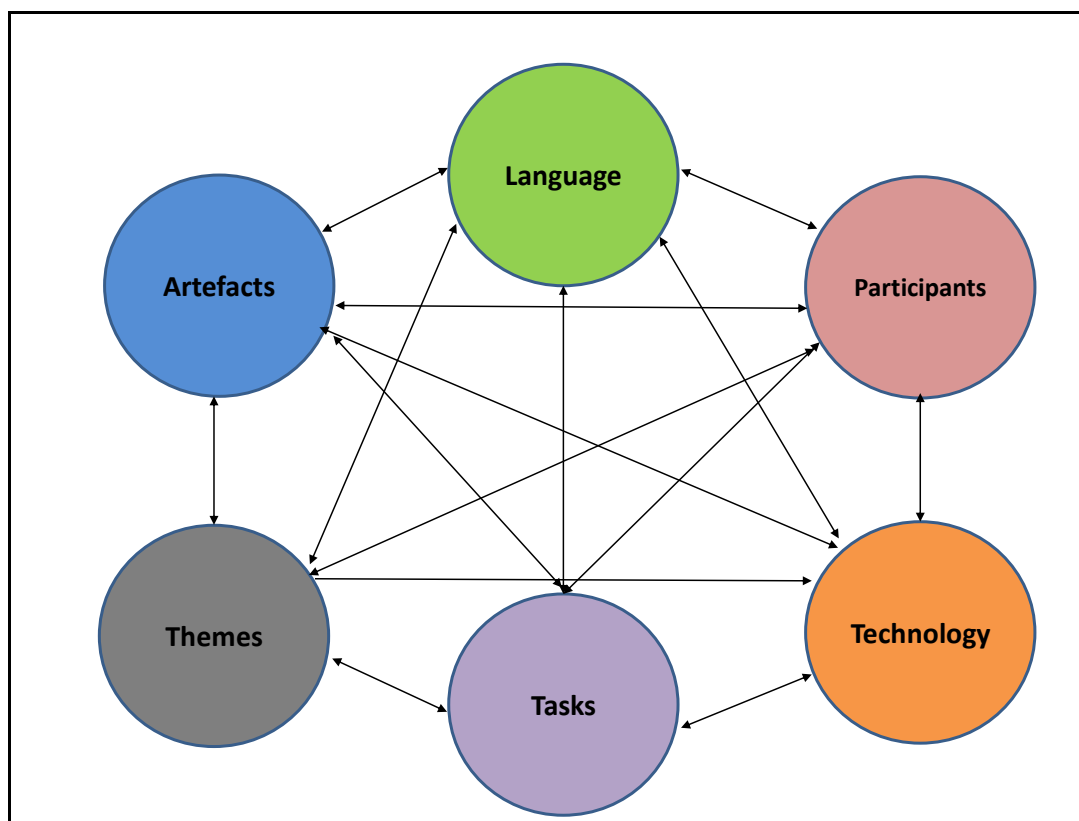


Figure 8: Virtual exchange ecosystem

Specific connections that were observed between the ecosystem's elements pertain to how the participants interacted with their digital artefacts and how this interaction determined the nature, value and impact of the shared artefacts. In the YES project, expanding the virtual exchange to the sociopolitical contexts of the learners and inviting stakeholders from the civil society to adopt mentorship roles, resulted in the creation of artefacts that were carefully developed as they were addressed to a real audience. The learners considered the digital content to be of high value as its creation was guided by a real, not realistic problem and it aimed at addressing a serious social challenge. In addition, the impact of those artefacts was maximised due to the involvement of participants beyond the classroom's four walls.

Another connection that was observed concerned how the linguistic configuration and the choice of themes resulted in increased student engagement. In the BEGIN project, the lingua franca configuration was maintained from the previous intervention, yet special attention was given to a close matching of the learners' linguistic levels. Having observed lack of mutuality, disappointment, and a sense of futility in the first

intervention, a tweaking concerning the students' level of English was made. It was observed that engaging learners of similar linguistic abilities increased understanding of the underlying themes and helped to raise motivation levels.

Finally, the technological mediation was highly connected to the task design. The tasks were devised by the two teachers with a view to facilitating competence learning. The technological mediation was crucial in the design of tasks and activities as these required the use of multimodal technologies and involved interaction with a variety of tools and software. This interaction allowed for learning opportunities to emerge. For instance, the social entrepreneurship project which was the main collaboration task, required varied interaction with technology, such as synchronous interaction and collaboration via Google Hangouts, asynchronous interaction and communication via Email, internet searching, collaborative writing via Google docs, sharing and exchanging ideas via posting and commenting on Google+ Communities, as well as the creation of multimedia content through the use of multimedia software such as Moviemaker or iMovie. The way learners interacted with the different tools in this task helped them reflect upon the role of technology both for its functional as well as for its humanistic use.

The exploration of these interrelated elements and their affordances in the virtual exchange habitat across the three phases of the research led to the evolution of a complete set of principles guiding the design and implementation of an emerging model of virtual exchange. The guidelines can serve as useful directions towards fostering a more supportive ecosystem for the development of the target competences.

6.5 Complete Set of Design Principles

The three-phase design-based research methodology adopted in this study concluded with a conceptual framework comprising eight design guidelines to support the virtual exchange ecosystem. These guidelines can be used by researchers and practitioners for planning and implementing virtual exchange projects which are directed towards the development of global competences within an internationalised discipline-specific content. The principles emerged from a thorough research of the literature and theoretical paradigms, as well as from the collection of a substantial amount of empirical data through a mixed methods approach. Table 54 demonstrates the complete

set of design principles derived from this study followed by elaboration of each principle:

Complete Set of Design Principles
1. Lingua franca configuration
2. Synergistic partnership of learners and teachers
3. Expansion of virtual exchange to the civil society
4. Human-centred technological mediation
5. Critical telecollaborative task design
6. Embedding of exchange to regular curriculum
7. Critical themes beyond the 4Fs
8. Open, shareable artefacts with impact on society

Table 54: Complete set of design principles

Design Principle 1: Lingua franca configuration

The first design principle concerns the adoption of a monolingual configuration whereby participants communicate, interact and collaborate using a shared target language. This configuration enables learners to engage in the exchange with confidence, adopting the role of collaborator rather than the role of tutor. The lingua franca approach renders all participants equal in the exchange, and each one contributes to the discussion constructively with confidence. The lingua franca configuration transforms the partners' connections from vertically structured mentor-mentee relationships, to parallel and more horizontally structured partnerships, whereby participants work as co-researchers rather than as expert tutors (Guariento, Al-Masri, & Rolinska, 2016). This kind of relationship increases reciprocity, mutuality and confidence and grants the same benefits to all participants. In a lingua franca virtual exchange, language is a mediating vehicle that facilitates the exchange of views, fosters meaningful interaction and supports the creative collaboration on shared tasks. The adoption of a lingua franca rather than a bilingual/bicultural configuration is in accord with a 'global' paradigm in learning, shifting away from the 'intercultural' offering a more realistic opportunity for interaction, which resembles the kind of transnational encounters learners will engage in their future life and career. It also offers a rich exposure to authentic foreign language communication with flexible and natural

language use, shifting towards function rather than form so that students are afforded the benefits of more realistic and globally oriented language teaching (Sifakis, 2009). The versatile and dynamic nature of lingua franca exchanges can contribute to the development of various global competences, such as a genuine openness to cultural otherness, skills of listening and observing, linguistic and communicative skills, as well as knowledge and critical understanding of language and communication. Despite the fact that in a lingua franca global competence projects language learning in the sense of accuracy is not a targeted goal, the avoidance of a gap in learners' linguistic level is crucial. A substantial linguistic gap between the participants may lead to frequent communication breakdowns and lack of mutuality and responsiveness. It may also result in diminished motivation and a sense of futility for high achievers or feelings of intimidation and embarrassment for low achievers. This will probably hinder the emergence and perception of the affordances of the project and reduce the opportunities for learning. Therefore, in a lingua franca configuration, a close matching of the learners' linguistic levels is required considering this mode's dialogic dimension and its potential for affording meaningful and sustained interaction and effective co-operation in the partnership.

Design Principle 2: Synergistic partnership of learners and teachers

The second principle pertains to the synergistic partnership that is formed by the most important actors-participants in the exchange, the learners and the teachers and/or researchers who regularly inform the exchange and contribute towards the success of the intervention. The students are considered as significant stakeholders who contribute to the design, implementation and evaluation of the exchange through their engagement in a process of frequent reflection in an effort to leverage the intervention and allow the affordances to emerge. Similarly, the teachers and researchers are cautious observers, rigorously recording instances of competence learning, and exhibiting flexibility in modifying the design if need arises. This synergistic partnership is conducive to the development of both reflective learners and reflective practitioners, who regularly invest in the project and question themselves about its affordances, assisting in meeting the project's goals. The collaborative partnership between teachers and learners can be mediated by regular periods of stimulated reflection and sharing of experiences in targeted meetings, such as focus groups. In addition, comparative reflections can help participants gain insights of their partners' self assessment of experiences and

perceptions. This can be conducive towards achieving competences such as responsibility and accountability, conflict-resolution skills and co-operation skills.

Design Principle 3: Expansion of virtual exchange to the civil society

The synergistic partnership can further be expanded through the inclusion of members from the civil society, such as representatives from non-profit organisations and volunteer groups, who can adopt the role of mentors and bring in the exchange the sociopolitical contexts of the communities involved. These mentors can guide the learners in their global endeavours and action-oriented projects and can constitute the final recipients of the learners' co-authored outputs. The engagement of the learners with the civil society will afford opportunities to access multiple people and diverse opinions. A virtual exchange that expands beyond the classroom's walls and the telecollaborative partnership has the potential to move from the private to the public sphere where authentic dialogue takes place and real action occurs. Learners can join their community's activities and work towards responding to local challenges with their inspiring and innovative ideas informed by their encounters with their international partners. This way, learners can acquire critical knowledge and understanding of pressing social problems and of the importance of international allegiances towards addressing them. Augmenting the virtual exchange by expanding it to the sociopolitical context can contribute to clusters of competences, including action-oriented skills, such as civic-mindedness. This enables participants to become advocates of change who feel empowered to enact agency for common interest causes.

Design Principle 4: Human-centred technological mediation

The fourth principle concerns the technological mediation of the exchange. In a global competence telecollaborative ecosystem, technology is not a target competence. The primary objective is not to teach ICT skills in an instrumental sense, but to provide a mediating artefact that will enable learners to enact agency in order to achieve goals related to democratic participation in society. In this sense, digital literacy is explored not for its instrumental or functional dimension (Beetham, 2017), but for its human-centred role which places emphasis on learning how to use digital technology for public engagement, global citizenship and the enhancement of democratic processes. This draws the attention to social CALL and the potential of computer-mediated communication to provide opportunities for authentic communication and purposeful

collaboration within international partnerships with a view to responding to critical global challenges and community problem solving. In order to leverage virtual exchange projects to afford opportunities for global competence learning and active citizenship, the selection of technologies should be appropriate to the facilitation of tasks that involve learners in collaborative explorations of solutions. The choice and deployment of technological tools must be examined thoroughly as it might affect the success or failure of the project. The different tools must be evaluated based on their unique features to support the project goals. In a global competence oriented virtual exchange, the tools and technologies selected must facilitate the development and deployment of competences, such as openness to cultural otherness or skills of listening and observing, via the use of tools that allow synchronous communication in order to establish social presence and a sense of connection with the partners. Similarly, the development of co-operation skills, which is central in global competence learning, should be facilitated through technologies that afford opportunities for collaborative work and co-creation of meaning and common products. In a global virtual exchange project, technology serves as a crucial contextual element that relates learners with other learners, with teachers or facilitators, with the civil society, and with resources. The role of technology is to optimise the learning environment with its unique affordances. Therefore, the technology should be viewed through the lens of its potential to support the humanistic role of education by mediating relationships, and contributing to the participants' active participation in society.

Design Principle 5: Critical task design

The fifth design principle concerns the design of tasks. Virtual exchange projects aiming at building learners' global competence mandate the adoption of a critical perspective in task design. Tasks should be designed with a view to promoting meaningful interaction and collaboration towards achieving common goals which go beyond the sharing of and exchanging of cultural information. Tasks should engage learners in authentic, experiential learning, and therefore they should be designed around critical, real-life problem-solving activities promoting activism, civic engagement and democratic participation. Positive interdependence and negotiation of meaning should be at the core of the task sequence, compelling learners to collaborate and enhancing their intrinsic motivation to sustain interaction. The task sequence should mostly include open-ended tasks which are exploratory in nature, in order to promote

autonomy, self-direction, and flexibility. In line with ecological theories, tasks should engage learners in meaningful, purposeful, authentic and engaging interaction and co-operation. As van Lier (2004) claims, the fuel for learning in an ecological perspective is not ‘input’ or ‘exercises,’ but engagement. Tasks should highlight the potential of international group dynamics, decreasing the sense of isolation and the misconception that nations can tackle critical social issues alone. What is important is to design tasks that are real, not realistic, immersing the learners in the activities and leading them to work together. Co-operation towards achieving common goals has great potential in achieving the change of attitudes and values of people. In addition, tasks should aim at infusing global knowledge and the inspiration to enact individual or collective agency in the form of motivation, personal investment and real action. This can be achieved with purposeful synchronous exchanges and tasks that are designed based on collaborative problem-based and project-based methodologies. Such tasks have the potential to immerse the learners in the virtual exchange experience and facilitate the development of multiple competences, such as responsibility, knowledge and critical understanding, and analytical and critical thinking skills. Videos, such as Ted Talks, discussing critical issues of today’s interconnected world can be used as learning stations and talking points triggering disturbing or conflicting questions that remain to be answered in the virtual exchange’s forums. Complex, creative tasks, such as digital storytelling can be effective in developing diverse competences, like self-efficacy, autonomous learning, and cooperation as they require the orchestration of multiple capabilities in order to be accomplished.

Design Principle 6: Embedding of exchange to regular curriculum

Virtual exchange is a pedagogy that has the potential to develop clusters of competences. However, these competences make sense only if they are deployed. Situating the virtual exchange at the nexus of global competence and content-based learning offers a unique opportunity to activate the learned skills in a context that is relevant to the learners, rendering them meaningful and useful. This configuration also succeeds in meeting the immediate academic needs of the stakeholders through a global lens while preparing them for their forthcoming professional career. In addition, the integration of domain-specific learning in virtual exchange provides opportunities for the enrichment of the ESP curriculum by placing it in an internationalised spectrum. In order to afford students with increased opportunities to engage in meaningful and

authentic interaction, the virtual exchange designers should opt for the alignment of academic curricula. Embedding the virtual exchange in an interdisciplinary learning environment may afford learners with the acquaintance of different perspectives, yet it may lead to lack of mutuality and problematic connection with the other learners, the tasks and the resources if the participants fail to bridge the gap in knowledge and expertise. In a discipline-specific virtual exchange tasks should be relevant so as to transparently connect learners with other learners and with the remaining contextual elements. This configuration should also aim at including intended outputs of domain-specific genre, such as report.

Design Principle 7: Critical themes beyond the 4Fs

The seventh principle is related to the choice of themes that underpin the exchange. In an emerging model that aspires to develop global competence, the topics should not be limited to the 4Fs - Food, Festival, Folklore, and Fashion (Meyer and Rhoades, 2006). Instead, themes should revolve around critical 21st century issues, highlighting the interconnectedness of our world today and the dynamics of international partnerships in the global arena. Tasks should evolve around human or ethical topics and involve triggering questions to get people to talk. Such themes are reflected in the *United Nations Sustainable Development Goals* (2015) and include topics pertaining to the environment, poverty, quality education for all, gender disparity, and health among others. These themes can be used as talking points and can frame the collaborative tasks. Finally, themes should stem from the content of the regular academic curricula.

Design Principle 8: Open, shareable artefacts that make an impact on society

The last principle concerns the kinds of artefacts that are required by the partnering learners in a virtual exchange. Artefacts are an important contextual element in the telecollaborative ecosystem. The interaction of learners with their self-authored artefacts stemming from collaborative work and mediated by digital media can provide the opportunities for significant competence learning, such as co-operation, responsibility and accountability for the quality of the artefacts. Artefact creation can also enhance self-efficacy, especially if they are demanding and ambitious. The affordances of artefact co-construction can be expanded if those artefacts are not confined within the telecollaborative partnership, but are exported outside the classroom's four walls in the public sphere. Designing and constructing open-access

artefacts that are shared with a broader community creates a greater responsibility as they are targeted to a real-life audience. It also creates a sense of ownership. In line with project-based learning, artefacts should be public, open and shareable. In a global competence virtual exchange whereby artefacts have a social, critical orientation, it is important to create open-access artefacts so as to maximise the impact of the project in the broader community with real time effects.

6.6 Chapter Summary

Chapter 6 presents the reflection phase of the research which comprised two parts: the informal assessment of the three iterative cycles and the formal evaluation by the virtual exchange collaborator. The chapter continued with the presentation of the integrated virtual exchange ecosystem comprising six interrelated elements and ended with reference and elaboration of the complete set of eight design principles.

Chapter 7: Conclusion

7.1 Introduction

The final chapter of this dissertation presents a summary of the research, explaining the methods and the major findings of this study. The chapter ends with reference to the significance of the study, its limitations and recommendations for future research.

7.2 Summary of the Study

In a changing context of ‘liquid modernity’ (Bauman, 1998; 2005; 2007), of constant mobility and seamless digital connectivity that keep transforming our cultural identities, and our social and professional relationships within a vastly interconnected world, pedagogical initiatives such as virtual exchange can be viewed as laudable interventions intended to bridge global boundaries by promoting global awareness through transnational partnerships. “Virtual exchange is a well-known pedagogical approach in foreign language education which involves engaging classes in online intercultural collaboration projects with international partners as an integrated part of their educational programmes” (O’Dowd, 2019, p. 1). Virtual exchange has been embraced by many researchers and practitioners in the last 30 years, acknowledging its potential to provide students with the opportunity to access international, cross-cultural education. Given the low numbers of students who benefit from study abroad programmes or international exchange projects that entail physical mobility, virtual exchange can compensate for those non-mobile students by offering them the possibility to interact and learn in a global setting through the mediation of technology. Virtual exchange initiatives have been enacted in multiple modes and configurations with well-documented success. However, researchers have identified ‘gaps’ in this approach that lie primarily in its failure to provide students with an authentic experience that resembles the complex environment in which they will be called upon to thrive in their future life and career. Criticisms of virtual exchange or telecollaboration centre on the superficiality of the discourse dominating the exchange and the absence of substantial collaborative activity. Virtual exchange has also been criticised for its failure to foster learners’ social agentive behaviour and the ability to explore culture in its fluid, multi-perspective, rather than its monolithic sense. In response to these gaps, this research aspires to explore virtual exchange within a global outlook, considering 21st

century learners' need to live and work in a complex environment where they will need to work in global teams, engage with multiple identities, deal with disparate information and work with ever-changing technologies. This research hopes to drive the discussion to a virtual exchange model that will enable learners to understand the potential of global partnerships and their individual and collective role in addressing society's critical challenges. The goal is to bring the intersection of local and global in the discussion of virtual exchange with a view to promoting a democratic culture in internationalised university language education. Considering that learning is most effective if it is relevant to students' needs, this study is situated at the nexus of global competence and content-based learning.

In order to realise the objectives of this research, a design-based research methodology was followed which included three phases: the Exploration, the Implementation and the Reflection phase. Each phase aimed at observing the learners' reactions in a virtual exchange environment oriented towards global competence learning. Learning was measured quantitatively and qualitatively over a period of three years whereby three iterative cycles were implemented. Each virtual exchange intervention was designed based on review of literature and systematic quantitative and qualitative data collection. The analysis of data in each cycle fed into the design of a subsequent, refined virtual exchange project. To facilitate the recording of global competence learning, the *Reference Framework of Competences for Democratic Culture* (Council of Europe, 2016) was used. The 20 competences featuring in the framework served as a ground for assessing competence learning.

Each iterative cycle investigated the context and examined practices that were deemed inadequate and required improvement. The systematic collection of data, followed by the reflection phase in each cycle, enabled the recording of evidence of perceived development of global competence and content-based learning. The multiple iterations contributed to the re-conceptualisation of the underlying theory which evolved from a constructivist approach to an ecological paradigm that looks at learning in a more holistic way, closely examining the learning context's constituent parts. The iterative cycles contributed to the evaluation of the effectiveness of each intervention, by capturing the moments of competence learning. This led to improved versions of the study in an effort to scale virtual exchanges and maximise the possibilities of

competences to emerge. The three-phase DBR methodology facilitated the gradual evolution towards a critical telecollaborative design with the potential to offer learners an authentic learning experience whereby they critically collaborate in international teams and demonstrate social agentive behavior by engaging with the local communities through real problem-solving endeavours.

7.3 Revisiting the Research Questions

This research was guided by the overarching question: *Does virtual exchange provide measurable affordances for developing university ESP students' global competence and active citizenship?* The major outcome of this study is an evidence-based understanding of the affordances of virtual exchange for developing clusters of global competences that can be deployed to exercise critical agency in response to society's challenges. The iterative cycles and their systematic evaluation and analysis indicate that in all three interventions emergence of various global competences was observed. This emergence of competences was exponential, following design modifications and adopting additional guidelines for implementation. The perceived development of global competences and active citizenship within a content-based internationalised curriculum as recorded in quantitative and qualitative data confirm that virtual exchange does have the potential to be leveraged, transcending the intercultural and moving towards a global paradigm by adopting a critical design.

The two secondary questions that guided this research were:

- 1) *What elements comprising the virtual exchange ecosystem support the development of university ESP students' global competence and active citizenship?*
- 2) *What principles are effective as guidelines for designing and implementing a virtual exchange project aiming at the development of university students' global competences and active citizenship while, at the same time, expanding their discipline-specific knowledge and skills?*

This study concluded with the conceptualisation of the virtual exchange ecosystem comprising six elements: the Linguistic Mediation, the Participants, the Technological Mediation, the Tasks, the Themes, and the Artefacts. These elements are interrelated and the learners' interaction with them creates more affordances for competence

learning. In order to support the virtual exchange ecosystem, a set of eight design principles comprising the conceptual framework of this study was developed. The principles are the adoption of a lingua franca configuration in order to afford an authentic intercultural experience, the synergistic partnership of learners and teachers that functions with a view to achieving project goals, the expansion of virtual exchange to the civil society in order to bring in the exchange the sociopolitical context of each part and foster social agency towards addressing critical community challenges, and human-centred technological mediation that emphasises critical digital literacy. Other principles include critical telecollaborative task design that enables learners to engage in meaningful collaboration rather than simply exchange cultural information, the embedding of the exchange in the regular curriculum so as to make it relevant to the students' academic and future needs, the inclusion of critical themes beyond the 4Fs in an effort to avoid discussions on superficial topics that offer learners a reduced approach to cultural difference, and the creation of open, shareable artefacts that have the potential to impact the society.

This research aimed at adapting the virtual exchange pedagogy to the constantly changing world and to the humanistic role of language education that mandates the development of learners who can realise the interdependence of human beings so as to become globally competent and active champions of social change. The three interventions were efforts to craft opportunities that guide learners in building their global profile while exercising critical agency in their local context. The technological mediation of the interventions established an understanding of how digital technologies can be used for engaging in international collaborations and enacting agency.

7.4 Significance

This dissertation contributes to the discussion of exploring the affordances of virtual exchange for developing global competences and active citizenship by adopting a critical design. The research undertaken in this study aspired to frame virtual exchange in a design that provides rich affordances for authentic learning, enabling global competence, active citizenship and content-based learning to emerge. Previous virtual exchange projects were not formulated in this perspective or were framed partially in this view. A further contribution of this dissertation lies in the insights provided towards an understanding of how a university course which combines content-based language

instruction and interculturality can develop global competence and can critically engage learners with the community. In addition, this dissertation adds to the discussion on the theories that can be used to guide the design and implementation of virtual exchange projects. The exploration of ecological theory has enabled the examination of the telecollaborative context in a holistic way, paying attention to the various interrelated constituent elements of the virtual exchange habitat. Ecological theory has also contributed to the inclusion of the notions of criticality and agency in the design and implementation of virtual exchange projects. Most previous virtual exchange models were grounded in constructivist or social constructivist theories.

Furthermore, this study contributes to the adoption of emerging research methods paradigms that investigate language learning in context. Many of the previous studies report on action research projects. The adoption of design-based research and the three-phase research design followed in this study propose an alternative method of examining multiple cohorts of learners who participate in the same project. This allows for evidenced-based evaluation of virtual exchange with the potential to reflect on the affordances of the project, refine the theory and the design, and reiterate towards the conceptualisation of an optimal design. The adoption of DBR has also resulted in the professional development of the practitioners involved in the three interventions.

In addition, this study draws attention to the *Reference Framework of Competences for Democratic Culture* (2018) that can be used to plan, implement and assess intercultural and virtual exchange projects. Moreover, the study introduces the *United Nations Sustainable Goals* (2015) model that can be used to guide the critical design of telecollaborative initiatives. Furthermore, the research contributes to task design processes in telecollaborative design by drawing attention to Salmon's five-stage model (2013) that can be utilised to structure virtual exchange tasks and activities effectively. Moreover, the study contributes to the understanding of the virtual exchange ecosystem and how its constituent parts intersect to produce opportunities for learning.

Finally, this research affords a set of guiding principles for designing virtual exchange projects situated at the nexus of global competence and content-based learning. Even though the transferability of these principles can be challenged, they can be used by

researchers and/or practitioners interested in designing similar virtual exchange projects with necessary modifications in order to render them context-sensitive.

7.5 Limitations

One of the limitations in this study lies in the weaknesses of One-Group Pre-test-Post-test experimental design. In this type of research design, the lack of a control group design makes it difficult to attribute gains in the post-test score to the intervention as other elements (e.g. participant maturation) may have contributed to any change observed. This design has minimal internal validity and no external validity. The limitation was adjusted by following a triangulation approach through the collection and analysis of data from multiple sources.

Another limitation lies in the fact that the CDC framework's validated descriptors were used in a generic sense mainly because back in 2016 when the CDC framework was first published, the descriptors were not included in the model. These were added in the full pack of the CDC model in 2018. Therefore, in this study it was not possible to observe the extent to which the competences were developed. By using the synopsis that accompanies the 20 competences in the CDC model and later on the descriptors that came out, it was only feasible to observe the learning of competences in a generic sense.

A further limitation was the researchers' dual role in this study, that of the practitioner, and the researcher of the project. This inherently involved bias issues which may have affected the validity of the data analysis and conclusions drawn. However, the multiple iterations as well as the inter-rater reliability test performed on the 10% of the overall data by an independent researcher are believed to have compensated for this limitation.

Finally, even though multiple sources were analysed to triangulate the data, they were not exhaustive in capturing the complete picture of the learners' experiences as these are described in this dissertation. Interaction data on Google Hangouts would have been valuable in recording instances of learning. However, this was beyond the scope of this study. On the other hand, learners' online interaction on Google+ Community in the form of posts and comments, which would have also given deep insights on learners'

learning, was not systematically analysed due to time constraints as the remaining data set was already too large and hard to manage.

7.6 Recommendations for Future Research

Even though several virtual exchange projects have been implemented to date, there is potential for exploring this pedagogy through multiple lenses. One approach could be the examination of virtual exchange in other content-based settings at all levels of education. This study was situated in content-based ESP learning in the area of Business English. The model that emerged from this research could be applied in diverse ESP areas at tertiary education or it could be implemented in the context of specific subjects in secondary education. A different direction could be the use of the full pack of the CDC model with validated descriptors for more specific evaluations of competence learning in order to observe the extent to which competences are developed. In this study, the CDC model was used in a generic sense, utilising the general descriptions of each competence and the supportive documents provided in the framework. In future studies, the full bank of validated descriptions that are included in the framework could be used for assessing global competence learning in a more specific approach. The descriptors are classified in Basic, Intermediate and Advanced levels. These categories could be used as assessment criteria by researchers who would be interested in measuring global competence in a precise manner. Alternatively, the descriptors could be transformed into 'can do' statements and be used as self-assessment criteria. A pre- and post-intervention design could be implemented to measure differences in the participants' levels of global competence learning based on their responses on the 'can do' statements. A two-group pre-test and post-test design which involves an experimental and a control group could be adopted to maximise internal validity.

No matter which direction, the implication for research and practice is that it is indeed possible and necessary to go beyond the fixed curriculum and the classroom's four walls in order to promote awareness, solidarity and respect in the broader social context. Therefore, similar projects should be conducted so as to continue exploring ways to raise students' awareness of the value of advocacy in instigating social change. As Giroux (2004) claims, education should make the students critically thinking citizens who can take their place in the conduct of democratic life.

7.7 Chapter Summary

Chapter 7 presents a summary of the research outlining the statement of problem, the methodology and the main research findings of the study. The chapter continues with reference to this study's contribution, followed by reference some limitations and how these were addressed. The chapter ends with recommendations for future research in the area of virtual exchange.

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Appendices

Appendix A: Pilot Phase Questionnaire

STUDENT QUESTIONNAIRE

Dear student,

The present questionnaire is anonymous. The data will be used only for the purposes of a research and are strictly confidential. Your participation is voluntary, and the questionnaire should only take 10-15 minutes to complete. Thank you in advance.

SECTION A - DEMOGRAPHICS

Tick as appropriate.

1. Nationality

- ☐ Cypriot ☐ Other

2. Gender

- ☐ Male ☐ Female

3. Age

- ☐ 17 – 20 ☐ 21 – 24 ☐ 25 +

4. Final grade in previous English course at the CUT

- ☐ 5 - 6.5 ☐ 7 – 8 ☐ 8.5 – 10

5. Department

- ☐ Hotel and Tourism Management
☐ Mechanical Engineering, Material Science and Engineering

6. Please select the social networks you have a profile on:

- | | |
|--------------------------------------|---|
| ☐ Facebook | ☐ Google+ |
| ☐ Twitter | ☐ Skype |
| ☐ YouTube | ☐ Oovoo |
| ☐ Second Life | ☐ Other (please specify) |

7. How much time do you spend on the Internet overall per week?

- | | |
|--------------------------------------|--------------------------------------|
| ☐ 1-2 hours | ☐ 10-20 hours |
| ☐ 3-5 hours | ☐ 20-30 hours |
| ☐ 6-9 hours | ☐ 30-40 hours |
| ☐ 40-50 hours | ☐ 50 hours + |

SECTION B – LANGUAGE LEARNING

Tick as appropriate.

1. Are you motivated to learn English at the University?	Not at all	A bit	Quite a lot	Very much
2. Have you ever used technology in your English classes?	Not at all	A bit	Quite a lot	Very much
3. Do you feel comfortable using technology in your English classes?	Not at all	A bit	Quite a lot	Very much
4. Do you enjoy using technology in your English classes?	Not at all	A bit	Quite a lot	Very much
5. Do you think technology can help you develop your skills in English?	Not at all	A bit	Quite a lot	Very much
6. Do you enjoy working with other students in your English classes?	Not at all	A bit	Quite a lot	Very much
7. Do you think that working together with other students can help you learn English?	Not at all	A bit	Quite a lot	Very much
8. Have you ever worked with students from other countries in your English classes through telecollaboration?	Not at all	A bit	Quite a lot	Very much
9. Would you like to work with students from other countries in your English classes through telecollaboration?	Not at all	A bit	Quite a lot	Very much
10. Do you prefer working by yourself in your English classes?	Not at all	A bit	Quite a lot	Very much

SECTION C – TELECOLLABORATION

Rate the options below from 1-8 (1 = the most important reason, 8 = the least important reason) according to your own personal opinion.

1. What would motivate you to participate in tasks through telecollaboration with foreign students as part of your English course at the university? Rate from 1-8.

- ☐ Telecollaboration would help me improve my skills in English.
- ☐ Telecollaboration would be fun and exciting.
- ☐ Telecollaboration would improve my ICT skills.
- ☐ Telecollaboration would bring me closer to other cultures.
- ☐ Telecollaboration would make me feel part of a learners' community.
- ☐ Telecollaboration would help me get a better grade in my English course.

- ☐ Telecollaboration would be a great way to meet new people.
- ☐ Telecollaboration would be a great opportunity to experience online interaction.
- Rate the options below from 1-8 (1 = the most important reason, 8 = the least important reason) according to your own personal opinion.*

2. If you had the option not to participate in tasks through telecollaboration with foreign students as part of your English course at the university, which of the following statements best describes the reason for your decision? Rate from 1-8.

- ☐ It wouldn't help me develop my English.
- ☐ I wouldn't feel comfortable to interact with students from different cultural backgrounds.
- ☐ I wouldn't feel confident to come to terms with the technology required.
- ☐ I would feel embarrassed to interact with people I am not acquainted with.
- ☐ My workload for the course would increase.
- ☐ It would be a boring task.
- ☐ I am not really into online interaction and communication.
- ☐ I prefer to collaborate with people who speak the same language as me.

SECTION D – CULTURAL AWARENESS

Tick as appropriate.

1. I think that all cultures have something to offer the world.	Strongly disagree	Disagree	Agree	Strongly agree
2. When I notice cultural differences, my culture seems to have the best approach.	Strongly disagree	Disagree	Agree	Strongly agree
3. I think that my culture is the only right one.	Strongly disagree	Disagree	Agree	Strongly agree
4. Some people have a culture and others do not.	Strongly disagree	Disagree	Agree	Strongly agree
5. I am aware of my own cultural biases and how they affect my thinking.	Strongly disagree	Disagree	Agree	Strongly agree
6. I feel uncomfortable when others make racially offensive comments or jokes.	Strongly disagree	Disagree	Agree	Strongly agree
7. I speak up if I witness another person being humiliated or discriminated against.	Strongly disagree	Disagree	Agree	Strongly agree
8. I appreciate the richness of other cultures.	Strongly disagree	Disagree	Agree	Strongly agree
9. I try to learn about other cultures.	Strongly disagree	Disagree	Agree	Strongly agree
10. I have many friends from a variety of ethnicities.	Strongly disagree	Disagree	Agree	Strongly agree
11. Most of my friends are from my own ethnic background.	Strongly disagree	Disagree	Agree	Strongly agree

12. I'm interested in the ideas and beliefs of people from different ethnicities.	Strongly disagree	Disagree	Agree	Strongly agree
13. I connect easily with people from different ethnicities and am able to communicate easily.	Strongly disagree	Disagree	Agree	Strongly agree
14. I only feel comfortable with people of my culture.	Strongly disagree	Disagree	Agree	Strongly agree
15. I intentionally involve people from many cultural backgrounds in my life.	Strongly disagree	Disagree	Agree	Strongly agree
16. It's really hard for me to feel close to a person of another ethnicity.	Strongly disagree	Disagree	Agree	Strongly agree
17. I frequently interact with students from a different country from my own.	Strongly disagree	Disagree	Agree	Strongly agree
18. I attend events where I might get to know people from different ethnic backgrounds.	Strongly disagree	Disagree	Agree	Strongly agree
19. If I could design my own world, I would choose elements from my own culture only.	Strongly disagree	Disagree	Agree	Strongly agree
20. Getting to know someone of another culture is generally an exciting experience for me.	Strongly disagree	Disagree	Agree	Strongly agree

SECTION E – LEARNING LANGUAGES IN A MULTICULTURAL SETTING

1. What opportunities have you had studying English in a multicultural and diverse setting? Describe your experience.

2. What do you see as the most beneficial aspects of a diverse, multicultural setting for learning English at university level? What are the most challenging aspects?

Appendix B: Pre-Intervention Questionnaire

STUDENT QUESTIONNAIRE

Dear student,

The present questionnaire is anonymous. The data will be used only for the purposes of a research and are strictly confidential. Your participation is voluntary, and the questionnaire should only take 10-15 minutes to complete. Thank you in advance.

SECTION A - DEMOGRAPHICS

Tick as appropriate.

1. Nationality

☐ Spain ☐ Cyprus ☐ Other

2. University

☐ Universitat de Valencia ☐ Cyprus University of Technology ☐ Other

3. Department

4. Gender

☐ Male ☐ Female

5. Age

☐ 17 – 20 ☐ 21 – 24 ☐ 25 +

6. Date of birth

7. Virtual exchange project you are participating in:

8. Level of English

☐ A1 - Beginner
☐ A2 – Upper Beginner
☐ B1 - Intermediate
☐ B2 – Upper Intermediate
☐ C1 – Advanced
☐ C2 – Advanced +

9. Current Degree

SECTION B – LANGUAGE LEARNING AND TECHNOLOGY

10. Please select the social networks you and software you use more often:

- ☐ Facebook
- ☐ Twitter
- ☐ YouTube
- ☐ Second Life
- ☐ Google+
- ☐ Oovoo

- ☐ Skype
- ☐ Instagram
- ☐ Snapchat
- ☐ Windows Movie Maker
- ☐ iMovie
- ☐ Other (please specify)

11. How much time do you spend on the Internet overall per week?

- ☐ 1-10 hours
- ☐ 11-20 hours
- ☐ 21-30 hours
- ☐ 31-50 hours
- ☐ 51 hours +

12. Making a digital story for my language class would be fun.

1= Completely disagree

7= Completely agree

1 2 3 4 5 6 7

13. Making a digital story would be a good way to engage with what I'm learning.

1= Completely disagree

7= Completely agree

1 2 3 4 5 6 7

14. I would feel anxious about making a digital story in my language class.

1= Completely disagree

7= Completely agree

1 2 3 4 5 6 7

15. I am motivated to learn English at the University.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

16. I have used technology in my language classes before.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

17. I would feel comfortable using technology in my language class.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

18. I would enjoy using technology in my language class.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

19. Technology can help me develop my skills in English.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

20. Technology can help me develop my skills in English.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

21. I enjoy working with other students in my language class.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

22. I prefer working alone in my language class.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

23. Working with other students can help me learn English.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

24. I have done telecollaboration in my language classes before.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

25. I would like to work with students from other countries in my English classes through telecollaboration.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

26. Telecollaboration would help me improve my skills in English.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

27. Telecollaboration would be fun and exciting.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

28. Telecollaboration can improve my digital/technology skills.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

29. Telecollaboration can bring me closer to other cultures.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

30. Telecollaboration can make me feel part of a learners' community.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

31. Telecollaboration can help me get a better grade in my English course.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

32. Telecollaboration can be a great way to meet new people.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

33. Telecollaboration can be a great opportunity to experience online interaction.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

34. Telecollaboration can foster intercultural learning.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

SECTION C – CULTURAL AWARENESS

Tick as appropriate.

1= Completely disagree

7 = Completely agree

35. I think that all cultures have something to offer the world.

1 2 3 4 5 6 7

36. When I notice cultural differences, my culture seems to have the best approach.

1 2 3 4 5 6 7

37. I think that my culture is the only right one.

1 2 3 4 5 6 7

38. Some people have a culture and others do not.

1 2 3 4 5 6 7

39. I am aware of my own cultural biases and how they affect my thinking.

1 2 3 4 5 6 7

40. I feel uncomfortable when others make racially offensive comments or jokes.

1 2 3 4 5 6 7

41. I speak up if I witness another person being humiliated or discriminated against.

1 2 3 4 5 6 7

42. Some cultures are more sophisticated than others.

1 2 3 4 5 6 7

43. I try to learn about other cultures.

1 2 3 4 5 6 7

44. I have many friends from a variety of ethnicities.

1 2 3 4 5 6 7

45. Most of my friends are from my own ethnic background.

1 2 3 4 5 6 7

46. I'm interested in the ideas and beliefs of people from different ethnicities.

1 2 3 4 5 6 7

47. I connect easily with people from different ethnicities and I am able to communicate easily.

1 2 3 4 5 6 7

48. I only feel comfortable with people of my culture.

1 2 3 4 5 6 7

49. I internationally involve people from many cultural backgrounds in my life.

1 2 3 4 5 6 7

50. It's really hard for me to feel close to a person of another ethnicity.

1 2 3 4 5 6 7

51. I frequently interact with people from a different country from my own.

1 2 3 4 5 6 7

52. I attend events where I might get to know people from different ethnic backgrounds.

1 2 3 4 5 6 7

53. If I could design my own world, I would choose elements from my own culture only.

1 2 3 4 5 6 7

54. Getting to know someone of another culture is generally an exciting experience for me.

SECTION D- LEARNING LANGUAGES IN A MULTICULTURAL SETTING

1. What opportunities have you had studying English in a multicultural and diverse setting? Describe your experience.

2. What do you see as the most beneficial aspects of a diverse, multicultural setting for learning English at university level? What are the most challenging aspects?

Appendix C: Post-Intervention Questionnaire

STUDENT QUESTIONNAIRE

Dear student,

The present questionnaire is anonymous. The data will be used only for the purposes of a research and are strictly confidential. Your participation is voluntary, and the questionnaire should only take 10-15 minutes to complete. Thank you in advance.

SECTION A - DEMOGRAPHICS

Tick as appropriate.

1. Nationality

☐ Spain ☐ Cyprus ☐ Other

2. University

☐ Universitat de Valencia ☐ Cyprus University of Technology ☐ Other

3. Department

4. Gender

☐ Male ☐ Female

5. Age

☐ 17 – 20 ☐ 21 – 24 ☐ 25 +

6. Date of birth

7. Virtual exchange project you are participating in:

8. Level of English

☐ A1 - Beginner
☐ A2 – Upper Beginner
☐ B1 - Intermediate
☐ B2 – Upper Intermediate
☐ C1 – Advanced
☐ C2 – Advanced +

9. Current Degree

SECTION B – LANGUAGE LEARNING AND TECHNOLOGY

10. Please select the social networks you and software you use more often:

- | | |
|--------------------------------------|---|
| ☐ Facebook | ☐ Skype |
| ☐ Twitter | ☐ Instagram |
| ☐ YouTube | ☐ Snapchat |
| ☐ Second Life | ☐ Windows Movie Maker |
| ☐ Google+ | ☐ iMovie |
| ☐ Oovoo | ☐ Other (please specify) |

11. How much time do you spend on the Internet overall per week?

- ☐ 1-10 hours
☐ 11-20 hours
☐ 21-30 hours
☐ 31-50 hours
☐ 51 hours +

12. How motivating has digital storytelling been for you?

1= Not at all

7= Very much

1 2 3 4 5 6 7

13. How effective has digital storytelling been in developing various skills?

1= Not at all

7= Very much

1 2 3 4 5 6 7

14. How anxious has digital storytelling made you feel?

1= Not at all

7= Very much

1 2 3 4 5 6 7

15. Have you enjoyed creating a digital story more than doing traditional activities?

1= Not at all

7 = Very much

1 2 3 4 5 6 7

16. Would you consider becoming an entrepreneur or a small business owner?

1= Not at all

7 = Very much

1 2 3 4 5 6 7

17. Are you motivated to learn English at university?

1= Not at all

7 = Very much

1 2 3 4 5 6 7

18. Do you want to continue using technology in your language classes?

1= Not at all

7 = Very much

1 2 3 4 5 6 7

19. Do you feel comfortable using technology in your language classes?

1= Not at all

7 = Very much

1 2 3 4 5 6 7

20. Do you think technology can help you develop your skills in English?

1= Not at all

7 = Very much

1 2 3 4 5 6 7

21. Do you enjoy working with other students in your language classes?

1= Not at all

7 = Very much

1 2 3 4 5 6 7

22. Do you prefer working alone in your language classes?

1= Not at all

7 = Very much

1 2 3 4 5 6 7

23. Do you think that working with other students can help you learn English?

1= Not at all

7 = Very much

1 2 3 4 5 6 7

24. Would you like to work again with students from abroad in your language classes?

1= Not at all

7 = Very much

1 2 3 4 5 6 7

25. Would you like to work with students from abroad in your language classes through telecollaboration?

1= Not at all

7 = Very much

1 2 3 4 5 6 7

26. Telecollaboration has helped me improve my skills in English.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

27. Telecollaboration was fun and exciting.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

28. Telecollaboration has improved my digital/technology skills.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

29. Telecollaboration has brought me closer to other cultures.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

30. Telecollaboration has made me feel part of a learners' community.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

31. Telecollaboration has helped me improve my grades in the English course.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

32. Telecollaboration was a great way to meet new people.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

33. Telecollaboration was a great opportunity to experience online interaction.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

34. Telecollaboration has helped me improve my intercultural communication skills.

1= Not at all

7 = Very much

1 2 3 4 5 6 7

SECTION C – CULTURAL AWARENESS

Tick as appropriate.

1= Completely disagree

7 = Completely agree

35. I think that all cultures have something to offer the world.

1 2 3 4 5 6 7

36. When I notice cultural differences, my culture seems to have the best approach.

1 2 3 4 5 6 7

37. I think that my culture is the only right one.

1 2 3 4 5 6 7

38. Some people have a culture and others do not.

1 2 3 4 5 6 7

39. I am aware of my own cultural biases and how they affect my thinking.

1 2 3 4 5 6 7

40. I feel uncomfortable when others make racially offensive comments or jokes.

1 2 3 4 5 6 7

41. I speak up if I witness another person being humiliated or discriminated against.

1 2 3 4 5 6 7

42. Some cultures are more sophisticated than others.

1 2 3 4 5 6 7

43. I try to learn about other cultures.

1 2 3 4 5 6 7

44. I have many friends from a variety of ethnicities.

1 2 3 4 5 6 7

45. Most of my friends are from my own ethnic background.

1 2 3 4 5 6 7

46. I'm interested in the ideas and beliefs of people from different ethnicities.

1 2 3 4 5 6 7

47. I connect easily with people from different ethnicities and I am able to communicate easily.

1 2 3 4 5 6 7

48. I only feel comfortable with people of my culture.

1 2 3 4 5 6 7

49. I internationally involve people from many cultural backgrounds in my life.

1 2 3 4 5 6 7

50. It's really hard for me to feel close to a person of another ethnicity.

1 2 3 4 5 6 7

51. I frequently interact with people from a different country from my own.

1 2 3 4 5 6 7

52. I attend events where I might get to know people from different ethnic backgrounds.

1 2 3 4 5 6 7

53. If I could design my own world, I would choose elements from my own culture only.

1 2 3 4 5 6 7

54. Getting to know someone of another culture is generally an exciting experience for me.

SECTION D- LEARNING LANGUAGES IN A MULTICULTURAL SETTING

1. What opportunities have you had studying English in a multicultural and diverse setting? Describe your experience.

2. What do you see as the most beneficial aspects of a diverse, multicultural setting for learning English at university level? What are the most challenging aspects?

3. How would you define “intercultural communication”?

SECTION E– TELECOLLABORATION EXPERIENCE

1. Which telecollaboration activity did you find most useful? Tick as many boxes as you want.

- ☐ Digital profile and introductory video
- ☐ Google+ hangouts
- ☐ Games (Kahoot!)
- ☐ Google+ posts and comments
- ☐ Digital stories
- ☐ Oral presentations/Elevator pitches
- ☐ Assessment and voting
- ☐ Other.....

2. In 1 minute, write as many things as you can about your telecollaboration partners’ country and culture.

3. How did you learn those things? (Tick as many boxes as you want)

- ☐ Your foreign partners told you
- ☐ Through the Kahoot! game
- ☐ You googled the information out of curiosity
- ☐ Through the telecollaboration tasks
- ☐ The teacher taught you
- ☐ You learned them when visiting your partners’ country
- ☐ Other.....

4. My telecollaboration experience this semester was... (Tick as many boxes as you want)

- ☐ fun
- ☐ boring
- ☐ useful
- ☐ frustrating
- ☐ tiring
- ☐ interesting
- ☐ challenging
- ☐ motivating
- ☐ stressful
- ☐ enjoyable
- ☐ Other.....

5. Which digital tools have you used for the telecollaboration activities? (Tick as many boxes as you want)

- ☐ Google+ Communities
- ☐ Google+ Hangouts
- ☐ Google Docs
- ☐ Google Slides
- ☐ Skype
- ☐ Facebook
- ☐ Email

- ☐ YouTube
- ☐ Twitter
- ☐ Moodle/Aula Virtual
- ☐ MovieMaker
- ☐ iMovie
- ☐ Photoshop
- ☐ PowerPoint
- ☐ Prezi
- ☐ Other.....

6. Telecollaboration has helped me develop my... (Tick as many boxes as you want)

- ☐ vocabulary
- ☐ speaking skills
- ☐ listening skills
- ☐ reading skills
- ☐ writing skills
- ☐ digital/technology skills
- ☐ creativity
- ☐ critical thinking skills
- ☐ research skills
- ☐ organisation skills
- ☐ problem-solving skills
- ☐ decision-making skills
- ☐ team-working skills
- ☐ content-based skills
- ☐ communication skills
- ☐ Other.....

7. In my opinion, the Google+ Community was

8. Google Drive was

9. Something I liked about the telecollaboration project was

10. Something I didn't like about the telecollaboration project was

11. My overall opinion about the telecollaboration project is

Appendix D: Exploration Phase Focus Groups Guiding Questions

1. Discuss how you use technology in your life in general and more specifically in your studies. What are your views about technology? Do you spend a lot of time on the Internet? Have you got profiles in various social networks?
2. Do you like using technology in your university courses? Do you think that technology helps you with learning or with other aspects of university life? Think about your language courses. How is technology used in these courses?
3. What opportunities have you had so far studying English in a multicultural and diverse setting? Describe your experiences in a few words.
4. What are your views about student collaboration and more specifically about collaboration among students coming from diverse backgrounds?
5. Do you think that studying in a Greek-speaking university in Cyprus, which admits Greek-speaking students only, deprives you of certain things that you would gain if you studied in a different context; for example, familiarity with other cultures, development/improvement of communication skills, language learning, etc.?
6. Think about this scenario: You participate in a telecollaboration project as part of your English language course at the Cyprus University of Technology. For about one semester you work together with distant students who major in the same/similar field as you. You collaborate with them online, you talk, you discuss, you learn together, and you collaborate on various tasks/projects. What would you gain from such a project? What would be the greatest obstacle? Can you think of some of the challenges/difficulties/problems that would arise? What about the benefits?
7. Think about the implementation of this scenario. How do you see it happen? Which online environments would be the most suitable one for this telecollaboration project? Moodle? Facebook? Skype? Email? 3D Worlds? Any other possible ways? Do you think that the telecollaboration would work more smoothly if you worked in a one-on-one situation (each student with collaborating with one distant student), or in small groups? How long would you like this project to last? One whole semester? A few weeks? Only as long as a few specific tasks/activities last?

Appendix E: Intervention Phase Focus Groups Guiding Questions

1. Describe your experience telecollaborating with foreign students as part of your English course at the University. Have your expectations from the project been satisfied?
2. What issues have arisen from your work with foreign students through telecollaboration? What has gone smoothly and what has been challenging in this work? What has been the greatest difficulty?
3. When interacting with the foreign students, how did you ensure that communication was effective? How did you overcome problems/difficulties in working with distant foreign students?
4. What have you learned from this collaboration (about yourself, your foreign partners, other cultures, your university degree, entrepreneurship, society)?
5. How has your participation in this project changed the way you view other cultures/ethnicities?
6. How has your participation in the telecollaboration activities affected your
 - a) your language skills?
 - b) your digital (technology) skills?
 - c) your relationship with your fellow students?
 - d) your relationship with your teacher?
 - e) your knowledge and skills relating to your degree?
 - f) your relationship with society?
7. What was the role of technology in this project? How has technology helped? What were you able to do/achieve in this project thanks to technology?
8. Is there anything you would add/change in this project? (tasks, digital tools, time spent, duration)

Appendix F: Written Reflections Guiding Questions

1. Write a personal reflection paper following your first synchronous exchange (around 200-300 words). You can write about: your feelings about the first synchronous exchange, how you felt talking in English, what you think of the telecollaboration project, how the Google Hangouts worked, whether you faced any problems before and during the synchronous interaction, what topics were discussed (e.g. Kahoot questions, personal introductory videos, or any other topics), how long you talked for, whether you would like to talk again, whether you used Hangouts chat, voice or video calls, or if you decided to use a different tool, etc. Include information about the YES Project and how you helped each other solve your local NGO's social challenge.

2. Write a personal reflection paper following your second synchronous exchange (around 200-300 words). In your paper write about the discussion you had with the foreign students about your business idea, and how similar social challenges are addressed in other countries. Include information about how you helped each other solve your local NGO's social challenge. You can also write about your feelings regarding the second synchronous exchange, how you felt talking in English again, what you think of the telecollaboration project, how the Google Hangouts worked, whether you faced any problems before and during the synchronous interaction, what other topics were discussed how long you talked for, whether you would like to talk again, whether you used Hangouts chat, voice or video calls, or if you decided to use a different tool, etc.

3. Use the notes that you took during your last synchronous exchange and write a comparative reflections paper in which you are showing your views about the telecollaboration project as well as your foreign partners' views (around 300 words). Include as much information you gathered from your interview - discussion with your telecollaboration partners. Finally, include your overall opinion about this project and mention anything that you would change/add (e.g. tasks, digital tools, time spent, duration, etc.)

Appendix G: NGO Interview Questions

Please write some lines of evaluation of the YES project, answering anonymously to the 5 brief questions of this interview:

1. Some positive aspects of this experience have been:

2. Some negative aspects of this experience have been:

3. Something that can be improved from this experience is:

4. My overall assessment of this experience is:

5. I would be interested in returning to collaborate with this project:

6. The reason for my interest / no interest is:

Appendix H: Project Evaluation Interview

Evaluation of Virtual Exchange Projects

1. Design and Relevance

Was the design of each project the most appropriate to meet the needs of the target groups? How relevant was each project to the target groups?

a. CSI-TEL & SCI-TEL:

b. BEGIN:

c. YES:

2. Efficiency and Process

To what extent were resources (time, funding, technologies, etc.) used efficiently? What processes were planned and how were they implemented in each project? Were there any variations in the process and why?

a. CSI-TEL & SCI-TEL:

b. BEGIN:

c. YES:

3. Cooperation and Management

To what extent have partnerships been sought and established? To what extent were coordination, management and monitoring among partners efficient?

a. CSI-TEL & SCI-TEL:

b. BEGIN:

c. YES:

4. Effectiveness and Impact

Were the planned objectives and outcomes in each project achieved? Were there any unintended outcomes? What difference has each project made to beneficiaries? What factors helped and hindered the results?

a. CSI-TEL & SCI-TEL:

b. BEGIN:

c. YES:

5. Improvement and Sustainability

What lessons have been learned from each project? How could the project be improved? To what extend are the project results (impact if any, and outcomes) likely to continue after the project? What are the expected long-term outcomes? What can be done to enhance sustainability of the project?

a. CSI-TEL & SCI-TEL:

b. BEGIN:

c. YES:

Appendix I: Informational Leaflet

Participant Informational Leaflet

You are invited to participate in this research project which is being carried out by Ms Anna Nicolaou and Dr Ana Sevilla-Pavón. Your participation is voluntary. Even if you agree to participate now, you can withdraw at any time without any consequences of any kind.

The study is designed to investigate the affordances of new technologies in developing university students' intercultural awareness and learning embedded in English language learning.

If you agree to participate, this will involve you completing a pre- and post questionnaire and participate in focus groups. Both required activities will take place in class, and the estimated time involved will be approximately fifty minutes.

The potential for an adverse outcome of the research is anticipated to be minimal and unlikely. Confidentiality is ensured and participation is voluntary. You can withdraw from the research activities if you experience any inconvenience, physical or emotional risk, discomfort, stress, anxiety, fatigue or embarrassment.

Participation in the research is likely to result in enhancing participants' intercultural experience and in raising their motivation for language learning. Generally speaking, this research may benefit the area of intercultural education as well as computer assisted language learning and language learning.

Any information or data which is obtained during this research will be treated confidentially. This will be done by providing participants with a collection envelope where they can leave their completed questionnaire, without handing it directly to the instructor in order to ensure anonymity. The data from focus groups discussions will be recorded and transcribed, and participants will be provided with access to a copy of the transcription, allowing them to delete any wording that they may perceive as identifying them.

The researcher will take responsibility for the secure storage of and access to the data generated. The data will be kept in a secure location in the researcher's office space which will be locked when the researcher is not present. Hardcopy records will be stored securely for five years subsequent to the study. Digital data will be transcribed into a format that precludes identification of participants. Data will be securely stored and access to them will be restricted to the researcher and the supervisor only. Participants will be offered the opportunity to remove any self-identifying information before storage. The researcher will be responsible for retaining the data for a period of five years subsequent to the study. Data will then be destroyed by the supervisor.

Portions of the recording may be played in linguistics classes or during conference presentation. Transcriptions may be made for teaching purposes or for linguistic analysis. Data from this research project may be published in future. The original recording and all copies will be available only to the researcher (Anna Nicolaou) and academic supervisor (Dr Lorna Carson).

If you have any questions about this research you can ask the researcher via email at anna.nicolaou@cut.ac.cy. You are also free, however, to contact any of the other people involved in the research to seek further clarification and information.

Appendix J: Consent Form

Consent Form

I am invited to participate in this research project which is being carried out by Anna Nicolaou and Dr Ana Sevilla-Pavón. My participation is voluntary. Even if I agree to participate now, I can withdraw at any time without any consequences of any kind. The study is designed to investigate the affordances of new technologies in developing university students' intercultural awareness and learning embedded in English language learning.

If I agree to participate, this will involve me completing a pre- and post questionnaire and participate in focus groups. Both required activities will take place in class, and the estimated time involved will be approximately fifty minutes.

The potential for an adverse outcome of the research is anticipated to be minimal and unlikely. Confidentiality is ensured and participation is voluntary. I can withdraw from the research activities if I experience any inconvenience, physical or emotional risk, discomfort, stress, anxiety, fatigue or embarrassment.

My participation in the research is likely to result in enhancing my intercultural experience and in raising my motivation for language learning. Generally speaking, this research may benefit the area of intercultural education as well as computer assisted language learning and language learning.

Any information or data which is obtained from me during this research which can be identified with me will be treated confidentially. This will be done by being provided with a collection envelope where I can leave my completed questionnaire, without handing it directly to the instructor in order to ensure anonymity. The data from focus groups discussions will be recorded and transcribed, and I will be provided with access to a copy of the transcription, allowing me to delete any wording that they may perceive as identifying me.

The researcher will take responsibility for the secure storage of and access to the data generated. The data will be kept in a secure location in the researcher's office space which will be locked when the researcher is not present. Hardcopy records will be stored securely for five years subsequent to the study. Digital data will be transcribed into a format that precludes identification of participants. Data will be securely stored and access to them will be restricted to the researcher and the supervisor only. I will be offered the opportunity to remove any self-identifying information before storage. The researcher will be responsible for retaining the data for a period of five years subsequent to the study. Data will then be destroyed by the supervisor.

Portions of the recording may be played in linguistics classes or during conference presentations. Written transcriptions may be made for teaching purposes or for linguistic analysis. Data from this research project may be published in future. The original recording and all copies will be available only to the researcher (Anna Nicolaou) and academic supervisor (Dr Lorna Carson).

If I have any questions about this research I can ask the researcher, Anna Nicolaou via email at anna.nicolaou@cut.ac.cy. I am also free, however, to contact any of the other people involved in the research to seek further clarification and information.

Signature of research participant

I understand what is involved in this research and I agree to participate in the study. I have been given a copy of the Participant Information Leaflet and a copy of this Consent Form to keep.

Signature of participant

Date

Signature of researcher

I believe the participant is giving informed consent to participate in this study

Signature of researcher

Date