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Critical networks: Embedding programmes for individuals with intellectual impairments in university contexts in Chile, Ireland and Australia

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ABSTRACT

This paper focuses on post-secondary programmes for individuals with intellectual impairments within university settings in Chile, Ireland, and Australia. Actor-Network Theory (ANT) is adopted to explain how programmes are developed and sustained through relationships between human and non-human actors. Findings show that for all the university embedded programmes, parent-actors initiated network development. These different programmes were then sustained by other actor-networks, each with its distinct emphasis. In the Chilean network, the university's strong, dynamic support made it a catalyst and social change leader in higher education inclusion across employers and broader society. In the Irish network, a strong university actor drove extensive relationships with community and employers who also provided training support. In the Australian network, government played a key role, shaping networks through compliance and funding requirements. These findings contribute to the sustainable development efforts of future programmes.

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and training

Points of interest

- This article examines relationships between human and non-human actors when establishing training programmes for people with intellectual disabilities within university settings in Chile, Ireland and Australia.

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- Overall, important networks that contribute to developing and sustaining post-secondary programmes for individuals with intellectual disabilities, include parent networks, training and funding networks within universities, governmental funding networks, charitable organisations, employer partner networks, and community inclusion networks.
- In all three contexts, parents were key in starting and successfully building actor networks within the universities which were then extended by others.
- The Chile and Ireland networks focused on private charitable organisations, employer partners and universities to sustain the programmes. The Australian network, in comparison, relied on government funding, including funding from the National Disability Insurance Agency.

Introduction

In 1994, UNESCO's Salamanca Statement (UNESCO 1994) laid out an agenda to provide 'Education for All' by way of promoting 'Schools for All'. This was thought achievable *via* an inclusive educational approach. The Salamanca Statement, however, defined the approach as fostering enabling schools that serve all children, especially those having 'special educational needs'. The term 'special educational needs' is controversial as it suggests a problematic positioning of disability and impairment which draws focus on the individual rather than the environments that set up barriers to their inclusion (Keil, Miller, and Cobb 2006). Several authors have observed that inclusive educational policies have tended to focus mainly on compulsory education. Policies pertaining to post-secondary education, including higher education, particularly for individuals with intellectual impairments have been much slower in keeping pace and remained fairly fragmented (Aston et al., 2021a, 2021b; Bumble et al. 2019; Illanes & von Furstenberg, 2011; O'Connor et al. 2012).

Rillotta et al. (2020) have noted that the inclusion of individuals with intellectual impairments in colleges and universities in North America, Canada and Europe has been reported since the 1980s. More recently, Grigal, Dukes, and Walter (2021) have highlighted a noticeable shift stating that, to date, 310 colleges and universities in North America have enrolled over 6000 students living with intellectual impairments. They attribute this increase to heavy federal government investment in higher education to create more inclusive experiences for individuals with intellectual impairments, thereby increasing the availability of post-secondary education options for them (for other countries see Aston et al., 2021a, 2021b; De Souza & Vongalis-Macrow, 2021; Illanes & von Furstenberg, 2011; von Furstenberg-Letelier et al., 2018; Rillotta et al. 2020; Herrero et al., 2021).

While government support, funding and policy are key contributors to the inclusion of people with intellectual impairments in higher education in North America, Bumble et al. (2019) still emphasised the need for a range of people, supports, partnerships, and resources to facilitate their inclusion. The authors also observed that, 'Although descriptions of existing programmes and individual programme elements abound in the literature, less is known about how campuses navigate the early stages of exploration and eventual launch' (Bumble et al. 2019, 38). The present study contributes to filling this gap by describing networks of actants involved in developing programmes for people with intellectual impairments in three universities (one each in Chile, Ireland and Australia).

Background of study

This study is part of a larger project investigating how programmes for adults with intellectual impairments within universities are developed and sustained. Such programmes might aim to provide them with opportunities to participate and experience student life in higher education settings, further develop their functional and life skills, and/or enhance their employability. Part One of our project adopted a critical realist perspective and explored the preconditions giving rise to the initiation and growth of the three post-secondary education programmes (De Souza et al., 2024).

This study focuses on Part Two which continues to trace how events were acted on and the pathways they took. The title adopts the term 'critical networks' to indicate groups of interconnected human and non-human mediators that play essential and dynamic roles in the existence and sustainability of these programmes. Actor Network Theory (ANT), informed by critical realism (see Elder-Vass 2008, 2015; O'Mahoney, O'Mahoney, and Al-Amoudi 2017) is adopted to develop a rich account of these events.

Research process

The research question asked, 'How were programmes for people with intellectual impairments in the three universities (Chile, Ireland and Australia) developed and sustained in the context of actor-networks?' The aim was to develop an in-depth empirical understanding of networks that can inform and contribute to the sustainable development efforts of future, similar programmes, elsewhere.

The inter-related networks of interest were (1) *development networks* defined as concerning the initiation, growth and expansion of the training programmes in university contexts; and how they evolved into (2) *sustaining networks*, focusing on the contextual relationships and resources that have contributed to sustaining the programmes.

ANT analytical approach

ANT is based on the premise that reality (e.g. organisations, families, computers, academic programmes and other aspects of daily life) is made up of human and non-human actors connected through interrelationships, and that relationships influence the formation, shape, and elimination of a network (Law 1992). In ANT non-human actors like artefacts, concepts, texts, symbols can also be actors by way of existence, as opposed to human intentionality (Latour 2005). This proposition is grounded on the principle of 'generalized symmetry' (Callon 1986, 199) where the roles of both human and non-human actors are regarded as equally important (Callon and Latour 1981; Latour 1987; Law 1994) and are interdependent in maintaining network stability.

ANT also focuses on relationships between actors (Dwiartama and Rosin 2014). Law (1992, 385; also Cresswell, Worth, and Sheikh 2010) argues that 'an actor is a patterned network of heterogeneous relations, or an effect produced by such a network'. An ANT-driven analysis, then, entails tracing relationships between actors at a given time and place, to observe how these lead to outcomes.

Several other key concepts framed the research process. These are translations, problematisation, *interessement*, enrolment and mobilisation. Translation refers to continuous changes taking place in the roles, beliefs and characteristics of actors as a result of negotiations, manipulations or persuasions, that enable them to sustain relationships with others within the network (Callon, 1986; Callon & Latour, 1981). Callon (1986) divides translation into four moments. At the problematization moment, a key actor or team of actors identifies a problem and recruits others to participate in trying to solve it, forming a problem-solving network. In the *interessement* phase, shared interest in the problem is acknowledged and key actors negotiate the roles of other actors and materials within the network to facilitate addressing and solving the problem. In the third moment or enrolment phase, other actors take on and coordinate within their accepted and agreed upon roles. In mobilisation the role/s of the key actor/s is/are legitimised through the commitment of the other actors whom they have come to represent, culminating in network formation in support of proposed solutions to the identified problem.

In this study, we approach each training programme as the outcome of an actor-network. That is, each programme arises as the result of interactions between human actors (parents, university administrators, governments, philanthropic organisations) and non-human actors (funding, classrooms, technological devices, furniture adapted to the needs of persons with impairments). An important point to note is that such networks are never permanent. Networks may persist for a time, but any stability they appear to exhibit is always precarious and contingent. Law (1992), therefore,

argues that networks are not fixed, but continuously constructed, and hence are better understood as verbs (processes) rather than nouns.

Our goal here is to discern the actors that have been ‘enrolled’ and ‘translated’ during the development of programmes. Noting that networks are ‘processes’ that shift, we then go on to discern how these assemblages of actors change as each programme moves into the stage of sustainability. Some actors remain, others leave, while others whose roles may have been prominent find themselves with narrower roles. In the next section, we describe the three programmes that emerged from three actor-networks.

Background to the three programmes

UNAB’s diploma in labour skills for students with cognitive impairments

In March 2006, Andrés Bello University (UNAB) initiated a two year socio-labour training programme (Diploma in Specific Work Skills) for young adults with cognitive impairments aimed at training them in skills that would facilitate their future employment. The programme also endeavoured to instil student confidence, their independence and enhance their social skills, thereby enabling their assimilation in work environments and their larger communities.

After an initial evaluation, the programme was subsequently modified to be a three-year course comprising three stages that included comprehensive training, personalised work training in one of five areas (administration, education, catering, gardening, veterinary skills), and a three-term internship in their selected field within authentic work settings of partner organisations. From 2013, the programme ran in three urban centre campuses in Chile and has been replicated in Spain, Argentina and Mexico (Butcher et al. 2020).

TCPID’s Certificate in Arts, Science and Inclusive Applied Practice course

The Trinity Centre for People with Intellectual Disabilities (TCPID) in Dublin, Ireland, initially began as the National Institute for Intellectual Disability in 2004. In 2006, it offered a two year Certificate in Contemporary Living course and was part of the School of Social Work and Social Policy. In 2016, the programme was moved to the School of Education and became TCPID.

The initial aim of the course was to develop life skills and include students with intellectual impairments in university life. This aim progressively transitioned towards training and supporting them in their transition to employment. In 2016, the curriculum was modified and renamed to better align with the Irish National Framework of Qualifications (NFQ). Currently, upon course completion, students are awarded a nationally recognised, formal, Level five NFQ qualification.

In 2017 TCPID, in collaboration with international consulting firm Ernst and Young (EY), a core business partner, initiated a Graduate Internship Programme

which offers paid internships and mentorships to the students upon their graduation. The collaboration has led to the development of policies and processes, to support employees with intellectual impairments, that have been implemented in EY's global offices (Beroggi et al. 2021). It also contributed to the expansion of a model of mentoring designed by the Association for Higher Education Access and Disability (AHEAD) Ireland called 'Willing and Able Mentoring' (WAM). AHEAD, an independent non-profit organisation, works to create inclusive environments in education and employment for people with impairments in Ireland. Within the WAM internship model, someone in the employers' work team is identified to mentor the graduate intern when they come into the workplace. With the development of more work-from-home conditions, post-COVID, further research and review is being conducted on the model to ensure the interns continue to gain contemporary employment experience.

Australia's Education to Work (EtW) programme for young adults with down syndrome

The EtW programme, designed by a not-for-profit organisation with over a decade of experience running dance and fitness activities for individuals with Down syndrome, began as a two-year pilot programme for 12 young adults with Down syndrome. Having received \$300,000 worth of government funding in 2018, the first programme iteration began in February 2019. Initially, its aim was to establish a holistic tertiary educational training and employment pathway for these individuals.

With further government funding of over three million dollars received in 2021 and 2022, the programme focus has changed to be a strength-based skills programme to help individuals with Down syndrome to become sufficiently independent to get an internship and job in open employment. The current programme now includes a foundation programme for school leavers aged between 16 and 22 years old, the EtW programme for those wanting to transition into meaningful employment, and an employers' disability confidence training programme.

Data collection, research participants and data analysis

The study uses multiple qualitative case studies. Case selection was driven by purposeful sampling with the aim of achieving maximum variation to strengthen the generalisability of findings (Flyvbjerg 2006). The three case studies all involved university-embedded programmes, located in different countries and at different stages of maturity. While there are some debates about the generalisability of ANT studies, transferable knowledge has been created from ANT studies (Passoth and Rowland 2010; Rydin 2012). We take

the stance that ANT studies are underpinned by rich data and can be foundations for conceptual, theoretical and model development.

The data collection was conducted online *via* Zoom. The data sources were the content that emerged from carrying out 45 to 60min long semi-structured interviews with stakeholders. A range of questions were asked to elicit from interviewees information on who drove the establishment and implementation of the programme, who their collaborators were, the human and non-human resources that were involved, and other resources that were targeted but were unavailable.

As each programme followed a different developmental pathway, the research participants who were interviewed were diverse. The inclusion criteria were participants who have been part of, or have familiarity and knowledge about the development, sustainability and employment collaborations of the training programme in one of the three sites. [Table 1](#) highlights the eventual list of interviewees included: Chile-13; Ireland-10, and Australia-9.

A sample of guiding questions used in the interviews include

- What is the purpose and goals of the programme?
- Who drove its establishment?
- What were the historical and social conditions contributing to the establishment of the programme?
- Who have you collaborated with and what have been their roles in the programme?
- What human and non-human resources were involved?
- What human and non-human resources were targeted but not available?

All interviews were transcribed and those conducted with participants from Chile were also translated into English. Due to time pressures and lack of resources, no attempt was made to trace the student cohorts enrolled in the first intake of each programme (Chile in 2006, Ireland in 2004, and

Table 1. List of interviewees across the three sites.

Interviewees in Chile	Interviewees in Ireland	Interviewees in Australia
• 4 Senior level university staff members from UNAB Santiago • 2 Senior level university staff members from Vina Del Mar • 3 Lecturers (one each from Vina del Mar, Concepcion and Santiago campuses) • 1 Programme Director • 1 Programme Co-ordinator • 2 Partner employers	• 1 Senior level university staff member • 3 Programme staff members • 4 Partner employers • 2 Collaborators from two different organization/institution interested in setting up similar programmes	• 1 Programme staff • 1 University Staff • 4 Parents • 1 Disability Employment Service provider • 2 Employer partners

The table presents the list of interviewees for the study. It is composed of three columns, one for each country, listing the post and number of the interviewees in that country. The first column is for Chile, the second column for Ireland, and the third column for Australia.

Australia in 2019) to get their views and experiences. However, publications including the voices and experiences of students undertaking the programmes have appeared in related research (De Souza & Vongalis-Macrow, 2021; De Souza & Vongalis-Macrow, 2024; Kubiak, 2015; Spassiani et al. 2017).

The ANT analysis used an inductive approach to identify and highlight the development and sustaining networks that were elicited from participant interviews. Two individuals from the research team who were also involved in conducting the interviews, read and re-read the transcripts to develop familiarity with the data. Then two levels of analyses were conducted. At the first-level, participant-driven thematic areas were identified. At the next level, the themes relating to development and sustaining networks were focused on. Subsequently, network diagrams were constructed to depict the relationships between actors and networks.

Findings

Developing networks in Chile

Figure 1 provides a visual representation of the developing and sustaining networks (encased in dotted lines) leading to the formation and implementation of the Diploma for Labour Skills programme within Andres Bello University, for young people living with intellectual impairments. The problematization moment that set the impetus for developing the programme was the absence of a post-secondary pathway for students with intellectual

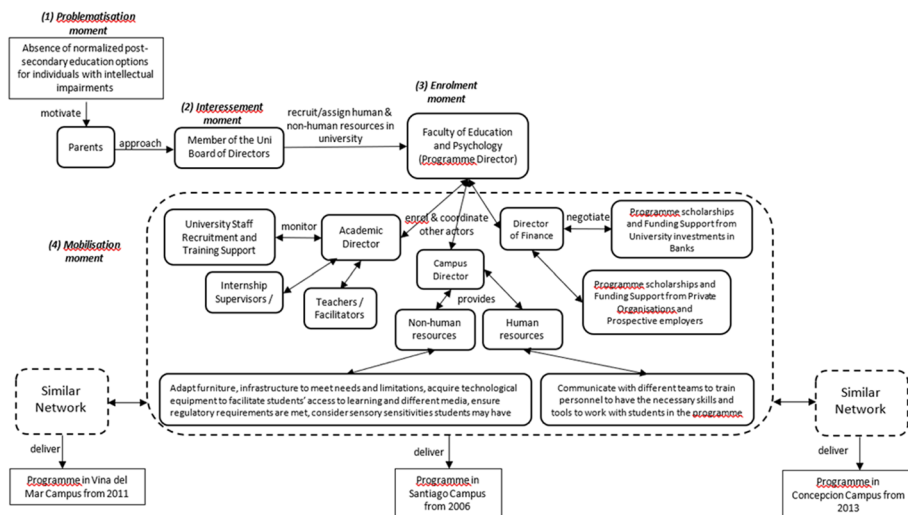


Figure 1. Emergence of developing and sustaining networks in Chile. The figure shows a flow chart of the Development and Sustaining Networks in Chile described in the paper. It summarises different actors and resources involved in the four moments (problematization, interestement, enrolment and mobilisation) that generated the programme in Chile and that is explained in the paper.

impairments after they completed special school or integrated schooling. Manghi and colleagues (2020) have described Chile's educational policy approach for individuals living with impairments as a 'a hybrid proposal between integration and exclusion ... [where] ... policies have retained the idea that the individual must adapt to the school environment, while also establishing that the school must accept diversity in their community and adapt itself to it' (Manghi et al. 2020, 116). The few pathways that were available, were in segregated as opposed to normalised environments. A group of parents were 'prime movers' of the network (Callon 1999). They had other children undertaking degree courses at the university, and approached one of the Directors with the suggestion that the university considers offering post-secondary course options to these young people. The Director, well-connected within the university community, with a special sensitivity towards individuals with intellectual impairments and knowledgeable about issues related to them, was integral in initiating the *interessement* phase of the network formation.

The Director's influential standing facilitated the enrolment of other human and material actors to address the issue resulting in a series of cascading translations. The Director enrolled the Academic Vice-Rector and Dean of the Faculty of Education and Psychology. These two actors subsequently enrolled an educational psychologist, assigning this actor the role of 'setting up a pilot two-year programme.' The educational psychologist then enrolled other participant-actors, but enrolment was contingent on their undergoing 'obligatory points of passage' (Callon 1999) where certain criteria had to be fulfilled. In the first year, the psychologist took on the task of interviewing families, evaluating the applicants, and searching for teachers to conduct the programme. The programme officially began in 2006 with 36 students.

Human and non-human resources

The nature of the network participants (e.g. their being persons with intellectual impairments) shaped the subsequent processes of enrolling other actors into the development network. Actors included faculty lecturers/trainers, Academic Director of the undergraduate and postgraduate courses, Student Services Centre, internship coordinators and supervisors, an educational psychologist, and university students in Psychology, Occupational Therapy, and Speech Therapy who contributed to the programme as interns. While this network of actors attended to the learning, training and internship placement needs of the students, the Campus Director, and the Finance Director of the university also played key roles elsewhere.

Recruitment of suitable non-human actors was a role assigned to the Campus Director, who viewed their role as ensuring that the infrastructure, services and the technological and physical resources to conduct training

were adapted appropriately to meet the needs of the students living with intellectual impairments. As ANT focuses on relationships rather than on independent actors, the quality of the relationship between humans and non-humans was deemed critical. For example, certain types of technological equipment were enrolled to facilitate student access to different media to enhance student learning. Additionally, traditional tutorial rooms at the university have been replaced with long counters that provide students with sufficient space to manoeuvre and work safely and comfortably. In general, the university looked into implementing any infrastructural adaptation needed to comply with regulatory accessibility issues required by law. 'Adaptation' from an ANT perspective can be seen as a strategy for making the relationship between a human and non-human more seamless. The campus director emphasised the need to not only look into the physical needs but also address the sensory issues relating to sound, lighting, textures, and aroma, that might trigger unexpected situations for a few students in the programme.

Interactions between participants and others were also emphasised. This included providing and orchestrating training and instruction to university staff teams who may interact with the students with intellectual impairments, on how to relate to them, identify risks to their health, and intervene during emergencies.

Another key network member is the financial director whose primary role is to enrol private companies as sponsors to provide financial and employer support to enable the programme to be financially viable in the long term. Since its inception in 2006, the programme's first source of support is the annual fees that students' families—those who can afford—pay. This is usually about 50% of the cohort. For the remaining students, external support is needed as they do not receive any state funding or subsidy, nor do they have access to higher education student cards. No such provisions have been made for those with intellectual impairment in higher education contexts in Chile. This contrasts starkly to the governmental loans and scholarships available to mainstream undergraduate and postgraduate students. So, establishing and maintaining strong relationships with private companies interested in supporting the programme through financial donations is a second source of funding. Such organisations may wish to contribute to the community, practice corporate social responsibility, and promote their good reputation. They sustain the programme through regular or significant financial donations and contributions.

The third source is grants and payments that the university receives for mainstream undergraduates at the university. These are invested in banks and the returns help to provide scholarships for the students with intellectual impairments to attend the programme.

Sustaining networks

When asked about what sustains the programme, interviewees tended to highlight the importance the university as a key actor, specifically in its support and dynamism. The university is embedded in a larger national-level network and positioned to exert considerable influence on the issue of access to higher education for people with intellectual impairments. One interviewee emphasized that the diploma in labour skills programme is directed towards equipping such students with skills that are relevant, up-to-date, and would allow them to enter the labour market. The programme's success therefore, also hinges on the university's dynamism and strong willingness to promote adaptation rather than hinder it. The willingness to grow with the programme and adapt to market needs have enabled the graduates to achieve the goal of employability. This dynamic reflects the actor-network concept of multiplicity (Singleton and Michael 1993), where different actor-networks can be layered on top of one another, and where an actor can be a member of multiple networks simultaneously. In this case, the university-actor influenced the national level network, then subsequently aligned the 'programme' network, which helped ensure its persistence and success.

Beyond the work of the university, larger regulatory networks were already in place and supported the programme indirectly. One interviewee stated that Chile's Labour Inclusion Law (21,015) of 2019, obliging employers from organisations having more than 100 workers to have 1% of people with impairments included in their staff, has led to an increase in the number of jobs available for individuals having different types of impairments (Library of National Congress of Chile, 2017) thereby, contributing to a more sustained demand for training. That said, aspects of this regulatory network also cause difficulties. Currently no law in Chile compels companies to employ people with intellectual impairments. Organisations tend to prefer employing people with other kinds of impairments, like physical or sensorial, to meet the demands of the law.

In summary, the programme's good reputation, longevity (having been in operation for 17 years), and success in placing students with intellectual impairments in jobs appear to emerge from its alignment with larger national and regulatory networks, that contribute to its sustainability. The dropout rate of students is very low and every year, there continues to be a significant demand for a place in the programme.

Further evidence of the actor-network supporting the programme's sustainability can be seen in terms of 'network expansion' where the programme is replicated across multiple campuses. From the initial programme commencement in 2006 in Santiago, the university has parallel programmes running, using similar networks in two other important urban centres in Chile, namely at the Vina del Mar Campus since 2011 and Concepcion Campus

since 2013 (Universidad, 2019). In ANT language, the programme is the network effect emerging from interactions that have, presumably, become stable and routine. Stabilised routines can be captured in things like procedures, manuals, formal processes and even informal practices which then facilitate running the programme in another location.

Developing networks in Ireland

Figure 2 provides a visual representation of the developing and sustaining networks (encased in dotted lines) leading to the formation and implementation of the university-approved Certificate in Contemporary Living course in 2006 and subsequently, the implementation of the Arts, Science and Inclusive Applied Practice (ASIAP) curriculum in September 2016. ASIAP leads to certification aligning with Level 5 of Ireland's National Framework of Qualifications.

The problematization moment that set the impetus for initiating the programme in Ireland was the absence of normalized post-secondary education or training options and pathways for individuals living with intellectual impairments. The situation led parents and members of the community to again act as prime movers (Callon 1999) and to approach and seek help from influential members of university staff, positioned in higher levels within the university. Similar to Chile's *intersement* phase of network development, the

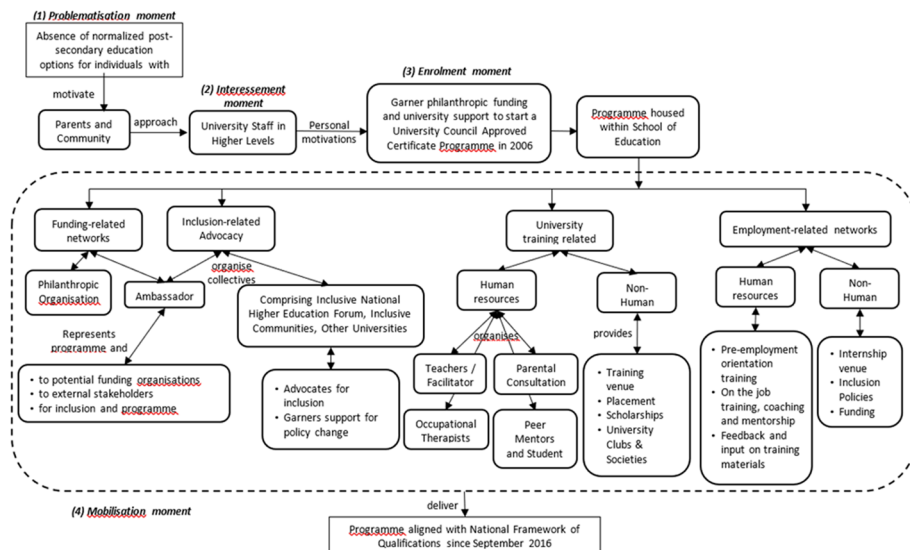


Figure 2. Emergence of developing and sustaining networks in Ireland. The figure shows a flow chart of the Development and Sustaining Networks in Chile described in the paper. It summarises different actors and resources involved in the four moments (problematization, *intersement*, enrolment and mobilisation) that generated the programme in Ireland and that is explained in the paper.

influential members of university staff showed a shared interest in the problem and began carving a way to facilitate solving it. Without opportunities to enrol government actors, university actors enrolled the School of Social Work and Social Policy and subsequently the university's School of Education, as well as generous donors and some university resources. As the programme progressed, four distinct networks were formed which included both human and non-human actants.

Human and non-human resources

The university training networks is made up of both human and non-human resources. The human resources for the internship component include course facilitators, occupational therapists, peer mentors and student support services whose main roles involve supporting students' individual and social development, and their learning and training within the university. The university also makes other non-human provisions like spaces for conducting classes and training; university clubs, societies and activities that all students can participate in; student scholarships and coordinate and arrange internship and work placements for students.

The funding-related network comprises mainly human actants. The university currently receives ongoing support from several charitable organisations and business partners. Additionally, an important sports personality has taken on the role of ambassador to represent the programme to other potential funders, donors and organizations. The ambassador is also involved in inclusion advocacy and public relations work.

A larger advocacy network, led by TCPID since 2018, comprising the Inclusive National Higher Education Forum (INHEF), and other universities and communities actively supporting inclusion, come together to lobby for policy changes that support inclusion in all areas and stages of life. The university's employment programme for people with intellectual impairments has significantly contributed to the implementation of diversity and inclusion policies within the organisations of employer partners, and has contributed in mobilizing the government to set targets to achieve a percentage of disability employment within Ireland.

The fourth network is employment related. Like the university training network, both human and non-human resources are involved. The role of employment networks within this Irish university is broad ranging and includes not only providing on-the-job training, coaching and mentorship but also conducting employer-led workshops for students in the programme to train them in financial literacy, interview skills and other employment-related and life skills. Employer networks also conduct pre-employment orientation training and provide regular feedback on the programme's content and training materials.

Sustaining networks

When asked about what sustains the programme, interviewees highlighted the importance of continued support from all four networks - robust university support, generous ongoing donations from charitable organisations and business partners, inclusion and advocacy networks to mobilise policy changes within business organisations and at the government level, and strong support from employer networks.

The employer network support, is of particular interest because of the ground it has gained within the programme with some employer partners. Employer networks affiliated with TCPID do more than provide funding support and a training ground for student internship, authentic work experience, and the development of work and social skills. Within TCPID, employer partner-actors also conduct workshops. Examples of two workshops conducted by employer partners include training students to develop their interview skills and in what they should know when transitioning from their university course to work.

The first is conducted by TCPID's human resource business partner over a space of six weeks. Students would do training online and within the business partner's premises. The business partner's talent manager would give the student interns skills and capabilities to feel comfortable in doing an interview. Subsequently, other staff would join in to host interview practice sessions with the student interns. The training has a dual function of building student interns' skills and confidence, as well as promoting disability awareness—and the desirability of focusing on the abilities of their colleagues with impairments—to staff in the business partner's organisation. From an actor-network perspective, what is taking place is the employer partner-network preparing participant actors to fulfil roles in other future employer networks, in effect 'shaping' their roles and identities in ways that anticipate their participation in future webs of employment relationships.

The second five-day workshop on transitioning into employment, is conducted by staff from a global organisation. The training content is geared towards providing practical information and understanding to potential future graduate interns on what a contract of employment is, what their rights are, how they should look or dress for work, what a security card looks like and so on. The training also aims to demystify things related to bank accounts, taxes, pay slips, contracts and budgeting. This particular business and employer partner network has played an important role in advocating for and providing guidelines on inclusion policies. Staff from the organisation have developed a document or playbook to explain the Dos and the Don'ts when working and supporting individuals with an intellectual impairment within the workplace setting, and how to implement what they have done to enable teams of the firm to function optimally in a supportive and inclusive manner. The organisation plans to have a book launch when the

playbook is finalised, and distribute the information to their global offices as well as their business clients.

Developing networks in Australia

Figure 3 provides a visual representation of the developing and sustaining networks involved in setting up the Education to Work training programme for young people living with Down syndrome in Australia, within a private university. The first programme iteration began in February 2019.

Consistent with the two previous programmes, the problematization moment that set the impetus for developing the programme was the experiences and observations from a group of parent-actors, that their young adult sons and daughters would complete training courses and voluntary work stints but these seldom led to more continued and meaningful opportunities for longer-term paid work. These parents were already involved in a not-for-profit organization that has been conducting activities for young adults with Down syndrome for more than a decade.

Human and non-human resources

An opportunity to mobilise some changes arose with shifts in the way government policy supported people with impairments, which enabled those with impairments who qualified, to access individualised funds for services that included

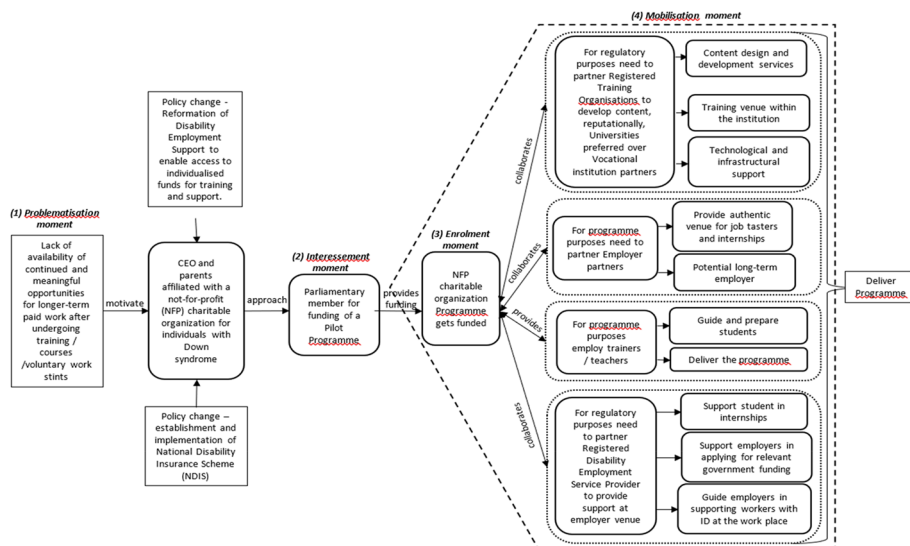


Figure 3. Emergence of developing and sustaining networks in Australia. The figure shows a flow chart of the Development and Sustaining Networks in Chile described in the paper. It summarises different actors and resources involved in the four moments (problematization, intersement, enrolment and mobilisation) that generated the programme in Australia and that is explained in the paper.

employment training and support (AIHW, 2022; De Souza, 2022; Macdonald and Charlesworth 2016). An important point to note is that the non-profit organisation was already embedded in a network that involved a key government actor. Being rather well-connected, the not-for-profit enrolled a key government organisation and by extension, government funds, to trial the programme as a pilot project within a university setting. The funding was key in enabling the not-for-profit to build a network of support to deliver the programme.

Approximating the *interessement* phase, where people having a shared interest are brought together and key actors negotiate the roles of other actors and materials within the network to facilitate addressing and solving the problem, the network formed not only because of common interests. In order to deliver a programme that is paid for by individuals drawing from the National Disability Insurance Scheme (NDIS) in Australia (AIHW, 2022; Buckmaster, 2017; De Souza, 2022; Macdonald and Charlesworth, 2016), the programme had to meet government regulatory requirements.

Participant actors who sought enrolment into the programme also had to seek enrolment into a second network, the NDIS network. One requirement that would allow individual students with impairments to access NDIS funding more easily for a selected programme, would be that the programme content is designed and delivered by a Registered Training Organisation (RTO). In other words, the goals and plans of the programme network had to intentionally align with the goals and programmes of the NDIS network, another example of multiplicity (Singleton and Michael, 1993). Reputationally, university RTO partners were approached and preferred over Vocational Education and Training (VET) RTOs that also provide post-secondary training. Within this relationship, the not-for-profit had two university partners and they collaborated in three ways. One university partner was enrolled to advise on and provide services on programme content and design. A second university partner was enrolled to provide a training venue within the university as well as infrastructural and technological support for the programme.

Additionally, as an employment preparation programme, a registered Disability Employment Service (DES) provider was also enrolled into the network. Their presence is needed in the programme to support potential co-workers and the programme participants when they visit, train, or do short internships, at a potential employer's venue. DES providers also act as an actor that interfaces with prospective employer-partners on what might be possible job roles for programme participants within the organization, the available support and additional funding that employers, hiring an individual with impairments, might access and draw from.

The not-for-profit organisation also enrolled partner employers having the same values, interests and capacity to employ graduates from the programme, if they decide they want to progress into longer-term open employment. These employer partners also include their university partners.

The final essential part of this network are the trainers and teachers that the not-for-profit organisation has enrolled to guide and prepare the students in the programme as well as deliver the training in accordance to the designed material. These networks of partners all play different but essential roles in the mobilisation moment which can lead to the successful development and delivery of the programme in a manner that conforms to regulatory requirements in Australia, in a sustainable way.

To conclude, the findings have highlighted that the critical networks contributing to the development and sustainability of post-secondary programmes for individuals with intellectual impairments, within university settings include parent networks, training and funding networks within universities, governmental funding networks, donations networks, employer partner networks, and advocacy and community inclusion networks.

Discussion

This study investigated the question ‘How were developing networks formed and sustained when setting up programmes for people with intellectual impairments in the three universities?’ By addressing this question, we aimed to inform the development efforts of future, similar programmes and to provide a perspective that responds to how higher education campuses might navigate exploring and launching programmes for individuals with intellectual impairments within their settings (Bumble et al. 2019). It is worth noting that ANT is not concerned with developing strong, high-level theories or unassailable principles, but in developing in-depth descriptions of networks rich enough to stand as explanations (Law 2007), which can then inform future research and practice. In this section, therefore, we compare networks and relationships between actors that were critical to the development and sustainability of the different programmes. Table 2 provides a comparative description of key moments in relation to the development and sustainability of three networks. Five key dimensions of the networks are compared, with 1–3 relating to development and 4–5 relating to sustainability.

The findings emphasize how all three programmes are shaped by the contexts within which they are embedded and how the early stages of exploration and inception (cf. Bumble et al. 2019, 38) tend to have stemmed from an absence of such programmes in the contexts at points in time, and the perceived need and demand from stakeholders, for their existence (in Chile and Ireland). In other contexts, programmes in higher education settings for individuals with intellectual impairments did exist, but in a less established way, one example being Australia. In such cases, some perceived inadequacy of existing programmes or a change in policy climates (as was noted by Grigal, Dukes, and Walter 2021, for the case of North America) were seen to facilitate explorations and inceptions of different possibilities. Across the

Table 2. Comparative description of development and sustaining networks across the three sites.

	Chile	Ireland	Australia
DEVELOPMENT			
[1] Problem identification	[C1] Parents note problem in societal context	[I1] Parents problem in societal context	[A1] Parents problem in societal context
[2] Core actor ("prime mover" who enrolls initial actors)	[C2] University staff	[I2] University staff	[C2] Not for profit
[3] Development through recruitment of programme network	[C3] University staff recruits university actors within an established university (academic director, campus director, etc). Roles "converge" organically because they already work together	[I3] University actors within an established university. Again, roles "converge" organically because they already work together	[C3] New [fledgling] not-for-profit with small staff pool, partners with registered training organisations, builds on pre-existing relationship with government. No organic convergence; not-for-profit was new; programme expertise came from fragmented providers
SUSTAINABILITY			
[4] Sustainability through funding and employment network	[C4] University and Charitable organisations provide funding	[I4] University, business partners and charitable organisations provide some funding. Presently, Government three-year pilot fund titled Path4 commencing 2023/2024 academic year provides programme costs.	[A4] Government provides funding; employer partners support post-classroom placement
[5] Sustainability through programme alignment with larger societal networks	[C5] University accreditation of programme, supporting replication across campuses	[I5] Alignment with national standards and other networks such as advocacy networks	[A5] Undefined. Core network continues to evolve, no alignment with larger societal networks

The table compares the Development and Sustaining Networks across the three sites. The table is composed of four columns. The first column describes the kind of actor or network involved, while the second, third and fourth columns list the development and sustaining network actors for Chile, Ireland and Australia, respectively.

three programmes, developing networks were initiated by parents of individuals with intellectual impairments and parental groups with a similar profile [C1, I1, A1]. This could arguably lead one to argue that parents were 'prime movers', but the stance we take here is that prime movers do not just problematise; they are understood to undertake the critical task of enrolling actors into the network (Callon 1999). In all three cases, such enrolment was undertaken by a different actor. In the case of Chile [C2] and Ireland, [I2], the role of prime mover shifted from parents to university staff, who took up the roles of developing and delivering the training within the programmes. For the programme in Australia [A2], the role of prime mover shifted from parents to the not-for-profit organisation in partnership with universities that are registered training organisations.

This is a critical divergence between the Chile and Ireland networks, on one hand, and the Australian network on the other. As shown in Chile and Ireland, there is no mistaking the importance of pre-existing university

networks [C3, I3] as a contributor to programme longevity. These universities were already well-established and organised networks offering other programmes in ways that were 'business as usual'. Collaborations between staff were already ongoing, finance directors were already 'doing' finance, programme directors were already driving programmes, classrooms were already reasonably equipped and simply in need of adjustments. Additionally, the reputation to garner support for longer-term funding of the programme had been established, and institutional guidelines, safeguards and know-how to deliver the programme in a manner that aligns with regulatory requirements were already in place. Presumably these conditions were then enriched to accommodate the new programme. This is not to say that all new programmes must be offered by university networks alone; what we seek to point out is that a critical mass of pre-existing network relationships between well-defined roles, already operating in a coherent and collaborative manner, appears to be an advantage.

The Australian case took a different direction [A3]. The not-for-profit also enrolled facilitators, educational specialists, and a university venue, but these were drawn from separate pre-existing networks. To design the programme, educational specialists were hired from one university to design the programme. To house the programme, another university was recruited as a partner. Facilitators were then employed by the not-for-profit organisation from various sources, and were not from staff of a single university. The not-for-profit itself was a small, new, and streamlined organisation which did not have significant capability in training and education. Turnover was rapid and the core of employees did not at any point stabilise. Thus the prime mover held together a tenuous web of actors who did fill education-related roles, but much more work had to be done to achieve coherence among these independent parties. Convergence was not, and is still not, organic and continues to be an issue.

In terms of sustainability, actors beyond programme design and delivery had to be considered across all programmes. Donors and business partners are pre-requisites for programme survival, along with sufficient scholarships to subsidise and enable students to attend the programmes. The Chile network [C4] enrolled funding support from private organisations, prospective employers and from university investment income. The Ireland network [I4] also drew primarily from charitable organisations. The continuity of such funding depended on programme credibility, which could be demonstrated in a number of ways, not least being the alignment of key programme standards to a credible external benchmark.

The curriculum taught in Chile and Ireland, which do not depend on government funding, are nevertheless aligned to national qualification frameworks of the respective countries. In the case of Chile [C5], programme completion leads to a university certification called a Diploma in Labour

Skills, thus it is linked to a university credential, with the university being an institution regulated by the Chilean government. In the case of Ireland [15], the programme is aligned with Level five on the Ireland's National Framework of Qualifications or NFQ. These forms of official recognition, which can be reassuring to applicants and their guardians, have the capacity to enhance the longer-term sustainability of each of the programmes.

The sustainability of the Chile and Ireland programmes are evident in different ways. For Chile, the programme is now offered across multiple campuses, indicating that a single original network became sufficiently stable to the point that it could be replicated successfully in other sites. The sustainability of the programme in Ireland, while undoubtedly also dependent on ongoing support from the university, is also strongly linked to the web of external networks that they have developed around the programme. This web of networks, comprising business partners, disability advocacy groups, celebrity ambassadors and charitable organisations, functions to support the programme, to promote disability awareness, and advocate for more inclusive practices in higher education settings and work places in Ireland. Chile's sustainability has been evidenced by replication in multiple networks within the university; Ireland's through layering across multiple networks outside of the university.

The sustainability of the Australian network remains ambiguous. The Australian programme did not, at the time of study, enrol charitable organisations. Instead it enrolled government organisations and, subsequently, government funding to pilot and implement the programme. Students who participate in the programme draw from their personal National Disability Insurance Scheme fund [A4]. The former (government funding) is highly volatile; the latter (NDIS funding) might have more potential for stability. But to sustain funding from each of these sources, it would be critical to demonstrate that the Australian programme is benchmarked against credible external standards. At present, there is limited evidence to demonstrate such alignment [A5]. The programme was designed with some reference to the Australian Qualifications Framework (AQF) which is the national policy for regulated qualifications. However, the AQF criteria for different levels of qualifications was eventually not incorporated (meaning the students completing the programme do not get a qualification that officially aligns with AQF standards). We perceive this lack of external benchmarking as a key programme vulnerability.

It is worth noting that that unlike the Chile and Ireland programmes, the Education to Work training programme in Australia is still young and in its formative stages of development and it would be premature to state with certainty what its sustaining networks might be. Reputationally, while the not-for-profit organization has a long-standing and strong reputation for conducting activities for young adults with Down syndrome for more than a decade, its reputation for training and supporting individuals with Down syndrome interested in getting longer-term employment is still a work in progress.

A final point concerns the degree of inclusion across the university settings. Three models of postsecondary education for students with intellectually impairments exist: substantially separate, mixed or hybrid, and totally inclusive (Hart et al. 2006). Each offers a distinct approach to assisting students with their academic and social goals. In a substantially separate model, educational curricula and training are specifically designed for these students rather than integrating them into existing mainstream university courses. The mixed or hybrid models involve students with intellectual impairments participating in social and academic activities with peers with and without disabilities, while the inclusive individual support model offers customised services that prioritise each student's goals and aspirations.

Australia approximates the substantially separate model, the programmes in Chile and Ireland however, challenged the neatness of Hart and colleagues' (2006) proposed categories. In Chile, while students in the Diploma programme have an academic curriculum specifically designed for them, they participate with regular students in all the extracurricular activities that the University offers. When they show interest and abilities for a subject they join in classes that are attended by mainstream students. For example, the programme has had students attend mainstream Graphic Design, Art History and Computer Science courses in careers such as Advertising. It approximates to a person-centred, personalized educational model. Similarly, TCPID in Ireland has designed bespoke person-centred programmes that address the educational challenges a student might be facing. Presently, TCPID is developing co-learning modules with Schools across Trinity College Dublin for their students who have established substantial social links through participation in the university clubs and societies. Gradually, these different elements of the programme are evolving to incorporate student choice and outreach to other academic activities.

Conclusion

Earlier we noted the scarcity of research reporting on how universities navigate the early stages of development and establishment (Bumble et al., 2019) of programmes for individuals living with intellectual impairment. Through the use of ANT, our study has attempted to fill this gap, by identifying the different developing and sustaining human and non-human networks involved in the different stages of three such programmes located in universities in Chile, Ireland and Australia. More research is still needed to develop an in-depth understanding of the networks needed to support the inclusion of individuals with intellectual impairments in higher education settings, how these networks might vary across different countries and what kinds of human and non-human resources are needed to promote their development and sustainability.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Ethics

The study was conducted according to the guidelines of the National Statement on Ethical Conduct in Human Research and approved by the Human Research Ethics Committee (HREC) at Torrens University Australia (HREC-0131).

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