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Exploring the journey towards belonging: A collaborative autoethnographic study of educational stakeholders in a virtual learning environment using actor-network theory

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Abstract

This study delves into the experiences of an educator, a learning support assistant, and two parents, as they navigated a virtual learning environment and strove to establish their sense of belonging. During the unprecedented Covid-19 pandemic, this collaborative autoethnographic research sheds light on the collective first-hand encounters of these stakeholders entering the virtual learning space in a vocational education setting in Malta.

The study unveils, through three themes, the intricate relationships and connections underlying the stakeholders' experiences by applying actor-network theory to the analysis. First, the study reveals the initial feelings of alienation and isolation experienced by all of the actors during the transition to the virtual learning environment. These challenges resulted in a loss of power and a sense of disconnection. However, these negative experiences also catalysed the individuals to seek a sense of belonging, recognising it as an emotional need for connection. Intrinsic motivation drove the individuals to rebuild networks, acquire new skills, and form alliances.

The second theme focuses on the barriers and opportunities encountered throughout the journey towards a sense of belonging. Despite the common challenges, the actors exhibited resilience, adaptability, and self-assurance, overcoming

these barriers. They discovered newfound strengths within themselves and embraced change as an opportunity for personal growth and innovation. Collaboration and seeking support from others within the virtual learning environment proved instrumental in overcoming the challenges and fostering a sense of belonging.

The final theme highlights the emergence of an inner sense of connection and an external sense of belonging through the actors' engagement within the virtual learning environment. Meaningful relationships and deeper levels of engagement created emotional connections and fostered a sense of fulfilment and belonging. The commitment of the educator and learning support assistant to engage actively with students and parents played a pivotal role in constructing a network that facilitated a sense of belonging for all participants. By employing actor-network theory, this study offers a nuanced understanding of the multi-faceted dynamics within the virtual learning environment. It goes beyond a simplistic examination of individual experiences and explores the entanglement of human and non-human actors, emphasising the relational nature of belonging. This approach allows for a comprehensive analysis of the complex socio-technical networks that influence the stakeholders' journeys towards belonging, providing valuable insights for educators, supporting staff, policymakers, and researchers in understanding, and enhancing virtual learning experiences. This paper aims to reach a diverse audience, including parents or caregivers supporting students as they embark on a virtual educational journey. It seeks to provide a compelling account of the significant role of a sense of belonging in education through storytelling. By presenting a narrative approach, the paper offers a relatable and engaging perspective that resonates with parents and caregivers, helping them grasp the importance of fostering a sense of belonging in the virtual learning environment.

1. Introduction

The global impact of the Covid-19 pandemic on education was significant, requiring teachers accustomed to traditional classroom instruction to transition into the realm of virtual teaching (Hashimoto, 2021). The sudden shift to online learning, driven by government mandates, raised concerns among educators about the quality of pedagogy (Vu & Bui, 2021). Consequently, adopting new teaching methods led to struggles and challenges for educators, both technically and emotionally, leading to frustration and emotional distress (Arumugam et al., 2021). Similarly, students also encountered difficulties that resulted in emotional stress and frustration (Dutta & Smita, 2020; Wang et al., 2020).

A sense of belonging refers to the personal experience of being accepted, involved, and connected to a community or place (Scholtes, Hout, & Koppen, 2016). This concept aligns with Maslow's hierarchy of needs, recognising the importance of feeling accepted as a fundamental aspect of societal integration, evoking deep emotional responses (Maslow, 1964). In the realm of education, the student's sense of belonging has been identified as crucial for academic success, fostering self-confidence and self-efficacy, and leading to personal growth (Peacock & Cowan, 2019). While research on the student's sense of belonging has been extensively explored in educational contexts, limited studies have focused on the sense of belonging experienced by teachers (Kachchhap & Horo, 2021; Yim & Hwang, 2019). However, since the sudden transition to online teaching prompted by the Covid-19 pandemic, there has been an increasing number of first-hand accounts from teachers sharing their experiences with the shift (Al-Ali, 2022; Hashimoto, 2021; Makwembere, Matarirano & Jere, 2021; Nachatar Singh & Chowdhury, 2021). Additionally, editorial commentaries have emerged dedicated to examining educational changes during the pandemic (Bligh et al., 2022). While the topic of a sense of belonging remains crucial for investigation within the academic field, the focus has shifted to encompass the experiences and perspectives of teachers as they adapt to online teaching methodologies.

Nevertheless, there is still a dearth of research exploring diverse first-hand experiences of transitioning to online platforms and the implications for establishing a sense of belonging within virtual learning environments after such a rapid shift. Furthermore, educators, support staff and parents, who play crucial roles in facilitating learning, deserve more attention within the academic field. Their contributions support student growth and enhance their educational experiences. Therefore, a comprehensive understanding of their holistic experiences can significantly contribute to educational practices and student education.

In this research, a collaborative autoethnographic approach is utilised to chronicle the experiences of four individuals: an educator, a learning support assistant, and two parents of students enrolled in a vocational education setting in Malta. What unites these individuals is their shared journeys of transitioning to a virtual learning environment for the first time due to the Covid-19 pandemic. To provide context, the educator was the individual teaching within the virtual learning environment, while the learning support assistant provided support by participating in specific lessons and offering one-on-one sessions to students requiring extra help. Concurrently, the parents undertook the role typically fulfilled by the learning support assistant in a school setting,

assisting the students along their virtual journeys at home. As a result, this study's primary objective is to examine these individuals' distinctive experiences to determine if they could foster a sense of belonging within a virtual environment. Additionally, the study aims to identify the factors and experiences that contributed to developing this sense of belonging. This collaborative autoethnography adopts a multivocal approach, utilising self-reflective narratives to share personal stories and gain a deeper understanding of cultivating a sense of belonging. The focus is on comprehending the challenges and opportunities encountered during this transformative journey, which may have promoted well-being and thriving in the virtual learning environment. All four individuals engage in a collective inquiry process within this collaborative autoethnography, contributing their personal narratives to provide a shared experience. While the primary researcher (the educator) conducts the data analysis and interpretation based on her expertise in qualitative research, member checking is performed to ensure the satisfaction and agreement of all participants with the interpretations. Therefore, all individuals are involved in the discussion of the results.

Collectively, the individuals vividly depict their journeys of transitioning to the virtual learning environment, highlighting the challenges and opportunities encountered. By sharing these unique experiences, the aim is to assist other educational stakeholders in comprehending the intricacies and complexities inherent in this process. This understanding can empower them to provide support and guidance based on a comprehensive appreciation of these experiences.

This study was designed to capture evocative narratives from the diverse stakeholders within and surrounding the educational system who were all new to their roles in the virtual learning environment. The primary objectives were to shed light on the transitional experience of adapting to a virtual environment and to explore the nature of a developing sense of belonging within this virtual space. To achieve these goals, the following research questions were addressed.

- RQ 1: What are the holistic experiences involved in transitioning to a virtual learning environment?
- RQ 2: How did the development of a sense of belonging within a virtual learning environment relate to the experiences that contributed to the formation of that sense of belonging?
- RQ 3: How did this experience influence the role, the relationships with others, and the potential transfer of a sense of belonging to others?

Applying autoethnography as a research methodology offers a relatable and comprehensive approach incorporating insightful perspectives (Ellis & Adams, 2014). By utilising personal vignettes from potentially overlooked stakeholders, this study aims to capture their experiences during the transition to a virtual learning environment and identify nuanced factors contributing to developing a sense of belonging. This research is fundamental in technology-enhanced learning, as there is a lack of existing literature in this area. Emphasising the significance of personal experiences, each individual contributing to this study provides subjective reflections highlighting their unique positions and personal involvement within their cultural, social, and emotional contexts. This aligns with the autoethnographic methodology, which aims to provide a deep understanding of individual experiences. Such an approach facilitates audience engagement with these personal stories within a sociocultural context, encouraging personal reflection (Chang, 2016).

The study drew upon Actor-Network Theory (ANT) due to its practical applicability in understanding the roles of actors (participants) concerning technology (Fenwick & Edwards, 2010), specifically within the context of a virtual learning environment. The aim was to explore whether a sense of belonging was achieved through the network (the virtual learning environment). Actor-Network Theory conceptualises the world as networks, with actors (human and non-human) integral components of these networks (Cresswell, Worth, & Sheikh, 2010). This theory offered a promising framework for examining interactions between actors and the influence such interactions have on building a sense of belonging within the network.

In this study, the human actor (the educator, the learning support assistant, and two parents) performed within a smaller scale network, the microsocial network, while the virtual learning environment was a non-human actor that could shape the human actors' behaviour (agency). By utilising ANT, the research sought to investigate and theorise how and whether these human actors within the narrative came to develop a sense of belonging. Additionally, the study aimed to identify common associations and connections that contributed to attaining this sense of belonging.

2. Literature review

Virtual, online-based teaching emerged as a crucial approach during the Covid-19 pandemic, enabling the continuity of education (Hashimoto, 2021; Arumugam et al., 2021; Bligh et al., 2022; Lim, 2021). In the context of Europe, Malta had to adapt swiftly to virtual teaching

methods as the pandemic unfolded. Throughout this period, numerous scholars have undertaken efforts to comprehend the teaching experiences and challenges encountered when transitioning to virtual teaching from home (Hashimoto, 2021; Al-Ali, 2022; Nachatar Singh & Chowdhury, 2021; Gates, Beazley & Davis, 2020).

Although this paper does not aim to comprehensively evaluate the virtual learning experience, it focuses on conducting an in-depth analysis of personal narratives. Drawing upon Actor-Network Theory (ANT), the study explores how a sense of belonging developed for the different stakeholders during the unprepared transition to the virtual learning environment. This study fills a gap in the existing literature, as no prior research has addressed this aspect.

While pre-pandemic research on the sense of belonging predominantly focuses on students, the experiences of other stakeholders have often been overlooked, despite their equal significance. This study aims to fill this gap by investigating whether a sense of belonging was established in a virtual learning environment and the specific experiences that contributed to developing this emotional attachment among individuals supporting students. Furthermore, the study seeks to understand how the transitional experience affected the relationship between these stakeholders and whether they perceived the transferability of a sense of belonging.

2.1 Sense of belonging

According to Anant (1966), a sense of belonging can be defined as an innate requirement to be integral to a social system. Previous studies have provided valuable insights into this emotional need, highlighting the connection between one's sense of connectedness to others and the sense of belonging to specific places, which is central to theories of a sense of belonging (Vandemark, 2007). Maslow (1964) also recognised the importance of belonging as a psychological requirement in his well-known hierarchy of needs. Empirical evidence further supports the view that cultivating a sense of belonging is crucial for our overall well-being (Hagerty & Williams, 1999).

2.2 Sense of belonging in education

In education, a sense of belonging holds great importance as it allows students to feel accepted, valued, and included by their peers and educators, creating a safe and supportive environment for their active participation in class activities (Peacock & Cowan, 2019). Furthermore, this psychological attachment has been found to predict strongly student retention and academic engagement (Brodie &

Osowka, 2021). Before the pandemic, several researchers focused on exploring a sense of belonging in virtual learning environments (Scholtes, Hout & Koppen, 2016; Peacock et al., 2020; Guo & Cheng, 2016; Zhao et al., 2012). These studies revealed how creating a sense of community is crucial for establishing connections among group members (Blanchard & Markus, 2002). Scholtes, Hout, and Koppen (2016) argue that virtual communities can foster emotional connections similar to those found in face-to-face communities, thereby enhancing the deep emotional connection of a sense of belonging. Research into a sense of belonging in virtual learning environments suggests that educators play a significant role in fostering the student's sense of belonging by encouraging active peer engagement, nurturing student-educator connections, and enhancing motivation (Thomas, Herbert & Teras, 2014). Individuals supporting students must be adequately prepared and equipped with distinct skills to support students in virtual learning environments (Brodie & Osowka, 2021). However, to effectively promote students' sense of belonging, these professionals must have cultivated a sense of belonging themselves (Peacock & Cowan, 2019).

2.3 Sense of belonging in virtual learning environments and communities

A virtual community extends beyond mere online interactions, encompassing emotional connections and a shared commitment to being part of a group, leading to a sense of belonging (Blanchard & Markus, 2002). Similar to their traditional counterparts, virtual communities exhibit social processes that foster support, identity formation, and trust, all of which contribute to a sense of community (Scholtes, Hout, & Koppen, 2016). While distinct, the concepts of a sense of community and a sense of belonging are intertwined through the shared emotional need for belongingness, resulting in positive emotional connections (Blanchard & Markus, 2002).

In online spaces where physical presence is absent, cultivating a sense of belonging becomes even more crucial to establish a connection and personal fulfilment (Brodie & Osowka, 2021). Acquiring a sense of belonging is also essential to prevent feelings of alienation and ensure professional success (Exter et al., 2009). Online platforms provide opportunities to foster and empower the students' sense of belonging through adequate support and nurturing relationships (Peacock & Cowan, 2019), as emotional connections are imperative for student achievement (Thomas, Herbert, & Teras, 2014). Despite existing research supporting these claims, limited attention has been given to exploring the experiences of individuals who supported students during

the sudden shift to online learning, particularly regarding their sense of belonging in the virtual space and whether it was transferred between educational stakeholders.

3. Methodology

This study aims to present four educational stakeholders' personal experiences as they rapidly transitioned to the virtual learning environment during the Covid-19 pandemic. By sharing their narratives, encompassing their emotions and feelings, the paper seeks to provide readers with a meaningful account that resonates with their experiences. The research was carried out in two phases: in the first phase, the primary researcher (the educator) collected internal and external data through reflexivity, using artefacts and member-checking to construct a timeline of autobiographical information.

In the study's second phase, the involvement of other individuals who played a direct role in the virtual learning environment was incorporated. The aim was not to include solely the voices of educators but to adopt a multivocal approach by involving various educational stakeholders, thereby capturing a broader range of experiences. In addition to educators, a learning support assistant and two parents were included as participants. These participants were asked to share their personal experiences through reflective writing over two weeks. The collected data were then combined to create a collaborative autoethnography, which offers a holistic account of the experience. This autoethnography approach, including multiple voices, contributes to a deeper understanding of the social context (Chang, Longman, & Franco, 2014).

3.1 Participants

The study involved four participants, each representing a distinct voice. The leading researcher assumed the role of the educator in the autoethnographic storytelling, while the learning support assistant and two parents, referred to as parent 'a' and parent 'b' also participated. All participants identified as Caucasian females and fell within the age range of 35 to 49 years. The recruitment process involved internal sourcing, where the leading researcher sought participants within the same vocational institution for other educational stakeholders. Three learning support assistants were invited to participate through an internal staff email that explained the study's purpose. Only one replied to the email and was willing to participate. On the other hand, the parents were recruited through a third party. The educational institute's student mentor emailed ten parents of past students who

had been in contact with mentors and support assistants during the online learning period (2020-2021). Initially, four parents responded, but ultimately, two parents consented to participate in the study based on the research's nature and high participant involvement. Throughout the study, participant anonymity and the confidentiality of all participants were prioritised.

3.2 Data collection and analysis

The initial phase took place over six weeks between December 2022 to January 2023, during which the main researcher collected data in two ways: through reflexivity, and through artefacts such as work emails and Microsoft Teams chats. Drawing upon the validated autoethnography approach, recollections of events and conversations serve as instrumental data collection (Chang, 2013; Ellis & Adams, 2014). Reflexivity allows the recollect of significant past experiences and epiphanies, making connections to lived experiences. Moreover, analysing electronic exchanges (artefacts) provided valuable insights into the past by allowing access to reflect on conversations with colleagues, and interactions with students and parents, ensuring the data collected from memory were valid (Chang, 2008). Memories related to the transition to virtual teaching resurfacing from reflexivity and through artefacts were placed into a timeline and recollected into proses, which were further corroborated by member checking with colleagues, a process of triangulation to validate the accuracy of discussions (Birt et al., 2016; Candela, 2019; Koelsch, 2013). The study's validity was enhanced through member checking, and potential distortions in the evoked discussions were minimised (Ellis & Adams, 2014). Member checking was conducted by emailing transcripts to colleagues to ensure that the narrative's reconstruction of events accurately reflected our shared experience (Birt et al., 2016). The second phase occurred over four weeks, from February to March 2023. During this phase, data collection involved obtaining written narratives from the participants, which included two parents and a learning support assistant. A meeting was held to guide the participants in collecting the data, where the main researcher explained the writing process and provided writing prompts to initiate autobiographical writing. These prompts were developed by the main researcher according to her data collection timeline, aiming to gain insights into different aspects, such as the participants' initial memories of entering the virtual learning environment, their roles within this environment, and the challenges and opportunities they encountered.

The writing prompts helped the participants, who were not experienced writers, to chronicle their past experiences (Chang, 2008) in manageable tasks. By creating a timeline

of their virtual experience and initiating moments of reflection and realisation (referred to as epiphanies), the prompts allowed the participants to explore their sense of belonging, how it was formed, and how it influenced their roles. The participants were given two weeks to email their narratives back.

Upon receiving the autobiographical writing from the participants, the primary researcher thoroughly examined the documents, meticulously searching for instances and emotions that exhibited various characteristics associated with a sense of belonging. Drawing from the insights of Lambert et al. (2013), these characteristics encompassed emotional connections, encompassing sentiments of connection, acceptance, and inclusion; shared experiences, encapsulating moments where an individual feels understood by others; connections to a virtual community, expressing a sense of belonging to a collective; overcoming challenges and creating opportunities; and lastly, achieving self-awareness, reflecting upon one's own sense of belonging and its implications. Unclear narratives were identified, and the participants were asked to provide further clarification, encouraging them to delve deeper into their experiences and assemble the data into a comprehensive account. Inspired by the concepts of emergence and assemblage, this process aimed to create a multi-layered understanding of the participants' virtual learning experiences (Hughes & Pennington, 2018). The data collection process for the first draft took two weeks, followed by an additional two weeks to complete the second version.

The data analysis employed a thematic analysis approach involving the transcription and coding of the data to identify recurring themes and patterns by examining the coded segments to identify patterns, connections, and recurring ideas, as proposed by Corbin and Strauss (2014). The qualitative data analysis tool Nvivo 12 Plus was utilised to facilitate the coding and organisation of the data by organising coded segments into coherent categories or themes based on their shared characteristics. Through constant comparison and iteration, themes were refined and developed, capturing the essential meanings and patterns within the data. The thematic analysis enabled identifying and interpreting of significant themes derived from the rich data sets. The themes from the analysis represent overarching concepts supported by the actors' narrative writing, providing valuable insights and interpretations of the research phenomenon. To ensure the validity and reliability of the analysis, member checking was conducted by providing the participants with a copy of the final analysis, via email. This step aimed to allow the participants to review the analysis and confirm the accuracy

and representation of their experiences, safeguarding against any misinterpretation or misrepresentation.

3.3 Theoretical approach: Actor-Network Theory

The choice of ANT in this study is based on its epistemological and ontological perspective on forming networks and creating associations (Law, 1992). Actor-network theory applies to understanding the interrelationship between non-human entities and social processes (Cresswell, Worth, & Sheikh, 2010). In the context of this study, ANT is employed to explore how the virtual learning environment contributes to achieving a sense of belonging during emergency remote teaching. ANT's focus on the interactions and relationships between human and non-human actors and their impact on social phenomena (Fenwick & Edwards, 2010) facilitates an analysis of the actor-network involved and how it influences the development of connectedness. Non-human actors encompass the virtual learning platform, technological tools, online resources, and communication channels such as emails and social media.

Within this framework, the human actors represent educators, parents, students, and learning support assistants engaged in the virtual learning environment. Here, ANT examines their interactions and relationship formation within the network. Actor-network theory investigates how these elements shape the interactions and experiences of the human actors.

Analysing the narrative through an ANT lens enables examining the interactions and translations between actors, providing a deeper understanding of how human and non-human actors influence each other, negotiate meanings, and shape network dynamics impacting the sense of belonging. The study uncovers the intricate web of relationships, power dynamics, and socio-technical factors at play by applying ANT to comprehend the virtual learning environment's role in fostering a sense of belonging. This analysis helps reveal how human and non-human actors collaborate or hinder each other in nurturing a sense of belonging during emergency remote teaching, which constitutes the primary objective of this study.

3.4 Ethical issues

Ethical approval was diligently pursued and officially granted by the Malta College for Art, Science and Technology, providing the necessary authorisation. Given that this study utilised a collaborative autoethnography as a research method, meticulous attention was devoted to upholding ethical standards to safeguard the well-being and rights of

all participants involved. Anonymity was maintained for all recollected conversations, and the utmost confidentiality was sustained throughout the study.

4. Findings

The following collection of narrative writings explores the lived experiences of four individuals who transitioned to the virtual learning environment from March 2020 to June 2021. These autoethnographic accounts authentically capture the real-life experiences of the participants as they unfolded in their respective contexts. By employing first-hand narratives, this study emphasises the subjective perspectives of the individuals, highlighting their unique encounters and personal reflections during the transition to the virtual learning environment. This is their story.

4.1 Experience 1: The educator

I vividly recall that gloomy Wednesday of March 18th, 2020, when my colleague informed me about a circular received. It stated that starting the next day, we were required to stay at home due to a legal notice issued the previous day. The email specifically instructed staff and students not to come to campus until further notice and advised us to explore online learning options. I was instantly hit by a mix of emotions, considering the local rise in Covid-19 cases, the lockdowns happening in other countries and my lack of experience teaching virtually. We were completely unprepared and had never discussed contingency plans for such a situation. Hastily, I began packing some notes, unsure how long this situation would last. Would it be a week? Maybe two?

Lessons were cancelled for the rest of the week, leaving us in a state of uncertainty. Unsure of what to do and how long the campus closure would last, I anxiously awaited further instructions through email. After three days of research, I decided to set up Microsoft Teams for all my classes and emailed students, instructing them to join Teams according to their timetable for virtual learning. The following Monday marked the beginning of my first virtual lectures. Attendance was low during the first week, likely due to the lack of training for both staff and students. However, since we had access to Microsoft Outlook and Teams, I utilised these platforms to connect with students.

On March 25th, we received instructions to encourage lecturers to conduct virtual lectures and live training webinars were offered. Printable walkthroughs for the online platform were also provided, which motivated me to further improve my virtual teaching methods.

Lecturers adopted different approaches during the semester. Some chose to pre-record asynchronous lectures, while others conducted real-time lectures. Some did not provide lectures but offered notes and communicated through email. In the initial month, some students were absent, so I collaborated with student mentors to investigate why they were absent. Prior to the pandemic, I had never relied on student mentors, but their roles became crucial as they had personal connections with students. Students were more accustomed to seeking academic support from mentors or learning support assistants if they had one assigned to them, rather than educators. The primary challenges students faced were limited resources and a lack of internet access at home. The college provided assistance by allocating resources to those in need, and the Ministry for Education and Employment in Malta offered free internet and laptops to students (Abela, 2020).

The initial weeks were overwhelming, with students reaching out through platforms like Teams messaging, class page posts, personal and college emails, and even my private Facebook messages. Since most students were unfamiliar with Teams and online learning, I made a detailed email with step-by-step images explaining how to access Teams through links. However, students would still email me during lectures, constantly asking for the link, which required me to monitor multiple platforms simultaneously. The line between work and home became blurred while working from home, making it difficult to differentiate between them. I would change into work clothes to create some semblance of normalcy, but the entire day felt like an anomaly. Despite having scheduled lectures, students would message me throughout the day, including at weekends, creating a heavy workload. They didn't respect my personal time and would even message me after hours, expecting immediate support. The queries ranged from simple to complex, and I felt overwhelmed by the constant overlap of work and personal time.

My department solely conducted formal online meetings throughout the year and a half. Consequently, I felt disconnected from my educator colleagues and lost a sense of belonging to the larger community. The transition to virtual teaching increased our workload and limited opportunities for online discussions and collaboration among staff, leading to a lack of teamwork. Unlike other educators who could collaborate with colleagues teaching the same subjects, I worked alone from home, feeling mentally isolated. The lack of communication between educators was frustrating, especially during the initial months of virtual learning, when some continued with synchronous lectures while others did not. This inconsistency in platforms confused students.

I established a routine throughout the academic year and grew confident in the online learning environment. Gradually, more students joined the synchronous virtual lectures, with mentors identifying those needing support and learning assistants providing one-on-one assistance. The virtual setting differed from traditional classrooms, offering fewer distractions and enhanced focus. Most students kept their cameras off, creating a sense of solitude. I aimed to avoid making students uncomfortable, especially considering their home situations. Through students' emails, I learned about their hardships and gained insight into their struggles, which are typically hidden from me.

Additionally, I received emails from concerned parents shedding light on their children's struggles and inquiring about ways they could support them at home. I was made aware that some students shared computers with siblings, while others had to take care of younger siblings in the absence of parents or closed childcare centres. Some students who were young parents themselves had to balance their own education with homeschooling their children. Knowing these challenges made me empathetic to their situation, which made me adapt my teaching style, and the students' parents also took on the role of learning support assistants at home. One adaptation I made was recording my live sessions, which was crucial for some students that could not attend in real-time, where I encouraged them to email any questions or difficulties they faced after viewing the recording. Such adaptations increased my workload; however, I felt I was accommodating those in need. I used prompts to facilitate discussions during synchronised lessons, fostering active participation and breaking the monotony. However, I was aware that some students couldn't use their microphones due to background noise or family conflicts. Occasionally, when a student's microphone was left on by mistake, I overheard concerned parents encouraging their children to ask questions or seek clarification, so, after each lesson, I gave extra time for individual questions in a supportive and inclusive environment that often included parents attending. Understanding students' issues brought me closer to them and transitioned my role to that of mentor as I offered guidance on balancing their time for personal [needs] and studying. Throughout this journey, my role changed as I began providing guidance to students and parents beyond the classroom, feeling compelled to support them in any way I could as I shared their struggles. My commitment to the virtual environment heightened as my self-efficacy in using technology to teach progressed, boosting my self-confidence, which encompassed my belief in myself and developed heightened self-esteem.

Despite my initial concerns about technical issues and the lack of IT support, I rarely encountered problems. However, students in households with multiple internet users often

experienced difficulties with connectivity and speed. I found the Teams platform user-friendly and valuable for sharing notes, distributing and collecting assignments, and providing explanations. Breakout rooms allowed for more minor group work, which proved essential for student collaboration and connection. The chat feature fostered a collaborative environment, giving a voice to students who couldn't use their microphones. Unlike verbal feedback in the classroom, the platform also facilitated reflective feedback for students.

Additionally, I appreciated the paperless aspect of online teaching, realising how much we saved. As the academic year ended, I felt relieved and proud of my adaptability. The pandemic compelled me to transition to virtual teaching, and the experience bolstered my self-esteem and confidence in using technology for instruction.

Returning in October 2020, we were informed that the whole year would be virtual. Adapting was much easier, as we had straightforward guidelines for consistent platform usage, and students were told beforehand that lectures would take place online. This time, I felt more confident and easily welcomed the students to their virtual journey. I knew what to expect and embraced students with icebreakers to form a trustworthy relationship. This tactic worked well and aided students in building confidence for most of them to turn on their cameras and participate actively in discussions, forming a tutor-learner relationship. I found that working from home without distractions and commuting time allowed me to create higher-quality course content. Although I didn't meet students in person, frequent emails helped me better understand them. My experience as an online PhD student and researching technology-enhanced learning enabled me to anticipate and address potential student problems and facilitate virtual interactions. I felt fortunate to be in the right situation at the right time. Still, my relationship with colleagues suffered, and I felt more like a contract worker than a valued department member. Our only means of communication was a Facebook chat, which was a substitute for a staff room. Newly added lecturers joined the team without meeting them, so the chat became primarily a platform for their queries. Despite these challenges, working from home proved surprisingly efficient. Balancing my roles as a full-time lecturer and PhD student, I scheduled my life around my teaching commitments and allocated time for PhD work. Daily walks and efficient use of the time saved from commuting contributed to a harmonious work environment at home. While my colleagues struggled with distractions, I was fortunate not to have young children and enjoyed the company of my cats in my home office.

On September 27th, 2021, I reluctantly returned to campus after a year and a half of remote teaching. Instead of feeling happy, I found myself dreading the transition. I realised that I had become accustomed to working in solitude and found this method more personal. The overwhelming experience of meeting colleagues and welcoming students back on campus and in class felt tiresome. Surprisingly, after a month of teaching in person, I began to long for the virtual environment. The bustling campus and staffroom no longer held the appeal they once did. I felt profoundly disenchanted within the classroom setting and longed to be immersed in the virtual community, where I could find solace at my desk in the serene atmosphere of my apartment. In that virtual space, free from distractions, I cherished the opportunity to engage solely with my own voice and the presence of the students on my laptop.

4.2 Experience 2: The learning support assistant

When we shifted online, my role in supporting students moved to the virtual classroom, which was a positive experience overall. The transition was rapid, and I was unsure how I would effectively support my assigned students in a virtual classroom, which made me feel alone and stranded for a while. Admittedly I caught on relatively quickly and rebuilt a relationship following the lecturer's switch to online teaching. Even from my first encounter in the online session, I found that I could relate more to my students personally as I got more involved with their home and academic life. I supported my assigned students by being there in their online lessons and allocated one-to-one sessions to discuss any difficulties or queries they had. Although the pandemic significantly impacted my personal life, within these virtual rooms held for students one-to-one, I could address student questions, coach students through assignments and get to know their struggles without distractions. This gave me a distraction from the reality of the pandemic, and their struggles at home gave me the strength to be there for them.

I also noticed that students who would not regularly attend the one-to-ones when we were on campus started attending when I enquired why they said they were not scrutinised by their peers within the virtual walls. This environment protected their privacy, and they were free to seek help. When I had queries that needed to be addressed by lecturers, I could get hold of them quickly with a press of a button. I could send an email beforehand, but the reply time was tremendously longer. During the pandemic, we were all connected. All staff were online during working hours, so everyone had their applications on, and we were effective as a team.

Over the months that proceeded, students' parents would pop in at the one-to-one meetings to ask questions about their child's progress, whereas, before the online transition, parent meetings had to be planned that would prove very time-consuming due to their working hours. In the virtual setting, parents could just come in during the remaining time scheduled for their child, and it seemed less formal and more like a normal conversation. I noticed how parents became more trusting of me. The parents and students shared more sensitive information, as the virtual setting provided a safe haven, and they (and I) felt safe discussing sensitive matters within our own room (virtual). During this time, I feel parents got more involved. They had direct access.

In this new situation of working online, I had students reaching out and needing more help. I tried to be as flexible as possible and even scheduled the one-to-one sessions late in the afternoon. The freedom to plan and make a timetable to accommodate students benefited students. Obviously, I did encounter challenges working virtually. Accessibility was profound, and I had constant contact, which was convenient, but it also proved problematic at times as some students had no boundaries and expected a response immediately. This was very frustrating at times, making me feel run down. Especially when we had just started lockdown, and the virtual classroom was still new, I worked throughout the Easter holidays to help with due dates so students were prepared and at ease. However, I felt needed and integral like never before.

I felt very connected to the students in the virtual classroom, and I also think that it allowed the students to have insight that we also have a family and that we also struggled to transition online. The occasional interruption or lack of internet humanised the situation, but we consolidated each other as we saw each other in our environment. Even the small things helped ease the tension, like a feline strolling across a screen. We saw each other in a different light. These disturbances eased the strain on occasion and helped the learner to be less stressed.

Working within the virtual classroom benefited my students who struggled academically, and we formed a trusting relationship like no other I had ever experienced. Unquestionably, the bond matured as we were within a different environment. Students felt safe at home, and I recognised how the students and parents felt safe with me. They saw me for what I was, a woman working from her kitchen table there to help them.

4.3 Experience 3: Parent 'a'

My first time entering an online classroom was during the first lockdown in April 2020. I had to quit my full-time job to stay home and support my son, who suffers from an intellectual disability, so I could not leave him alone in a new learning environment. I needed to support and help him figure out the online situation. When he attended school, he had a learning support assistant to support his needs; however, as he was not in class, I needed to support him, especially during the online lessons that were a new experience for him and a unique experience for me.

For the first online lesson, and all throughout that week, I was pretty frustrated. We were not prepared. I was not ready for this situation. I was unfamiliar with the platform Teams (Microsoft) and had little experience with online meetings. Furthermore, our environment setup was inadequate as the internet kept crashing because the internet speed was not intended for that capacity of use.

Mentally I had to prepare my son for something which even I did not know how to handle, but I was sincere with my son as we started a new experience together.

We encountered several challenges as the transition was quick, and we had little time to prepare. In our household, we had another family member, my daughter, who was doing online lectures and studying for a degree, so the internet connection kept disconnecting, which was very frustrating. I quickly decided to set up our WiFi better to suit our new needs. We also had to purchase another laptop since the other two were already being used, and the sound was a major issue, as we had never had much use of the sound, where now it was critical for learning.

Another challenge was that we lived in an apartment and could hear each other from one room to another. My daughter had lectures all day, and the droning sound could be heard in the next room. We had not yet invested in headsets, as we did not know how long this would keep up, and I did not want to invest too much money in something temporary. This created some concentration issues for my son, and as a parent without the right skills to support a student with learning disabilities and in such a unique situation, I felt helpless and unequipped because I could not come up with proper solutions promptly.

Looking back, on the positive side, I got to know precisely what my son was learning, and I knew how to help him prepare for assignments as I was present in the classroom, as before, I was never sure what the teachers expected of him by just reading the assignment brief. Being able to help my

son with these assignments made me feel needed and better equipped to help him. However, on the other hand, my son was becoming very dependent on me and missing out on normality, like time with his peers and the social aspect of the classroom environment, so I was worried about that aspect.

I did get into a routine when I supported my son online. We were like a team. We had no rush in the morning to get out of the house and get to our job and school on time, and I quickly forgot the frustration that traffic once caused me. One of my fond memories is having breakfast together as a family and spending more time together at home.

Being part of my son's virtual journey was fun, and the teachers made the learning activities enjoyable and integrative. I guess they had training for such virtual teaching, as I would have presumed that we would just listen as the teachers talked. As I had emailed them beforehand, the teachers knew I was present for the lessons. I explained how I needed to be there to assist my son. All throughout, I never felt uninvited. My son enjoyed participating in the virtual lessons for the most part, as I felt that some topics were not practical and even irrelevant to the course he was undertaking, but I never felt we were missing out on the learning.

At one point, I felt that I had lost my sense of belonging since I had to quit my job and had uncertainties with the ongoing pandemic. Moreover, the exposure to social media showing the global death tolls made me uneasy and upset. I had to portray that I was fine for my children, but I was scared and unsure if we would pull through financially and physically. I felt that I had lost my purpose in life, but being part of my son's learning journey made me feel that I was valuable, needed and integral to my son's learning experience. Moreover, some teachers included me in class group work where my son and I were paired with other students. Being his support system gave me a role and something to do during the pandemic. Over time I felt part of the (virtual) classroom, especially when I noticed that my son was losing interest in logging in to the Teams after some time. It was up to me to encourage him, although I felt he was becoming very dependent on me; that worried me as it defeated my lifelong perseverance in supporting him so that he could become an independent adult one day.

4.4 Experience 4: Parent 'b'

The transition from the classroom to the online environment was very smooth. It happened when my son was just starting higher education. Throughout compulsory school, he always found the physical classroom challenging and overwhelming due to his condition. The sensory overload was tough for him to handle. Once classes moved online, he did not have

to deal with this since, most of the time, only one person spoke at once. Following online classes was, therefore, more relaxing for him, which had a ripple effect on the rest of the family.

When my son enrolled for the course, we were informed that there was a possibility that the course may be delivered online if the government insisted schools remain virtual. This was in October 2020, and as a teacher myself, this was the situation I was also facing. We had a whole summer of the impending unknown of whether we would go back to the classroom. I had already spent a few months teaching online; however, now I would need to juggle my role as an online teacher and a supporting mother to my son simultaneously.

I started the scholastic year online in September, and my son in early October, but we had already been somewhat prepared. I had been teaching online for the past six months, and my son had been learning the drums online, as his tutor had previously moved to Spain. My transition was very smooth, and as a family, we tried to create a more conducive environment for learning. This included several 'rules' such as creating working spaces for us both. I could only be present for his online classes when I was not online myself, as I had my own lessons to deliver. We, therefore, worked in two different rooms. My son's room was the study, and he could not join lessons from the bedroom. Instead, he had to follow the usual 'school routine', including showering and having breakfast before classes started. The space and routine helped create a system that provided us with a private area to teach and learn. Previously, I shifted all my lessons entirely online within less than a week of the school's closing. I was determined to make it work for my students preparing to sit for the A-level. Starting the scholastic year online gave me a mixed sense of relief, knowing that we were not exposed to the virus; however, it was somewhat difficult to connect with the students.

The first few weeks were particularly challenging since we were all dealing with many changes. For the first time in thirteen years, my son was in a classroom (virtual) without a learning support assistant. However, the fact that we were both at home and he is an only child meant we had a lot of time to work together on settling down and getting used to the new learning system. My son has always responded well to me, supporting him. However, the online system meant that he became an increasingly independent learner since it was easier for him to focus on the content of each lecture. Although I couldn't be present during his lessons, the space made him more responsible for his learning. My role in supporting him primarily involved mentorship with issues such as organisational skills, motivation and study skills. Ensuring he had access to all the necessary resources was also essential. This included having the right technology and spaces for his performing arts lesson. This

involved clearing out parts of our living spaces to ensure that he could work and ensure our family's privacy was respected. Another difficulty was getting used to the online learning system each lecturer would adopt, as not all lecturers used the same online platform, which was frustrating. Admittedly, most made following online lectures easy to follow and engaging. However, changing from one platform to another was difficult to adapt to.

At one point, perhaps the most considerable help to me came when lectures started to be recorded, recording all the tasks and assignment explanations. This helped me as a parent to help my son review the content. Although I had no clue how specific software worked, I could help him relisten to the lecture and complete the task. Moreover, the transcription of the lecture was also extremely helpful. This is especially important for students who are not aural learners but visual ones and when the lecture involves a degree of detail. It was much easier for me to follow the lecture this way and ensure the task was completed accurately. I think it would have been challenging to complete the unit without this technology. The chat function also made it much easier for me to follow the homework tasks given to my son. Sometimes, these may be missed in a classroom context if they are passed on verbally.

Furthermore, lecturers shared much more online since they were already connected. This included the sharing of presentations and links to relevant sites. My role throughout all this was not new. I have always supported my son's learning throughout his school years. This has been particularly important in providing the proper questioning to ensure understanding and internalisation has taken place. I feel the technology helped my son to refer to shared material. This helped him to rely less on me for support. However, understanding topics that were discussed enabled me to stretch his understanding further by linking to specific areas of his interest and directing his reading to make the content more tangible and applicable to him.

Having my own online classes as a teacher did not allow me to be present in my son's virtual class for the most part. Moreover, I did not feel this would have been the right approach for my son and the lecturer. I would not have sat in a physical classroom and therefore did not feel it was appropriate to do that online. However, it was easier for my son to share his experiences and learning immediately at the end of the lesson, and thus I felt connected with what he was learning, but I could only rely on him for this to happen since I was not experiencing the lectures first-hand. This was important for me as a parent as I have always felt that my duty is to ensure that my son has learnt and internalised the content and becomes an increasingly independent learner. I feel that online lectures

have helped him to achieve this, and he has consistently weaned off support since the start of his studies.

My connection and belongingness with the virtual classroom and digital technology resulted from my son's learning and direct experience teaching. I needed to use the virtual classroom as a learning platform to teach my students. Over time, it became increasingly important to manage personal spaces and time. This is because I had to give online lessons myself for a whole scholastic year and a half, which was generally a very positive experience that opened up an opportunity for me to prepare my son for online learning. These lessons have been fruitful and allowed me to explore various online opportunities. The fact that I did not waste time commuting and not having to navigate in traffic allowed me to focus on the task at hand much quicker in class (virtual) and with a more relaxed frame of mind.

Balancing my role as an online educator and parent to an online student was a steep learning curve since we had to learn how to use the new software and create engaging lessons using this software at the same time. Luckily my classes were very small, and engaging with them individually and developing meaningful relationships was possible. Overall, I feel this experience allowed me to be in a better position to support my son since we were in the same boat.

5. Discussion

This study offers comprehensive insights into how different educational stakeholders, the educator, a learning support assistant, and two parents, experienced a sense of belonging in a virtual learning environment and how this sense of belonging influenced their respective roles. Using ANT as a theoretical orientation, the study identified various factors related to lived experiences of adapting to the virtual learning environment and their impact on establishing a sense of belonging within this network. The analysis revealed that all four individuals developed a sense of connectedness through their unique roles. The analysis identified three general themes that address the three research questions posed in this study. (Refer to Section 1 for the research questions.)

The themes were:

1. Alienation before the belonging.
2. Barriers and opportunities leading to a sense of belonging.
3. An inner sense of connection leading to an external sense of belonging.

Theme 1, 'Alienation before the belonging', offers a comprehensive understanding of the process of transitioning into a virtual learning environment. It elucidates the journey from initial feelings of alienation and negativity to the pursuit of a sense of belonging, the restoration of empowerment, and adjustment through intrinsic motivation and psychological aspects. This theme also underscores the vital role of relationships, effective communication, and personal growth during this transformational phase. Consequently, it effectively addresses RQ 1: What are the holistic experiences involved in transitioning to a virtual learning environment?

Theme 2, aptly titled 'Barriers and opportunities leading to a sense of belonging', provides a response to RQ2: How did the development of a sense of belonging within a virtual learning environment relate to the experiences that contributed to the formation of that sense of belonging? This theme delves into the challenges and prospects that contributed to the establishment of belonging, shedding light on how shared obstacles, the ability to surmount hurdles, and self-assurance played pivotal roles. Furthermore, it acknowledges the complexities of maintaining a community of practice and underscores the indispensability of transparent communication. The paragraph also extends recommendations for prospective research, identifying potential areas for further exploration into the intricate dynamics of virtual learning environments.

Theme 3, 'An inner sense of connection leading to an external sense of belonging', delves into the impact of this experience on roles, interpersonal associations, and the potential diffusion of a sense of belonging within the virtual learning domain. It accentuates the importance of fostering profound connections, the role of unwavering dedication, and the affirmative influence of utilising the virtual space for cooperative endeavours. Thus, it effectively addresses RQ3: How did this experience influence the role, the relationships with others, and the potential transfer of a sense of belonging to others? The paragraph concludes by proffering practical recommendations to enhance the establishment of belonging in the context of virtual education.

5.1 Alienation before the belonging

The initial encounter with change and isolation resulted in individuals experiencing stress and overwhelming emotions due to insufficient preparation and training, leading to a sense of estrangement reflected in their narratives. These stories unveiled a range of emotions during the transition and adaptation to the new virtual environment. Similar negative emotions and experiences have been expressed by educators who swiftly transitioned online during the

Covid-19 pandemic in recent studies (Arumugam et al., 2021; Belbase, Luitel & Taylor, 2008; Hashimoto, 2021; Lim, 2021; Vu & Bui, 2021). These experiences, characterised by isolation, estrangement, and a loss of power, can drive individuals to seek a sense of belonging as an emotional need for connection (Scholtes, Hout, & Koppen, 2016) to counteract the negativity. The concept of power mechanisms, as described by Law (1992), holds significant relevance in ANT. The actors' narratives demonstrate a loss of power resulting from transitions; however, this theory also suggests opportunities for actors to renegotiate power relations within the network and reclaim what has been lost. Drawing on the principles of this theory, the findings suggest that experiencing a certain level of disconnection can serve as a catalyst for individuals to seek a sense of belonging, aiming to find a place where they belong and regain a sense of power.

In the educator's case, the transition to the virtual learning environment necessitated a re-evaluation of pedagogy and the acquisition of independent skills to facilitate virtual lessons and support students and parents during the transition. In this context, the lack of support and knowledge diminished the educator's power, but the ability to regain power lay in becoming part of the new network, reskilling, and forging alliances with both human and non-human actors. The educator's strong intrinsic motivation, or internal drive, to rebuild a network and regain what was lost drove her to stabilise through a micro-context, as described by Cresswell et al. (2010) among alliances and students. Guo and Cheng (2016) maintain that a sense of distance and individualised behaviour can strengthen social identity and fulfil the need for a sense of belonging. This was also evident in the case of the learning support assistant, who viewed isolation and disconnection as a catalyst for striving to provide better support to students.

Parents in the home environment experienced a profound sense of powerlessness due to changing roles, leading to rebuilding networks and seeking support. Active involvement in their child's learning allowed them to regain some power and reconstruct their networks. Parent 'b,' who was also a teacher, felt less disconnected from her professional identity than parent 'a.' The study found a positive relationship between the level of disconnection, intrinsic motivation, and the need for a sense of belonging. This suggests that greater disconnection motivates individuals to seek connection and belonging in their social and learning environment, similarly, found in the study by Hwang, Ghalachyan and Song (2023). All actors in the study worked together to establish social connections and overcome isolation, using the virtual learning environment to achieve a sense of belonging. In

responding to change, intrinsic motivation and a positive attitude are important factors (Lim, 2021), while motivation drives behaviour towards achieving goals (Gardner, Lalonde, & Moorcroft, 1985).

Consequently, in the context of ANT, intrinsic motivation acted as a driving force that influenced the behaviour of actors within the network. The actors' intrinsic motivation played a crucial role in shaping their choices and sustaining their motivated behaviour, thus impacting the power dynamics within the network. This study highlights the significant role of intrinsic motivation in fostering agency and ultimately establishing the network. Examining the educator and the learning support assistant as examples, their inherent motivation for independent skill development within the virtual learning environment and adaptation of roles proved pivotal. They experienced positive emotions and enhanced self-confidence and self-efficacy by overcoming these challenges. These psychological factors were vital to their perseverance during the transition period.

Self-efficacy and self-confidence are psychological concepts pertaining to an individual's belief in their abilities and capacity to accomplish tasks or achieve specific goals (Bandura, 1997). Within the context of ANT, these concepts can be examined in relation to the distribution of agency and their impact on actors' actions within a network. From an ANT perspective, self-efficacy and self-confidence are internal factors that shape an actor's agency and ability to act within a network. In fact, actors with high self-efficacy and self-confidence are more likely to demonstrate initiative, assert their perspectives, and engage in actions that align with their perceived capabilities, influencing their level of involvement, the relationships they form, and the extent of their influence within the network (Garaika, Margahana, & Negara, 2019).

The network can influence an actor's self-efficacy and self-confidence. Strong relationships with students and parents and the facilitation of effective communication in the new virtual setting impacted both the educator and the learning support assistant. Interestingly, the virtual one-on-one meetings were more personal and intimate than formal office meetings with parents and students. This finding aligns with arguments made by Black et al. (2020) that online sessions foster a comfortable environment for sharing information, leading to genuine relationships and, ultimately, better outcomes.

In the case of parent 'a,' their internal factors, such as willingness to participate and determination, shaped the outcome of interactions with actors. In summary, in these cases,

these internal factors emerged from their initial feelings of alienation.

5.2 Barriers and opportunities leading to a sense of belonging

Ultimately, every individual's journey to a sense of belonging is unique. However, the emotions experienced during the early transition and throughout the journey were similar. The collective actors faced common challenges, such as loneliness during the initial stages of transitioning online in the wake of the pandemic, lack of support/training, and overwhelming emotions due to the novel circumstances. These challenges shook the foundations of the actors' identities and eroded any previous sense of belonging they might have had.

The difficulties they encountered created a deep longing for wholeness and inner connection. Therefore, establishing a sense of belonging is crucial for human well-being as it allows individuals to feel part of an integral community (Scholtes, Hout, & Koppen, 2016). As the educator describes being isolated, for the most part, this could explain taking the initiative to form a virtual community earlier than her peers during the imminent lockdown. Isolation could be seen as the cause of finding a connection with others. Moreover, the forced need to switch to the virtual environment presented a challenge, but it can also be seen as an opportunity to learn about new online learning methods and try new teaching methods in person.

Additionally, the educator faced specific pedagogical challenges that aligned with the personal narratives of other educators who had transitioned, unprepared, to virtual teaching (Arumugam et al., 2021; Hashimoto, 2021; Lim, 2021; Vu & Bui, 2021). Previous studies have also highlighted the challenges of teachers parenting young children during this teaching transition (Crook, 2020; Holt, 2021; Mendoza, 2021; Serafini, 2021), which further compounded the difficulties. However, in the case of this educator, parenting challenges were not present, setting their circumstances apart.

Analysing the combined circumstances described previously, the benefits presented by this experience outweighed the challenges. For example, the educator and the learning support assistant gained confidence and self-efficacy in light of these challenges, allowing them to be effective in their roles. Thus, overcoming barriers proved to be a learning curve for resilience and adaptability. Collectively the actors faced challenges and worked to overcome them. They discovered new strengths and abilities within themselves. They

realised that the path to success is often filled with obstacles, but it is through perseverance and determination that they can surmount these hurdles. Thus, by navigating through barriers, the actors better understood their limitations and how to push beyond them. They learned to embrace change and adapt to new circumstances, recognising that instead of being deterred by setbacks, they saw them as opportunities for growth and innovation.

Overcoming barriers also fostered a sense of self-belief and confidence that could significantly impact their sense of belonging, which aligns with the findings of Peacock and Cowan (2019). This new-found resilience not only benefited them in their personal lives but also in their professional endeavour. The educator and learning support assistant recognised and valued their ability to navigate difficulties, leading to increased opportunities and success. Additionally, overcoming barriers often required collaboration and cooperation with others, including the parents. When considering all the challenges they faced, they prompted interactions within the network as individuals sought support and connections. All actors experienced a sense of accomplishment and resilience by reciprocating support and assistance. However, persistent technical difficulties, lack of training, and limited resources could lead to frustration and disconnection.

The actors collectively learned the importance of seeking support from their communities (within the virtual environment) and forming connections with others. Moreover, overcoming barriers sparked a desire for continuous growth and improvement. A noteworthy additional finding was the advantage of already being a distance learner (in the educator's case) in predicting students' needs and challenges, which aligns with the findings of Arumugam et al. (2021). The actors became motivated to enhance their skills and expand their knowledge to overcome future challenges more effectively. In essence, overcoming barriers was a transformative journey towards becoming resilient, adaptable, and self-assured individuals that led to a sense of belonging.

In the context of the parents' involvement, this experience provided them with an opportunity to comprehend their child's pedagogy through social interactions, both virtual and non-virtual. They actively supported their children, becoming indispensable members of the virtual learning network. Despite personal struggles such as isolation, enduring lockdown measures, or dealing with changes or loss of work, parents forged relationships and a sense of connection through their actions. They discovered their place within their child's educational journey, ultimately influencing their child's educational outcomes. Furthermore,

the supportive role the parents played in the virtual learning environment and their ability to overcome challenges was integral to finding a sense of belonging, similar to that of the educator and learning supportive assistant.

On the contrary, while individuals experienced a sense of belonging, the study's narratives during the pandemic highlighted a loss of personal connections among teaching colleagues and thus a decline in the community of practice among educators. Although a virtual space has the potential to maintain an interactive and collaborative online community and foster a community of practice through collaborative interactions (Peacock & Cowan, 2019), the experiences described in the study indicated that educative (educators and learning support assistants) and managerial teams (directors and managers) were primarily focused on addressing their own needs and confronting their own challenges.

In the long term, the absence of a community of practice can potentially impact the quality of pedagogy. Therefore, it becomes crucial for institutions considering virtual learning in the future to carefully design programmes that facilitate open communication. This would safeguard connections between teaching team members and students, reinforcing a sense of belonging within the virtual space and strengthening the community.

Based on the data, careful consideration of online courses may initially appear counterintuitive. However, institutions should recognise the importance of creating an environment that fosters open communication and encourages connections among team members and students. This is essential for maintaining a sense of belonging within the virtual space and enhancing the overall community of practice. Based on this, a recommendation for future research would be to explore the role of collective resilience and network support systems within virtual learning environments in helping individuals overcome barriers. These research recommendations provide a starting point for further exploration into overcoming obstacles and their implications. By delving deeper into these areas, researchers can contribute to understanding resilience, adaptability, and personal growth, ultimately offering insights that can benefit educators and those that support students.

5.3 An inner sense of connection leading to an external sense of belonging

The educator's path to cultivating a sense of belonging within the virtual environment encompassed the creation of intimate and personal connections. These connections served as the foundation for a network of relationships that extend-

ed far beyond the conventional boundaries of an educator's role. In doing so, the educator ventured beyond the confines of their instructional responsibilities, engaging with others on a more personal level. This went beyond the transactional nature of teaching and involved forging genuine bonds that transcended the traditional teacher-student/parent dynamic. These connections created a deeper level of engagement within the network, forming a powerful bond that brought individuals together despite the physical distance. Recognising the importance of the educator's presence, online educational communities highlight their role in preventing feelings of isolation and promoting social engagement (Thomas, Herbert, & Teras, 2014).

Similarly, the learning support assistant and parents discovered a safe space within the virtual environment to connect with others and build meaningful connections. Parent 'b', who was also a teacher, experienced this connection with her own online class, enabling her to gain the confidence and self-efficacy to support her son throughout his journey. Her gained self-efficacy allowed her to gain a sense of connection with the virtual learning environment, which allowed her to trust the virtual environment, allowing her to feel confident to support her son and allowing her son independence. Although all actors faced isolation, they managed to establish a virtual bond, relying on the belief that they were doing their best with the resources available. This led to an emotional connection that Blanchard and Markus (2002) describe as virtual integration within an online community, which fosters a sense of fulfilment and emotional connection.

The educator and learning support assistant's commitment to the group extended beyond their individual sense of belonging. By actively engaging with students and their parents, addressing their needs, and fostering connections, they enhanced their sense of belonging and facilitated the transfer of this feeling of connectedness to others within the network.

In the context of ANT, the educator and learning support assistant acted as key human actors in shaping the social interactions and relationships within the virtual learning environment. Through their dedication and support, they contributed to constructing a network that fostered a sense of belonging among its participants. This sense of belonging was not limited to themselves but extended to the parents. Peacock and Cowan (2019) found that reaching a sense of belonging leads to building strong connections. The educator and learning support assistant recognised the importance of their role in actively maintaining and nurturing the network. They understood that fostering a sense of connectedness and

belonging was beneficial for themselves and crucial for the overall well-being and success of the community. One potential interpretation of this finding suggests that proficiency in working within a virtual environment and supporting others fostered self-confidence, boosting self-esteem. This aligns with the hypothesis put forth by Garrison (2016, p.99), who suggests that the motivation and dedication of educators can positively impact the sense of belonging of students by fostering enthusiasm and creating an environment where students feel valued and accepted. Commitment has been recognised as an essential factor that enhances social identity that ultimately supports building a sense of belonging (Guo & Cheng, 2016). The safe environment created by these actors fostered a sense of belonging, confirmed by the parent 'a' presence in the virtual environment. Parent 'b' felt less connected to this network, as she had formed a separate virtual network of her own where feelings of sense of belonging did exist; however, learning to use technological artefacts to support her son enhanced her overall sense of belonging.

The virtual environment was utilised for student collaboration during group tasks, facilitating the development of positive relationships among participants, including parents who felt involved in the virtual group through such engagements. This discovery aligns with Hashimoto's recent research (2021), which, similar to the educator's findings, determined that virtual breakout rooms provided a secure setting for student interaction and an opportunity for students to become acquainted with each other, crucial for fostering their sense of belonging, as supported by the work of Guo and Cheng (2016). Future investigations should evaluate the degree to which breakout rooms contribute to students' sense of belonging. The learning support assistant also observed that the virtual space served as a secure haven for parents and students to share personal experiences.

In light of the findings, a few recommendations can be drawn from this experience regarding how a sense of belonging influences virtual-based teaching. As this was the actors' first attempts to teach and support within the virtual environment, being challenged and having feelings of being overwhelmed occurred, which consequently made gaining a sense of belonging harder to achieve. However, once a sense of belonging was achieved, the actors' roles transformed into a worthwhile bonding experience. Having the right content and adapting the pedagogy for virtual teaching is recommended. Being prepared for virtual teaching by having the right resources (such as course management systems), skill set (such as knowledge of how to utilise course management systems) and applying appropriate pedagogy can foster student engagement and interaction, which was found

helpful in building a virtual community that led to finding a sense of belonging.

6. Conclusion

To summarise, this study examined the experiences of an educator, a learning support assistant, and two parents, as they transitioned to a virtual learning environment during the unprecedented Covid-19 pandemic. It is important to note that this study represents the first collaborative autoethnography that focuses explicitly on the collective first-hand experiences of these stakeholders in a virtual learning environment. The analysis of the autoethnographic writing revealed three key themes. The first theme highlighted the initial feelings of alienation and isolation experienced by all actors during the transition to the virtual learning environment. These challenges resulted in a loss of power and a sense of disconnection. However, the study also found that these negative experiences catalysed individuals to seek a sense of belonging as an emotional need for connection.

Moreover, intrinsic motivation is crucial in driving individuals to rebuild networks, acquire new skills, and forge alliances with others. The second theme focused on the barriers and opportunities encountered during the journey towards a sense of belonging. Despite the common challenges, the actors overcame these barriers and developed resilience, adaptability, and self-assurance. They discovered new strengths within themselves and embraced change as an opportunity for growth and innovation. Collaboration and seeking support from others within the virtual learning environment were crucial in overcoming these challenges and fostering a sense of belonging. The last theme emphasised the inner sense of connection and the external sense of belonging that emerged from the actors' engagement within the virtual learning environment. Establishing meaningful relationships and a deeper level of engagement created emotional connections and fostered a sense of fulfilment and belonging. The commitment of the educator and learning support assistant to actively engage with students and parents contributed to the construction of a network that facilitated a sense of belonging for all participants.

Overall, this study underscores the importance of a sense of belonging in a virtual learning environment and highlights the role of intrinsic motivation, resilience, and collaboration in fostering this sense of belonging. By understanding and addressing the factors that influence a sense of belonging, individuals supporting students online can create an inclusive and supportive virtual learning environment that promotes positive outcomes for all stakeholders in-

volved. As this study strove to seek the first-hand experiences of the educational stakeholders' journeys towards a sense of belonging, a recommendation for future studies would include exploring and investigating further the relationship between the sense of belonging of these main actors and its subsequent influence on the student's sense of belonging. Such a study could enhance this study's current findings by further exploring the role of collective resilience and network support systems within a virtual learning environment. Understanding how individuals overcome barriers and develop a sense of belonging can provide valuable insights for educators and support systems. By delving deeper into these areas, researchers can contribute to understanding effective strategies and interventions that foster a sense of belonging and support the well-being and success of all participants in the virtual learning environment.

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