Collaboration between instructional designers and subject matter experts in digital transformation projects

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Abstract

The rapid adoption of online learning during the Covid-19 pandemic and digital transformation associated with new tools and technologies has driven the demand for interprofessional collaboration within the education sector. It is now commonplace for Instructional Designers (IDs) and Learning Technologists (LTs) to work alongside Subject Matter Experts (SMEs) when creating online learning content. Although the professional practice of an ID may vary, the collaborative approach to working with SMEs is similar across sectors. Typically, the role of the SME is to impart expert domain knowledge, skills or behaviours. An ID captures this information and creates a learning experience using pedagogical expertise and design skills. This relationship is not without friction and can be complex and challenging to navigate. Research often focuses on the experiences of SMEs and suggests a simple resolution to avoid conflict; clearly define each agent's role in writing. However, this is not a clear-cut solution. Detailed guidance for IDs is lacking, and conflicts still exist. This study aimed to gain a deeper insight into the interprofessional working relationship between IDs and SMEs. A series of semi-structured interviews were conducted, which looked through the lens of relational working theory and focused on the perspective of the ID. Key themes were identified and aligned with the core concepts of the relational working framework. Findings show that a communication breakdown can negatively impact a project, resulting in power struggles and the delivery of subpar...
content. The discussion highlights how the application of the relational working framework could be used to strengthen and ease tensions between SMEs and IDs.

1. Introduction

It is said that the speed of digital transformation within commerce is driven by the consumer (Ulas, 2019), and in recent times we have seen this demand shift into the education sector. Nothing reinforces this belief more than what occurred during the Covid-19 pandemic, where many institutions were forced to abandon traditional classroom settings in favour of online learning. Educational institutions were in crisis mode; many had not adopted the tools and technologies to support online learning, which in many cases had been considered complementary to traditional teaching (Mladenova, Kalmukov, & Valova, 2020). During the pandemic, many teachers were thrust face-first into digital transformation, making emergency transitions to synchronous, asynchronous and hybrid learning. This phenomenon opened a window of opportunity for many, enabling them to explore new ways of working with digital technologies at the forefront of teaching and learning. However, higher education struggled with this shift, where many staff lacked time and experience to develop, adopt and deliver online materials and lessons (Schleicher, 2020). As the demand for online educational content rises, the need to hire, upskill or utilise specialist staff to adapt classroom content has increased. This situation has left many feeling institutional pressures, one of which relates to interprofessional collaboration amongst staff.

1.1 The context of digital transformation

Digital transformation is a broad term therefore it is important to highlight the definition used in the context of this paper. Gong and Ribiere (2020) analysed 134 different variations of the term to unify the definition: “A fundamental change process, enabled by the innovative use of digital technologies accompanied by the strategic leverage of key resources and capabilities, aiming to radically improve an entity and redefine its value proposition for its stakeholders.” (p. 12). To add further context, projects that SMEs and IDs collaborate on often involve adopting new technologies to create or adapt learning materials from non-digital content.

1.2 Teacher and/or, subject matter expert

It is now not only the responsibility of a teacher (or instructor) to create courses for online consumption. These individuals are often called to act as SMEs, whose primary responsibility is to provide domain knowledge and technical content. In this scenario, content is passed over to an ID or LT (who may or may not have other technical staff supporting them) to design and develop the course structure and accompanying material (Chao, Saj, & Hamilton, 2010). Two factors have contributed to this way of working; technology and pedagogy. In some cases, developing and hosting online courses requires technical knowledge and expertise in specialist software applications. Online learning and assessment have their own pedagogical applications and best practices that differ from face-to-face teaching (Knowles & Kalata, 2008). In many cases, faculty have not been exposed to such instructional design practices and theories, staff members and consultants who possess all the skills to perform multiple roles are rare (Halupa, 2019). Lee and Owens (2012) state;

“Organisations that assume “a couple of people with the right skill sets” can design and produce multimedia are misinformed about the number and complexity of skills etc., needed for even a minimal multimedia design project.” (p. 115).

This shakeup in design and delivery has resulted in a new interprofessional working relationship between ID and SME. Conflict within this interpersonal relationship is not one-sided; friction arises on both sides. Issues highlighted in literature from the perspective of SMEs include; feeling daunted, feeling as though they have lost control of the course creation process and feeling as though professional boundaries have been crossed when IDs make heavy-handed technical content changes (Halupa, 2019; Chao et al., 2010). Similarly, issues experienced by IDs include; not feeling respected by SMEs (Halupa, 2019), overly controlling SMEs and those who feel it is their responsibility to drive the creative design and delivery of the final product (Slade, 2019). It is often the case that guidance for collaboration is explicitly aimed at IDs rather than SMEs. This is perhaps a result of the ID, in many cases, acting as project lead. When working on a project to create a shared outcome, communication is a joint responsibility between ID and SME and hierarchy in terms of roles should be avoided.

1.3 The role of ID models and frameworks within instructional design practice

Instructional design is saturated with different models and frameworks to follow. Models help us to conceptualise representations of complex forms, processes and functions (Gustafson & Branch, 2002). The purpose of these is to provide a systematic blueprint of steps that can be followed to guide the design, development, and evaluation of the
content. They can outline, define and assist IDs in choosing appropriate tools and techniques and can be linear or iterative. Two popular examples are; ADDIE Framework (Analysis, Design, Development, Implementation and Evaluation) and SAM (Successive Approximation Model). Due to the number of theories, frameworks and models available, it can be challenging for IDs to choose the right blend. Pedagogical theories share a similar characteristic: there is no one size fits all solution. IDs must be competent in adapting and applying different models (Gustafson & Branch, 2002). It is the knowledge and experience of an ID that compliments the domain knowledge of an SME. However, critics have often interpreted models and frameworks as “stifling, passive, lockstep and simple because of the way they are visually represented” (Gustafson & Branch, 2002, p. 25). Conversely, frameworks can be a valuable tool for novice IDs and SMEs. Whether an institution or individual decides to follow a framework is another matter. An important aspect is often missing from these tools. Models and frameworks often lack guidance in navigating the interprofessional communication between stakeholders, which includes SMEs and IDs.

1.4 Motivations for this study

One of the motivations for conducting this study stems from the researcher’s personal experiences. The researcher shares the same background as the participants in this study and has worked within commercial learning and development (L&D) and HE (Higher Education) institutes. Frustration and curiosity were the driving forces behind wanting to conduct this research study. During a period of contract work, several repeating experiences at various organisations occurred relating to interprofessional collaboration. Contract work can be a solitary experience which often leads to working on short-term or temporary projects. Although there is collaboration within an organisation or institution, the comradery you may experience with someone who has the same job role can be lacking. From this, two initial thoughts emerged; do other practitioners experience similar issues? And if so, how can the situation be improved? This later turned into the research question posed in this study.

2. Literature review

Scopus and Google Scholar were chosen as the medium of choice when researching literature for this review. Loose, general terms such as “subject matter expert and instructional designers”, “instructional design interpersonal relationships”, and “SME and instructional designer interpersonal relationships” were used in the first instance to gain an understanding of how much literature there might be on the topic. Papers that looked initially suitable (from the title and abstract) were then tracked on a matrix spreadsheet. The papers were then skim-read for suitability, and specific key terms were taken and used to execute a more focused search.

When analysing literature from HE, complex and conflicting issues between SME and ID have been identified. When a general Google search was conducted, it was discovered that conflict is also felt within commercial sectors. Learning designers, L&D professionals and LTs have taken to the internet to share their experiences in articles and blog posts. Slade, an e-learning designer of more than ten years, writes an article about the challenges faced when working with SMEs. He personifies SMEs by outlining five distinct characteristics and provides advice on overcoming difficult situations (2019). Tucker provides insight into her practice in a blog post about communicating with SMEs. She introduces the topic by stating that “some SMEs are easier to work with than others, and every SME has individual quirks that I need to figure out to work with them successfully” (2015). In a series of short articles, Chiasson describes a similar situation:

“The relationship between the Instructional Designer and the SME can be an intricate one...The Instructional Designer often needs to navigate how to effectively communicate with the SME in order to acquire the necessary information for the project” (2015).

Turning back to academia, Halupa (2019) looks at the relationship between ID and SME in the context of online course creation. The study provides a good overview of the issues felt by SMEs and IDs and concludes by suggesting changes to practice that may address the issue. However, the proposed suggestions often state the obvious: “This collaborative relationship can be collegial if the faculty member and designer work together” (p. 66). It is also suggested that “The roles of the designer and the faculty member need to be clearly delineated in writing to attempt to preclude any problems in the future” (p. 66), which is something that has been previously documented in literature over a decade ago by Lee and Owens (2012).

Other suggestions include the use of the Collaborative Mapping Model (CMM). In this study, Drysdale (2019) examines the effectiveness of CMM in the hope that it will help to facilitate the relationship between IDs and HE faculty. CMM aims to “encourage faculty and designers to value each other’s considerable and distinct expertise” (p. 57). Drysdale rightly identifies that no ID model had been developed to guide collaboration or focus on collaborative relationships (2019, p. 61) and provides a good overview of this in the
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literature review. However, the research lacks important data and assumes effectiveness. For example, the method used in the study was a survey that specifically focused on the effectiveness of CMM. The following two questions were asked to participants: “The quality of my course improved from working with an instructional designer” and “The CMM improved the quality of my course design work as a faculty member” (p. 67). The study concludes by stating, “The results indicated that faculty found significant value in collaboration with IDs using the CMM” (p. 69). As there is no data on the situation before CMM was used, the study assumes a positive result and declares CMM effective. While some may find the questions used in CMM useful, the use of other, possibly more effective models should be examined.

Insight from literature that deals with difficult interprofessional situations suggests that most issues arise from project delays or lack of progress, budget constraints and scope creep (Liu, Kishi, & Rhodes, 2007). These problems (or a combination of problems) escalate and cause friction between ID and SME (p. 51). There is no doubt that these issues can cause friction, but it could be argued that this list is not exhaustive and lacks accuracy. Of course, the SME and ID must be aware of budget constraints and delays, but these are pressures often driven by management, not between SME or ID. Liu et al. (2007) do provide a section in their research that details the potential causes of some difficulties as well as solutions for dealing with them. The list is very specific; for example, one cause for concern is titled “lack of files” and provides a solution on what to do in this case. The list slightly digresses from communicative issues and could provide more focused examples. However, it is a good starting place for novice IDs and SMEs looking for guidance about a particular problem. Looking at more recent literature concerning the Covid-19 pandemic, it is clear that even with the suggestions available, there is still a lack of clear guidance available to SMEs and IDs related to building strong collaborative relationships (Xie and Rice, 2021).

2.1 Gaps in the literature

Research has highlighted issues around ID and SME collaboration but has offered little in the way of resolution. Literature often lacks evidence in regard to evaluating methods and analysing success. The lack of guidance on how to apply frameworks to resolve the issue appears to be a stumbling block. This study takes the approach that perhaps a new framework and approach is needed and looks through the lens of the relational working framework. This relatively new adaptation has been chosen for its potential to be applied as a method for guiding interpersonal communications between IDs and SMEs. This study aims to pinpoint gaps in working practice guidelines by identifying the critical success factors and offering suggestions on how they can be applied practically. The aim is to identify if the relational working framework might be suitable for fostering good working practices between IDs and SMEs specifically when working on digital transformation projects.

3. Research question

Friction between IDs and SMEs can create barriers when producing digital content. IDs and SMEs must consistently collaborate to produce quality courses (Oblinger & Hawkins, 2006). A suggestion is that “An ID model should contain enough detail about the process to establish guidelines for managing the people, places and things that will interact with each other and to estimate the resources required to complete a project” (Gustafson & Branch, 2002, p. 24). Many ID models lack collaboration information, providing a complex territory for IDs to navigate. Rather than focusing purely on the application of a model and the situations each agent finds themselves in, this study aims to reveal the critical success factors and how a model can support these. With this in mind, this study aims to answer the following research question (RQ):

- RQ: Which aspects of practice do instructional design practitioners feel are most crucial to successful collaboration when working with SMEs

This research study will look at these critical practices and refer to them as success factors.

4. Methodology

4.1 Theoretical framework

Relational working involves the collaboration of multiple stakeholders, on complex issues, across multiple practices. Edwards (2017) research focuses on how practitioners contribute specialist expertise and collaborate with others. Much of Edward’s research is based on the work of Vygotsky and encompasses CHAT (Cultural Historical Activity Theory), a theoretical framework used to analyse relationships and activities. The foundations for working relationally are outlined in three core concepts; Relational expertise, which involves working with others on complex problems; Common knowledge, which consists of knowing what matters to those involved; Relational agency, how problems are interpreted and responded to (Edwards, 2005, 2011). Hasted and Bligh (2020) expand upon these concepts by
presenting the relational working framework (see Figure 1) which adds additional features, definitions, and clarity. These features focus on knowledge, capacity and engagement.

This framework has been chosen to explore the potential of its application on guiding interpersonal communications between IDs and SMEs. As far as could be seen, it also appears that this framework has not been used to answer similar research questions relating to ID and SME collaboration. A further justification is that after conducting the literature review, it is clear that the relationship between ID and SME is complex and requires the application of a framework that covers relational and collaborative working in a more profound and meaningful way. Figure 1 shows how each core concept has been broken down into features that elicit more detail about the overarching concepts. The framework will be applied once the data has been collected.

4.2 Research design

Qualitative data were gathered through a series of semi-structured interviews. Purposive sampling was used when selecting participants for an interview. Participants were chosen based on their known experiences and knowledge, particularly working with SMEs in different environments across various sectors. Ten individuals were approached to participate in the study, with six initially responding with interest. Consequently, four individuals agreed to participate in the final interview. At the time of the interview, all participants were based in the UK, were contractors, and had a work history within HE and commercial sectors. Research has often focused on HE institutions, so the aim was to reach out to individuals with a mixed background who might provide a more varied mix of experiences. Interviews took place remotely (due to Covid-19 restrictions) using Zoom conferencing software at a time and date that suited the participants. All interviews were recorded and transcribed. During the interviews, a mixture of continuation and elaboration probes were used as a guide to prompt the participant to disclose further information on a particular topic of conversation or for clarification. These questions were based on research by Rubin and Rubin (2016) on qualitative interviewing. Example probes include “That’s interesting, what happened next?” and “Can you tell me a bit more about that?” other probes include clarification questions such as “Just to be sure, you’re talking about the SME, right?” and checking understanding “So you think that the SMEs workload affected how communicative he was?” Questions were also asked to gain insight into new ideas,
for example, “how do you feel about that?” or “what do you think caused that?” “What do you think could have been done differently?”

### 4.3 Data analysis

Thematic analysis was used to analyse the data, a process which included coding and categorising data into themes. These themes were compared against the features of the relational working framework and tagged with their associated core concepts. Findings are presented alongside sections of transcribed narrative to add context. Sections of the narrative from participants have been edited to form a cohesive written account. These accounts have been member checked by the participants to ensure validity.

#### 4.3.1 Limitations, assumptions and challenges

It was anticipated that more interviews could be conducted. Furthermore, there were challenges in arranging interviews as participants often rearranged calls due to illness or work commitments orcancel altogether. The participants were known to the researcher through prior work engagements and professional communities of practice and took part in the interviews voluntarily.

#### 4.3.2 Research integrity, bias and ethics

Ethical issues were considered before conducting research. These considerations were in line with the Lancaster University ethical code of conduct. Interview participants’ personal identifiable information and any data which may unintentionally disclose a participant’s identity has been removed and anonymised for this research study. Cousin (2009, p. 78) states that an interview requires an interviewee to consent to sustained dialogue on an agreed topic of which the resulting transcript can be used within research (p. 78). Interview participants were asked to complete a participant information sheet, which provided a brief overview of the study, details of how the data would be used, and the right to withdraw information.

### 5. Findings

This section presents the findings within the three core concepts of the relational working framework. What was quite clear from the initial analysis was that many experiences were similar. Sections of the narrative have been selected to show the overarching theme of the experiences, which also aims to help build initial context.

#### 5.1 Relational expertise

The first core concept is relational expertise, which looks at how people work together on complex problems. It is suggested that common knowledge will likely develop alongside relational expertise (Hasted & Bligh, 2020, p. 5), and it was true that there was somewhat of an overlap when trying to pinpoint which theme should go into which core concept. All participants experienced issues when communicating with SMEs when working on projects:

- Difficulty in arranging meetings to discuss the project;
- No response to emails or telephone calls.

The narrative below provides an account that provides an overview of a particular experience that was a common phenomenon between participants.

“I started working at a consulting company and had a dedicated SME to work with. I was creating an online course for accountancy, and I needed help learning the software. The introduction meeting we [ID and SME] had was great. She was lovely and welcomed me to the team. She said something like, ‘contact me anytime, send me as many emails as you like, ask me any questions, I am here to help.’ And that was the last time I spoke to her. She was a classroom instructor and had classes scheduled back-to-back and was too busy to respond to my emails. I was assigned another one [SME], I had more luck with him, but I still ended up sending loads of emails chasing for information.”

Several participants experienced a situation involving a PM (Project Manager). The involvement seemed to alleviate some communication challenges, with one participant stating, “If I couldn’t get in touch with the SME, I’d call the PM who would chase. I’d get a faster response when I asked the PM for help.”

When participants were asked their thoughts on why these communications issues occurred, the consensus was that the SMEs workload was the culprit.

#### 5.2 Common knowledge

The second core concept is common knowledge, which looks at what matters to the people involved. The themes identified included motives behind collaboration and how the ID and the SME come together to agree on an outcome.

Lack of shared motives;
Lack of understanding of how each stakeholder influences the project.

Participants that experienced issues relating to lack of shared motives and understanding were more likely to share stories of how these difficulties were overcome in similar situations. One particularly positive experience was recalled by a participant working in a HE institution:

“When I worked on that project, I had total freedom. She [SME] let me get on with it [the project work] and helped me when I asked. She wanted the course to be good as she was going to be the module tutor assigned to it next year.”

An explanation from the participant on why they thought this was the case included, “I think the main driving force was the fact that she [SME] was going to be the module tutor for this next year, so she wanted it to be really good as she’d be student facing.”

Another participant elaborated on a similar experience. “I think most of my most successful projects have been when I’ve worked on blended programmes. Like, instructors and teachers and the teams who will look after the material when I’ve handed it over. Or people using the materials in classrooms, prior reading, job aids. Putting a name or face to the material seems to be a motivation for making it good.”

5.3 Relational agency

The third core concept is relational agency, which looks at how problems are interpreted and responded to. This focused on how the SME and ID took responsibility for their work and assigned tasks.

- Lack of knowledge regarding overall project authority;
- Lack of clarity on task requirements;
- Power struggles between ID and SME.

It was often the case that the ID and SME did not know who was ultimately responsible for the final project. There was a distinction between tasks; the ID and SME knew what work needed to be carried out, but issues around deadlines, the format and the extent of the task were often a common problem. It was recorded on two occasions that content was provided to the ID in short form (in both cases, a PowerPoint presentation) with content displayed in a shortened bullet point format. In this instance, SMEs were not aware they were needed for technical interpretation, clarification or review. One participant recalls:

“They [SMEs] just thought I’d be able to understand the PowerPoint. I hadn’t been to any of the classes, so I didn’t know what the talking points were for each bullet point. When I asked, I was told something like, “isn’t that your job? To interpret and organise this stuff and make it better?”

Equally, as with the communication theme, there was a similar alleviation to the challenge of responsibility when a PM was involved:

“The PM was in charge of arranging meetings and making sure tasks were completed on time. She [PM] asked to be kept in the loop if we had issues with anything that might cause a delay. She [PM] wanted to make sure the project was completed on time. I feel like this helped us to stay motivated and keep everyone on track.”

Power struggles were a more frequent phenomenon than initially predicted. One participant described an intense experience:

“He [SME] took complete control of the project and got really angry when I changed anything at all. I thought I was supposed to put the content together, but he did all the work. I wasn’t needed, and I wasn’t happy with the final product.”

6. Discussion

This section addresses key themes from the research findings looks at possible research implications and identifies any shortcomings.

Continuously highlighting a problem does not solve the problem. A solution must be offered, tried, and tested to resolve the issue. From reading the literature and conducting and analysing the research in this study, it has been indicated that more needs to be done to offer workable solutions. This research aimed to look at aspects of practice that IDs feel are crucial to successful collaboration. This research looks at this through the lens of the relational working framework. The findings show that critical factors around successful collaboration focus on areas of communication, goal alignment and responsibility, all of which fall into the core concepts of relational working. This alignment shows that the framework has the potential to be used as a guideline for interpersonal collaboration within instructional design practice when working with SMEs on digital transformation projects.
For this framework to be applied in practice, a further definition of how core concepts can be assessed for success would be needed. As seen in the research by Halupa (2019), simply highlighting these issues is not enough to solve the problem. We have, after all, been aware of these problems for over a decade. It has been identified that defining roles is a critical success factor and that in order to avoid problems, these should be ideally outlined in writing (Lee & Owens, 2012). However, there is no guidance that provides detail about how this should be prepared, actioned or communicated. It is clear from the literature as well as the findings in this study that this problem is still prevalent. No actionable solution has yet been provided which is due to a lack of understanding on how to resolve it. One of the comments from the findings in this study suggests a complete lack of role definition "I thought I was supposed to put the content together, but he did all the work. I wasn’t needed, and I wasn’t happy with the final product.” It could be argued that perhaps these problems have not been high on the priority list to resolve. The Covid-19 pandemic has accelerated digital transformation projects in such a way that collaboration problems have been freshly highlighted and as a result new investigations and criticisms are slowly emerging. Resolving these issues is now at the forefront and it has been recognised that good interpersonal collaboration is essential when working on such projects.

The relational working framework could be applied to resolve these issues by focusing on three problem areas highlighted within each of the concepts; (1) relational expertise and the capacity to align motives; (2) Common knowledge, specifically knowledge of shared purpose and; (3) relational agency, the engagement of shared responsibility. Instead of simply stating what each individual’s role is in writing, a workshop might be more effective. For example, working together to find out what each individual thinks their purpose is in the project, discovering their motivations for wanting to make the project a success and working through each individual’s responsibilities would, in theory, produce a more effective outcome. Of course, further research to see if this would work in practice with observations would be needed to prove efficacy and applicability. Another example from the findings is lack of communication, specifically the difficulty in arranging meetings and no response to emails or telephone calls. In the research by Liu et al. (2007), it is suggested to continuously contact the SME and request the completion of a form. It could be argued that if lack of communication is the problem, then asking the SME to fill out a form is not going to solve the problem and this tactic could also negatively impact an already fragile relationship. Lack of communication is a tricky issue to solve, as if a workload changes, an SME could potentially be drawn to work on another project with a higher priority. If we turn to the relational working framework, aligning motivations and developing buy-in from the SME from the start could elevate this.

Some features within the relational working framework were not explicitly captured through the interviews (for example, no success factors surrounding intelligible expression were specifically discovered). Many success factors could have been placed into all three core concepts. This shows that while the use of the framework has its benefits, in this study, some of the features could be eliminated without impacting the success of the collaboration between ID and SME. However, if we look at the features and how they are presented; knowledge, capacity and engagement, it is difficult to analyse from interview data alone if some of the specifics had been captured. For example, relational expertise looks at the capacity to align motives, “how subjects interpret the complex problem in the light of subjects’ different motives when formulating a response” (Edwards, 2017, pp. 8-9) to accurately acknowledge if this has been applied in practice, it would be better to study participants in an observational setting.

7. Conclusion

The conclusion section now summarises this research study and offers some suggestions for future research. This paper explores the interpersonal relationship between IDs and SMEs when collaborating on digital transformation projects. After conducting research in the form of semi-structured interviews, it has been highlighted that many of the problems previously encountered and documented in existing literature are still present today. Research suggests that many ID frameworks lack the steps to guide IDs when working with others. Other frameworks have been used in the past but have lacked successful adoption. This can be seen by analysing current popular ID models and frameworks, ADDIE and SAM, which still lack guidance on relational working. Interviews were conducted to gather data to discover which aspects of practice IDs feel are critical to successful collaboration, specifically when working with SMEs. Three key success factors were identified which relate strongly to the relational working framework. It can therefore be concluded that the aspects that form successful collaboration can be fostered with a suitable framework; the framework just needs to be defined in an easily applicable and measurable way. It is hoped that the relational working framework or a future adaptation of this could be used and applied in practice to help guide future collaboration in digital transformation projects. Much of what is covered
in the framework relates to the interpersonal collaboration between ID and SME, which has been lacking in other frameworks. While many digital transformation projects were underway prior to the Covid-19 pandemic, for many, it was this phenomenon that accelerated the need to digitize content for online consumption. While the pandemic may be somewhat behind us, many institutions have continued to adopt a hybrid approach to learning, fueling the acceleration of digital transformation and the requirement for interprofessional collaboration. It is hoped that this paper contributes to the discussion of digital transformation by highlighting the experiences of different individuals and recognising the ongoing, shared problems still faced by those working on such projects.

7.1 Future Research Avenues

An area of research that could be explored in the future is to swap the perspectives and research the SME perspective or to gather a larger sample size and capture data from both perspectives. A Change Laboratory (an intervention-research methodology used within HE) could be carried out to investigate the issues further and develop more refined working practices. While many of the findings can be compartmentalised, further research with a larger sample size is needed to specifically pinpoint where relational working knowledge, capacity and engagement to determine if the framework could be used as a tool for guiding collaboration between IDs and SMEs.

References


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