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Optimising industry learners' online experiences – lessons for a post-pandemic world

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ABSTRACT

This study examines the experiences and impact COVID-19 has had on industry online learners. Exploring initially the term 'industry learner' and explaining the background to the design of the online modules the learners participated on. The design and delivery of this programme resulted in minimal impacts from the COVID-19 pandemic. The study explores qualitative reports of industry learners' experiences, and these are analysed using thematic analysis. The findings suggest that the design principle of maximising social interaction, at peer to peer and peer to educator levels, resulted in an enhanced student experience. Group based interactions were recognised by learners as both an occasional source of friction, but also as a valuable proxy for industry leadership roles and workplace group dynamics. This highlights the complex enhancing and inhibiting nature of group-based learning. Implications for further optimisation of online and blended learning environments are explored and associated future research priorities are identified.

Introduction

Ausburn (2004) has noted that higher education has ramped up its eLearning operations and seen a shift in its demographics that has created an important new customer for eLearning. Noting this customer as a part-time adult learner. Brunton et al. (2019) in their research regarding the development of a Head Start Online MOOC coin the term flexible learners as adults engaged in part-time or online distance learning, during the initial stages of the study life cycle. Of late, according to Hunt et al. (2021), there has been a heavier focus on adult industry learners who are coming back into education and requiring more flexible conditions for their learning. Stating that with the emergence of the COVID-19 pandemic, online delivery has become a viable and established delivery option not only for the third-level sector, but also for education in general. This research work focuses on the 'industry learner' a term that Hunt et al. (2021) note is not widely used in academic literature. With 'adult learner', 'corporate learner', 'business learner', and even 'non-traditional learner' used as more familiar and recognised descriptions of an older person who is or is returning to education.

The emergence of online learning as noted by Petrova and Rowena (2005) as the implementation of eLearning using web-based technologies, without doubt enables us to reach audiences that previously were hard to serve. Singh and Thurman (2019) have collected definitions of online learning, to develop a common understanding of what online learning is and what it is not. The number of people who return to study via online learning to extend their qualifications base and upskill is increasing, and the term lifelong learning (Butcher, Davies, and Highton 2006). is often used to

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describe this trend. Returning students have become a significant cohort of learners within our universities. Naidu (2003) has remarked that there are numerous learners whose only feasible way to obtain information or higher education courses is from online sources. The increasing need for life-long learning, and the associated need for flexible engagement to accommodate working professionals for example offering online learning, has been recognised by the European Skills Agenda 2020 (European Commission 2020). The educational structures described within this study have been designed to align with the objectives of the Agenda.

For the purposes of this research, the 'industry learner' is not participating in a 'blended learning' environment, a term coined by (Masie 2006). Rather they are learners who work full time and participate fully online in a virtual environment with no physical face-to-face presence in a classroom. Engaging with their fellow learners and lecturers online, while applying their learning within their ongoing professional roles. At the same time, they are participating in a process that allows for industry knowledge transfer through numerous tasks online known as e-tivities and engaging in self-directed learning. E-tivities as defined by Salmon (2004) are frameworks and tasks for enabling active and participative online learning by individuals and groups. These academic programmes are fully accredited by the relevant professional bodies and informed by industry stakeholders to specifically target identified needs.

According to Hunt et al.'s (2016) knowledge, exchange between industry and university requires strong relationships serving as catalysts for increasing knowledge flows. Exchanging knowledge according to Hunt et al. (2016) to establish course content, review curricula, and ensure real-life practice to bolster theory ensures that the academic programmes industry learners participate in, meet their organisations required needs. There is a growing interest and support from local and global industries to participate in the development of postgraduate programmes for industry learners online. The participation of these industries provides up-to-date current practice for academics who require the latest knowledge within an industry setting. But also offer the learners on the programmes the opportunity to share their industry practices so the cohort on the programmes are gaining exclusive information to support their own self-learning. A meaningful partnership between relevant industries and educational institutions have the potential to create alignments that are both economically and socially beneficial, while avoiding the problems that result from unequal partnerships (Keep 2012). These relationships are especially necessary when it comes to identifying industry needs. Previous collaborations internationally have highlighted issues that resulted from ill-defined needs or learning outcomes (Keep 2012) and it is clear now there is a need for a coherent design approach with all stakeholders actively participating.

The design and development of programmes between industry and the University according to Hunt et al. (2016) are motivated by demand. There is now a clear need to upskill people who are working full time and who require aptitude and track record of competence in a specific discipline. According to the National Skills Strategy 2025 (National Skills Strategy 2017) investment in training has largely been focused on training the unemployed or school leavers. However, now there needs to be a focus on people who require upskilling or reskilling and who wish to progress within a chosen field of enterprise and have flexible learning while they work.

Martin, Sun, and Westine (2020) research has focused on examining the broader aspect of research themes in online learning and have noted that online learner characteristics can be broadly categorised into demographic characteristics, academic characteristics, cognitive characteristics, affective, self-regulation, and motivational characteristics. Typically, the industry learner is geographically dispersed and has been out of formal education for a while. Many lack confidence in returning to education and have competing demands associated with full-time employment. They are, however, considered to be financially independent and may even be sponsored by their employers. Nonetheless, these learners are highly motivated and self-regulated and take personal responsibility for their learning. They tend to be well suited to online learning.

During the COVID-19 pandemic, there was a sudden shift away from the classroom for various student types. Indeed, their requirements for learning and engaging were suddenly equating to

the recognised requirements of industry learners. For example, they similarly required the support, tools, and effective online interactions to allow them quickly to learn and adapt to a new learning environment. Chen et al. (2021) note effective delivery of learning content depends on effective online interaction. By their very nature fully online programmes referred to in this research had the tools and resources in place so industry learners weren't as detrimentally affected by COVID-19 as students taught by traditional means.

Optimising for the online industry learner

Developing a sense of community and social engagement is a key influencing factor when considering student retention, engagement, and performance within an online learning environment (Means et al. 2009). A sense of community developed through e-tivities, webinars, and discussion forums facilitate knowledge transfer and engagement between learners. This provides opportunities for positive interactions between the lecturer and the learner. It in turn has motivational benefits too for the learner and encourages the development of support systems that have been identified as critical for long-term retention (Wong et al. 2019). Having clear achievable goals and outcomes is critical for a positive experience for the learner. These inform effort expectancy, enhance perceived value, and increase learner motivation (Muljana and Luo 2019).

Youde (2020) cites Ausburn's (2004) study exploring the course design elements most valued by adult learners in blended learning environments, as comprising of, personalisation, self-direction, variety, and a learning community. These values are reflected in formalised development guidelines by organisations such as the Conceive Design Implement Operate (CDIO) (http://www.cdio.org/) as being essential to supporting effective industry supporting programs (Power et al. 2019). For the online modules of focus for this research they are designed following what Biggs (2003) notes as the 'constructive alignment model' where components of teaching and learning are aligned when underpinning course design. Consideration is also taken using the design process of Mayes and de Freitas (2004) development of this model for online and blended learning where they propose three broad theoretical perspectives (1) The associationist/empiricist perspective (learning as activity); (2) The constructivist perspective (learning as achieving understanding through individual or social approaches); (3) The situative perspective (learning as social practice). Garrison and Cleveland-Innes (2005) supported this framework too with the 'community of inquiry' noting three distinct components as having a social, cognitive, and teaching presence:

- *Social presence* offers opportunities for the students to collaborate, providing social and group cohesion.
- *Cognitive presence* provides opportunities for learners to explore, inquire and construct new knowledge.
- *Teaching presence* requires designing the appropriate learning environment (with cognitive and social presence in mind), facilitating these activities, and offering direct instruction where required.

The modules of focus for this research are constructively aligned where the learner actively constructs their own understanding, and the teaching and assessment is then aligned with the required learning outcomes. Online learning in its best form according to Palloff and Pratt (2003, 2011) is learner-centred and learner focused. Dwivedi et al. (2019) agree and that indeed online learning provides learners with ubiquitous learning opportunities. Perkmann et al. (2013) have noted that academic engagement represents an important way in which academic knowledge is transferred into the industrial domain, while citing (Cohen, Nelson, and Walsh 2002) as remarking that companies consider this as significantly more valuable than licensing university patents. Informed by these concepts, the online industry modules are designed to maximise academic engagement through increased social interaction. Industry learner engagement is paramount to the social and cognitive

presence offered by the module. These modules are in many respects unique to other online modules due to the design considerations that cater to the needs of the industry learner. Garrison and Cleveland-Innes (2004) have identified interaction as the greatest student adjustment to online learning, both socially and cognitively. With social presence heavily shaped through peer interaction. However, they also note that teaching presence in the form of facilitation is crucial in the success of online learning. Garrison and Cleveland-Innes (2005), Anderson and Garrison (1997) and Moore (1989) have remarked directly and indirectly that it is valuable and even necessary to create a community of inquiry where interaction and reflection are sustained; where ideas can be explored and critiqued; and where the process of critical inquiry can be scaffolded and modelled. Interaction in such an environment goes beyond social interaction and the simple exchange of information. A community of inquiry must include various combinations of interaction among content, teachers, and students. Conole (2013) noted that design for learning approaches help teachers to shift from focusing on content to learning activities and student experiences. Wang et al. (2022) in their work have shed light on the internal mechanism of different interactions on learners' learning engagement and provide important theoretical and practical implications for promoting learners learning engagement in the online learning context.

The focus on designing, developing, and delivering modules to enable the learner to not only identify their current practices but share this knowledge in a moderated environment. Whilst allowing participants on the module to gain knowledge that isn't traditionally in a book is key to the design of the modules for the industry learner. Industry currently practices knowledge and its relevance with theory via academic engagement is a desired outcome, bringing content and context together to promote an online module that is successful and also matching content to learning outcomes through eLearning activities. For industry learners, the goal for education providers is to design more effective educational delivery systems that will meet the needs not just of the learner but their employer also. A key concern for academics when teaching industry learners is striking a balance between academic theory and practical experience. A key concern for industry when having their employees on an academic programme is striking a balance between getting their academic award and seeing a return for this learning reflective in their work practices.

Palloff and Pratt (2011) recognise that an effective online instructor will know how to get the process started, facilitate it effectively and then get out of the way and observe the results, jumping in as a resource to share expertise and guide the process when necessary.

Programme design philosophy for industry learners

The programme under review for this research is designed using the 'Moodle' Learning Management System (LMS). While lecturers can easily use activities in Moodle to deliver content and assess learning, Moodle also supports a range of communication and collaboration tools for example synchronous webinars, discussion forums, MSTeams, Panopto to enhance peer-to-peer and learner-to-teacher interactions.

Suitable levels of peer interaction, continuous feedback, and accessible systems have been identified as critical factors in online learning environments (Panigrahi, Srivastava, and Sharma 2018; Wong et al. 2019). The academic structure and supporting LMS were designed prior to the pandemic in response to industry learner needs. In essence, the pre-existing needs of industry learners became closely aligned with all university-level learners due to the pandemic (Kara 2021; Panigrahi, Srivastava, and Sharma 2018). Task and topic selection was based on the design principle of maximising interaction within the specific professional contexts of the industry learners.

The LMS allows for the use of discussion forums, teamwork, and interactively to give these learners the opportunity to explore current practices at their organisations. The learner is linked with the learning environment via the intended learning outcomes. The resources and supports are included in the design to facilitate learning. The module format follows the design presented by Hunt et al. (2021) focusing on making content accessible to all learners at any time and any place. The typical

learner on the programme is working in industry and is globally dispersed and requires multiple means of access. Modules are delivered over five weeks and their design follows constructive alignment through social, teaching, and cognitive presence. The introduction of discussion forums and webinars provides these learners with tools to engage and collaborate with fellow classmates. The use of e-tivities and reflective practice provides these learners opportunities to express themselves whilst achieving their learning outcomes from their activities and knowledge exchange.

Modules are self-paced with content-driven information designed in block format for easy access and viewing. Supported by relevant resources to support the learner. Each module is supported by the lecturer who takes on the role of an 'eModerator'. A term introduced by Salmon (2004) where she identifies the eModerator as having the essential role of promoting human interaction and communication through the modelling, conveying, and building of knowledge and skills. Emphasising that an e-moderator undertakes this feat through using the mediation of online environments designed for interaction and collaboration.

Figure 1 provides an example of the different design elements of content for a typical five-week module delivered to postgraduate online industry learners who are participating on a MSc in Supply Chain Operations and a Professional Diploma in Supply Chain Management at the University of Limerick, Ireland. The image below is useful as a representation of the template used by other academics on the programmes for their module design content approach, illustrating how the different elements of a module are brought together in a constructive aligned way.

There are a wide variety of students, both nationally and internationally, from various industries enrolled on the programmes, such as health, manufacturing, finance, defence forces, logistics, and aviation. The online industry learner profile is presented in Figure 2 and these learners are ranging from new entry to senior level of management at their organisations. There is a widespread in age from over 25 to under 60 years of age. Previous delivery methods of learning for these learners have included face to face, blended and fully online learning.

The main objective for these learners to return to education is to upskill in order to get promotion or to move into another role either in the organisation or outside of their organisation. More recently as noted in the National Training Fund Expenditure Report 2019 (2020) issued by the Department of Education in Ireland there has been an increase in government funding such as apprenticeship funding, springboard funding to encourage industry to support their workers to go back into education. Freeing up time for them to attend online lectures and complete their deliverables and assignments.
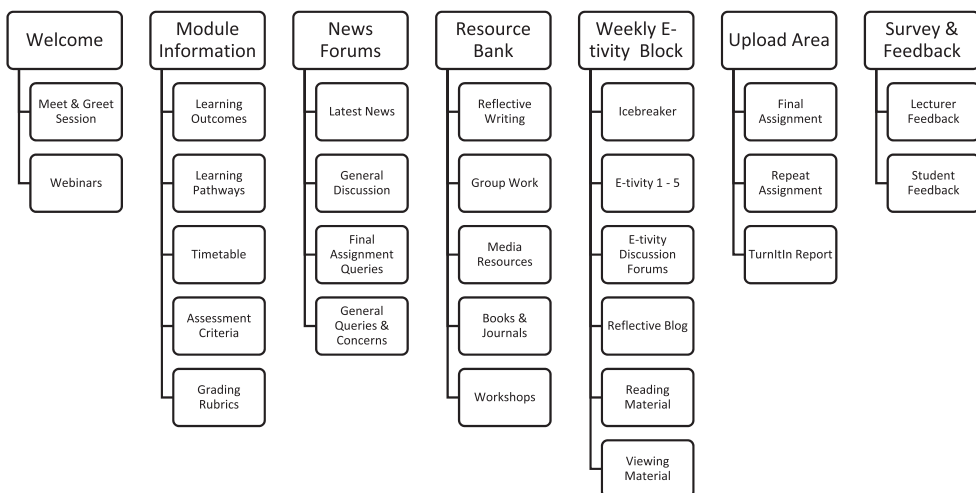

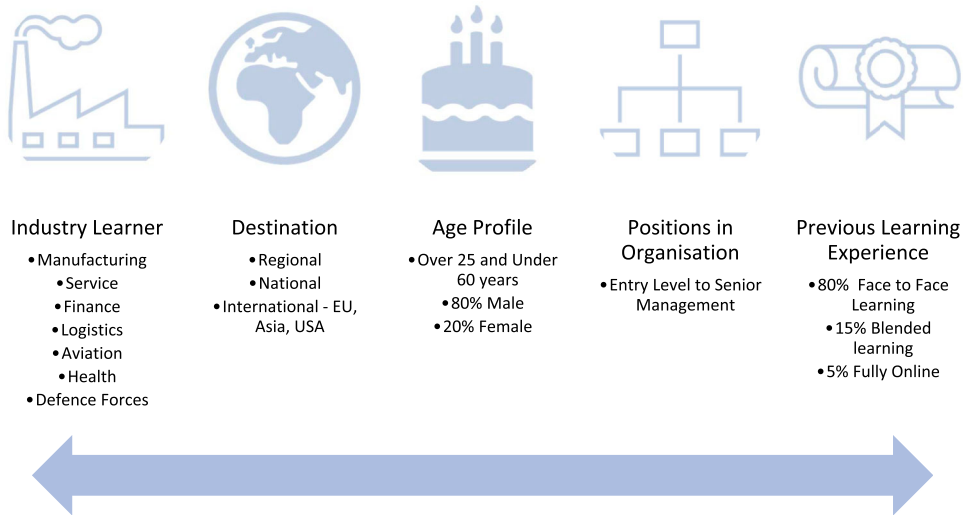**Figure 1.** Module design content approach.

Industry Learner
- Manufacturing
  - Service
  - Finance
- Logistics
- Aviation
  - Health
- Defence Forces

Destination
- Regional
- National
- International - EU, Asia, USA

Age Profile
- Over 25 and Under 60 years
- 80% Male
- 20% Female

Positions in Organisation
- Entry Level to Senior Management

Previous Learning Experience
- 80% Face to Face Learning
- 15% Blended learning
- 5% Fully Online

Figure 2. Online industry learner profile.

Research methodology

To establish the experiences of industry learners during COVID-19 an analysis of reflective exercises that participants collected at key stages of their learning was completed. As part of the programme design, learners are required to complete reflective exercises detailing their learning experience. Examples of prompts and questions include:

(1) Please comment on your experience of working in a group. What did you learn about yourself?
(2) Would you do things differently if you were to work as part of a group in future?
(3) Please comment on your experience of the reflective writing activities that you completed in this program.
(4) Please comment on your overall experience of the SCM Framework module.
(5) If you have any suggestions for improving the module, please let us know.

These online reflective exercises are first supported at the Induction stage of the programme. As the students complete their modules their reflective practice is developed and at the end of each module, they are provided with a student feedback survey with questions relating to key activities and experiences throughout the module. These key questions are posed to reflect the different activities carried out during the module. For example, learners were asked to describe their experience of collaborative learning immediately following submission of a team-based exercise in week 2 and week 3. Learners were also asked to comment on their reflective writing practices in week 1 and week 4. They were also asked to identify the key learning outcomes they achieved during their five-week participation. At the conclusion of the programme learners as identified in Table 1 were provided with an opportunity to participate in this study by facilitating access to their reflective exercises for analysis.

A total of 60 responses were received over a five-week period (January 2021–February 2021) from industry online learners participating in two postgraduate supply chain programmes. These individuals typically are a minimum of 4 years post primary degree qualification, which would suggest that their age range falls anywhere between 25 and 60. Typically, the majority of industry learners are in their 30s and 40s, however a few individuals at the senior level who are in their late 50s participate on

Table 1. Industry learner demographic.

Programme Name	Number of Industry Learners	Female	Male
MSc Supply Chain Operations	32	9	23
Professional Diploma Supply Chain Management	28	10	18

these programmes. Individuals who are older tend to complete the programmes to achieve an educational award as opposed to having the pressure to upskill.

Ethical approval[1] was sought and granted by the School of Engineering at the University of Limerick, Ireland to ensure the research captured ethical guidelines.

Data analysis

The data was analysed using Braun and Clarke's (2006) six-step framework. The first step involved a comprehensive review of the data in order to familiarise the researcher with the data set and create initial notes. In the second step, responses were coded and reviewed. A second researcher then independently reviewed these codes, and any lack of consensus was discussed and finalised. In phase 3, themes were generated and all codes were assigned to a theme. In phase 4, these themes were reviewed first by the researcher who created them and subsequently by a co-author. Any disagreements were explored and resolved before moving to the next phase. This resulted in the creation of a thematic map as illustrated in Figure 3. In phase 5, themes were further refined and an explicit definition for each was created.

Phase 6 resulted in the creation of the research paper combining a critical review of the themes with relevant literature (see Figure 3).

Study design and execution was based on principles of trustworthiness, dependability, and reflexivity (Nowell et al. 2017). Data analysis credibility was supported through peer debriefing and review in phases 2–5 (Lincoln and Egon 1986). In line with (Tobin and Begley 2004) comprehensive record keeping was completed at each stage to enhance transparency and to provide suitable information for potential peer review.

Findings

The findings indicated an overall positive experience associated with online learning during COVID-19. While some challenges were experienced, be it from infrastructure or connectivity issues at home, or general preferences with regards to group/individual work it was clear that the overall structure, design, implementation, and infrastructure used during the module were viewed with a high degree of positivity.

During the analysis process, three themes were generated from the data, derived from the learner experiences. These themes were social functions, group dynamics, and systems factors as noted in
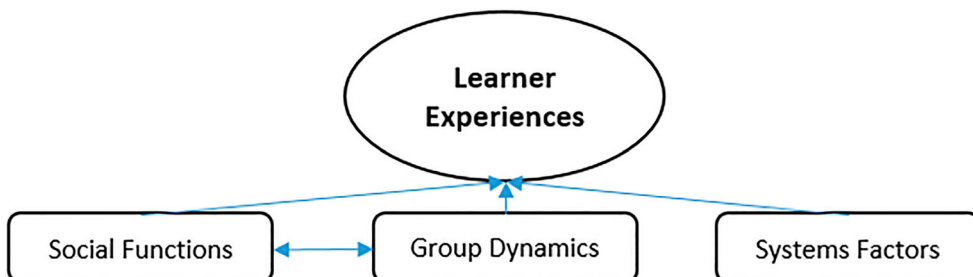
Figure 3. Thematic Map.

Figure 3 which included a number of cross-cutting codes relevant to both social functions and group dynamics, demonstrating the inter-connectivity of these areas on the overall student experience. The themes are elucidated as follows.

Social functions

The social function's theme represents the variety of ways by which participants felt the online delivery of the module impacted upon their socialisation experiences as presented in Figure 4.

The majority of participants were very positive about the design elements that encouraged social interaction. Consistent lecturer social interactions and student-to-student interactions were identified as valuable. The value associated with lecturer social interactions is an important point to consider as Wong et al. (2019) identify positive lecturer learner interactions as critical in the development of support systems and by extension long-term retention. Of particular note was the emphasis placed on the value of collaboration within the sample.

Participants from this perspective noted the valuable links to industry which were utilised. It was also valued in many instances due to the value associated with working with their peers, due to the support that they were able to offer, with one participant (Participant 16) stating 'Good humour and banter lifted spirits when dealing with new objectives and concepts which otherwise may have been
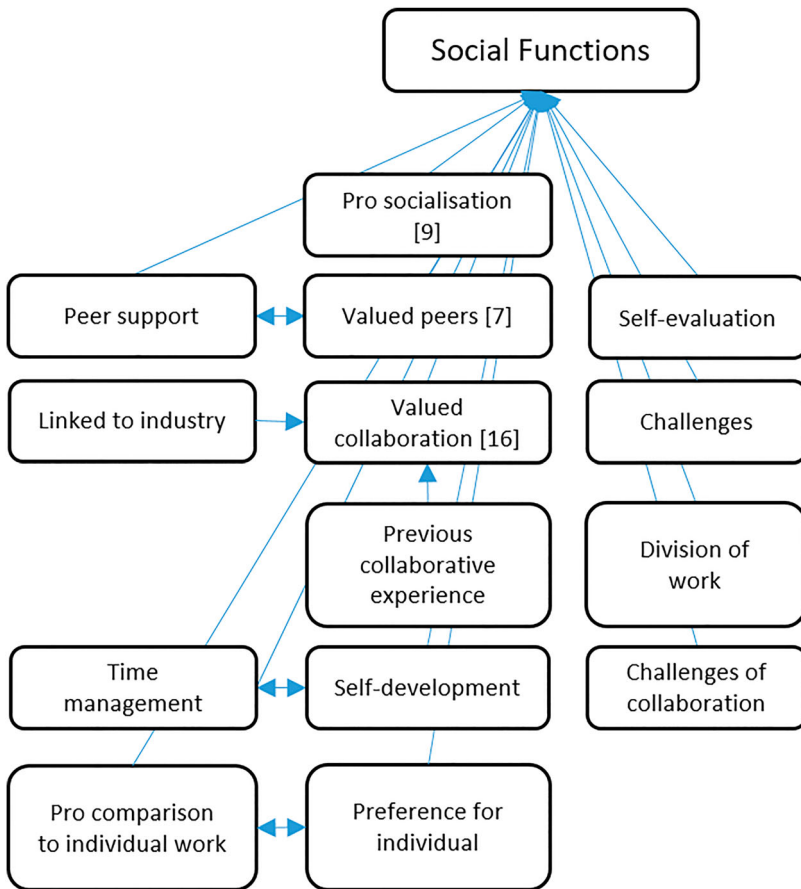

Figure 4. Social functions theme.

daunting. The group dynamic relieves stress and I firmly believe is an absolute must for the success of online platform teaching'.

This resonates with the work of Means et al. (2009) who identify the development of a sense of community and social engagement as a key factor in student engagement and performance. These experiences were also highlighted in the context of personal self-development for working in teams, but also in the development of skills relating to effective time management.

This is not to suggest that there were no challenges evident in the process of these social functions. There were a minority of participants who found working in collaborative groups online in some part challenging, most notably due to the division of work and communication issues. One participant (Participant 22) stated '*The group I am in has a mixed level of experience and there are cultural and communication issues. This coupled with not being able to meet in person and people not using their cameras at online team meetings has made it pretty difficult and frustrating at times*', while another (Participant 15) stated '*I found I took the lead in all the group work - I do like having control but it was an extra stress*'.

However, it is worth noting that while these frustrations were highlighted, these participants were still looked upon the group elements of the module favourably. The challenges highlighted here have been reflected in previous work by Popov et al. (2012), who examined the benefits and challenges of multicultural student group work in Higher Education.

Group dynamics

The group dynamics theme as illustrated in Figure 5, focuses more closely on the group structures and types of interactions experienced therein. Some codes relevant to the social function themes were also relevant here, most notably those relating to challenges and the division of work which were previously highlighted.

There was an inherent value associated with interactions within the group themselves, particularly through the communication between one another and communication of specific ideas relating to topics being discussed. However, in some instances, these were also identified as sources of friction within groups when some did not contribute '*The group work was beneficial albeit that not everyone contributing*' (Participant 5).

Despite these levels of friction in a minority of cases, there were several strategies identified that led to what participants considered to be positive group dynamics. These referred to the overall structure of the group, wherein there was an equal division of work but also when there was an organisation structure in place within the group, with a participant (Participant 12) stating '*Excellent engagement in group work. Identified leaders within group and worked to teams strengths*'.

Identification of peer strengths suggests a mitigation of perceived excessive difficulty. Excessive difficulty has been linked to reduced self-efficacy (Power et al. 2019), which in turn has been repeatedly linked to lower retention, performance, and engagement within online learning environments (Yokoyama 2019). Riese, Samara, and Lillejord (2012) suggest that instructional design and students' professional knowledge can mediate group interactions. The findings of this study support this supposition with frequent links between challenges and value of the group-based element reported.

There was also a recognition from one participant that suggested exposure to these group experiences and their ensuing challenges is important as it is what would be expected of them in their own professional roles '*Working with others is a key requirement for successful organisations. The group commenced their work in a professional manner and ensure mutual respect*' (Participant 14).

Systems factors

The systems factors theme, as presented in Figure 6, refers primarily to the learning management system (LMS), student experiences thereof and the general structure of the programme. It is worth noting that issues with the system were infrequent, with the majority of participants
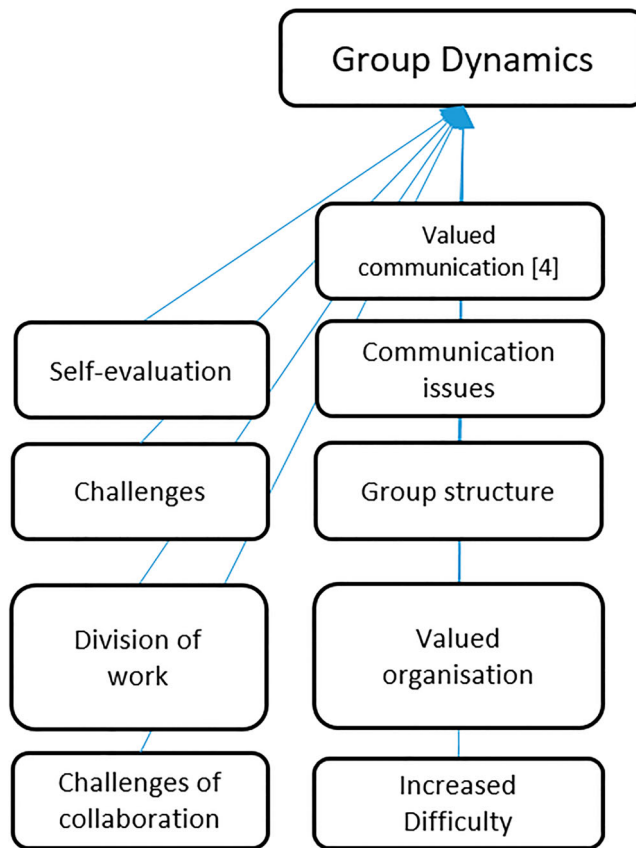
Figure 5. Group dynamics theme.

finding it complimentary to the work that they were asked to engage with and particularly from a collaborative perspective.

However, there were some notable points of feedback with respect to systems factors. There was an acknowledgement that the deadlines for assigned tasks were quite tight and condensed, and while this seemed to be initially problematic, overall, it was felt that this contributed to the group remaining focused on the task. The individual activities and tasks which were to be completed were viewed as valuable in participants' professional learning, particularly the reflective writing tasks with one participant (Participant 1) stating

> A completely new method of learning for me. I didn't really understand the purpose in week 1. I saw it as a fancy way to journal. But by the end of the module in week 5, I could see the benefits of critically analysing your learning outcomes and building on them week to week.

In relation to the tasks assigned it was felt by a minority of participants that feedback would have helped them to develop further. Each of the areas highlighted in the system factor's theme align with the work of Wong et al. (2019) and Panigrahi, Srivastava, and Sharma (2018), who highlight peer interaction, continuous feedback, and accessible systems as critical to the success of an online learning environment.

There were some technical difficulties noted, particularly with reference to home infrastructure and internet connectivity, but also in developing an understanding of how to utilise the learning management system (LMS). There were some that noted their personal preference for a different platform to be used for meetings and communication.
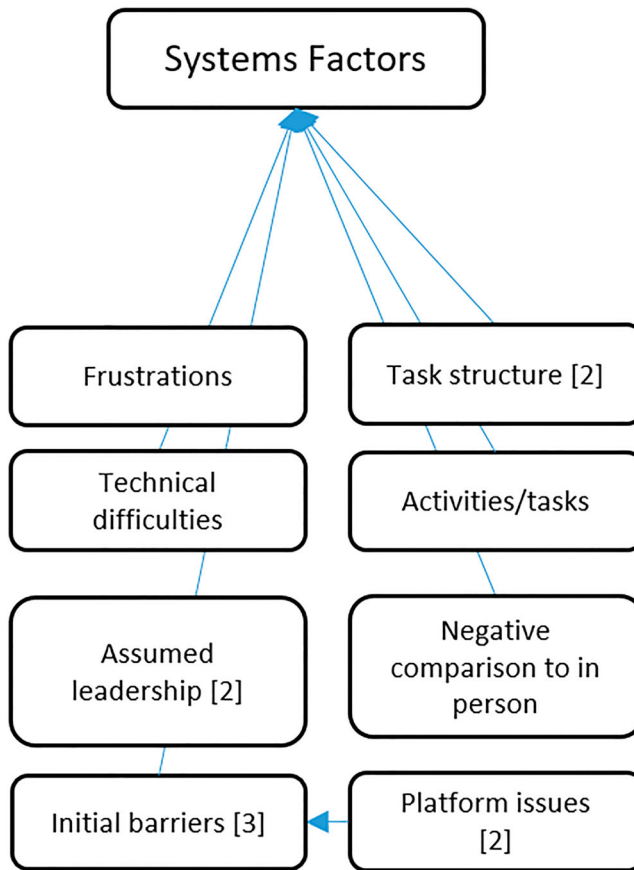
Figure 6. Systems factors theme.

Thematic map summary

The inter-connectivity of individual codes and their corresponding themes are highlighted in Figure 7.

Key elements to note here include the predictable links between social functions and group dynamics, particularly in terms of the organisational structure of groups, the division of work within and both the value and challenges associated with collaboration. The inter-connectivity of these elements is reflective of what is known with respect to creating effective learning communities (Ausburn 2004; Wong et al. 2019; cited in Youde 2020). Within this context, a balance was notable among participants in terms of recognising those challenges but in turn acknowledging the value gained from those experiences in the development of their own professional capacity. It was also clear that there were motivational benefits associated with engagement in collaborative work where participants felt responsibility for their own contributions within the group. These findings are positive as they demonstrate the development of an effective community of inquiry, that supports one another and allows ideas to be explored and critiqued (Anderson and Garrison 1997; Garrison and Cleveland-Innes 2005).

Participants who had prior experience working in collaborative groups placed a higher value on these types of working arrangements, in some instances linking them to what are industry realities. Some people may not like group work, however, it is something that would be expected in a professional capacity. Challenges associated with group work are common (Popov et al. 2012),
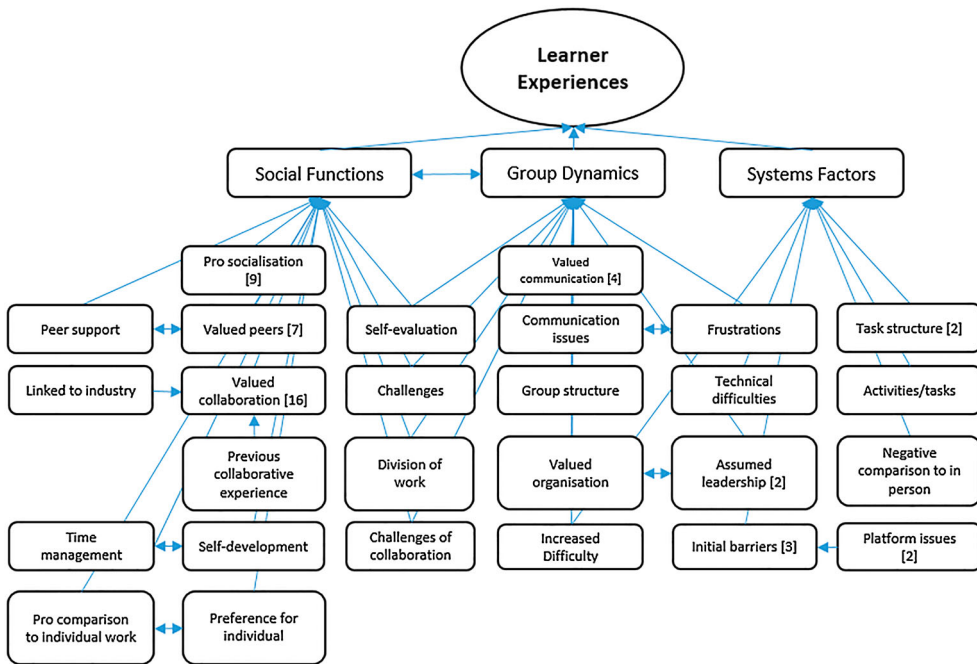
Figure 7. Inter-connectivity of individual codes and their corresponding themes.

particularly in multicultural groups, however, it is possible to overcome these with appropriate guidance and support. The challenges themselves often are a learning opportunity in and of themselves. While there were those that acknowledged that there are opportunities for personal development in the challenges associated with collaborative projects, there were the minority that did feel these challenges outweighed the benefits due to the varying standards of participants within the group but also in trying to manage others. However, it is worth noting that it was consistently reported in the context of peer support, that there was broadly a high estimation of peer ability through their knowledge, experience, and expertise, which is evidence that social engagement and the development of a sense of community aided in student engagement and performance (Means et al. 2009).

Within the context of the systems factors, as mentioned previously, there were some issues with respect to the platform used and initial barriers associated with understanding and utilising the LMS. Every effort should be made to alleviate such issues as accessible systems are in and of themselves critical factors in successful online learning environments (Panigrahi, Srivastava, and Sharma 2018; Wong et al. 2019). It is quite possible that these latter issues could be rectified through a type of orientation/training programme. This in turn could have a positive impact on the frustrations which have been linked with communication issues.

Conclusions

The findings of this study highlight the multitude of factors that impact the learner experience in an online environment. The inter-related nature of these factors aligns with prior research findings. A systematic review by Muljana and Luo (2019) suggests that an integrated approach to development is necessary if retention or performance is to be enhanced. This requires a coherent programme design, adequate resourcing, and a common vision for key stakeholders. The findings of the current study highlight the initial design considerations that maximised social interactions and

how these considerations positively impacted industry learners during the pandemic. This is highlighted within the identified Social Functions and Group Dynamics themes. The interplay of codes within these themes further supports the critical mitigating role of social interactions in mitigating the negative impact of the pandemic. As suggested by Kara (2021), the rapid move to online systems can often impact the quality of pedagogy as practitioners revert to traditional practices in the face of uncertainty. This transition can also cause learners to reassess their capabilities within online learning spaces and must be carefully considered when designing such systems (Power et al. 2022). In this manner well developed online pedagogy, grounded in a coherent design, mitigates the often-touted limitations of online learning, while also avoiding the impacts of a rapid transition to online. This is echoed by over a decade of robust online education research that suggests that sound pedagogical design can mitigate most reported limitations of the medium (Martin, Sun, and Westine 2020).

Social functions were highly valued by participants and frequently linked with personal development, support, and relevance to industry roles. Existing research has also identified social functions as critical for engagement, retention, and performance within online learning environments (Alqurashi 2016; Wong et al. 2019; Kara 2021). It is worth noting the wide range of positive perceptions that learners had regarding the social interaction design features of the programme. Not only did they identify it as a crucial personal support, but also as directly enhancing learning, aiding time management, enhancing motivation as well as enhancing self-evaluation. This suggests that the common complaint of a lack of interaction in online learning is a design flaw as opposed to an inherent limitation of the medium (Kauffman 2015). Further research examining the nature of group formation and its impact on these social supports has potential benefit for future digital and collaborative learning designs. These designs could be greatly enhanced by the user data collected within online learning systems. Future studies, and designers, should consider the nature of this data and whether it can be ethically shared openly in order to enhance the research collaboration and facilitate further integration of Open Science principles (Power 2021).

The unique learning needs of the industry learner in many ways were predictive of the challenges faced by most university-level learners when the pandemic fundamentally changed tertiary education (Aboagye, Yawson, and Appiah 2020). Industry learners had to balance caring duties, shared study spaces, limited engagement time, and the lack of social support that naturally form in a physically shared learning space. This study suggests that key design decisions that were made to mitigate these challenges resulted in a relatively minor impact when COVID-19 hit. In this manner the current study provides a perspective on programme design that could be useful for course designers that will likely retain elements of online and blended learning post-pandemic.

Note

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Data availability statement

The authors agree to provide the anonymised dataset on reasonable request.

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