

# **Reframing University-level Entrepreneurship Education through Digitisation and Transformational Technologies:**

*An institutional case study*

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## **Abstract**

An analysis of entrepreneurship education (EE), particularly of its positioning within digital and pedagogical techniques appear to be gaining ground. Academic activity in this area has been stimulated by a plethora of concerns. Much of the discontent, has been stimulated by concerns around limited resources for digitalisation, best practice and ineffective constructive alignment. In this chapter, we define the field by taking stock of our reflexivity towards locating quality enterprise pedagogy, and exploring the links between digital delivery and context. We then draw on the results of a qualitative exploratory study of 40 enterprise students to demonstrate how using a ‘digitisation and transformational technology’ lens provides novel insight into quality entrepreneurship delivery. Interview data reveal that perception of transformative digital applications influences quality teaching and effective learning. The resulting development encourages more long-term and richer educational experience. The paper utilises data from a recent case study and supplements them with information qualitative survey to illustrate how quality entrepreneurship education is created using effective transformative technologies.

## **Keywords**

Entrepreneurship education; social context; digitisation; pedagogy, higher education

## **Introduction**

Entrepreneurship Education has recently evolved as an important aspect of research. To date, majority of academic approaches for entrepreneurship education (EE) have involved being embedded within face-to-face delivery. Traditionally, much of the research have focused on traditional pedagogical approaches and appear to have lost sight of emergent themes within the field. While it is widely accepted that the 21st Century enterprise educator should embed digital component to their offerings, higher educational institutions appear to be playing catch-up in this regard. There is no agreement in literature on how effective EE should be delivered. Whereas some authors put strong emphasis on the role of the universities (Omeihe and Omeihe, 2019), others also point to the importance of unique enterprise strategies (Crammond *et al.*, 2018; Murray *et al.*, 2018). At the same time, although the global COVID-19 pandemic has transformed the landscape, many areas of higher education appear reluctant to engage with more dynamic digital approaches. This chapter will concentrate mainly on how transformative approaches to delivering entrepreneurship education.

The adoption of technology for enhancing EE is not a by any means a new concept. Its uniqueness, broadly conceived, may be seen as embodied within knowledge advancement and dissemination. Technology affects the level of EE delivery within institutions and hence influence students and cohorts to be more entrepreneurial. EE approaches differ between higher educational institutions, however a combination of prescribed, educational and governmental reporting, demand renewed approaches towards reshaping EE delivery.

The recent pandemic has brought to light the need to reform EE offerings across board. For example, the recent whitepaper highlights the importance of entrepreneurship education in informing the Scottish government's work and future priorities for action (Scotland Gov. Report, 2021). We do, however, also find that digital competences enhance students' entrepreneurship (Scuotto and Morellato, 2013; Del Giudice *et al.*, 2014; Spante *et al.*, 2018; Le Dinh *et al.*, 2018). This is particularly notable as such competences improve human capital for new business ventures (Murray & Palladino, 2020). Among scholars who take seriously the value of EE (for example Kirby, 2004; Kuratko, 2005; Liñán *et al.*, 2011), the prime influence of EE is seen to be overarching, as it accelerates global growth and new advancements in innovation. Scholars such as Mwsalwiba, (2010) and Gonclaves *et al.*, (2017) do not completely neglects transformative elements of EE, however they remain stoic in their assessments that teaching methods should be evaluated and designed to enhance entrepreneurial competences. As EE in this stance is seen to be transformative, it is not assumed that educators are aware of best practices for its delivery. Instead, there should be a strong rationale for EE methodologies that distil entrepreneurial knowledge and skills within the start-up process. Despite that, there is still a paucity of studies in the field on (EE) and digital technologies.

In response to these productive advancements, this chapter goes beyond the conventional view to examine the application of digitised forms of education and transformational technologies to EE. In agreement with Murray *et al.*, (2018), we hold that current EE approaches are not enough to enhance innovation and competitiveness. Consequently, we discuss the many considerations for universities, as our focus will be to recommend contemporary approaches for EE delivery and their degree congruence across HEIs. This is apposite amidst and beyond the current COVID-19 pandemic.

An exploratory case study of an undergraduate module is reviewed, as the EE context is analysed through the contingency-based perspective. These perspectives are employed to explain the scope of our approach and their legitimacy for EE delivery. Our examination of EE approaches will pay attention to how much alternative forms of digital delivery differ with current traditional approaches and particularly to what extent they can be endorsed across HEIs. The design of the study is interpretive, following an emergent iterative process, where a case study signals the efficacy of digitalised approaches to EE in higher education is uncovered. The analysis of the findings is focused around one sub-question:

*RQ1: What are the types of digital technological platforms needed for effective EE delivery?*

In leading and promoting the digitised agenda, reflections on contemporary understanding of contingency theory are considered and, latterly, critically analysed as the case study evidence is presented and detailed. It is proposed that a new pedagogical response towards the digitalisation of entrepreneurship education is offered and designed along purpose, vision, strategy and operationalisation lines. The paper concludes by considering the way the themes can be tentatively validated to ascertain their transferability across other HEs. The findings reached in this study provide well founded and valid insights into the role of digitalisation in HEI.

## **Contexts of entrepreneurship education and digital platforms**

Entrepreneurship, as a process, is characterised by the pursuit of opportunity for fulfilling market needs. It is the product of a combination of skills, knowledge and mindsets which form the core capabilities needed by entrepreneurs (European Report, 2015; Pano and Gjika, 2020). Although it is widely held by scholars that teaching entrepreneurship in Higher Education improves the quality of graduate business start-ups (Galloway and Brown, 2002; Jones and Iredale, 2010), the view that entrepreneurship education fails to meet the needs of students within Higher Education continues to garner debates. There is, across studies, a growing attention being paid to the delivery of entrepreneurship education. While some commentators are convinced that entrepreneurship education should eliminate aspects of teaching that encourage surface approaches to learning (Omeihe and Omeihe, 2019), many believe that a digital shift in delivery approaches will optimise effective teaching interactions with students (Biggs and Tang, 2011; Murray *et al.*, 2018). Owing to the fact that students acquire entrepreneurial knowledge and mindset students while at university, it is expected that contemporary pedagogical approaches to learning should be applied.

In fact, the notion is ripe that the digital delivery of entrepreneurship education is of high topicality, as advances in infrastructure continue to create opportunities for student entrepreneurs. The greater degree of digital evolution has not had a destructive impact on the delivery of entrepreneurship education. On the contrary, the infusion of cloud computing, social media, 3D printing, and data analytics has transformed the very nature of entrepreneurial outcomes (Nambisan, 2017; Vorbach, Pandl and Korajman, 2019). Indeed, there is evidence that (Bennett, 2006; Samuel and Rahman, 2018) that digital platforms can stimulate effective teaching, as learning thrives better within the framework created by innovative approaches to pedagogy. As a generalised philosophy, it must be noted that the delivery of entrepreneurship should be non-prescriptive and fluid (Jones and Iredale, 2010). This is because it provides the opportunity to meet learner requirements and classroom expectations.

For higher education, the scope and core essence of digital platforms is that they allow the increasing effectiveness of entrepreneurship education. To understand the degree to which digital platforms have been adopted by higher education, it is important to consider the technologies that are associated with entrepreneurship education. As is made clear by Akhmetshin *et al.*, (2019), three emergent technologies have become recognised in the field of entrepreneurship education. They include mass open online modules, online personalised learning and simulation-game based learning. Together, they have become widely used in universities that are oriented towards the delivery of entrepreneurship education (Kaminstein and Child, 2013; Spector, 2014). The strength of these emergent technologies mean that students are guided to make self-discovery by being exposed to the workings of a flexible learning environment. This, in turn, enhances those attributes and the generally applicable skills that form the basis of the entrepreneurial mindset.

## **Entrepreneurship Education and Industry**

Reflecting upon the relationship between EE and Industry, different considerations emerged along with barriers and challenges. For instance, there is an increasing need of investing more in EE to generate more entrepreneurial ideas (Lerner 2009; Colombo et al., 2014). Lack of investment are acknowledged to reduce the level of capabilities and skills in developing new business ideas (Alese, 2014). The results include a paucity of business planning and constraint in knowledge transfer (Chinoye et al., 2015; Hammawa and Hashim , 2016; Ali and Salisu, 2019). Yet, along with the capacity of nurturing new entrepreneurs, entrepreneurial personal attributes are still crucial. Turner and Gianiodis (2018) affirm that ‘entrepreneurial passion’ spurs new business ideas and skills to build new entrepreneurial paths, acting deliberation and/or serendipity (Alvarez and Barney, 2007). To emphasize that student can generate knowledge and so put in place new entrepreneurial ideas. It calls for a design thinking approach (Lynch et al., 2019). A new way of teaching that goes from a top-down to a bottom –up approach. A shift which was introduced with the evolvement of the knowledge era where the real assets of companies are based on intangible factors such as know-how, skills, and capabilities which can be nurtured and be part of an individual.

The opportunity to share knowledge is connected to the new modern conceptual meaning of capitalism. Coultrier has recently discussed the future of capitalism relying on a form of altruism which leads new entrepreneurial realities. This goes beyond the pragmatism of Smith and embraces the modern terms of social values, family goals, and ethical world where EE can nurture the nature of new entrepreneurial spirits. It is an entrepreneurial spirit that depends on internal and external situations that calls for contingency theory. In fact, the contingency theory helps to explain how the combination of cognitive skills and uncertain environment influence future entrepreneurs (Honig, 2004). Hence, there is the need to orientate students towards the entrepreneurial world. This occurs mostly when industries cannot offer proper and well paid jobs that the future workers need to find their own pathway. Such a situation can characterize emerging economies (Mentoor & Friedrich, 2007) and developed markets (Hussain & Norashidah, 2015). The industry is aware that entrepreneurs are not just born but they need to be nurtured by EE (Sharma & Chrisman, 2007). Learning how to be an entrepreneurs should be combined with the experience of being an entrepreneur (Muehlfeld et al., 2017). In this context, the matter is can the EE facilitate the combination of learning and experience in an early entrepreneurial stage? It may be addressed by the new proposed approach in the following paragraph.

### **The topicality of teaching ‘for’ entrepreneurship education: *the educator***

Core to the application of digital platforms for entrepreneurship education is the paucity of resources-in the form of human resources and institutional funding. These have been acknowledged as central obstacles impeding the transition towards digital platforms. On the part of instructors, delivery is predicated on having the requisite skill sets. In fact, there has

been a tendency that compared to more traditional didactic education methods, the use of digital platforms dilute learner expectations-in their understanding of the issues and processes involved. As such, there is little motivation on the part of the educators to exploit digital learning opportunities. The outcome is that educators are reluctant to engage in contemporary approaches to delivering enterprise education. It is also particularly noteworthy, that although the acquisition of digital platforms of EE is labour-intensive and costly, effective pedagogical delivery via digital platforms requires specific training. And with a lack of funding and shortage of human resources, it becomes difficult to meet growing student demands (Spante *et al.*, 2018; Omeihe and Omeihe, 2019). In the absence of strong institutional support, there is a very real danger that educators may be unaware of the related potentials of digital platforms and its emerging opportunities for enterprise education.

Not surprisingly then, it becomes expedient to acknowledge that the role of digital platforms is to enhance innovative performance of educators and students alike (Donovan *et al.*, 2013; Hero and Lindfors, 2019). When applied to the delivery of entrepreneurship education, it creates an authentic learning process through which collaborative ideas are transformed into more concrete results. At the centre, such ideas are implemented to produce novel solutions and object-oriented entrepreneurial value for the real world. Accordingly, this chapter explores range of digital approaches to EE delivery in the context of HEIs. There has been limited research on the role of transformational digital technologies in enhancing EE. Hence, there is a need for a greater understanding of the novel approaches to EE delivery.

## **Methodology**

### *Sample and data collection*

The explorative nature of this study demanded an interpretivist approach to capture the richness of the EE context. The interpretivist nature is centred on the reality of the subjective experiences and uniqueness of the participants (Schwandt, 1994). Following Yin (1994) the empirical aspect of this study adopts a multi-case study approach that gauges the delivery of EE within an undergraduate course at Scottish university. Identifying the cases was based on a purposive sampling approach, consistent with the research question. This was useful in investigating the contemporary phenomenon which exists between students and learning within real life contexts (Yin, 2009). Our comparison of the multiple cases provide clear conclusions of how students and educators make sense of technological platforms from their particular vantage point (Kings and Horrocks, 2012; Fellnhofner, 2015). It also encourages educators and academics alike in ascertaining new avenues of facilitation and investigation, as well as enhance existing teaching and research projects (Lahn *et al.*, 2016; Kraus *et al.*, 2018).

Many studies have adopted an exploratory approach to gauge the delivery of EE as well as the response from the cohort (for example Dutot and Van Horne, 2015; Lahn *et al.*, 2016) as well understand the application of methods within given group, course, or institutional contexts (Warhuus *et al.*, 2017; Murray *et al.*, 2018; Tennakoon *et al.*, 2020) Employing this case study

method allows for detail, description, and reflective information to be documented and discussed. Additionally, a chronology of activities are made clear, with regards to the various factors crucial towards a EE offering: platform; information; innovation; marketisation; delivery; and, assessment.

Based on the nature of this study, the unit of analysis were enterprise education students studying at a Scottish University. The empirical analysis focus on them as key informants, as they provide as unique lens through which one can best understand unique EE delivery approaches (See table 1).

Table 1 Sample details of students

<i>N</i>	<i>Student details</i>	<i>Gender</i>	<i>Location</i>	<i>Course</i>	<i>Campus</i>	<i>Age bracket</i>
1.	Student 1	Male	Online	Enterprise Creation	Paisley	18-25
2.	Student 2	Female	Online	Enterprise Creation	Hamilton	20-24
3.	Student 3	Male	Online	Enterprise Creation	Hamilton	23-26
4.	Student 4	Female	Classroom	Enterprise Creation	Paisley	21-24
5.	Student 5	Female	Classroom	Enterprise Creation`	Paisley	20-24
6.	Student 6	Male	Online	Enterprise Creation	Hamilton	21-23
7.	Student 7	Male	Online	Enterprise Creation	Paisley	19-24
8.	Student 8	Male	Online	Enterprise Creation	Paisley	19-23
9.	Student 9	Female	Online	Enterprise Creation	Hamilton	24-26
10.	Student 10	Female	Online	Enterprise Creation	Hamilton	27-29
11.	Student 11	Male	Online	Enterprise Creation	Paisley	20-26
12	Student 12	Male	Classroom	Enterprise Creation	Paisley	21-27

*\*The above provides a sample distribution of students. Overall, there were 40 participants.*

### *Procedure and data analysis*

The empirical component of this study examined feedback from qualitative module evaluations. Direct questions about EE seeking disclosure of sensitive information were not posed. The evaluation forms were administered electronically to help protect participants' identities. This was done to facilitate student cooperation and participation. Follow up

evaluations were done to explore the capture of specific experiences to avoid generalisations. Our choice of thematic analysis was useful in identifying themes and patterns within the data set. The analysis unearthed a long list of codes which were modified into salient themes. The identified patterns within the data corpus enables comparisons across the participant responses.

Specifically, we sought to interpret information and make judgements on issues related to quality EE delivery. Through this, effort was made to apply key responses to respective cases. Ultimately, this important in achieving an accurate and valid depiction EE delivery through the lens of the local actors. We concluded by identifying series of candidate themes and sub-themes, and as such we were able to best interpret the data. To a broader context, this provided an opportunity theme refinement which revealed the richness of the phenomenon being investigated.

### *Context*

The *Creativity, Enterprise and Entrepreneurship* (CEE) module is an SCQF Level 7 course delivered over 10 weeks in the School of Business and Creative Industries (University of the West of Scotland). As part of the BA Management (Graduate Apprenticeship) Programme, the course examines “entrepreneurialism” by looking at enterprise in the context of organisations, self-employment and the individual themselves. The core areas that this module addresses include: *enterprise awareness, enterprise approaches and tools (processes) and enterprising attributes and traits (practices)*. The module also adopts a theoretical lens, through which contextualised examples from contemporary business and organisational activity are discussed. Tutorials focus on distilling knowledge of the module content through critical and reflective real-world application (Gibbs, 1994). This is achieved within networks of class groups independent introspections. Upon completion of the module, students are expected to possess a wider and deeper understanding of creativity, enterprise and entrepreneurship for today’s business world. This is further achieved through personal reflections and an analysis of appropriate examples of enterprising behaviours.

### *Digital classroom*

The use of digital classrooms allows students to break away from the constraints of the physical classroom and connect with a wider network including industry and to engage their learning anyplace, anytime, anywhere. This was particularly topical as the global COVID-19 pandemic highlighted challenges in the traditional education paradigm which is based largely on a face-to-face delivery approach. The below table provides a practical snapshot of how a digital classroom can be operationalised at a modular level using a range of accessible technologies.

The delivery of this module employed pre-recorded digital lectures supplemented by online support materials and weekly live digital tutorials. This also included additional “clinic” sessions as required. For each delivery across three academic years, the lecturer was the same



very experienced enterprise educator who doubles as the Module Coordinator for CEE. At the end of each delivery of the Module students were asked to complete a standard survey-based Module Evaluation Questionnaire (MEQ) which captures both quantitative and qualitative feedback from students.

*Table 2*

*Module Schedule*

<i>Week</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>
<i>Online Lecture</i>	30 mins	30 mins	30 mins	30 mins	30 mins	30 mins	30 mins	30 mins	30 mins	30 mins
<i>Online Tutorial Session</i>	60 mins	60 mins	60 mins	60 mins	60 mins	60 mins	60 mins	60 mins	60 mins	60 mins
<i>Offline Tutorial Activity</i>	30 mins	30 mins	30 mins	30 mins	30 mins	30 mins	30 mins	30 mins	30 mins	30 mins
<i>Self-Directed Work</i>	60 mins	60 mins	60 mins	60 mins	60 mins	60 mins	60 mins	60 mins	60 mins	60 mins

The online lectures are pre-recorded digital video lecture. This differs from the offline tutorial activities, which involves a short exercise that contextualises the learning from each session. Here, students are expected to work individually at their own timing. The online tutorial sessions involve a live online video session using video calling platforms where staff, at a pre-set time-weekly, contextualise the learning from the lecture and the tutorial activity. The tutorial class size is set at a maximum of 25 students. For self-directed assessment work, students are expected to work independently on the module coursework

*Delivery approach*

CEE course makes use of key transformational technologies which are applied to maximise the teaching and learning experience. The goal is to deliver a more engaging entrepreneurial learning experience which is visual, vibrant and viral. All teaching applications embedded within the module are free and relatively simple to use. This is useful as the enterprise educator can work effectively with them from the outset. Elements such as “drag and drop” technologies were specifically selected for their ability to allow the users usage. This requires nothing more than a SMART phone or an iPad for access and development. Thus, there is therefore no requirement for significant institutional investments or cost saving considerations in this context. We do acknowledge that some academics appear reluctant to engage with more dynamic digital approaches.

This is perfectly understandable, however with this module, staff at a school level have been trained to implement the techniques, which have enabled a shift from traditional face-to-face delivery to be blended or fully online delivery for other modules within the programme.

## Findings

### *Students’ perceptions of the impact of technology for CEE delivery*

From our empirical analysis, there was evidence that use of fully digitised using Touch Cast was well received by the students. The process of embedding all support materials, hosted on the module Virtual Learning Environment (VLE) ensured ease of accessibility for all students. A majority of the responses suggest that simultaneous release of sessional materials accommodated students who sought to move through the module at a quicker pace. In particular, the student mentioned that they liked the fact that each session had its own tutorial activities specific to the topic for that session. All the students acknowledged that they found the pre-recorded digital lecture, useful. This enabled them to undertake tutorial activities at their own time, prior to engaging in the scheduled live tutorial session with their tutor via Google Meet.

Table 3 *Students’ responses of the use of technology*

Student details	Typical student excerpt
Student 2	Being able to learn from a distance and at any time of day/day of week is a big advantage”.
Student 5	Due to the way the course has been set up it gives us the opportunity to manage our studies in our own time”.
Student 7	“Lecturer has presented the module very well and made it easy to understand”.
Student 8	“Easily accessible lectures. Content interesting when real life examples were used”.

Student 10	I really like the manner in which the module is brought together in the digital arena through google classrooms”.
Student 17	This allows me to study when I want and also across a lot of different channels”.

The above evidence involves a self-induced reflection on the part of the students as they recognised value of the user-friendly web based. This is part of Google’s G Suite and it is intended to encourage collaboration and file sharing. For context, there are three levels of permission namely, owner, editor and viewer meaning that it can accommodate a variety of users in an academic setting. The overall look and feel of the Google based VLE is vastly superior to that offered by other platforms such as Moodle and there is also much greater scope for creativity and inter connectivity with other apps, tools and platforms.

Although much can be achieved using technology, we found that the Google site was useful to providing teaching support for the students. Half of the responses indicate that the dedicated YouTube channel for educators, providing a reliable facility for assessing created videos. This allowed the students benefit from what we refer to as a “content factory”- a useful content suite which can be accessed whenever required. Further along these lines, playlists created for various topics were well appreciated in the responses. The use of YouTube to record and stream innovative workshops supported real time viewing which accommodates 130 participants with access to live Twitter feed.

### *Personalised user experiences via technological applications*

In view of the student’s experiences and feedback, we found that the pre-recorded lectures using TouchCast (a free app which allows the user to record, edit and upload hi-definition video on an iPad and incorporate green screen technology) made learning easy for the students. The fact that viewers can simply touch to interact with the learning videos was vital for enhancing student experience. In practical terms it was entirely possible for user to become better with the application through repeated usage. We noted that 11 of the students stated that they enjoyed the use of digitally captured lectures via TouchCast, as it breaks content into short (sub 30 min) presentations. This enabled students to layer their knowledge and experience with what they are seeing and hearing. The use of TouchCast is also widely used throughout the module and essential for creating a range of supporting materials such as short “how to” videos and module overview.

As one of the students put it:

*“The live online classes were good & well structured. Also took time to meet with groups individually & evaluate progress and encourage us with broadening our plans and learning about new aspects of business and learning how to approach situations with different mindsets”* (Student 9, 2020).

As explained by the student, there enjoyed the range technologies available to support online support sessions. These were useful for individual students up to small or very large groups if required. Generally, online tutorial sessions involve teaching staff being available online, to provide tutoring support at a predetermined time. Nonetheless, it should however be noted however that although online streaming, (generally defined as the simultaneous recording and broadcasting of media in real time) places a requirement on the tutor to be prepared and to perform as “the world is watching”, this requires a degree of basic technological knowledge although this can be overcome with basic training.

Describing the personalised aspect of digital platforms, the students were found to appreciate the chat functions. These allowed the students to engage in the discussion in a relatively safe way useful for individuals who are less confident in a group or online settings. Chat activity are monitored by staff to ensure a prudent student. More than half of the cases stated that it was useful in identifying students who were not contributing. This encourages student engagement and allow the educator to carry out quick polls. This were useful in contextualising course materials and real-life examples from the world of business.

There was also evidence on the importance of digital whiteboards which allow participants to write directly onto the screen. Four students state that they provide useful aids for collaborative working. We also found that these were useful in helping teaching staff and students capture, develop and share ideas quickly in an accessible format.

#### *Positive aspects of the CEE online module*

A majority of the students maintained they considered the digital videos easy to watch. While they stated that technology made learning useful, they emphasised that the expertise and career experience of the lecturers were very important. When asked about the positive elements of the modules, some of the students explained:

*“The lecturer’s personal experience in his career was also very evident and really invaluable: the material was not all theoretical, real-world references and examples really helped when relating the point that was being delivered. I don’t think delivery would have sunk in quite as much collectively if the real world experience was not applied”.*(Student 18, 2020)

*“Immediately an open, honest, safe and personable online environment was established with the constant encouragement of interaction being a big plus - it allowed everybody to participate at their own comfort level and also allowed thoughts to be shared amongst the class that under normal teaching practice might not have been”.*( Student 17, 2020)

There was also evidence that proactive and responsive nature of the lecturers influenced the student usage of online materials. Two of the students put it aptly:

*“In terms of the course content, having all materials pre-uploaded and available was another benefit you may not traditionally have, as it helped with outlining both expectation and content over the entire 10 weeks. This made following the lectures a lot easier as you had an idea of what was coming and in context, but without the pressure of expectation to speed ahead”*(Student 25, 2020)

*“The lecturer has a natural talent for making people feel comfortable and engages with everyone on the tutorials. Having not done any further education since school, I was nervous and felt slightly intimidated going into the course. The lecturer quickly eased my nerves and fears of further education”*.(Student 30, 2020)

In addition, more than half of the students mentioned that it the lectures were easy to watch. Evidence showed that it was easier to fit in with working life, since lectures can be watched at any time. This allowed for effective group collaborations and idea generation. For students who prefer dictation, the support materials on Google provide an invaluable point of reference for both re-cap and catch up. The evidence showed that flexibility in delivery was also a massive benefit. This differs with what students would normally receive in traditional module delivery. The choice of being able to join either class (two allocated time slots) was also a big positive – and the students recognised that this took the pressure off them. This was especially important for students who with work commitments-meaning that no one missed out. Additionally, one-quarter of the responses explained that the weekly online tutorials were really beneficial for the group as it provided a greater understanding of the subject. While others reported that they were engaging and available when needed.

#### *Negative aspects of the CEE online module*

Despite the positive narratives reported by the students, there was evidence of a range of discontent across the findings. Although the responses were found to be more constructive and experiential than negative, we believe they were worth capturing. Table 4 summarises the various responses:

Table 4 Negative student responses

<b>Theme</b>	<b>Item</b>
<i>Technology challenges</i>	“The Google platform took some time to get to grips with at the start”.
	“Operating over several platforms for example Microsoft 365 and Google Classroom can be confusing”.
	“Sometimes there are access problems on different technologies”.

<i>Operational challenges</i>	“The Module could be more streamlined”.
	“Induction could have been better organised”.
	“With all the apps and platforms it’s overwhelming and the approach could be a lot simpler to make it less confusing”
<i>Communication challenges</i>	“Waited a while for feedback and had to email several times”.
	“Trying to communicate from afar is proving challenging especially with approaching deadlines”.
	“There is a lot to be gained from touching base in person that online delivery prohibits by default”.

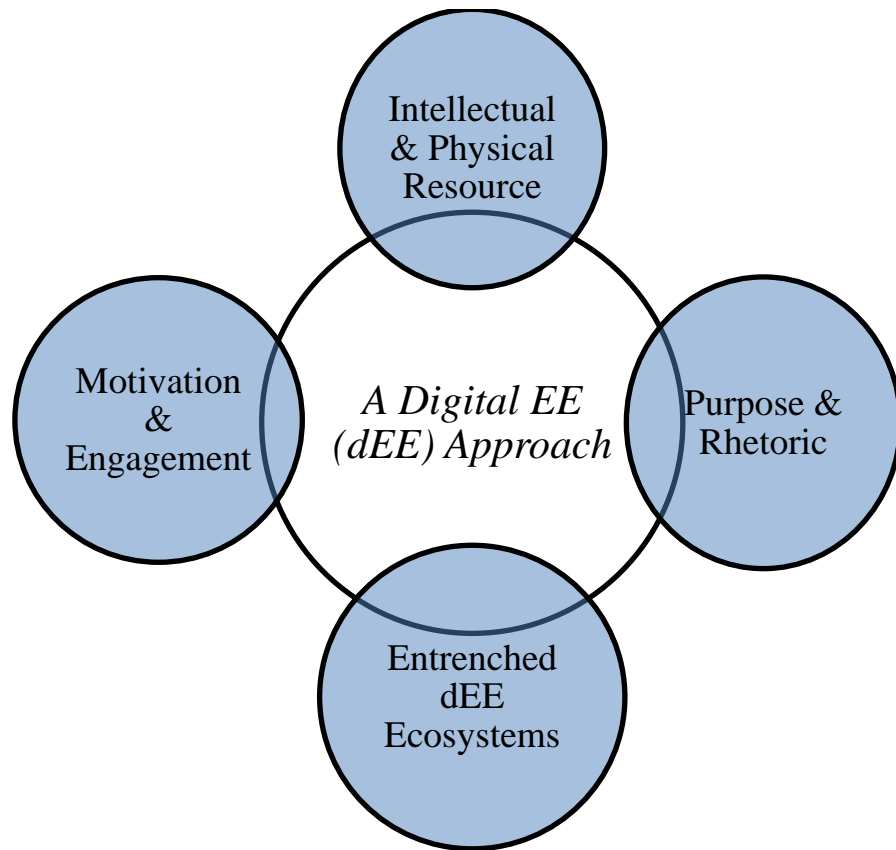
The data confirm some of the issues faced by students within the course. Including challenges such as communication, operational and technological, these limitations were seen as constraints.

Of course, this seismic shift in the educational context during 2020 puts a significant spotlight on the strengths and weaknesses of a university; its response to entrepreneurship, its immediate community, and wider, societal issues. The concept of institutional leadership is central, in this quest to reshape its educational approach for more inclusive, efficient, and digitised education.

As Crammond (2020) highlights, in order for institutions to appropriately embed entrepreneurship education, and promote a conducive culture, a number of factors must be considered. These factors, or ‘cultural considerations’ are: (1) capacity, (2) capability, (3) mobility, and finally, (4) durability. Starting with capacity, the institution must realise and review their existing resources and availability to accommodate, maintain, and advance the relevant technologies. Secondly, do the present personnel possess the desired capability and skill(s) in order to lead programmes, courses, or host such sessions. Thirdly, universities must consider their institutional reach, both locally and internationally. If these EE programmes and contemporary features, including transformational or assisted technologies, cannot attract a solid and growing applicant base, then resource allocation may be both inefficient and ineffective. Essentially, educational institutions and course leaders must realise a distinct balance between *content* and *intent*. What are the key materials and course syllabus which highlights core theory and makes sense of contextual, business phenomena? Also, what is the purpose of its inclusion?

Given the findings of this chapter, Figure 1 extends the abovementioned cultural considerations and asserts relevant action from university-wide stakeholders. The model below displays the various themes captured from the case study findings, as institutional considerations in reframing a digital EE (dEE), at a university level, through digital and transformative technologies:

**Figure 1 – Institutional and Cultural Factors for University-led dEE**



The university must realise and add to its existing resources, with new ideas and enterprise-relevant digital competences, as well as invest in the physical infrastructure. This bridges the institution with industry. Additionally, in practice, and in *entrenching dEE ecosystems*, institutional leaders must continue to clarify the task and intended benefits through *motivational and engagement* techniques. This underlines further a shared *purpose* and productive university *rhetoric*. Within longstanding research, the EE stakeholder or champion has reinforced the aims or premise of entrepreneurship education. They have voiced the requisite competences and intangible characteristics of entrepreneurs. This bears a responsibility of institutions to facilitate education which enables recipients to increase their motivation, initiative, critical thinking, group-based engagement and experience. It also sheds light on the institutional structure and whether it proactively responds to its strategy.

## **Conclusion**

Following the unprecedented impact of the pandemic on education, educators have looked to hybrid or blended learning approaches for a solution. This has, for now become the new normal in Higher Education Institutions across the globe. However, hybrid approaches to teaching and learning bring with them their own challenges not only for students but also for teachers. Looking to the future, we have been exposed to the inherent weaknesses of traditional business and enterprise education paradigms. By being denied the opportunity to trade and teach on a

face to face, education has had to quickly move away from traditional models to embrace digital models and modes of delivery. In doing so the resources needed by the entrepreneur and the educator must also change by necessity. Whilst creativity, leadership and problem-solving skills will remain critical to success the modern entrepreneur, those dedicated to supporting their development will critically also need to possess digital skills capable of communicating beyond the face-to-face context. This will be useful in enhancing effective remote collaborations (Diamante and London, 2002; Hanna, Rohm and Crittenden, 2011). In a context of globalisation, HE needs to find new ways of doing and adapt to support the development of meaningful capitals in their students and graduates. We believe that failure to do so will simply widen the current gap between academia and industry. This will further weaken the position of universities in a dynamic marketplace where the privileged role of the university as the seat of learning is currently being questioned

It is only by combining excellence in pedagogy with technological innovation will it be possible for enterprise education to empower and equip individuals, communities and partners to flourish, sustainably grow and transform their lives and the lives of others in the 21st Century and beyond.

There are also considerable policy and practice implications. While knowledge can now be accessed anywhere by anyone 24 hours a day 7 days a week, HEIs can no longer claim to be the font of all knowledge. In fact, models based on this assumption are clearly not sustainable. In this light government policies should seek to encourage effective enterprise education. We believe that such policies will encourage an agile, and flexible and focussed workforce as graduates possess knowledge, skills and capitals acquired along the way (Rae, 2004). For practioners, the domain of everyday individual agency is a driving force for entrepreneurship. And there is evidence of a “forget the books and have a go” culture. In the context of everyday entrepreneurship, the entrepreneur is acknowledged, respected and admired in their field for their personal socio-cultural history. However, we contend that although the entrepreneurial journey purifies their expertise, we believe that wisdom they have acquired an understanding of EE theories enhances entrepreneurial resilience.

This chapter has examined how EE can be delivered using transformational digital platforms through considering new *dEE* factors. A focus on promoting its application will ensure that students are equipped with the ability to understand and control their own actions, regardless of the circumstances of their lives. In this way universities can encourage students to be entrepreneurial actors who can add value to their communities and the wider society. We believe that this approach offers clear benefits to the university bold enough to follow this path. As students deploy their creativity and confidence, they help to create an open learning environment where anyone can say what they think and feel, and anything goes. The aim here is neither to create a utopian world nor to create one where chaos reigns, but rather to develop a supportive and authentic environment which helps both the student and the entrepreneur gain a better understanding of themselves and the other and how the talents of both can be harnessed to the benefit of all. A sophisticated conceptualisation of EE delivery approaches is needed. There is a clear need for the introduction of an innovative new approach to enterprise education



which combines dynamic teaching practices and transformational technologies. This will be capable of reinventing how educators deliver their service whilst extending their reach globally into new markets. Now and in the future the key challenge facing the enterprise educators will be how to provide a mobile, immediate, socially interactive and empowering educational experience. That which addresses institutional corporate priorities and encourages students to be more entrepreneurial and distinct. To be successful any such approach must be capable of delivering highly personalised, highly flexible and collaborative learning experiences for students rather than the traditional rationalised form of education.

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