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Key attributes of online learning environments: Creating positive student experiences

To address the growing interest in student experience, this research examines how online learning environments (OLEs) can help facilitate positive experiences for students. The paper addresses how OLEs are perceived by students in their service offering (i.e. the attributes that the OLE offers). Through applying an innovative laddering technique with thirty-eight students, students themselves analysed and identified the attributes, consequences, and values of the OLE. Four key attributes were identified by the students that educators should consider when choosing OLEs to deliver their service offering: 1) accessibility; 2) ease of use; 3) all in one place; and 4) interactivity. This paper contributes to the student experience literature by identifying how student engagement with these particular attributes can lead to well-being, success, and self-actualization for the students.

Keywords: online learning environments (OLEs), student engagement, student experience, student well-being

Introduction

Due to the competitive nature of student recruitment, student fees, and the demands of students themselves, there is a growing emphasis in Western-based academic institutions on enhancing student experiences (Carey, 2013; Coneyworth, Jessop, Maden, & White, 2020; Ward and Shortt, 2013). This focus on the student experience has led to many HE universities trying new ways to deliver the service offering and engage with their students. In particular with COVID-19 influencing the HE sector, there has been a move to hybrid or blended teaching and reinforcing the need for more online learning environment (OLE) experiences (Alvarez, Espasa and Guasch, 2012; Bothwell, 2020). However, despite the increasing use of OLEs throughout HE, there is a limitation in terms of our understanding of how students engage with OLEs to create a positive student experience. In addressing this, we have two research questions:

RQ1 What attributes of an OLE facilitate student engagement?

RQ2 How can these attributes improve the student experience?

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Online learning environments

Online learning environments allow educators to share resources and facilitate greater social interaction and are designed to be used as part of the educational environment. For example, they can help to provide feedback (Alvarez, Espasa, & Guasch, 2012) or facilitate the communication of lecture material (Nel, 2017). Traditionally institutionally led OLEs (e.g. BlackBoard or Moodle) were used to support students in their engagement outside of the classroom environment and were considered innovative learning environments at the time of their introduction. These traditional OLEs often used a one-way communication method (i.e. from lecturer to student) with little dialogue between the two service actors.

However, this has changed considerably in recent years, and Park (2015, p. 396) notes that students can collaborate in the process through becoming 'active participants, [who] can post articles for sharing and inviting peers, and regular visiting to comment on others' work'. Furthermore, OLEs can incorporate many tools and be tailored to a specific discipline (Richardson, Maeda, Lv, & Caskurlu, 2017). Indeed Park (2015, p. 392) suggests that 'to enhance student participation in online learning, teachers should consider including interactive platforms in their use of an LMS [Learning Management System]'. Thus, OLEs have now become broader in nature due to the need for more social presence (Richardson et al., 2017) and collaborate environments. The term OLE is used within this paper to reflect the broader collaborative nature of these contemporary platforms when compared with the more traditional virtual learning environments (VLEs) or learning management systems (Nel, 2017; Park, 2015) which are often viewed as institutional platforms that offer less opportunities for interaction and collaboration between student and lecturer.

One approach to facilitating a collaborative process has been the integration of social media networks (SMN) within the OLE (i.e. facilitating blogs or YouTube videos within the institutional OLE). SMNs can be incorporated into existing OLEs to provide two-way communication (Harrigan & Hulbert, 2011) and offer a familiar social environment for students to support the development of their learning and realize potential value. The decision to incorporate SMNs is a natural progression given the widespread use of the SMNs by the student population.

To date there has been a diverse range of research on using SMNs as an OLE and many studies have focused on more popular SMNs (Kaplan, Piskin, & Bol, 2009; Northey, Bucic, Chylinski, & Govind, 2015). For instance, Facebook was found to successfully complement learning outcomes (Northey et al., 2015), Twitter considered to be a useful tool in communicating and engaging in dialogue with students on marketing modules (Lowe & Laffey, 2011) whilst YouTube (Payne, Campbell, Bal, & Piercy, 2011), wikis (Cronin, 2009; Daspit & D'Souza, 2012), and blogs (Kaplan et al., 2009) were also found to help students to develop a better understanding of their learning environment in addition to the course content. However, these SMNs offer restrictions based on the expectation that students are willing and able to engage in these co-creation platforms (Neier & Zayer, 2015). Taylor, Mulligan, and Ishida (2012) for instance found that when Facebook was utilized as a learning environment,

students viewed it as an intrusion into their personal identities and were less willing to engage as a result.

Furthermore, OLEs can offer users both synchronous and asynchronous methods of communication (Bondi, Daher, Holland, Smith, & Dam, 2016; Northey et al., 2015) with numerous innovative methods of content delivery such as podcasts (Snowball & McKenna, 2017), blogs (Ifinedo, 2017), and online chat (Lai, 2015). Watson and Sutton (2012, p. 805) have suggested that 'many of the asynchronous options have been readily available online for several years, whereas the synchronous tools have continued to emerge and grow in their sophistication and capabilities', a point which has been recently highlighted with the increased popularity and use of both the Zoom and Microsoft Teams applications during the COVID-19 pandemic.

Kim, Liu, and Bonk (2005) found that OLEs improved students' virtual team-working skills, whilst Jaggars and Xu (2016) found that successful use of OLEs can increase student commitment to their course as well as allowing them to perform at a higher academic level. Shen, Cho, Tsai, and Marra (2013) illustrated that the use of OLEs can increase students' self-efficacy, thereby improving student satisfaction and thus their experience. However, it is not all positive. Some authors have suggested that the lack of physical interaction between students can lead to them feeling anxious about interacting in the OLE, therefore minimizing their levels of engagement due to the feeling of not knowing how others will receive their posts (Gao, Zhang, & Franklin, 2013). In their research on postgraduate students, Coneyworth et al. (2020) reported that 26% of students do not feel confident in using an OLE. As a result, scholars have begun researching the factors that influence student engagement with OLEs, with some studies showing that both the content available and the user-friendliness of the OLE are key determinants in student's motivation to engage with the OLE (Henderson, Selwyn, & Aston, 2017; Lim, Kang, & Park, 2016).

Based on the extant literature, our research examines the lack of understanding of student's perceptions of what they perceive as important attributes of using an OLEs as part of their HE learning experience. As we do not specify a particular SMN or the institutional led OLE (i.e. Blackboard at the time of the research), student participants had the freedom to discuss any aspect of OLEs that they value for their HE experiences. This unique approach addresses the gap in the HE literature that limits itself to specific popular SMNs as this research offers a deeper understanding of the key attributes that students identify as important and what they prefer to have offered by an OLE. Therefore, universities can design new OLEs with these attributes in mind or simply tailor their OLE offerings to suit. This is particularly important, during a time of enhanced reliance of OLEs due to COVID-19 (Bothwell, 2020; Kim, 2020).

Student engagement and experience

The engagement of students with the HE service offering is of key importance to HE institutions. Student engagement is a widely reviewed area; Trowler (2010, p. 3) offers that it 'is concerned with the interaction between the time, effort and other relevant

resources invested by both students and their institutions intended to optimise the student experience and enhance the learning outcomes'. These learning outcomes rely on student engagement, as it is through co-creating, co-learning, and co-designing with other stakeholders (students, employees, alumni, etc.) that active learning, which is key to meaningful student learning, is achieved (Carey, 2013; Healey, Flint, & Harrington, 2014; Kahn, 2014). Thus, students can commit themselves behaviourally (e.g. attending the lectures), emotionally (e.g. co-creating the experience) and cognitively (e.g. co-learning to improve) to their engagement (Trowler, 2010).

Although Trowler (2010) discusses the importance of engaged and active learning, to date the HE literature has taken a conceptual viewpoint on students with little empirical evidence to suggest that they actively engage (Koris, Örténblad, Kerem, & Ojala, 2015). However, positive engagement is said to be enhanced by active participation in learning (both in-class and out-of-class), collaborative activity (e.g. peer-to-peer learning, peer review), and involvement in the design, delivery, and assessment of learning (Carey, 2013; Kahn, 2014). Throughout these processes, students create their own experiences. Thus, students determine their own experiences through engaging with offerings from the HE institution, i.e. engaging with the OLE. Therefore, experiences cannot simply be delivered to students, received by students, or added by educators – rather there is a need for engagement amongst the students for them to achieve a positive experience. For example, student's experiences have been linked to how well a student engages with both the facilitator of the course as well as other students on that module (Bovill, Cook-Sather, Felten, Millard, & Moore-Cherry, 2016).

Gruber, Chowdhury, and Reppel (2011) found that student's experiences were linked to key attributes of their lecturers being approachable or showing sympathy which led to desired student values of harmony (feeling free from conflict), satisfaction (feeling satisfied), universalism (taking responsibility of a better world), well-being (feeling happy), success (feeling they have succeeded) and self-actualization (feeling they have achieved their full potential). These perceived student values were achieved through students engaging with their peers and with their lectures. This process of students engaging in learning to achieve their personal values resulted in positive experiences during the HE process. Understanding students' values can help with developing a learning environment that can influence the student experience (Lai, To, Lung, & Lai, 2012; Mostafa, 2015). In discussing student experience, many authors have referred to student satisfaction (Lai et al., 2012), student success (e.g. achieve goals, West, Moore, & Barry, 2015) and student well-being (Nielsen, Newman, Smyth, Hirst, & Heilemann, 2017). Therefore, the student's perception of what they find beneficial or valuable in HE experiences must be fundamentally examined.

Methodology

Sample

The research was conducted pre-COVID-19 at two UK universities, with undergraduate management school students. Students who attended the lectures were asked if they

wished to take part in the research, and all students who indicated their interest were contacted via email to participate in the focus groups. In total thirty-eight students participated in ten focus groups. As per research ethics best practice, ethical approval was sought and gained from Keele University Ethics Committee before any data collection took place.

Focus group structure

Due to the dynamic nature of focus groups, the nature of engagement from the students' perspective can be explored along with emergent discussions on how they create positive experiences. Five focus groups were initially conducted using free-flowing discussion, which provided in-depth discussion for RQ1. These were followed by a second session with each focus group using a hard-laddering technique. These focus group transcripts were initially analysed by each researcher independently, who then compared their coding. Coding ascertained emerging constructs that encompassed terms used by the participants themselves to describe their experiences. In coding the data through the use of NVIVO 10, it became clear that two main themes dominated the research, and were found independently by both researchers: 1) student engagement and experience with OLEs; 2) student engagement and experience with SMNs.

The hard-laddering technique identified the attributes (A), consequences or benefits (C) and personal values (V) (ACV chains) of the students' OLEs (Jüttner, Schaffner, Windler, & Maklan, 2013), thereby addressing RQ2 whilst providing in-depth discussion to RQ1. Attributes are the tangible or intangible characteristic or stimuli of the service offering (i.e. the easy access of the OLE or interactivity of the OLE). 'Consequences are the reasons why certain attributes are important to the individual' (Gruber et al., 2011, p. 1265). Personal Values relates to beliefs the individual holds and represents the most personal life consequences that the individual is striving for (Gruber et al., 2011). In this research, this relates to their personal consequences of using the OLE.

To conduct hard-laddering, six key steps are completed by respondents: 1) write out the ACV chain (Appendix 1 provides an example of the table used); 2) rank each of their attributes on the level of importance, 3) one by one name their number one attribute, resulting in the ACV chain for that attribute being discussed; 4) mention their most important attribute, which facilitates a group discussion on the ACV chain. Finally, 5) this is repeated for each of the attributes and 6) steps 1–5 are repeated for the ACVs of a negative OLE. Throughout this process, participants are 'probed' to move up the ladder of abstraction to reveal ACV chains. They were then asked what they liked or disliked about the characteristics and the benefits and/or problems caused for other users (both staff and themselves). This paved the way for a series of 'how does that benefit make you feel' and 'why is that important?' type questions that were intended to lead participants up the ladder of related consequences and reveal values (Reynolds & Gutman, 1988). After this probing process the value chains were shown to the participants who in turn discussed them, to enable respondent validation and eliminate research bias (Veludo-de-Oliveira, Ikeda, & Campomar, 2006).

Due to the nature of the hard-laddering procedure, in that participants themselves identify their own attributes, consequences, and values, the laddering validation procedure simultaneously allows for discussion and analysis with the participants directly regarding their value chains. (For a detailed review of the laddering processes, please see Reynolds & Gutman, 1988; Veludo-de-Oliveira et al., 2006).

Findings

In addressing our aim and research questions, the findings are split based on the approaches to the data collection, free-flowing, and laddering. What emerges from the findings is that the free-flowing discussions support the ACV chains identified in the hard-laddering process. Where quotations are used to support the findings, pseudonyms are used to ensure respondent anonymity.

Free-flowing discussions

Theme 1: Student engagement and experiences of OLEs

Participants identified several OLEs facilitated by educators as having the potential to provide positive experiences. Discussions relating to the university-led OLE recognized it as a valuable tool in some instances ('if you missed a lecture, or [...] when you're revising, everything's there in the folder every week' [Sam]), but generally it was perceived negatively, construed as an ineffective learning tool that was not uniform in design, with a one-way flow of communication that actually discouraged interaction and engagement:

It's also like a bad communication tool at the moment. (Mark)

Those discussions on the VLE [university OLE] I don't think they work personally, I don't know anyone that uses them or that has used them. [...] and if it's not organized and if it is not easy to use... ugh. (Hazel)

What you have on [university OLE] is the lecturer puts stuff and you take it from that, but there isn't actually any interaction. (Debby)

Students also felt uncomfortable and particularly self-conscious if they openly interacted with the university-led OLE, with them frequently mentioning their need for reassurance from friends that they were on the right track in their studies. This need for student-to-student engagement was seen as a valuable part of a positive student learning experience:

I remember one subject there was a discussion group [university OLE] but I would never put a question on that, I wouldn't feel comfortable. I would feel I would just ask my friends, so why would I need to put it on that [university OLE]. (Lisa)

An alternative OLE that was deemed as an effective method for collaboration, engagement, and learning was Storify. Storify was mentioned across each of the focus groups

(it was being used as part of a mandatory marketing module in second year at both universities). The content of the Storify is created by the educator and the students engaging with each other. The participants who had used Storify viewed this OLE as an easy-to-use and effective medium for their learning, especially the visual aspect:

That Storify thing is good, I use that a lot ... it is easy because you know everything is there that you need, well not everything obviously, but a lot of stuff is there that you need, you can just click on it [Storify page]. (Hazel)

The videos are more useful as well, as you can still do other stuff, like do the ironing, or like play on the PlayStation or something... it is a subliminal sort of thing I think. (John)

It gives you almost like an advantage... it gives you like real-life examples that are really needed when you're analysing things. (Debby)

Theme 2: Student engagement and experiences with SMNs

In all focus groups, students were quick to discuss both the benefits and negatives of using SMNs to encourage engagement. Students recognized the benefits of easy access and the chance for collaborative learning environments, however, they were also wary of educators using them to encourage engagement. For instance, Twitter was perceived as 'too short' and featured 'limited words' that restricted group discussions. WhatsApp, the cross-platform mobile messaging service, was perceived as a useful communication tool for small group assignments; however, it was also considered limited as it was deemed intrusive and not inclusive for larger group discussions. Facebook, while a popular SMN among students due to its ease of use and widespread adoption (e.g. 'Facebook's just so easy, and everybody has it all the time' [Sam]), was also viewed as ineffective as a university OLE for engaging students:

If there was a Facebook page, you get notifications coming though, and they can get annoying. (Lisa)

It's [Facebook] annoying at 6 o'clock at night when people still try and ask you questions. (Stacy)

More widely used SMNs were discussed concerning how they might support peer-to-peer engagement and provide opportunities for enhanced learning. Participants noted their use of group chat through SMNs or instant messaging (IM) services (e.g. WhatsApp and Facebook Messenger) was considered the norm when engaging in group work with the expectation that this will help to arrange groups meetings, allocate work fairly, and overcome any obstacles with the contribution. This form of communication was acceptable when used in small more intimate groups:

It's like the group that you make... You get put in groups for tutorials; it's the group chat. (Gary)

Every time I've done it I've used WhatsApp because everybody has obviously got a mobile phone and just do it through that. (Stacy)

The opportunity for discussions and interactions outside of the prescribed learning environment was viewed as an essential element to the development of participants' knowledge and skills. Sometimes they achieved this through meeting up in small study groups, arranged via IMs, for revision, and sometimes this was realized through engagement in SMNs. These SMNs were viewed as effective tools to encourage engagement and peer-to-peer discussions, especially with peers who may not be vocal in their contributions in face-to-face discussions or may not have understood some content:

A girl in my group last year didn't say a word when we were in the group, but on Facebook, she was like... fully engaged. (Frank)

There's been certainly times where I've been [doing] course work and I've had someone of the course to just like use in social media, that will just message me saying have you been asked to do this, I'm having difficulty, what can you suggest or telling me, or can talk about it. There's a lot more people... if you had difficulties with work or something like that and you went to your lecturer, they can almost only advise, but I think students can give you a bit more additional support. (Stacy)

Although these SMNs helped students support one another, they also recognized the limitations of this engagement and the distractions it caused, both inside and outside of the prescribed learning environments:

If you've got like a group presentation to do in a tutorial, it seems to be ... Facebook. That's how they get in touch and it's not ideal to use, not everyone's got everyone on Facebook so that's not the ideal forum. (Mark)

Students felt SMNs were useful if you already knew the person you were interacting with, but could be limited in getting in touch with those outside your social network. Furthermore, students commented on the control needed to skip past the socially enticing distractions of the SMNs indicating this was too much of a distraction for many students:

[The university] app sits on the last page of my iPhone; that's Facebook, YouTube, videos before I actually get there. (Andy)

I'll sit on [spend all my time] Facebook. I've heard people say before they put this thing on the Facebook where they can't use it between, like, nine and seven in the day, so you can only get on it after seven, which is a good idea, but I couldn't do it. (Sam)

What came out of the discussions on HE's using SMNs to engage students was that whilst students appreciated some of the attributes of the SMN's (easy to use and accessible), they actually found them too much of a distraction and said they would struggle to keep focused on the university work when they could easily connect with their social circle.

ACV chains of OLEs

The ACV chains clearly articulate the attributes of the OLE and the benefits students found from engaging in OLEs that had these attributes. The hard-laddering technique allowed for analysis which resulted in the top three or four most salient ACV chains as chosen and discussed by the students. Once all groups had completed the hard-laddering process, the tables that they had created were analysed and the key ACV chains emerged. These are displayed in Table 1, Positive ACV Chain and Table 2, Negative ACV chains of OLEs. Appendix 1 displays the template of the hard-laddering template given to each participant.

Table 1 Positive ACV chains of an online learning environment

Values	<ul style="list-style-type: none"> • Relaxed (well-being) • Independence (self-actualization) • Reach goals (success) 	<ul style="list-style-type: none"> • Relaxed (well-being) • Employability (success) • Learning opportunities (self-actualization) • Reach goals (success) 	<ul style="list-style-type: none"> • Relaxed (well-being) • Feeling on 'top of things' (well-being) • Reach goals of: Get job or 2:1 degree or higher (success) 	<ul style="list-style-type: none"> • Enjoyment (well-being) • Confidence (self-actualization) • Not alone (well-being) • Reassured (well-being)
Consequences	<ul style="list-style-type: none"> • Multiple device usage • Mobility • Not lots of logins • Readily available for information 	<ul style="list-style-type: none"> • Organized • More likely to use • Uniformity • Use on mobile • Motivates you 	<ul style="list-style-type: none"> • Reduces stress • Ability to start • Saves times/cost • Access to everything/Resources • Trust • Gain your own views 	<ul style="list-style-type: none"> • Allows engagement • Visual learning • Resources • Communication • Sharing ideas/information
Attributes	1) Accessibility	2) Ease of use	3) All in one place	4) Interactivity

In examining the positive ACV chains of OLEs, four key attributes emerged through the laddering process: 1) accessibility; 2) ease of use; 3) all in one place; 4) interactive, which coincided with the emerging points raised within the free-flowing focus group discussions. A key consequence that students discussed was that an OLE needed to work across multiple devices and importantly on mobile phones. They indicated that OLEs facilitated their values of success (e.g. 'getting a job'), well-being (e.g. 'enjoyment', 'feeling on top of things'), and self-actualization (e.g. 'getting degree'). In the discussion participants linked back to Storify as an example of a positive OLE that they had experienced.

Table 2 Negative ACV chains of an online learning environment

Values	<ul style="list-style-type: none"> • Stressed • Annoyed • Confusion 	<ul style="list-style-type: none"> • Feel isolated • Worried • Demotivated 	<ul style="list-style-type: none"> • Annoyed • Frustrated • Anger
Consequences	<ul style="list-style-type: none"> • Not mobile-friendly • Not appealing • Old fashioned • Cannot find information • Procrastination • No personalization 	<ul style="list-style-type: none"> • Lose faith in educator • Limits understanding • Too many emails or notifications • Reactive communication • One-way communication • Over-reliance on the online 	<ul style="list-style-type: none"> • Lack of motivation to use by students • Lack of commitment from staff • Lack of staff understanding • No common ground/ no uniform • Crashing
Attributes	1) 'Poor' user interface	2) Lack of human interaction	3) Unreliable / unorganized

When students were asked about the negatives of OLEs, the majority of participants immediately referred to the generic school-led OLE that was offered by their universities. The hard-laddering process identified that students felt that this failed to facilitate engagement. Negative attributes indicated by students included: 1) user interface; 2) lack of human interaction or engagement; and 3) unreliable/unorganized. The consequence of these attributes was that the students felt that it 'limited understanding' and contributed to a 'lack of motivation' to use it, resulting in feeling 'isolated', 'irritated' and 'worried'. These negative values offer insight for educators into what should be avoided when choosing OLE for students to create positive experiences. In addition they could help reduce non-engagement, as knowing what may lead to non-engagement among students is something that should be considered by educators.

Discussions and implications

This research aims to understand how OLEs can facilitate student engagement and experiences. In identifying what is key to students in their engagement with OLEs and how it benefits them, educators will be able to facilitate positive student experiences. Whilst there are many other factors involved in learning (e.g. motivation, personal circumstances, and external influences), the following three contributions which emanated from this research need to be considered by educators in encouraging engagement.

Firstly, we identify four key attributes of an OLE that students find beneficial to engage with and that educators can focus on when designing a suitable OLE. Students identified that by having these attributes, they were able to engage with the OLE and that it provided a more positive experience to them. As noted, in the laddering sessions it was the students who led the discussion and outlined the attributes most important to them.

Students indicated that 1) *accessibility* and 2) *ease of use* were two of the top positive attributes of using an OLE. A key consequence that students discussed was that the OLE needed to work across multiple devices and in particular mobile phones. Given that most students access their OLEs through their smartphones (Deloitte, 2018) it is imperative that OLEs are readily available on smartphones. The third positive attribute that students discussed was the need for access to an OLE 3) *'all in one' place*. For example, by using an OLE such as Storify, different platforms such as Facebook, Twitter, or YouTube can be shared on a single OLE that students can easily access and have all in one place. The consequence for this was that students felt they could start work at any point in time. In addition, students were not distracted to look across their personal profiles on each of the SMNs as the content they needed was on the OLE. Through using a platform that has access all in one place this also allows for 4) *interactivity*. The consequence of this was that it allowed for the sharing of ideas among peers and for visual learning.

Interestingly in their discussion on student values with their university staff, Gruber et al. (2011) identify several values, including self-actualization (students wanting to achieve their full potential), success (students want to be successful) and well-being (students want to feel happy). Whilst West et al. (2015) highlighted that achieving goals related to being successful, Lusk and Fearfull (2015) discussed how feeling resilient and hopeful related to well-being. In line with this previous research, we found that students discussed values 'of being relaxed', 'feeling on top of the world', 'not alone', 'reassured', 'enjoyment' which relates to well-being, 'independence', 'learning opportunities', 'confidence', which relate to self-actualization and 'reach goals', 'employability', 'get job or get degree' which relates to success (see Table 1). Ultimately the benefit, as perceived by the students in engaging with these four key attributes of an OLE, was the ability to achieve well-being, self-actualization, and success.

Our findings also suggest that students use OLEs to allow them to occupy the intense engagement style suggested by Coates (2007) and highlighted by Trowler (2010). This style of engagement typifies students that are 'highly involved in their university study' who view their educators as approachable individuals and the learning environment as 'responsive, supportive, and challenging' (Coates, 2007, pp. 132–133). By creating this more conducive OLE, students can feel more engaged with the content of the course as well as more connected to their peers and teaching staff. This in turn can increase their enjoyment of the course and make them feel more confident, thereby creating a self-perpetuating cycle of increased engagement and further improving the student experience.

Therefore, offering students OLEs that they can easily engage with can help students to achieve their personal values whilst also providing them with opportunities to have a positive HE experience. Our job as educators is not to deliver the experience to students but to provide opportunities for students to engage with the university's services (which are key influencers on the student experience) in order for students to achieve their own values (e.g. well-being) and make their own positive experiences during their years at university.

Secondly, whilst OLEs offer students the opportunity to engage outside of the classroom, they need careful consideration in their design and facilitation. This research highlighted that students identified several negative attributes of using an OLE if it was not properly designed or facilitated. For instance, using the university-led OLE as an effective interactive learning environment may be diminished due to attributes such as 'poor layout' or 'lack of usability' which could be a consequence of a 'lack of lecturer knowledge' or 'engagement'. This finding is in line with the 'Digital experience insights' survey (JISC, 2020, p. 9), which highlighted that 'less than half of teaching staff felt able to agree that the learning environment was reliable, well designed, or easy to navigate' and needed further research. Our research helps to understand the negative student experience consequence of this. We found that students associated these negative attributes with values relating to 'feeling annoyed', 'isolated', and 'stressed' with the course (see Table 2).

Our research suggests that the use of non-institutional OLEs may be a preferred method for students, mainly due to the students' perception of the user interface issues inherent in the university-led OLE. Further research could look more closely as to why students feel so much more comfortable using these non-institutional platforms for peer-to-peer engagement. However, it is important to state that this research has identified four key attributes that could still be used to improve the utilization of the university-led OLE and as such these institutional OLEs should not simply be ignored, but rather improved by a small number of changes. Indeed, some students found the use of non-institutional platforms distracting and not conducive to learning, thus understanding how a university-led OLE can be designed effectively to support students is an important consideration to HE institutions. This is particularly important to consider, as students have encountered a dramatic shift in their teaching from offline to online due to COVID-19, with some students having never experienced face-to-face lessons. Further research could focus on how the four attributes facilitate those students who have never experienced face-to-face teaching at university, as well as investigating what they value from their OLE.

Thirdly, as students are the co-creators of their experiences with educators supporting them, understanding student perceptions of their OLE is key to developing resources that can support student engagement. Students indicated that they are aware of their responsibilities for learning and that they must be engaged and involved in lectures and tutorials to gain a positive experience from the HE service. Students use these learning spaces to develop knowledge and skills, and in particular, also welcome opportunities to integrate resources with both their educators and peers outside of the immediate learning environment through OLEs. From this educational perspective, students' active engagement in learning corresponds with a student-centred approach, with supportive interactions between peers and their educators as well as peer-to-peer interactions as key to successful co-creative processes (Healey et al., 2014).

Given the growing interest and demand for hybrid learning and flipped classrooms (Bothwell, 2020; Steen-Utheim & Foldnes, 2018), there is a need to discover the attri-

butes of OLEs that can successfully help deliver positive student experiences. Our research indicates that OLEs that offer these four attributes can provide additional opportunities for engagement which may offer effective and co-creative peer-to-peer hybrid environments. If educators provided additional online space for all students on the module to engage with, they would then offer a wider learning environment for students, which would encourage students to act in a peer-to-peer capacity. It is therefore imperative for educators to understand how students plan to engage with OLEs when they begin to design them.

Conclusion

Given the current global situation in the HE sector and the move to a more hybrid or blended learning environment (Bothwell, 2020; Kim, 2020), it is important for academics to stop and think about what the key attributes are that students are looking for when it comes to their OLE and the student experience offering. We identified four key attributes of OLEs: 1) accessibility; 2) easy to use; 3) all in one place; and 4) interactive in nature. In particular, we suggest that peer-to-peer and student-educator engagement can be facilitated through these types of OLEs that can be shaped by the educator and the HE institution. Furthermore, the COVID-19 pandemic has accelerated educators' use of technology to deliver the student experience. This makes it all the more important that HE institutions have a clear understanding of what is required from their OLEs, something that was highlighted extensively in the recent 'Digital experience insights' survey (JISC, 2020). Comparing the results of the survey to our findings it is clear that the use of OLEs has become even more prolific, with the number of teaching staff who taught online in the last year up by 45%. There was also an increased motivation by staff to use technology to support their teaching, although confidence among staff for using these new technologies was described as 'considerably less so', further stressing the importance of ensuring that the chosen OLEs are 1) accessible, 2) easy to use, 3) all in one place, and 4) interactive in nature.

By adopting a student engagement perspective to this research, it can be clearly seen that student experience is determined by the students during their active engagement with the HE offering, and not delivered to them by the HE institution. In addition, OLEs can be adopted to encourage engagement and positive experiences outside of the classroom, thus creating better blended and hybrid learning opportunities. In advocating the use of technology in the HE experience we strongly advocate that the focal point should be on the student and that the technology should be seen as the enabler of the interactive engagement, as opposed to the driver (Harrigan & Hulbert, 2011). Our recommendations serve as important suggestions to improving course design within institutional OLE's and if universities get the OLE right from the start, by focusing on the four attributes, then students may feel they can achieve success, well-being, and self-actualization through engaging with the OLE offering, thus creating positive student experiences.

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Appendix 1

Example of the hard-laddering template

Positives of the service offering	
Importance to you (rank 1 to 5)	
What you like about it? (<i>Characteristics i.e Attributes</i>)*	
Benefits for other students/staff/administrators (<i>Consequences</i>)*	
Benefits for you as the user (<i>Consequences</i>)*	
How does this make you feel? (<i>Value</i>)*	

* These terms (attributes, consequences, and values) were not written on the template when it was given to respondents. This template is based on Delamar (2013) research on hard-laddering technique.