Shared values and socio-cultural norms: E-learning technologies from a social practice perspective

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From a perspective of social practice, learning is a socially constituted practice that is imbued with socio-culturally significant meanings and shaped by the values and norms shared within a community of learners. This focus group study examines the role of e-learning technologies in mediating the social practice of learning among coursework university students in Sydney, Australia. Qualitative data from this study elucidated the social context and significant socio-cultural meanings that make learning technologies highly valued tools for students. Notably, students valued the interaction with others facilitated by learning technologies that enable the sharing and building of knowledge, because learning is most effective and engaging through community participation. Further, they articulated a desire for learning opportunities that are instantaneous, convenient and time-saving, against the backdrop of a busy and time-poor metropolitan lifestyle that requires the balancing of study with extracurricular activities and long commutes. Learning technologies are key enablers in a social structure that readily engage individuals into the social system of learning. It is crucial that the design and implementation of e-learning is situated in an understanding of learning as a social practice and tailored to the significant values and norms associated with education and learning activities among its learners.

Introduction: E-learning as social practice

The integration of e-learning in higher education courses has grown markedly in recent years. A crucial learning resource is learning technologies, defined as the range of software-enabled technical features and functions integrated into e-learning programs that facilitates the learning process. To ensure learning technologies remain relevant and useful for learners and to inform continuing development and design, ongoing evaluation of learning technologies is required with reference to the needs and demands of learners.

Learning technologies are often evaluated with the benchmark of "user satisfaction", denoting an experience where the highly valued needs of users are met by learning technologies (Harrison, Gemmell & Reed, 2014; Ilgaz & Gülbahar, 2015; Johnson, 2015), and where users' expectations and experiences coincide through the application of learning technologies (Keengwe, Diteeyont & Lawson-Body, 2012; Martín-Rodríguez, Fernández-Molina, Montero-Alonso & González-Gómez, 2015; Sinclaire, 2011). Quantitative surveys are commonly used to measure individual users' perceptions of selected learning technologies, and the results are then aggregated to reflect the preferences of a given group of users. However, quantitative and individually based evaluations can be highly descriptive and void of nuances that explain the complexity of why and how various learning technologies satisfy users' needs and demands, and indeed, why certain groups of users uphold the preferences and values important to them.

From the perspective of social construction theory, individual behaviours exist within the wider context of social structures (Giddens, 1984). Social structures refer to wider systems of social organisation along economic, political and cultural lines that shape the accepted norms and values of a community and thus influence individual beliefs and behaviours. From a perspective of social practice (Reckwitz, 2002; Wenger, 1998), learning is not simply an individual behaviour, but a socially constituted *practice* that is imbued with culturally significant meanings and shaped by the values and norms shared by a community of learners. Learning as social practice takes place in "a historical and social context that gives structure and meaning to what we do" (Wenger, 1998, p. 47). Cultural norms in a lived, social world embodies all practices, including learning, as shared patterns of meaning constantly shift and renegotiate over time under the changing influence of various socio-economic factors (Reckwitz, 2002; Shih, Worth, Travaglia & Kelly-Hanku, 2017; Willis, Davis & Chaplin, 2013). Thus to more comprehensively understand the needs and demands of learners, it is crucial to examine the social aspects of learning and study (Handley, Sturdy, Fincham & Clark, 2006; Willis, Davis & Chaplin, 2013). Situating the role of learning technologies within a framework of social practice may help educational designers to understand these key resources as more than utilitarian tools, and as having a more dynamic role in producing and maintaining a vibrant contemporary educational culture relevant to the needs of users.

This study examines the role of learning technologies in mediating the social practice of learning among a cohort of coursework students from the University of New South Wales (UNSW), a large metropolitan university in Australia. We use qualitative data to contextualise the wider socio-cultural environment within which students live and learn, and to understand the norms and expectations of learning technologies and the role of learning technologies in their lives.

Research method

This study used focus group discussions to elicit important information about the values and norms that are socially mediated. It is through the exchange of ideas that people develop common ground in a social setting (Roth, McRobbie, Lucas & Boutonné, 1997), while the way which individuals add to or diverge from group opinions may provide important nuances on the complexity of discussion topics (Kitzinger, 1994). Focus group discussions are regarded as a highly effective research method for examining social issues in the context of tertiary studies. This method is particularly beneficial for soliciting collective views and meanings shared by participants with mutual interests and common experiences of certain aspects of university life (Kinzie, 2015, p.64, Vaughn, Schumm & Sinagub, 1996). Focus group discussions have been utilised successfully in studies on e-learning, including among similar cohorts of students from the same study site (see for example Iqbal, Velan, O'Sullivan & Balasooriya, 2016; Shih et al., 2015).

Participants were recruited via convenience sampling, based on the accessibility of participants, a commonly employed recruitment strategy in focus group studies (Freeman, 2006). Students over 18 years of age and enrolled in one or more courses at UNSW were eligible to participate. Posters were displayed in publicly accessible areas on the University

campus. The research team was based at the Faculty of Medicine, and had access to an email list of students from that Faculty, where additional invitations to participate in the study were sent. The meeting facilities of the Faculty of Medicine were also used as the location of focus groups. This most likely contributed to the higher representation of students from the Faculty of Medicine in the study (see Table 1).

Table 1: Study participants

Focus group	De-identified participant	Gender	Faculty	Level of study
1	ST1-FG1	Female	Medicine	Postgraduate Year 2
	ST2-FG1	Male	Medicine	Postgraduate Year 1
	ST3-FG1	Female	Arts & Social Sciences	Postgraduate Year 1
2	ST4-FG2	Male	Arts & Social Sciences	Undergraduate Year 3
	ST5-FG2	Female	Arts & Social Sciences	Undergraduate Year 3
	ST6-FG2	Female	Engineering	Undergraduate Year 2
	ST7-FG2	Male	Engineering	Undergraduate Year 6
3	ST8-FG3	Male	Engineering	Undergraduate Year 2
	ST9-FG3	Female	Business	Undergraduate Year 1
	ST10-FG3	Female	Medicine	Undergraduate Year 1
	ST11-FG3	Female	Arts & Social Sciences	Undergraduate Year 1
	ST12-FG3	Female	Engineering	Undergraduate Year 3
	ST13-FG3	Female	Engineering	Undergraduate Year 3
	ST14-FG3	Male	Medicine	Undergraduate Year 2
4	ST15-FG4	Male	Science	Undergraduate Year 2
	ST16-FG4	Female	Medicine	Undergraduate Year 2
	ST17-FG4	Female	Medicine	Undergraduate Year 1
	ST18-FG4	Female	Medicine	Undergraduate Year 2
	ST19-FG4	Male	Medicine	Undergraduate Year 2
	ST20-FG4	Male	Medicine	Undergraduate Year 2
5	ST21-FG5	Female	Science	Undergraduate Year 2
	ST22-FG5	Female	Medicine	Undergraduate Year 2
	ST23-FG5	Female	Law	Postgraduate Year 2
6	ST24-FG6	Female	Medicine	Undergraduate Year 1
	ST25-FG6	Female	Arts & Social Sciences	Undergraduate Year 4
	ST26-FG6	Female	Medicine	Undergraduate Year 2
	ST27-FG6	Female	Medicine	Postgraduate Year 2
	ST28-FG6	Male	Medicine	Undergraduate Year 2
	ST29-FG6	Male	Arts & Social Sciences	Postgraduate Year 1
	ST30-FG6	Female	Business	Postgraduate Year 2

A total of 30 students of varied levels of study from six faculties across the university volunteered for this study, as summarised in Table 1. Six focus group discussions, each consisting of between three and seven participants, were conducted in April 2015. The homogeneity and heterogeneity among focus group participants arguably serve specific methodological purposes in qualitative research (Freeman, 2006). In this study, the homogeneity in the subject and level of study among participants in certain groups (such as Focus Group 1, making up of all postgraduate students, and Focus Group 4, primarily

of undergraduate medical students) were convened to elicit more in-depth views about shared experiences of certain e-learning programs and values more endemic to the group, while the heterogeneity of the level and subject of study in other groups were intended to encourage the diversification and variety of perspectives.

Focus group discussions followed an interview protocol of seven predetermined questions with several prompting questions to clarify and elicit more in-depth discussions.

1. What words come to your mind when you think of "learning technologies"?
2. What are some of the features of these learning technologies that are most helpful to you and why?
3. What design features help you to engage with learning technologies?
4. What's your preference on how long or short your interactions with these technologies should be?
5. What aspects of learning technologies might "turn you off", or stop you from using them?
6. In an ideal world, what would learning technologies do for you?
7. What's your preferred way of providing feedback about learning technologies?

While the questions prompted participants to comment about their individual user experience, they were also designed to generate discussion to elucidate insight into the social aspects of e-learning.

Each focus group discussion lasted approximately 50 minutes, and was digitally recorded. Following the focus group discussions, the facilitator transcribed and analysed the content of discussions with *NVivo 10* software, for thematic analysis, a process that identifies and interprets recurring concepts or ideas raised by participants (Clarke & Braun, 2014; Creswell, 2013). As a specific pattern of association begins to form between emerging themes, an interpretation is made about their inter-relationship (Clarke & Braun, 2014; Creswell, 2013). Thematic data analysis occurred in parallel with data collection to decipher emerging themes of significance. The final number of focus groups and study participants was determined when data saturation was reached, that is, when no new themes or findings emerged (Charmaz & Mitchell, 2001; Creswell, 2013).

The study protocol was approved by the UNSW Australia Human Research Ethics Advisory Panel (HC15083). In all public outputs arising from the study, all names of participants were removed from attributed quotations and replaced with a participant code, based on their sequence of enrolment to the study and assigned focus group; for example Student 1 who participated in Focus Group 1 is represented by "(ST1-FG1)" (see Table 1).

Results and discussion

Two key interrelated themes about the values associated with e-learning and the role of learning technologies emerged from data analysis. Students highly valued the function of interactivity offered by learning technologies, and learning technologies that provided

prompt responses, helped them save time and maximised convenience were most lauded. The following discussion analyses the significance and linkage between these two important themes.

Learning through interaction within a virtual community

Social interaction with other learners reaffirms the understanding of curriculum content by gauging the knowledge of others. A sense of interconnectedness with others is an integral socio-emotional need of learners that has been proven to lead to more effective learning outcomes, particularly in an online environment (Barbour, Siko, Sumara & Simuel-Everage, 2012; Delahunty, Verenikina & Jones, 2014) According to study participants, as shown here in Focus Group 1, the key benefit offered by online forums is the didactic interaction it facilitates between student peers and course instructors:

> *What do you like about e-learning?* (Facilitator)
> Online forums where there is discussion. We can put questions there, and the course
> conveners would provide answers to our questions. Every student in the course can then
> answer, and respond to each other's questions. They [instructors] can also give their
> feedback on particular issues. (ST1-FG1)
>
> Yes, online discussions. There are various kinds of online discussions, various debates
> going on, web based discussions, portals where you share your knowledge and ideas.
> (ST3-FG1)

Indeed, interactivity has been a key guiding principle of learning technology design (Sun, Tsai, Finger, Chen & Yeh, 2008). Jaffee (1997, p. 268) observed that "since many fear that the move towards distance learning will reduce levels of human interaction in the learning process, interactivity is an imperative and foundational principle that should guide asynchronous learning networks". Many learning technologies have been specifically designed to improve the frequency, quality and promptness of interactions to facilitate effective learning (Sun et al., 2008, p. 6). Participants in this study clearly recognised that knowledge is gained most effectively when it is shared and developed with others (Ardichvili, 2008; Oztok, Zingaro, Makos, Brett & Hewitt, 2015; Wodzicki, Schwämmlein & Moskaliuk, 2012), and that learning is more than just a cognitive process of receiving and retaining information. Thus the interpersonal social interaction enabled by learning technology features, such as online forum discussions that promote the exchange of information, allows learners to engage with others in a dynamic online social process: even though others are not physically present, they are present and interacting in a virtual sense.

Apart from the systematic forum discussions, knowledge can be shared through technologies such as *Google Docs* with the ability to collectively manipulate written documents. *Google Docs* is an online program that enables students doing group work to have a shared interface where team members can edit the same document. Through a shared platform, individuals are given a degree of control over their own involvement.

> When we use *Google Docs*, you have control over what other participants can edit when
> they are working on the same document at the same time. You can share a document

where each participant can contribute simultaneously, but the owner can take control of what changes to accept. (ST1-FG1)

Other technologies allow visual sharing of annotations on images. For instance, *Slice* (http://www.best.edu.au/s/featured) is a biomedical image database with specifically tailored visual graphics to suit medical education. An additional but important attribute, according to students, is that it supports knowledge sharing:

You can zoom into the actual cells, instead of the big picture. You can share your information with other people, and you see exactly what you can label. It's not just a diagram. (ST19-FG4)

In teamwork tasks, learning technologies such as *Google Docs* and *Slice* facilitate the collaboration of a collective of individuals who have shared goals and thus specific relationships. Wenger (1998) argued that learning occurs in a "community of practice", made up of relationships among people who share a domain of human endeavour. Indeed, through engaging with peers, students develop an awareness of shared knowledge, and in turn contribute to its development and the learning of others (Morueta, López, Gómez & Harris, 2016; Türel, 2016).

In Focus Group 4, made up primarily of undergraduate Medicine students, and Focus Group 6, made up of students from diverse programs and levels of study, the desire for peer-supported, collective learning was the same, notwithstanding their experiences of quite different e-learning platforms and technologies.

We have [non-interactive] quizzes that are formative assessments to check before our exams, but then we also have a lecture where we all sit there, everyone's got buzzers [interactive clicker quiz]… You've got the lecturer out the front with his slides, and then we all get these remotes, and then you press the remote… on screen you can see how many people selected each answer. It's funny sometimes when you get everyone selecting different ones and you can tell that no one has any idea! [laughter] … I am so much more likely to actually go to that lecture and sit there to see if I am right, when everyone's doing it around me and we're all doing it together, rather than sit on my own. It's a bit like a competition! (ST16-FG4)

Yeah it's a bit like a competition, but it's also a bit of a discussion type too. Say, if you get it wrong, then someone would explain to you or the lecturer would explain it again. (ST19-FG4)

It gives you confidence as well. 'Cos you're trying to gauge how much you know compared to other people. It makes you study at the end! (ST20-FG4)
It's enjoyable. It's not hard work 'cos you're just sitting there and you get to put your opinion in, and someone tells you why you're right and why you're wrong. You're with people around you. (ST16-FG4)

On [shared learning platform] there's one part of it with multi-choice questions and then another area where you can type your words and communicate to others. So there are probably people in class who wanted to put their hands up and say stuff, but then others can type in and say, 'I didn't really understand the question.' So the lecturer could just

explain that, so it's really very useful. You can communicate to your peers and the lecturer, rather than just replying to the answer during the lecture itself, it was in real time. (ST30-FG6)

All of us, the way we learn are not the same. Some of us can automatically understand what the lecturers are saying, others it takes days. So if you can watch a clip or do discussions, it gives you an extra tool to enhance learning. (ST29-FG6)

So what's the most helpful aspect of these tools for you? (Facilitator)
We study a lot of political theory and apply it to a real-life situation, like how countries interpret international conventions and laws. When we can discuss that on an online platform, you can see other students share their views and experiences about a particular theory and idea. It's a collective discussion, collective learning. (ST29-FG6)

Online polling is another learning technology design feature that relies on the incremental building of opinions over time to generate a critical mass of review and evaluation of certain programs or content, usually displaying an accumulative number of approving and disapproving votes ("likes/dislikes"), and sometimes open-ended commentary. Students from both Focus Groups 3 and 4 suggested that this is highly useful for them:

Google Play [application distribution service] has a comment section below each app. What they're doing at the moment is pretty good. Everyone can voice out their problems they have with the app. I was thinking if there could be a voting system. You can tell what problems are being faced by most users. (ST11-FG3)
Yeah. That's quite helpful. I'll judge an app by how many good reviews it has. (ST8-FG3)

In *YouTube* [video sharing website] videos, there's the comments. Before you watch a video you don't know if it's going to be a good one or a bad one. So you can rely on the comments on it to see oh ok, this was really helpful or it isn't helpful. (ST18-FG4)
For *YouTube*, they have "number of views", so the more views, it's probably going to be better. I guess a secondary mechanism is also the "likes". The "like" to "dislike" ratio. If the "like" ratio is definitely outweighing the "dislike", then it's probably a good video. (ST19-FG4)

Polling relies on the engagement of a critical mass of users and their accumulated opinion over time. As opinion builds, it generates the awareness and response of more and more users – at times through consensus and at times through heated debate. As more users are engaged and more opinions generated, online polling provides a more robust and reliable sense of mass opinion.

The confidence and trust in the knowledge and information students acquire is socially produced, as demonstrated by the importance students place on receiving feedback from peers and instructors. Participants in Focus Group 4 suggest that feedback from peers and instructors supports the trajectory of learning and added that it was important to receive information from a variety of sources:

I think feedback to some extent is for assurance. So at the back of your mind you know what is right, and then the comments say that this is a good video. I still learn a lot even though you don't know who posted it. It gives you a psychological thinking – that I'm not wasting my time. (ST18-FG4)

> Another thing is, say you have a couple of videos discussing the same subject, so then that might be a range of explanations that are different. So then you have a range of options on *YouTube* to better suit how you learn. Especially maths. There are a couple of different ways of getting to the same solution. Different people working out different ways. (ST20-FG4)

Most participants agreed that the exchange of questions and answers is an important feedback process that supports effective learning. Receiving instructor or peer responses allows learners to evaluate and respond actively to information and clarify their own understanding:

> I rely a lot on *YouTube* videos. Having an easier question feed for each video for people is great. I know there is a comment section, but maybe just a chat next to the *YouTube* video or something like that. I like *YouTube*. (ST12-FG3)

> Yes, I too like live, one-on-one interaction … If I'm trying to learn *MetLab* software and I have a question about it, the help function isn't enough. It would be cool if you can click something, and talk to somebody and ask them. (ST13-FG3)

Students often question the accuracy of newly acquired knowledge, but clarification is quickly received when others, either peers or instructors, affirm the trajectory of learning. Thus receiving feedback from within a community of trusted sources is crucial for effective learning.

Learning becomes socially meaningful because it binds learners into a functioning social system, or community, within which they collectively gain knowledge, thus affirming the shared value of learning and the relationships and identities forged within it (Ardichvili, 2008; Jameson, Ferrell, Kelly, Walker & Ryan, 2006). In the context of e-learning, learners come to embrace certain identities such as participants in shared learning through their use of technology and expect others to be participating team members; similarly, as students, they expect instructors to provide timely and effective feedback.

It is through functions offered by learning technologies that learners become engaged in the social structures and patterns of participation and interdependence and the formation of social identities and the structured peer collaboration that achieves key learning aims (see also Willis et al., 2013). Through engaging in the social practice of learning, learners proactively use technology as "opportunities to participate in the practices of the community, and develop identities which provide a sense of belonging and commitment" (Handley et al., 2006, p. 642) as a means to participate fully in this social system. Interactivity, as a function offered by learning technologies, becomes a key shared value among learners, because it is both a means of, and an end to, learning as a social practice: interactivity is effective and efficient in facilitating the gaining of new knowledge, while the sense of connectedness and trust of others in a community of learners affirm the legitimacy of that knowledge.

Time is valuable: Expectations of promptness and time efficiency

While interactivity is a much valued function offered by learning technologies, it is also intermeshed with the vital concern with *time* – an important second theme which emerged in this study. Only one question in the focus group discussion schedule was related to time, on learner preferences for the length of learning activities. However, the study participants discussed time avidly, eliciting wide-ranging views on the promptness of interactions, the need for faster access to learning activities and their desire for learning technologies to help them save time and bring convenience to their busy daily schedules.

Participants suggested that the shorter time span of learning activities helped them to stay focused and engaged, which then translated to less effort and time spent overall in learning. Students in Focus Group 4 suggested that while short videos are somewhat important to maintain users' concentration, a widely shared desire for short videos is attributed to students' wish to spend less time on learning activities:

> *What "puts you off" in e-learning?* (Facilitator)
> Long videos. It's hard to stay focused for the entire duration. You want to go and cool off a bit. If you can't then you're probably going to zone out. (ST17-FG4)

> *SmartSparrow* [interactive scenario-based learning platform] puts up a video, asks you a few questions, gets you engaged. Then another video. So maybe a long video could be split up like that. Ask a question here and there. (ST20-FG4)

> I think that you also know if there's still going to be interaction, like a quiz, it makes you want to focus more. 'Cos you know that there will be questions you need to answer. As compared to, you know, if it's just a video with no other interaction, then you you're like, "oh yeah, if I don't get it this time, I'll get it some other time", which takes a longer time to learn. (ST18-FG4)

Similarly, discussions in Focus Group 3 and Focus Group 4 suggested that posting a question and receiving answers are indeed important, and that when answers are not immediate, it can be off-putting because of the extra time this incurred for users:

> What makes [website] so good is that… there's a comment section, some people may ask questions that you might also have, and there's a discussion as well. (ST14-FG3)

> Hmm. I find it challenging when you post a question, and you don't immediately get an answer, and there's a gap… I just don't have that kind of time. (ST9-FG3)

Prior research has long established the importance of providing timely feedback, particularly for maintaining motivation and shaping self-adjustment behaviour (Poulos & Mahony, 2008). Students in this study suggested that immediacy in the timing of feedback is indeed important for maintaining learner engagement, but went on to highlight a salient additional point: timely feedback is effective because it leads to overall reduced time spent on learning. This added concern about time efficiency is most notable of the reasons students cited on the attribute of timely feedback.

Participants from all focus groups in this study mentioned the value placed on the speed and convenience offered by learning technologies as an added value to the technologies

that already offer interactivity. For example, a simulation-based learning technology, such as the online lab mentioned in Focus Group 5, is innovative in recreating a laboratory classroom online, and allows students to take part and experience a laboratory virtually. Further prompting of the following participant revealed that the most useful value of this program was that it helped the participant save time and offered convenience:

> I did an online lab the other day. It was like a biochemistry lab, like tiny pipettes that you could click on and you add slimy solution. Like, you know you transfer liquids in small amounts. Doing all that you just clicked on little things on the screen. And it was nice because you got an understanding of it without taking as much time as it would have to do a lab. (ST21-FG5)

> *And what was the best thing about this particular online lab?* (Facilitator)
> It was easier and took less time. You still understood the concept behind it, but you still did not have to do all the physical work. (ST21-FG5)

Ultimately, a core attribute of e-learning technologies is that they help students save time, as students in Focus Group 2 also suggested:

> It's connecting you to other databases such as *PubMed* or *JSTOR* [online journal databases]. (ST5-FG2)

> Which I might add is very useful. It cuts down my time in going down to the library and sifting through the articles. Like, in person. I can just do it all online. (ST4-FG2)

While the objective of learning is obviously central, shortening the learning process also encouraged students to engage with learning technologies. Students tapped into additional functions of learning technologies, such as structured chaptering and fast forwarding to help them navigate dense course material, and to identify specific issues they needed to revisit and revise. Notably, a key intention behind this engagement is their desire to learn faster:

> When you're in a class and you're stuck in that room, you can't fast-forward or anything. But with *Echo* [*Echo360* – a lecture streaming technology] I always try and make things go faster. (ST11-FG3)

> *OK, and why would you do that?* (Facilitator)
> 'Cos you've already got the point. (ST9-FG3)

> Some lecturers talk really slowly. It doesn't make that much of a difference if you put it up to 1.5 speed. You can still understand what they're saying and it's much quicker. (ST14-FG3)

It is important to provide students with a selection of complementary learning technology features that enable them to control their own learning, tailored for their personal time needs and preferred pace of learning:

> I prefer videos to be shorter. Because I can always go back and find out more information if I need to. We do have other resources and we can contact our lecturers and things like that. (ST5-FG2)

> Yeah I'd like to, if I had the choice, watch shorter videos, and if there's anything I don't understand, I'll go and email my lecturer. (ST6-FG2)

> Pick out snippets. There's a lot of tutorials on *YouTube*. Like learning algebra. They've actually marked on the video when they start to talk about a particular part of the topic, and you can skip to that and be like, "OK, that's the only bit that I didn't understand", rather than like sitting there waiting and then about 35 minutes in you actually get to the stuff that you need. (ST5-FG2)

> Yeah. Knowing where there will be an example, and we'll do theory, then there will be another example here. That's important. (ST6-FG2)

> Yeah, structure is very important. So knowing when we are going to talk about in this or that part of the lecture. (ST5-FG2)

> Yeah, you just skip a few minutes every time, you have to wait for it to load, and wondering where you need to be. (ST6-FG2)

"Time is valuable", as suggested in Focus Group 3, exemplified the irrefutably important and shared concern around time in e-learning, and what students expect the most optimal learning technologies would do for them. On the other hand, time lags and slow performing technologies reduced students' motivation to engage in learning:

> *What "puts you off" e-learning?* (Facilitator)
> For an app, if it's really big, I might consider not downloading it. Time's valuable. And long videos. It's hard to stay focused for the entire duration. You want to go and cool off a bit. If you can't then you're probably going to zone out. (ST8-FG3)

The persistent reiteration of the need to save time through various functions offered by learning technologies suggests that study participants have a shared social expectation that e-learning should be fast, instantaneous and offer convenience and that they have a notable lack of tolerance for prolonged time spent on learning activities.

Learning technologies are more than just tools or artefacts in a learning environment, but important *enablers* present in the social structure that facilitate the production of socially significant values for a specific community of learners, or as what Giddens (1984, p. 25) saw as "the rules and resources which actors draw upon during practice, which creates the conditions of practice that are always constraining and enabling". Our study suggests that learners proactively engage with learning technologies in ways that met their most important learning requirements: firstly, a need for social interactivity and sense of community, and secondly, the expediency in time. On the contrary, the *constraining* elements of e-learning are attributed to the "off-putting" lack of interactivity and unnecessary time spent. As part of social practice, the values associated with learning are socially constituted: when certain expectations of e-learning become shared by more and more members of a community, it becomes ingrained into their socio-cultural norm. As such, for this cohort of students, it has become normal to expect e-learning to be fast and offer time convenience.

Being busy and time-poor: The socio-cultural context of learning on the go

To further understand why learners come to uphold certain values as socio-cultural norms, we examined factors in the current social context of their lives that potentially contribute to these normative expectations. We further analysed inter-related participant discussions about time, or indeed, the lack of it, to understand the wider socio-cultural environment that underpinned students' values associated with e-learning.

The current generation of young Australians is described as "time-poor", balancing an array of study, work and social activities, as well as increasingly lengthy travel time within major cities. A recent survey revealed that more than 75% of 18-29 year old Australians who are studying in tertiary education say they are "busy all the time", that the average time spent in employment by tertiary students was 18.9 hours per week, and that 60% per cent of working students indicated they are overcommitted and struggled to meet all their study and work obligations (The Co-op & BDO, 2015, p. 8 and p. 18).

A number of participants noted the need for learning technologies to help them fit learning activities in a busy calendar of extracurricular demands, particularly paid work:

> When we had first year maths, we had one lecturer who didn't have any slides, he didn't use *PowerPoint* slides [Microsoft *PowerPoint* – a slide show presentation program], he'd use a projector or draw on the blackboard. Which is great if you were there, and I was there all the time in First Year, but it gets quite hard later on when you have to start working. So to be able to do it remotely, maybe something like *SMART Board* [interactive whiteboard]. They can write on the *SMART Board* and it comes up, and that would all get saved. (ST4-FG2)

> If you are occupied with meetings or something, you're limited in taking part in live streaming. You have to reschedule. And even if you plan ahead, there might be unforeseeable factors. (ST1-FG1)

On top of paid work, a daily activity that consumes precious time for Sydney residents is commuting. The average time spent commuting in Sydney is the longest in Australia (Lifehacker, 2012). Tertiary education commuting trips in Sydney have a median of 40 minutes, which is the longest duration of trips in comparison to all other purposes, such as full-time work, medical appointments and recreation (Daniels & Mulley, 2011). Having to spend time in long daily commutes, study participants lauded the important flexibility of technology that enabled them to engage with learning material while commuting:

> I'm quite busy … I listen to a lot of podcasts. You can do it whenever, like during your commuting time. (ST11-FG3)

While podcasts offer time convenience during a commute, it is nevertheless a more passive form of learning. Thus as suggested in Focus Group 2, the added features of forum functions enable some interactivity as well as time convenience:

> I listen to *iLecture* [lecture streaming technology]. We are able to download podcasts for them. And that is really great because you'd be on the bus or driving and when you

didn't have time for a video, you could listen to the lecture and use your time more effectively. (ST5-FG2)

When you can watch [lectures] live, that is such a great function. 'Cos sometimes I couldn't be in a place where I needed to be. But I still had time to listen. And there's actually a forum function on there, if there are other people listening at the same time as you, you can ask other people questions at a particular point. It gets saved at that point, and you can go back later for reference. (ST6-FG2)

In recent years, the availability and use of portable web-enabled devices on public transport has grown substantially. These technologies allow users to control the amount of time they spend in learning engagement, and when and where they do so. For the study participants, the value of learning technologies is inevitably connected to its role in easing the time-consuming daily commute, and combining the demands of paid work on top of study which is the economic reality for many students in large Australian cities such as Sydney. This suggests the wider social context of learners influences the values associated with learning technologies.

Conclusion

In this focus group study, we targeted a range of students from diverse disciplines, to elicit varied perspectives on the values attached to e-learning technologies, rather than a focus on encounters with one particular course or technology. While the shared experiences of more homogenous groupings, such as Focus Group 4, made up primarily of undergraduate medical students, and the larger representation of students from the Faculty of Medicine in general, allowed more in-depth discussions on specific e-learning technologies in medical education, it is clear that the social connectivity and time convenience attached to e-learning technologies transcend discipline or level of study.

While this study confirmed well-established findings about the values of interactivity and time convenience associated with e-learning technologies, we offer an important and significant contribution to e-learning literature by analysing the data from a social practice perspective. We make a link between these two key values by understanding the wider socio-cultural norms of students learning as a community and juggling study with a busy lifestyle. It is through using learning technologies that students achieve the rapport and sense of belonging within an online learning community, as well as meeting their expectation of learning in minimal time and maximum convenience. From the perspective of our study participants, optimal learning technologies are dynamic as they meet both values of interaction and saving time. The effective and efficient learning afforded by interaction means less time is needed to learn. For course designers and instructors, e-learning requires more than making technology available to learners, it also requires understanding of factors specific to a cohort of learners and providing resources that cohort needs as a community.

This study reinforces the importance of social context and the social nature of learning. It will increase awareness by academics and educational content developers of the socially mediated values that need to underpin the design and integration of e-learning

technologies in programs of study. It is crucial that the future design and implementation of e-learning is situated in this understanding and is tailored to the values and meanings that students attach to education and learning activities.

Acknowledgements

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