

Facilitating motivation through support for autonomy

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With the increasing ubiquity of new technologies, many claims are being made about their potential to transform tertiary education. But in order for this transformation to be realised a range of issues need to be addressed. Research suggests that student motivation in technology-rich learning environments is one such challenge. This paper reports on one aspect of a larger study that investigates the nature of motivation to learn in online environments. Using self-determination theory (SDT) as an analytical framework, the focus here is on the underlying concept of autonomy. Ways in which certain social and contextual factors can foster perceptions of autonomy, and in turn motivation, are explored. These factors can have a supportive effect on learner motivation. Most prominent among these are the relevance of the learning activity, promotion of interest and active learning opportunities.

Keywords: motivation, e-learning, autonomy, self-determination theory

Introduction

The rapidly changing nature of technology is having a dramatic impact on how, where and when we choose to learn (Harasim, 2012). Educational institutions including universities are no less affected (Haythornthwaite & Andrews, 2011). In such a rapid time of change, it is critical that we are cognisant of factors that contribute to learning success in technology-mediated environments. Motivation is one such factor (Bekele, 2010). Perceptions regarding the motivation of online learners have developed out of earlier distance education models (Moore, 1993) and adult learning theories (Knowles, 1984) that consider such learners as independent, self-efficacious and having high motivation to learn (Bates, 2005; McCombs & Vakili, 2005). But as the student population becomes increasingly diverse, the boundaries between traditional and informal learning environments blur and new forms of online learning such as massive open online courses (MOOCs) experience high dropout rates (Mackness, Mak, & Williams, 2010), these underlying assumptions are being questioned (Haythornthwaite & Andrews, 2011). A growing body of research highlights motivation as an issue requiring further investigation in online contexts (Artino, 2008; Bekele, 2010; Hartnett, St. George, & Dron, 2011).

Literature review

“To be motivated means *to be moved* to do something.” (Ryan & Deci, 2000a, p. 55) Motivation involves goals that provide the impetus for purposeful action with an intended direction. Inherent in this definition is the notion that motivation is a process rather than an end result. As such, it must be inferred from actions such as choice of tasks, persistence, effort and achievement, or from what individuals say about themselves (Schunk, Pintrich, & Meece, 2008).

Understanding the complexity of motivation is important because it has practical implications for online instructors and instructional designers as well as learners. For example, motivation to learn has been shown to play an important role in determining whether learners persist in a course of study, the level of engagement, the quality of work produced, and the level of achievement (Schunk, et al., 2008).

Contemporary views of motivation emphasise the situated, interactive relationship between the learner and the learning environment (Turner & Patrick, 2008). Just as motivation is a key factor in learning and achievement in face-to-face educational settings (Brophy, 2010), so it is in online learning environments (Bekele, 2010). Despite this, existing research in online contexts are limited both in number and scope, as others have noted (Artino, 2008; Yukselturk & Bulut, 2007).

Motivation to learn online

Various frameworks have been used in studies of motivation in online contexts. These include: Keller’s (2008) ARCS (attention, relevance, confidence and satisfaction) model (Huett, Kalinowski, Moller, & Huett, 2008), self-efficacy (Moos & Azevedo, 2009), goal orientation (Dawson, Macfadyen, & Lockyer, 2009), interest (Moos & Azevedo, 2008), intrinsic–extrinsic motivation (Xie, DeBacker, & Ferguson, 2006) as well as various combinations of these constructs (Lin, Lin, & Laffey, 2008; Yukselturk & Bulut, 2007).

One theory used to investigate learner motivation in online environments is intrinsic and extrinsic motivation. “Intrinsic motivation is defined as the doing of an activity for its inherent satisfactions rather than for some separable consequence” (Ryan & Deci, 2000a, p. 56). Intrinsic motivation often results from the challenge, interest or fun an individual derives from an activity. In contrast, “extrinsic motivation is a construct that pertains whenever an activity is done in order to attain some separable outcome” (Ryan & Deci, 2000a, p. 60). Extrinsic motivation is associated with a source outside the activity itself, such as undertaking a course of study to improve future career prospects. Research suggests that individuals who are intrinsically motivated are more likely to undertake challenging activities; be actively engaged and enjoy learning; adopt a deep approach to learning; and exhibit enhanced performance, persistence, and creativity (Brophy, 2010; Ryan & Deci, 2000b).

Self-determination theory (SDT) (Ryan & Deci, 2000a) is a contemporary theory of intrinsic-extrinsic motivation that is built on the fundamental premise of learner autonomy. SDT argues that all humans have an intrinsic need to be self-determining or autonomous (i.e., experience a sense of agency and control), as well as competent and connected, in relation to their environment. When autonomous, students attribute their actions to an internal locus of causality; and experience a sense of freedom and choice over their actions. SDT states that if the environmental conditions are such that they support an individual’s autonomy (as well as competence and relatedness), then more self-determined motivation will be promoted with intrinsic motivation being the most self-determined (Ryan & Deci, 2000a).

A number of studies have used SDT to explore students’ reasons for engagement in online environments. Comparative studies are common (Shroff & Vogel, 2009; Wighting, Liu, & Rovai, 2008) and findings have indicated that online students were more intrinsically motivated than their on-campus counterparts. Other research has suggested that learners’ perceptions of autonomy were predictive of both intrinsic and extrinsic motivation (Huang & Liaw, 2007); intrinsic motivation was associated with greater exploration of the learning environment (Martens, Gulikers, & Bastiaens, 2004); and intrinsic goal orientation was significantly positively correlated with online success (Yukselturk & Bulut, 2007). Together these studies have suggested that learners’ perceptions of autonomy are important in fostering online students’ intrinsic motivation.

SDT has also been utilised to identify contextual factors that support intrinsic motivation (Harper, 2009; Rovai, Ponton, Wighting, & Baker, 2007; Shroff, Vogel, Coombes, & Lee, 2007; Shroff, Vogel, & Coombes, 2008; Xie, et al., 2006). Collectively, these studies have demonstrated that feedback, well-designed discussion topics, the instructor’s role in online discussions, clearly stated guidelines, choice, competence, challenge, interest, relevance and collaboration all influenced student intrinsic motivation to learn in the various online learning contexts. However, the study by Xie et al. (2006) was the only one to draw on multiple perspectives by incorporating instructors’ points of view on the purpose of online discussions. Furthermore, none of the above studies clarified which of the different psychological needs of SDT were supported by the identified contextual factors influences. It can be argued, for example, that clearly stated guidelines and well-designed discussion topics guide, clarify and facilitate the learning process thereby supporting a learner’s need to feel effective and competent. In other words, it is the support for learners’ competence needs rather than their autonomy needs that fostered the observed intrinsic motivation in these studies.

The current research sought to go beyond existing research by using the underlying concepts of SDT (i.e. autonomy, competence and relatedness) as critical lenses to untangle the multiple influences on motivation that combine in complex ways in different online contexts. By doing this, it is possible to shed light on the ways in which the different psychological needs of learners are affected by a range of social and contextual influences.

Method

This paper presents findings of one aspect of a wider study (Hartnett, 2010) that explored the motivation of pre-service teachers situated within ‘real-life’ online learning contexts. While the main study explored and identified a broad range of influences that supported or undermined learners’ autonomy, competence and relatedness needs, results presented here focus on those factors that fostered perceptions of autonomy among learners.

Case studies

This study was exploratory in nature and sought to identify, explore and understand pre-service teachers’ online learning experiences as they related to their motivation to learn in specific online contexts. Therefore, the methodology adopted was case study because such an approach can be of value where the research aims to investigate a complex phenomenon embedded in the real world, where the scope is difficult to define and can

only be understood within context (Gillham, 2000; Yin, 2009). Purposive sampling methods (Patton, 2002) were used to select two information-rich cases. Although the broader institutional context was beyond the scope of the wider study, the effect such influences can have at the situational level have been noted previously (Vallerand & Ratelle, 2002). Potential cases were therefore identified from the same programme within the same institution in order to reduce differential contextual influences at the institutional level. Cases were chosen based on predetermined criteria of importance to ensure relevance to the research question. In particular: (a) courses were required to be predominantly web-based, with only limited resources provided by alternative methods such as print; and (b) students were required to participate in the online learning community as an integral part of their assessed coursework.

Procedures

Ethical consent to undertake the study was gained prior to the collection of data. Data collection procedures comprised online questionnaires, interviews, online asynchronous discussion transcripts and course resources. Findings presented here draw on interview and open-ended questionnaire responses in addition to online discussion transcript data and were collected after the relevant learning activities had been undertaken.

Both inductive and deductive analysis occurred within this research investigation. While self-determination theory (Ryan & Deci, 2000a), provided sensitising concepts with which to explore the qualitative data (Blumer, 2006), an inductive approach geared to allowing additional patterns, themes and categories to emerge from the data, occurred concurrently (Bogdan & Biklen, 2007).

This process involved reading and re-reading all qualitative data to get a sense of the breadth of responses and the possible range of codes needed to identify themes. Each theme was assigned a code and each coded piece of text was placed at a “node” named in such a way that it described the essence of the idea identified. In this way, chunks of text with similar ideas were able to be stored together. These pieces of text varied in length and were coded at all relevant nodes depending on whether single or multiple themes were identified.

Context and participants

The two courses that provided the context for the case studies were situated within the larger context of a pre-service teacher education programme within a New Zealand tertiary institution. Students in this programme were preparing to teach in New Zealand primary (i.e. elementary) schools. These courses were considered Internet-based rather than fully online because students received some print material (study guide) and digital resources (CD-ROM – Case Study One) at the beginning of their course. The online learning platform used for online communication and most content delivery was the WebCT Learning Management System. The boundary for each case study centred on one assignment and its associated online activities. In both case studies, all participants had similar prior experience of online learning and group assignments.

While both cases were chosen from courses within the same programme, the instructional design of each was different. Case Study One was situated within a compulsory integrated science and technology course. Teaching staff consisted of a course coordinator with science expertise and a tutor with technology expertise. The tutor was responsible for most of the online teaching and management of the course and focused on use of online resources and facilitating related asynchronous discussions. Students usually took this course in the third and final year of their degree. The case study itself focused on a Problem Based Learning (PBL) assignment worth 60% of the final mark. This was undertaken over a six-week period in which students were required to work collaboratively in small groups. PBL is an instructional approach built around authentic, ill-structured problems which are complex in nature (Schmidt & Moust, 2000).

Case Study Two was positioned within an introductory social studies curriculum course that formed a compulsory component of the same programme. Students usually took this course in the second year of their degree. An individual micro-teaching and reflection assignment (with associated online activities), which required students to plan and teach two consecutive lessons in a school of their choice and then reflect on their experience, formed the boundary for Case Study Two. Students completed this assignment over a four week period and it was worth 40% of the final mark. The course coordinator was responsible for all online teaching throughout the semester.

A total of 21 student participants took part in the two case studies (12 in Case Study One and 9 in Case Study Two) and three lecturers (2 in Case Study One and 1 in Case Study Two) and were recruited from the semester one (February – June) 2008 online offering of each course. Participants were located throughout New Zealand

and undertook their courses at a distance from the main campus. The respondent group comprised two males and 19 females (one male in each case study). Participants' ages ranged from 18 to 55 with 90% in the over 24 age group.

Findings

As mentioned previously, self-determination theory is used as an analytical framework. The fundamental premise of SDT is that perceptions of autonomy, competence and relatedness (Ryan & Deci, 2000a) contribute to self-determined forms of motivation (Hartnett, et al., 2011). Only the situational influences that provided support for the autonomy needs of learners are reported here.

A range of important social and contextual influences were found within each case study that served to support learners' autonomy needs, thereby facilitating the expression of more self-determined motivation. Themes common to both case studies and others unique to one case are summarised in Table 1.

Table 1: Autonomy supportive influences that support high quality motivation

Autonomy Supportive themes	Case Study 1		Case Study 2	
	Frequency count	Students identifying theme (n=12)	Frequency count	Students identifying theme (n=9)
1. Task relevance & meaning <ul style="list-style-type: none"> ▪ professional ▪ personal 	68	8	55	9
2. Interest <ul style="list-style-type: none"> ▪ situational ▪ personal 	50	7	52	9
3. Actively use knowledge in practice	29	6	32	9
4. Significant role in group decisions & tasks	25	7	-	-
5. Autonomy supportive lecturers	18	5	20	6
6. Provision of choice	17	6	19	9

The *relevance and meaning* of the activities emerged as the most salient theme that supported the autonomy of participants in both case studies. Within this major theme, two key sub-themes emerged: *professional relevance* and *personal relevance*. Comments such as 'this assignment was exactly what the course is about and indeed what we are studying to be is all about – teaching' (Student2, CS2, questionnaire) and 'an authentic problem that was happening in our community that was ... meaningful ... that was motivating' (Student11, CS1, interview) were indicative of comments from participants across the two cases.

The autonomy needs of learners were further supported through the promotion of *interest* in two distinct ways. Online discussions that were considered 'quite hot topics ... [and] got us talking ... I got the impression that people were participating quite regularly because it's just interesting' (Student1, CS2, interview) and the use of authentic learning approaches such as problem based learning that emphasised 'the fun of actually trying to create some experiments' (Student7, CS1, interview) were some of the ways in which *situational interest* (i.e. features of the learning activity itself that participants found interesting) was promoted. Moreover, activities that provided opportunities to pursue *personal interests* were key mechanisms that supported autonomy as revealed by the following comments 'I decided to take it into the fact or opinion kind of evaluation or you know inquiry aspect of that, that intrigues me. I mean anything to do with getting kids to think about why they are thinking, fascinates me' (Student7, CS2, interview); and 'science and technology are my favourite things' (Student8, CS1, interview).

Being able to *actively use knowledge in practice* was also seen as important and valuable and was next most prominent theme highlighted by learners across both cases. The following remarks indicate what this meant to learners: 'it was a very hands on/practical assignment which not only put the theory into practice but it also

replicated exactly what would happen within the classroom situation' (Student9, CS1, questionnaire); and 'I think it was probably the best thing that you could do ... you know, you learn all about social studies ... and then you are faced with the problem well, how am I going to teach that? You know, it's like, oh wow okay, I've just read all about it, so now I have to actually work out for myself how that's going to go' (Student2, CS2, interview).

Perceptions of having played a *significant role in group decisions and tasks* also contributed towards learners' autonomy in Case Study One (a collaborative task) but not Case Study Two (an individual task). This occurred in groups where learners were supported by their peers to contribute to group decisions and tasks by having 'your say on everything' (Student8, CS1, interview) to ensure 'we all know that this is what we're doing now and summarise what we'd been talking about and that we're all on the same page' (Student4, CS1, interview). In contrast, the individual nature of the assignment in Case Study Two, that afforded learners a clear sense of autonomy, meant that fellow students were not perceived as central to influencing learners' sense of agency as the following comment indicates: 'it was really valuable ... to have the experience of making your own choices and making your own mistakes or your own successes' (Student1, CS2, interview).

A further theme to emerge was the autonomy-supportive approaches adopted by the lecturers. Statements like 'I think it's healthy when they decide because the ownership is on them and they're not being pushed' (Lecturer1, CS1, interview); 'students identifying their own opportunities so they get that sense of ... ownership right from the start, it's not imposed upon them' (Lecturer2, CS1, interview) and 'for me it's a sharing of power' (Lecturer, CS2, interview) indicate that support for learners' autonomy was a consideration for lecturers in both case studies. This translated to learners' perceptions of autonomy most consistently in Case Study Two (see Table 1) as the following comments indicate 'we weren't told this is the way I want your groups to be. Or this is the way that I want you to do it but we were given options' (Student3, CS1, interview); 'I loved how she brought it across because she wasn't serious and this is how it is and this is how it's going to be and she gave us the freedom to explore' (Student3, CS2, interview) and 'Isn't it lovely to feel worthwhile & capable & valued' (Student9, CS2, online transcript).

A final significant theme to emerge that supported participant autonomy was the perception of many choices being available to them. The *provision of choice* was seen as freeing and having no limits, as the following remarks attest: 'choice is very important to me in a motivational sense' (Student7, CS2, questionnaire) because it allowed learners to 'choose what was of personal importance to me, to my life' (Student10, CS1, questionnaire).

Discussion

In the discussion that follows, it is important to note that no one factor supported all the autonomy needs of learners on its own. Rather, learners' *perceptions* of the extent to which their needs were met were formed from multiple influences that combined in complex ways that were dependent on the learning environment in which they were situated.

Relevance and meaning

Across the two case studies, the importance of the learning activity in terms of its relevance and meaning emerged as a central theme that fostered perceptions of autonomy resulting in the expression of more self-determined motivation among learners. Within this, two clear sub-themes were identified in terms of what participants found relevant and meaningful about their respective assignments. First, participants who saw a clear link between their own experience during the activity and its relevance to their future teaching practice expressed feelings of autonomy. Expressions of autonomy were reported by participants across both cases but most consistently in Case Study Two. For these learners, the usefulness or utility value of the activity (i.e. a means to achieving a future goal) they were undertaking was clear and something they identified with. Highlighting the relevance and applicability of an activity (to future goals) has been identified previously in the literature as an important strategy for supporting the autonomy needs of learners that results in more self-determined motivation (Brophy, 2010; Reeve, Ryan, Deci, & Jang, 2008).

In addition to professional relevance, the second sub-theme was the personal relevance and meaning the activity engendered for participants. Being able to make connections from the course content to their everyday lives, in terms of existing interests and prior experiences, enhanced the meaningfulness of the task and encouraged personal involvement for the majority of participants. Support for personal relevance and task value being important sources of motivation to learn in online contexts can be found in a number of previous studies (Artino,

2007; Xie, et al., 2006; Yukselturk & Bulut, 2007). Beyond affirming existing research, this finding has further significance because it demonstrates that the relevance and meaning of an activity is not just important for learner engagement online but that it influences the quality of learners' motivation, by providing support for autonomy needs.

Interest

The primary way in which learners' interest was supported in both case studies was through the promotion of situational interest – interest generated by certain conditions in the learning environment (Hidi & Renninger, 2006). Interest is always content specific (Krapp, 2002). Situational interest was promoted and sustained in Case Study One through the use of problem based learning as an instructional strategy which encouraged participants to engage with science and technology content. Participants expressed interest in at least one aspect of the PBL process – a new learning approach for the students and one that had direct relevance to pre-service teachers as a model of practices that might be used in their own teaching. Examples included the collaborative nature of the activity and the potential for various approaches to solving the chosen problem. This interest was further supported by the lecturers who encouraged students to pick a topic that piqued their interest and/or had personal relevance.

Similar to Case Study One, participants in Case Study Two were also encouraged to focus on a topic that was personally meaningful. Additionally, the lecturer created on-going situational interest by the inclusion of regular online activities and resources that were topical, relevant and meaningful, both personally and professionally. The promotion of situational interest is an important finding. This is because it demonstrates that while the potential for interest lies within the individual (Hidi & Renninger, 2006), the situation – in this case the teaching approach – also has an important bearing on its development and, in turn, the motivation experienced by learners.

In addition to participants finding aspects of the learning environment interesting, personal interest – an individual's preference to return to a particular area of content over time (Hidi & Renninger, 2006) – also emerged as an important theme. When the choices available were perceived as appealing, this allowed learners to align learning activities with their individual interests. Participants identified the opportunity to choose the topic of the assignment, in particular, as key to this alignment process. The main difference between the two cases was that the majority of students from Case Study Two (see Table 1) expressed a strong, well-developed, pre-existing individual interest in social studies content which was further enhanced by the autonomy supportive context of the micro-teaching task. Opportunities to link learning activities to areas of personal interest have been shown previously to support autonomy thereby promoting more self-determined motivation (Hidi & Renninger, 2006; Reeve, et al., 2008).

Actively use subject knowledge in practice

Students liked being active and being able to put into practice what they were learning in an authentic way. Participants from both case studies highlighted having opportunities for action as a key feature that helped them to understand the importance, relevance and value of their respective tasks, particularly to their future teaching practice. Tasks that involve a high degree of participation and activity have been shown to promote motivation (Reeve, Deci, & Ryan, 2004), learner engagement and encourage deeper understanding (Brophy, 2010).

Significant role in group decisions and tasks

Learners in Case Study One who played a significant role in their group's decision-making processes and completion of tasks, perceived their peers as having contributed to supporting their autonomy needs. In other words, they believed their contributions were not only endorsed by their peers but also influenced the overall action taken by the group. Whether this took the form of collective decision-making processes or the role of leader, participants perceived their peers as supporting their need to be self-determining.

Support by peers for the autonomy needs of their fellow learners did not feature in Case Study Two. This was due to the independent nature of the activity. While participants did consult with their peers before making decisions about choice of topic, teaching approach and possible resources, decisions were not dependent on the suggestions made by other students.

Autonomy supportive lecturers

The ways in which lecturers communicated expectations and feedback was important to learners. The provision of clear expectations and feedback using informational, non-controlling written language was identified by students as a feature of the lecturer's communication style that they considered autonomy supportive (as well as supportive of competence needs). This informational style revolved around information-rich messages that identified what was required, written in a way that conveyed flexibility and personal responsibility to the learner rather than seeking compliance through control or coercion. The use of explicit, detailed information that clarifies what is required without seeking to control behaviour has been identified previously as an important characteristic of autonomy supportive teachers (Reeve, 2009).

Provision of choice

The provision of choice emerged as a final prominent theme that learners identified as supportive of their autonomy needs. Across the cases, participants who perceived themselves as having choice identified several areas where they were given opportunities to choose. These included: the topic they focused on, how they went about it, and the presentation of their work. Case Study One learners also identified the opportunity to choose their peers as a further key area where they could make their own decisions. However, this tended to occur only for those students who approached other learners early on in the process and therefore had more potential group members from which to choose.

Being given opportunities to choose how and when to act, in ways evident in these case studies, promoted perceptions of choice, a sense of control and greater volition similar to previous research results (Van Etten, Pressley, McInerney, & Liem, 2008). Here, the provision of choice was autonomy supportive because it provided opportunities to pursue topics and activities in ways that were interesting, relevant and meaningful. In other words, the choices offered were not seen by these participants as trivial or superficial as can sometimes be the case with, for example, option choices (Reeve, Nix, & Hamm, 2003).

In summary, six important themes emerged as facilitating perceptions of autonomy across the two case studies. The different ways in which the psychological autonomy needs of learners were supported were, in turn, influential in fostering the expression of more self-determined motivation. It is interesting to note though, that some factors were identified as supportive or undermining of learners' autonomy needs depending on an individual's perception. This highlights the complex and interactive relationships between the learner and learning environment that influence motivation (Turner & Patrick, 2008).

Implications

This study has demonstrated that perceptions of autonomy by learners (which contributes towards how self-determined they feel) were influenced by online teaching practices, the design of learning activities and the social aspects of the tasks in which they were engaged. This is hardly new or surprising given our current understanding of the situated nature of learning in traditional (Lave & Wenger, 1991) and online (Wegerif, 1998) contexts. What is new is the consideration of these influences from a motivation perspective (through the analytical lens of autonomy from SDT) and the findings that, similar to learning, motivation is also situated in particular contexts. The implication is that differing circumstances of students within the learning context need to be considered and, where possible, accommodated in order to support the learner's psychological need for autonomy and the expression of high quality (i.e. more self-determined) motivation among learners.

Limitations

As with all research, there are a number of limitations with this study. The use of case study methodology meant that research findings are associated with particular chosen contexts, namely two courses that formed part of a pre-service teacher education programme within a single New Zealand university. This limits the transferability or usefulness of findings to other online practitioners in diverse settings. However, the primary intention was to explore environmental influences on learners' motivation, not to generalise to the wider population of online learners.

Conclusion

Using self-determination theory and the underlying concept of autonomy, this study has uncovered a range of social and contextual factors that facilitated perceptions of autonomy among learners. Importantly, learners'

autonomy, and therefore motivation to learn, was shown to be facilitated by specific online teaching practices, design aspects of learning activities and the social aspects of tasks in the contexts described here.

The identification of a range of factors that support learner agency offers practical assistance in supporting our understanding of the dynamic interplay of influences that can support student motivation in online contexts. While this is by no means a definitive list, the factors identified may help in the creation of useful guidelines for teachers and instructional designers when considering the development of and teaching within online educational contexts. The interplay of factors will vary within any given context and be different for individual participants but unless this complexity is recognised and understood, we run the risk of not being fully prepared to face the challenge of developing practices that support the motivation of learners in the future.

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