Digital student agency: Approaching agency in digital contexts from a critical perspective

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Abstract

Developing student agency is a critical aspect of higher education and, in particular, digital education. In this sense, the capacity to understand what constitutes agency in digital contexts of education and evaluate students' digital agency is now crucial. In contrast to traditional approaches to student agency in digital contexts that subsume technologies to educational intentions, media research has illustrated a more complex interplay between humans and technology. Drawing on this insight, the paper argues for a more critical disposition to digital student agency, wherein relational, cultural, and technological dynamics are central to agency. Specifically, the article proposes a framework for digital student agency that distinguishes five critical domains to student agency in digital contexts: (1) agentic possibility, (2) digital self-representation, (3) data uses, (4) digital sociality, and (5) digital temporality. The article concludes by outlining the implications of the framework for educational practice and academic research around student agency and student learning. Specifically, adopting the framework implies changes in how we investigate student agency in digital contexts and enables critical investigations of student-centred teaching practices.

Keywords: student agency, networked publics, learning, educational technologies, digital education

1. Introduction

Cultivating individuals' capacity to intervene in and transform given frames of action is key in higher education strategies and teaching that seeks to develop human beings' capacity to act agentically (Damşa et al., 2010; Klemenčič, 2017; OECD, 2018). As research exploring student agency in higher education increases, recognition is growing that integration of agency-supportive practices and learning environments is essential for the cultivation of agentic students in higher education (Jääskelä, Poikkeus, et al., 2020; Marín et al., 2020; Toom et al., 2017). In many ways, the prevalence of digital technologies in contemporary higher education offers new grounds for supporting student agency. Digitalisation plays a vital role in expanding the range of course delivery formats, from campus-based delivery to fully online, hybrid, or blended courses, facilitating flexibility on the learner's part (Kirkwood & Price, 2011). Moreover, online courses can present students with consequential choices and adapt 'both the course curriculum and assessment to accommodate those choices' (Lindgren & McDaniel, 2012, p. 346). This expansion of student choice and redistribution of initiative from educational institutions to the learner is seen to support student agency (Bandura, 2002; Irvine et al., 2013). Another example is learning analytics. As Jääskelä, Heilala, et al. (2020) explained, collecting and analysing educational data can provide feedback on student progress, promote students' agentic awareness, and tailor education to students' needs. Moreover, using technologies to facilitate student-centred learning and teaching links to agency. As defined by Klemenčič et al. (2020, p. 33), student-centred education concerns 'the capability of students to participate in, influence, and take responsibility for their learning pathways and environments, in order to achieve the expected learning outcomes'. Providing students with opportunities for active participation and involvement in their own learning is central for much use of digital technologies such as student response systems that enable immediate student feedback and digital platforms that support collaborative processes. Crucially, such teaching practices are discursively linked to the empowerment of students (Starkey, 2019).

While several studies investigating digital technologies include student agency, only few pay attention to underpinning their utilisation of the concept theoretically (Marín et al., 2020). Some studies have provided a clear theoretical account of student agency, but these studies tend to subsume the digital to educational intentions and settings. For example, Irvine, Code, and Richards (2013) framed multi-access learning as an opportunity for student choice, enabling face-to-face students and distance-learning students to access course materials and other participants and personalise learning. In this study, the context of the course and social processes were presented in terms of delivery formats, overall student characteristics, and concerns of the teacher. Lindgren and McDaniel (2012) explored whether online learning can be improved by employing narratives and student agency as prominent design features. Similar to Irvine et al. (2013), the specific interplay between agency and the context of action was subsumed in representations of learning activities, the steps involved in completing assignments, and the specific technologies used. In a study by Luo et al. (2019), the role of student agency in a course utilising a flipped learning format was presented and analytically considered in relation to the educational instructions. Hamilton and Friesen (2013) describe this approach to technology as technological instrumentalism, where the technology is 'interpreted in light of this or that pedagogical framework or principle and measured against how well they correspond in practice to that framework or principle, and technologies are neutral means employed for ends determined independently by their users' (Hamilton & Friesen, 2013, p. 3). As Bayne (2015) has reasoned, the disassembly of technology from social activity overlooks the epistemological consequences of technology use. Crucially, it isolates the social and meaning-making aspects of digital education from the material (Fenwick & Landri, 2012).

Studies that focus on digital agency (Passey et al., 2018; Shonfeld et al., 2017) emphasise agency as a requirement for and through education. More specifically, digital agency refers to having the necessary digital competencies, digital confidence, and digital accountability to control and adapt to the digital world as an individual. However, this framing of digital agency pays little attention to agency in education and how the digital affects humans.

2. Aim

The relationship between agency and digital contexts of learning has been given little attention in research addressing student agency and digital technology. A tendency has been to subsume the digital to educational intentions, frame digital agency as competencies required to control the digital world, or skip definitions of agency. These perspectives neither consider how the digital affects agency in contexts of learning nor offer support for developing agency-supportive teaching practices. To overcome this gap, this papers sets out an alternative conceptualisation of the digital in relation to student agency. It builds upon insights from media research and frames student actions in digital contexts as socially, technologically, and contextually configured and shaped through student negotiations of agentic power and will. Thus, this theoretical paper combines understandings of the digital from media research with versions of agency from student agency research to cultivate empirical investigations that account for the agency-structure interplay in digital contexts of education and consider the possible implications of technology use. Also, by drawing more explicitly on media research, it becomes possible to add a relational and participatory dimension to agency that allows us to identify and analyse the conflicts that might lead students to maladaptive practices to protect themselves from forms of digital participation. Examples from research and discussions of implications are included to illustrate the theoretical approach suggested.

The starting point of the paper is not to develop a new definition of agency as such but to broaden understandings of agency as a primarily individual phenomenon with a more relational understanding of agency (Burkitt, 2016; Stenalt, 2021), building on the premises of the digital. Moreover, while emerging into an arena with blurry boundaries between human and nonhuman agency (Fenwick & Landri, 2012; Leonardi, 2010), the paper focuses on students as the primary research object and uses conceptualisations of human agency as a stepping stone. Lastly, the paper should not be seen as attempting to present a complete framework for understanding and supporting student learning in digital contexts. Instead, it is intended to serve as a supplement to research and designs for learning.

With this in mind, the remainder of the article proceeds in four iterative stages. First, it maps distinct approaches to and dimensions of agency. Second, key dynamics of digital engagement from media research are presented. Third, the key ideas are used to develop a theoretical framework that includes five domains and suggests a nuanced way of approaching the topic of digital student agency. Fourth, having worked through the different domains, the paper discusses possible implications for practice and research.

3. What is student agency?

Defining student agency is by no means straightforward because student agency has been conceptualised in various ways within higher education literature (Nieminen et al., 2021). In constructing the outset of this research, this paper draws on the frameworks typically adopted in higher education research (Jääskelä et al., 2016; Klemenčič, 2015). In the context of higher education, a sociological approach typically pays attention to the dualistic interplay between humans and structure and the ways power structures and structural factors impact human agency (Hitlin & Long, 2009). Agency is understood as something that actors always have; however, the possibility of fulfilling personal goals is conditional on external structures. Higher education studies conceptualising agency in this way tend to foreground individual students' pursuit of personal, educational success within a context of macrosocial structures. For instance, Calitz et al. (2016) examined patterns of unequal participation for working-class first-generation students at a South African university, applying Sen's (2005) capability approach to make sense of the relationship between a person and the social forces that can hinder or enable them to convert resources into capabilities. Such forces include physical or mental

disabilities, variations in available nonpersonal resources, environmental variations, and differences in relative social positions. Arkoudis and Tran (2007) applied positioning theory and notions of moral agency (Harré & Van Langenhove, 1999) to move away from static and stereotyped descriptions of Chinese international students studying in Australian higher education and toward understandings that depict these students as actively involved in meaning-making. Analysing how students intentionally position themselves in relation to their lecturers and university expectations, these authors highlighted issues of mismatching between institutional expectations and students' struggles.

Sociocognitive studies rest on a nondualistic, agentic perspective. In it, human development involves an agent intentionally influencing their life circumstances through individual psychological processes of development or knowledge acquisition (Bandura, 2006). Bandura (2006) argued, 'through cognitive self-regulation, humans can create visualised futures that act on the present; construct, evaluate, and modify alternative courses of action to secure valued outcomes; and override environmental influences' (p. 164). Studies proposing this conceptualisation of agency foreground the psychological exercise of self-management through self-reflection, self-regulation, and self-efficacy (Bandura, 2001, 2006; Zimmerman, 1995). Self-management is understood to depend on students' ability to generate goals for their engagement through cognitive representations of desired future states that match their individual strengths and preferences (Zimmerman, 1995). Self-efficacy comprises students' beliefs about their capability to succeed in what is required of them (Bandura, 2006). Bandura (2006) described the sources of self-efficacy to be (a) enactive mastery experiences (actual performances); (b) social comparison and modelling based on observation of others and their successes and failures (vicarious experiences); (c) forms of persuasion, both verbal and otherwise if within realistic bounds; and (d) interpretation of one's own physiological and affective states. For instance, Malmberg and Hagger (2009) investigated supportive and instructional agency beliefs, defined as the perceived ability to facilitate others' learning. Nye et al. (2011) framed agency from a sociocognitive position as a willingness to engage with the curriculum.

By contrast, studies that use a sociocultural framework focus on how individuals use the resources they have available in their sociocultural context (Eteläpelto, 2017). Jääskelä, Poikkeus, et al. (2020) defined a subject-centred sociocultural understanding of student agency as 'a student's experience of having access to or being empowered to act through personal, relational, and participatory resources, which allow him/her to engage in purposeful, intentional, and meaningful action and learning in study contexts' (p. 2). Sociocultural frameworks have been used to explore course-related experiences of agency (Jääskelä et al., 2016) and to map students' agency profiles and their connection to students' perceptions of teaching practices (Jääskelä, Poikkeus, et al., 2020).

Some scholars study agency from a life-course perspective, directed towards students' professional futures (Soini et al., 2015; Toom et al., 2017), and pay attention to students' past, present, and future. This research refers to Emirbayer & Mische's (1998) understanding of agency as 'the temporally constructed engagement by actors of different structural environments—the temporal relational contexts of action—which, through the interplay of habit, imagination, and judgment, both reproduces and transforms those structures in interactive response to the problems posed by changing historical situations' (p. 970). The interplay in a specific context is teased out by exploring how students enter into relationships with surrounding people, places, meanings, and events; and students' actual interactions with their context. The temporal perspective, in particular, has been adopted in recent research into the development of professional agency (Soini et al., 2015; Toom et al., 2017). In addition, it underpins Merrill's (2014) study in which agency is understood within contexts and time; individuals engage in changing their future. Harris et al. (2018) discussed student agency's temporal nature in the context of assessment, where student resistance to assessment or assessment decisions might draw on past experiences.

3.1. Limitations in current approaches to student agency

Even if existing studies address significant aspects of student agency, some argue that research remains limited by typically investigating student agency through only some of the aspects related to agency (Jääskelä, Heilala, et al., 2020; Jääskelä et al., 2016). Instead, Jääskelä et al. (2016) argued that a holistic operationalisation of agency includes personal, relational, and participatory domains. The personal domain of agency connects to individuals' resources and disposition towards being agentic. In particular, it involves self-efficacy and competence beliefs. The relational domain of agency refers to relational recourses for learning such as the learning climate, peer support, and power relations. Participatory resources involve the contextual dimension of agency, comprising the extent to which students perceive themselves to have the opportunity to participate, influence, and make choices in learning and within the learning context. While the holistic operationalisation of agency might be thought of as supporting the complexity of the construct, the framework remains limited in explaining how, for example, opportunities for active participation emerge and how peers become resources for learning. More specifically, in terms of the purpose of this article, the framework is less helpful in understanding how the digital becomes a resource for students, how the digital affects students and vice versa.

Further, others argue that there is a need to be more sensitive towards 'the intentional projects of individual and collective agents, and how these projects are enabled and constrained' (Ashwin, 2012, p. 21). As Klemenčič (2015) has described, 'student agency is conceptualised as a process of student actions and interactions during studentship, which encompasses variable notions of agentic orientation ("will"), the way students relate to past, present and future in making choices of action and interaction, and of agentic possibility ("power"), that is their perceived power to achieve intended outcomes in a particular context of action and interaction' (p. 16). Against this concern, student agency research needs to analytically differentiate agentic possibilities from agentic orientation and account for how agentic possibilities emerge to students and how student orientation influences student actions. This paper contends that this issue requires critical thought – particularly in light of the optimistic accounts of the ways digital technologies benefit student learning (Garrison & Kanuka, 2004) and the tendency to frame digital learning activities from an educational perspective.

4. Central dynamics of digital engagement

There is clearly a need to cultivate a better sense of agency within digital contexts and the ways the distinct digital features influence students' agency. This paper turns to media research to theorise how the digital configures the environment in a way that has the potential to shape students' engagement. The research of interest examines social network sites, and while networking socially or for professional purposes may not dominate digital technologies use in formal educational contexts, they serve many of the same functions. They allow people to connect and share content with other people than close friends and family, and they help people gather for a purpose.

4.1 Networked publics

Within social network sites, people are expected to act as networked individuals, maintaining various networks of people and resources that can be navigated as required to meet specific needs (Boyd, 2010; Wellman et al., 2003; Wellman & Rainie, 2013). As Baym and Boyd (2012) explained, people who use social media 'juggle multiple layers and kinds of audiences, bringing into being multiple and diverse kinds of publics, counterpublics, and other emergent social arrangements' (pp. 321–322). Boyd (2010) makes the important observation that it is useful to think of such sites and the practices unfolding here as networked publics. As stated:

'Networked publics are publics that are restructured by networked technologies. As such they are simultaneously (1) the space constructed through networked technologies and (2) the imagined collective that emerges as a result of the intersection of people, technology, and practice' (Boyd, 2010, p. 39).

According to Livingstone (2005), networked publics are constructed by a space and collection of people or bounded by a shared performance or object. While the terminology emphasises networks, it is not the primary purpose of many social sites (Boyd & Ellison, 2007), and people might not use digital technologies to connect with others (Gourlay, Rodríguez-Illera, Barberà, et al., 2021).

4.2 Sharing of profiles: Locus of interaction and self-representation

Most social network sites allow participants to generate personal profiles, and Boyd (2010) argues that profiles act as the locus of interaction and represent the individual. Following this line of thinking, McCosker (2017) has described social sites as performative spaces where people actively construct their identities and profiles for an audience. Because individuals' profiles are objects of self-representation - attention, comparison, negotiation, and remix (Papacharissi, 2011), constantly editing or remixing oneself is an essential online practice (Papacharissi, 2012). In addition to profiles being a site of self-management, profiles are also a site of external control. Indeed, self-representation depends on the content and activity selected by the specific media (McCosker, 2017). As illustrated by McCosker (2017), one's name, username, profile image, 'about' information, and relationships (follows, followers) appear to be a standardised basis for personal identifiers. In contrast, data on education, birthday, age, and other websites are less common features in profiles. With external structures restricting self-representation, users often engage in actions of resistance or playfulness to overcome reductive versions of themselves (McCokser, 2017). Hence, research has found that performing identity and sociality online involves a constant balancing of social benefits with privacy costs (Papacharissi, 2012). Thus, while networking sites enable individuals to enact social roles, play and resistance strategies are central to staging a digital profile that conceals the aspects of oneself that the individual would like not to be shared.

As digital profiles and data become contested, it is also becoming critical to consider personal privacy. We can think of privacy or expressive privacy as the protection of acts of speech or activity that express self-identity or personhood (Ess, 2015). According to Ess (2015), a space of expressive privacy is required if individuals are to reflect and critique alternatives. Mechanisms implemented in social media allow users to control access to the data they generate to some extent. Profiles and user-generated data may be open source, available for many to access and potentially use, or closed, accessible only to the student or the teacher. Yet, privacy settings are enacted in several ways in digital contexts, beyond settings of open/closed or individual/all, such as the 'following mechanism' of reciprocal or nonreciprocal kind: either mutual acceptance of each other must be in place to read each other's contributions, or one-way following is accepted.

4.3 Data-based content: Persistent, replicable, scalable, and searchable

According to Boyd (2010), networked individuals are also challenged to manage the persistence, replicability, scalability, and searchability of their profiles and data in digital environments. The first property, persistence, suggests that individuals' contributions, such as text or expressions, are easily captured and stored. In fact, many systems operate on persistence by default, making previous unmediated moments of communication persistent. Second, Boyd (2010) argued that technology has increased the replicability of content. Because of this and the ease with which one can modify original content, what is original and replicated is hard to discern. Third, Boyd (2010) mentioned scalability as an affordance of networking sites. Scalability is the potential to enhance the distribution of content or who has access to it. However, what is amplified through broad distribution is not always what the content owner would have chosen. Lastly, Boyd emphasises searchability as an affordance, based on

the premise that technology use leaves digital traces that can be located to a person or an object. These characteristics imply that profiles and individuals' activities are difficult to erase and easy to share with known and unknown others.

Participants' digital contributions to interactions, then, persist and can easily be retrieved, duplicated, and redistributed across various contexts. When considering the ways the audiences of personal data emerge to humans, this becomes increasingly important. As Boyd (2010) stated, 'in unmediated spaces, it is common to have a sense for who is present and can witness a particular performance. The affordances of networked publics change this' (p. 49). Not knowing one's audience makes it difficult to make a contribution that considers others' reactions.

4.4 Affect: Blurring of relational investment and tools for engagement

A crucial underpinning of social media is affective investments on the users' part. As people engage with digital technologies, they are frequently offered choices for expressing emotions and social bonds. Indeed, what makes social networking sites unique is that they allow individuals to connect with others and articulate and enact sociality through affect and affective technical features (Boyd & Ellison, 2007). Technical features such as comments, views, or likes are referenced as social buttons (Gerlitz & Helmond, 2013). Social buttons comprise affective statements such as 'great' or affective states such as 'feeling amused' as reactions to others' comments, which are shared with a particular group of users. Hence, they allow users not only to share or recommend content but also to share social connections and affect.

Affective features such as those mentioned transform user affect and spontaneous responses into comparable acts of engagement and signs of social connections that structure digital performance and are critical to social networking sites (Boyd, 2010; Gerlitz & Helmond, 2013). This includes how personal data might act as objects of memories or *mementoes* on social sites (Lupton, 2020). As noted by Lupton (2020), data which are shared are archived, and can be revived to connect people with their past connections and activities. Yet, while affective interactional acts are critical in terms of maintaining or increasing users' digital engagement, the so-called *like economy* 'is facilitating a web of positive sentiment in which users are constantly prompted to like, enjoy, recommend and buy as opposed to discuss or critique' (Gerlitz & Helmond, 2013, p. 1362). Thus, a characteristic of networked sites is how networked communication entails a 'panoply of affective attachments: articulations of desire, seduction, trust and memory; sharp jolts of anger and interest; political passions; investments of time, labor, and financial capital; and the frictions and pleasures of archival practices' (Paasonen et al., 2015, p. 1). As Paasonen (2018) reasoned, 'if time, attention and data are the price that people pay, or that which they hand over in order to access social media, then affective ripples are part of that which is gained in return' (p. 9-10).

4.5 Time: When does something happen online?

Networked interactions or exchanges can also be seen as underpinned by temporalities that structure activities and influence peoples' abilities to access and share data. While measures of time such as clocks and calendars dominate, in many instances, time in digital contexts is difficult to pinpoint. 'Network time' has been proposed by Hassan (2007) as a way of opening up the idea of many temporal possibilities. Hassan (2007) saw the internet as an inherently asynchronous space where nothing occurs simultaneously. Instead, the internet offers multiple spectra of temporalities. Operating systems might respond to input at high speed and immediately, but there will always be some temporal lag. The internet connection might be slow or fail, and we can spend seconds, minutes, or hours waiting for content to appear. Moreover, the digital space includes different time zones, which challenges the idea of time consistency. Network time, then, is referred to as 'a digitally compressed clock-time' (Hassan 2003, p. 233), which is time that has exploded into a million different time fractions.

Due to this tension, it makes sense to interrogate time less regarding its logical meaning and more in its existential meaning (Bennett & Burke, 2018; Lash, 2001). Here, Hassan (2007) used Adam's (2008) notion of timescapes to illustrate the range of experiences of time possible. The concept of timescapes captures 'that we cannot embrace time without simultaneously encompassing space and matter, that is, without embodiment in a specific and unique context' (Adam, 2008, p. 1). Following Adam's work, time is constitutive of seven elements: (a) Time frame, referring to a bounded unit with a beginning and an end; (b) Temporality, referring to the unfolding of time and the direction it takes; (c) Timing, referring to when or something happening at a specific time; (d) Tempo, referring to the speed at which something happens; (e) Duration, referring to considerations of how long something takes; (f) Sequence, referring to the order of things such as actions; and (g) Temporal modalities, referring to when something happens (in the past, present, or future). Crucially, these forms of time are linked to digital behaviour and sense-making.

4.7 Implications

While student agency research has focused on the individual aspects of human actions and subsumed the digital context to educational intentions, media studies offer significant insight into digital behaviour as socially, culturally, and technologically dependent. This is not to say that technologies used in education have the same precise features as social network technologies or that the purpose of technology use is the same. Instead, this paper suggests taking the elements into account as central dynamics forming part of engagement in the digital world to shed light on why students engage the way they do in digital interactions. Thus, the value of constructing digital technologies in education as social network sites is analytical. It directs our attention to practices as being informed by the dynamics of networked publics. As such, it involves paying attention to the interweaving of technology and humanity and how these are interconnected with other practices and relations (Markham, 2018), rather than focusing on the digital as a tool (focusing on cultural practices in or of digital contexts; Markham, 2018) or a medium (viewing the digital context as a cultural space in which one can be present and feel absorbed; Markham, 2018). Against this background, approaches to digital student agency need to include critical understandings of the way agency is constructed and constrained. This involves the observable settings and features and how the interplay between social, cultural and technological aspects emerge to students.

5. Digital student agency - a critical framework

The paper continues to sketch out a digital student agency framework, which considers the complex construct of student agency in relation to the distinct digital features. The proposed framework involves five domains: agentic possibility, digital self-representation, data uses, digital sociality, and digital temporalities (see Table 1). It is important to stress that each domain is critical in orientation, developed to identify and understand the ways student agency is constrained. This coincides with Selwyn's (2010) argument that we need nuanced and thick descriptions of technology use. Given the framework's critical nature, it is not intended to present a normative ideal for how a digital context for learning should be to facilitate student agency. For example, it does not state that online peer feedback should be conducted in a certain way, using a specific technology with specific features. Being critical means exploring and understanding the implications that settings and the cultural and social context might have on student agency. Some practical examples of how each domain might be approached are described as actions.

Table 1
'Digital Student Agency' framework (DISA)

Domain	Key questions	Actions
Agentic possibility	What power do students have to achieve the intended outcomes in the particular context of action and interaction?	Identifying sources and resources of agency in the interaction
		Analysing the ways sources emerge to students during the interaction
		Determining how the object of engagement links to student trajectories
		Identifying student possibility to influence the object of engagement and the interaction required
		Evaluate the level of access that students have to influence the object of engagement
Digital self-representation	How can students manage and adapt their self-representation in the digital context of learning?	Identifying how and where options for managing students' profiles are constructed and processed
		Analysing how students' profiles are visible to others (peers, teachers, managers)
		Exploring the implications
Data uses	How are student data circulated or recirculated?	Identifying how and where student contributions are generated and circulated
		Identifying how students can manage their data
		Identifying who has access to student data and when
		Identifying how students' data can be used, including purposes extending the original intent
		Evaluating the implications of the uses
Digital sociality	How is sociality constructed, and how can students manage sociality?	Identifying the means that are available for communication and cultivating a sense of sociality
		Identifying how and where sociality is constructed
		Determining how students can manage whom they interact with, how they interact, and the purpose of the interaction
		Analysing the role of socialisation in terms of how it affects the interaction or the outcome of the interaction
Digital temporalities	How are student actions constructed in terms of time?	Identifying the digital temporalities and analysing the underpinning of time: Is it structured by individual students, groups of students, teaching staff, or a digital system?

	Analysing how time materialises to students digitally
	Explore the implications of time from a student perspective

The first domain mentioned in the framework – agentic possibility – is critical to identifying the possibilities for cultivating agency in the specific context of action. It pays attention to students' effective opportunities and freedom to do what they reason to make sense within education. It also includes assessing the sources of agency available in the particular context. Sources refer here to the broad array of internal dispositions, relational, and contextual sources or resources known from mainstream agency frameworks. While the sources cultivate student agency in higher education contexts (Jääskelä, Poikkeus, et al., 2020; Toom et al., 2017), research has also made clear that technology and educational instructions can hinder access to sources of agency (Stenalt, 2021). Moreover, Ashwin and McVitty (2015) have emphasised that educational planning of student engagement includes stratified and directive access to knowledge and influence. Thus, the first domain is the impetus for discussions of how the educational purpose and guidelines configure student agency.

The second domain – digital self-representation – involves identifying the particular ways students are placed in digital interactions and the type of self-representation possible in the specific exchange. While digital system profiles are relatively easy to locate, students might perceive other data types to represent them. For example, students might be identified through the following:

- Contributions with their signature

- An alias

- The order of appearance

- Pictures

- Oral expressions of authorship in-class supplementing the digital contribution

- Familiarity with students' style of expression

Once the profiles have been identified, we can begin to think about how students can control their self-representation and explore how it might influence student behaviour. While social media often enable users to adjust to their privacy settings (Waterloo et al., 2018), these choices are likely to be distributed to platform managers or teachers within educational contexts. Students, then, are managed as a collective group and assumed to have the same relationship with each of their peers. Following Bayne et al. (2019), students might turn to acts of resistance if they cannot control their self-representation. Similarly, research has found limited options for self-representation to decrease student engagement (Stenalt, 2021).

The third domain – data uses – examines the life of student data. For example, does data stick around in the sense that others can access the information? Does it have a value for students in extending the particular interaction and interaction outcomes? Because learning activities aligned with the formal assessment are of high importance to students (Biggs & Tang, 2011), critical academic data, which disappears, might lead to student frustration. Automated personalisation of educational offerings using students' learning data as the stepping stone can be seen by students to reduce them to numbers and restrict their access to resources (Tsai et al., 2020).

It is crucially important to address the conflicting beliefs and opportunities available for social learning in digital contexts. Understanding the type of sociality that an interaction fosters or requires is the fourth domain's concern. The domain also supports explorations of expected affective investment in relation to successful participation and students' actual affective investment – allowing insight into the way sociality is constituted. For example, successful collaboration is seen to require coregulation (Volet et al., 2009), which involves 'individuals' various attempts to affect each other's motivation,

emotional state, cognitive actions, etc. for their own purpose or others' benefits, or alternatively to coordinate their actions for a shared purpose' (Järvenoja et al., 2013, p. 35). While social and communicative activities are essential for maintaining a positive group climate (Janssen et al., 2012), such opportunities and features might not be sufficiently devised digitally. At the same time, research has found that students prefer technologies that ease the logistics of their life, rather than technologies that support collaborative work (Henderson et al., 2017). This challenges ideals of digital collaboration. Relatedly, educational framings of interactions may stress social learning but provide limited opportunities for students to affect the object of engagement. Here, we can draw on Ashwin and McVitty (2015) model to explore the potential impact. In light of this, decoding the imagined collective, the actual collective, and the role of the collective should be an essential element of understanding digital educational spaces.

The last domain – digital temporalities – enables consideration of the temporalities involved in the context and how they affect students. Following from Hassan and others, students' relation to others and content in digital contexts is not a universal thing but instead processes that develop from being engaged and shaped by structures that include the educational instructions and technology used. As a simple example, a blog post is, by default, typically invisible for others during the writing of the post. The invisibility ceases after data has been published, where it is structured in relation to the logic of a calendar. It remains visible to students until the month or week changes or until a sufficient number of other data entries are made. While the data visually disappears as time moves on, it can be retrieved later on through search mechanisms. In contrast, entries by students through Kahoot, which can be used to facilitate quizzes with students in the same room, fall into sequences, are visible for all students for a limited time (the duration of a sequence), and cannot be retrieved later on by the individual student. Taking a broader perspective, technologies and educational choices produce different relationships to time and content.

Time settings also risk labelling certain groups of students rather than helping them achieve their potential. Students, for example, who struggle to manage their time and meet deadlines in an online course with various activities might see themselves as lacking self-discipline and less capable of studying (Bennett & Burke, 2018). For students with small children at home, an online course might be more challenging to attend than a course at the campus, reducing the proposed benefit of providing student flexibility (Kirkwood & Price, 2014). Additionally, the temporality of digital interactions can affect students' approaches to learning. Lash (2001), for example, has described how technological forms of life that are sped up can result in content being devalued within hours or days (Lash, 2001). What Lash (2001) points to is how experiences of limited time or moving fast forward can lead to a higher degree of student insecurity because their attention may become directed to the consequences of the present for the future rather than looking to the past to explain the present. Reeve and Jang (2006) found that limited time to engage and a teacher monopolising time correlated negatively with student experience of autonomy. This, at least, invites us to consider how the speed of digital interactions and the distribution of time relate to student self-regulation and self-efficacy.

6. Future approaches to student agency

Recent events such as COVID-19 and the turn towards distance education have increased the awareness of digital technologies for education (Williamson et al., 2020). Due to the challenges of making online teaching feel meaningful and relevant to students, approaches that help develop digital student agency are needed. In light of this, the paper offers three recommendations.

First, the paper suggests that the digital should not be assumed to support agency by default. Rather than subsuming agency to technical affordances or pedagogical guidelines, the digital should be confronted as something constituted by several interrelated digital domains nested in social relations.

Key to this, the framework offers a disposition that encourages critical investigations of students' agency possibilities in digital contexts, how they may emerge to students, and affect their actions. Following this, the framework moves beyond simply stating online tools and educational intentions when exploring digital contexts of education to in-depth investigations of the dynamics configuring digital environments. In specific, the framework enables explorations of the invitational quality of the digital (Adams & Thompson, 2016) and decentring the object of inquiry (Pink et al., 2017), allowing researchers to give an account of the mode of being constructed through digital technologies and the way agency is constrained. Taking the domains into account, it becomes clear how digital technologies can mediate our being in the world and direct our attention in a certain way, affecting how we come to know the content (Rosenberger, 2017a, 2017b). Thus, technology use fundamentally involves substantive interventions for the context into which it is embedded. In this light, the digital is neither a neutral mediator of information nor independent of the system into which it is adopted. The use of the domains allows us to raise a range of questions to explore the interplay between human-technology in educational contexts, including the following:

- How do educational practices constrain student agency?
- What forms of settings do students see as appropriate in cultivating their agency and making connections with others to learn with digital technology?
- How do students make sense of data produced and shared online?
- What forms experiences of time, and how do temporalities affect students' engagement?

Second, the logic of digital engagement suggests that agency in digital contexts needs to be understood less as an individual phenomenon and more as a relational phenomenon to balance digital ways of being. The relational approach to agency points to the notion of 'relational agency' (Burkitt, 2016), whereby agency describes 'people producing particular effects in the world and on each other through their relational connections and joint actions, whether or not those effects are reflexively produced' (Burkitt, 2016, p. 323). The key point of relational agency is not to understand the digital from a single student perspective but to understand that sense-making of the digital is associated with the different forms of relationships being confronted and constituted in the digital context. As Burkitt (2016) stated, 'it is not simply relations, and the objects and entities produced in relations, that is the focus of study; more specifically, it is social relations and the mode of life humans produce through them, including material culture and technology, that relational sociologists need to bring into the analysis' (p. 331). In light of this, the framework can build an understanding of the forms of power affecting student agency and how to organise learning that considers the challenges to student agency in digital contexts.

Third, the complexity of agency in digital contexts highlights the need to consider how technology-supported student-centred environments emerge to students. While Jääskelä, Poikkeus, et al. (2020) have identified a relationship between high levels of student agency and perceptions of courses as student-centred, more knowledge is needed of the features constituting a student-centred environment to develop models that can guide the design of such environments. For instance, to what degree does student-centredness depend on high levels of privacy and how can privacy be materialised in designs? Here, the framework can be used to help identify the underlying features of a digital student-centred environment from a student perspective.

7. Conclusion

Because digital education connects to student agency, it is important that we understand the various qualities and capabilities of digital contexts of learning and how they affect student agency. This article has outlined how approaches to understanding the digital in existing student agency research are

too narrow and therefore miss out on important insight derived from the field of media research. Instead, the paper proposes a digital student agency framework for developing a better understanding of the human-technology interplay that pays attention to the ways relational, cultural, and technological dynamics constitute agency. The proposed framework suggests understanding digital student agency through five domains formed by media research and research into student agency in higher education. The framework is an initial attempt at addressing the interplay between student agency and digital contexts of learning. Therefore, it invites testing and critique of the framework and its domains.

Developing knowledge of digital ways of being in educational contexts is complex. In doing so, it makes sense to look at student agency as a basis for exploring the student perspective and working out realistic accounts of digital encounters and ways to support students in digital contexts. Thus, the task proposed by this paper is not to better digital education and practices by promoting certain ideals of higher education teaching and learning but by considering the ways students' trajectories and social connections might challenge students in mundane digital contexts. As digital ways of engaging and managing students become ubiquitous, the distinction between learning as private and learning as public will become blurry. The considerations presented by the framework will not only be constrained to specific digital teaching-learning interactions but will be part of students' everyday life.

Keypoints

The article:

- Provides a critical approach to student agency in digital contexts of higher education
- Expands current student agency research by moving beyond an agency-context dichotomy towards understandings of agency-context as interrelated
- Offers a 'Digital Student Agency' framework that distinguishes five significant domains: (1) agentic possibility, (2) digital self-representation, (3) data uses, (4) digital sociality, and (5) digital temporalities

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