Technology for the scalability of co-creation with students

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Student-staff co-creation is a growing topic in higher education research. Framed as a mechanism for universities to better modify and meets the needs and expectations of students, student co-creation has a wealth of potential benefits. However, with the expansion of research, many scholars have stumbled upon a similar limitation, the scalability of co-creation. This issue is due to co-creation currently occurring in face-to-face (f2f) interactions (e.g. pedagogical consultants). However, co-creation can also arise in online spaces, enabled by technology, that could allow for greater scalability. In this paper, three strategies supported with technology to enhance the scalability of co-creation will be discussed including, crowdsourcing, customisation and prosumer behaviour with relevant industry examples for each as well as suggestions for practice in higher education. The limitations, benefits, and new directions for research will further be discussed. It is the aim of the paper to provoke ideas on how co-creation can be made more accessible to all students.

Keywords: co-creation, technology, higher education

What is co-creation?

There exist various ways to define co-creation, however, in its most simplified sense, co-creation is an interaction between two or more unique stakeholders (i.e. staff, industry, students, local communities) to jointly integrate their respective resources to provide greater benefits to all stakeholders. As co-creation is originally a concept from business literature, most literature to date delineates stakeholder groups between the 'organisation' and the 'user', however, in the higher education context, stakeholder groups could just as easily be the 'university' and the 'student' (Dollinger, Lodge, & Coates, 2018). Co-creation is often accredited to C.K. Prahalad through his iterative work on the subject that began as a core competency model, otherwise known as a framework that encouraged organisations to understand their strengths and resources across organisational boundaries (Hamel & Prahalad, 1990). Arising from the core competency model it was demonstrated that a commonly ignored core competence and potentially transformative resource within organisations was users' perspectives and knowledge (Hamel & Prahalad, 1990). Thus, identifying non-traditional capabilities including user-contributed resources would later pave the way for developing and theorising the process of co-creation and how to include users in production and delivery (Prahalad & Ramaswamy, 2000).

Co-creation is increasingly prevalent in higher education research. Regarding co-creation with technology-supported functions, three examples stand out in the current literature as they highlight an apparent attempt to couple co-creation with technology. The first is from the Spanish higher education context where a research project allowed students and staff to co-create a Moodle environment for marketing subjects (Navarro-Garcia, Peris-Ortiz & Rueda-Armengot, 2015). Transparency was a fundamental principle in the project, and all participants were encouraged to share ideas about what the platform should be and what resources it should hold (e.g. databases, blogs, tasks, wiki). The evaluated benefits of such were that both students and staff were more satisfied with the results and students also expressed other key benefits such as experience in teamwork (Navarro-Garcia, Peris-Ortiz & Rueda-Armengot, 2015). Another example, also from Spain, comes from Gros and Lopez (2016) who utilised students and staff for the co-creation of technology-enabled resources for a subject. The process included four stages, exploration, envisioning, operationalising and assessment/reflection where participants brainstormed and gave suggestions on digital resources that could be used by teachers. Students in this activity expressed greater self-management of their learning and greater levels of communication. The final example is from Australia, where Browne et al. (2017) co-created learning resources for a massive open online course (MOOC) with students. They again note benefits such as student engagement and teamwork but also mention that the process may be improved through clear guidelines and a scaffolding process.

While co-creation often seeks to include as many stakeholders as possible, the above examples were not accessible to the entire population of students and staff within the institutions. Instead, the cases involved a few select students led by a staff member. Thus, while case studies of co-creation continue to grow in higher

education, there exist few examples which showcase how co-creation could be scalable to all students or include staff members not familiar with co-creation literature. However, drawing on technology-enabled strategies and industry examples, some methods could promote scalable options for co-creation in higher education as this article will discuss. However, before mechanisms are discussed, it is important first to introduce the distinctive theories and concepts that underpin co-creation.

Theories and concepts underpinning co-creation

Numerous theories underpin the concept of co-creation including stakeholder theory, organisational citizenship behaviour, diffusion of innovation and service-dominant logic. Of these, it is service-dominant logic that most aptly differentiates co-creation from its counterparts (i.e. students-as-partners, student voice, student engagement). Service-dominant logic is a theory supported by Vargo and Lusch (2008, Lusch & Vargo, 2006) stating all products are services (e.g. goods dominant logic is outdated as all goods also have corresponding service functions) and all services are co-created as the value of the service is a joint process between what the organisation offers and the user consumes. Vargo and Lusch (2008) use the example of a car, which does not have value unless a user places value on it. Moreover, depending on the user, the value is likely to differ. For one user, the value may be it helps them get to work, for another, it may be that the car represents success and wealth. Therefore, service-dominant logic argues that value is created not only during production (as was traditionally assumed) but also post-production, when the users apply and/or modify value. This concept is known as value-in-use (ViU) and is one of the key components of co-creation (Ranjan & Read, 2016). As Ranjan and Read (2016) write there are two distinct components of co-creation, value-in-use, and co-production, or the jointly created value during the production process. While often only one of these components is referred to as 'co-creation' for the co-creation process to be fully developed both components should be present (though not necessarily equal).

Depending on the intervention and the context, the benefits of co-creation vary. In organisational literature, co-creation approaches have been linked to greater revenues, profits and referrals (Payne, Storbacka & Frow, 2008). In higher education meanwhile, Bovill, Cook-Sather and Felten (2011) have found numerous benefits such as students and academic staff gaining a deeper understanding of learning as well as enhanced engagement, motivation and enthusiasm. However, other scholars have noted that benefits from co-creation are not always equal and often result in a compromise between the user and the organisation (Edvardsson, Tronvoll & Gruber, 2011). Select research has also warned that with the same potential to gain a greater understanding of the user perspective, co-creation may also result in co-destruction if user perspectives and/or resources are improperly applied or ignored (Ple & Chumpitaz Caceres, 2010).

Three mechanisms for the scalability of co-creation

As previously mentioned co-creation in many contexts, including higher education, is stifled by a lack of scalability. With scale comes both benefits and drawbacks to co-creation. For example, scale may hinder the richness of user data and opinions, as well as relationship-building interactions. However, scale also allows for those who wish to co-create with other stakeholders to hear more voices and more diversity. This enables the co-creation to include more people and avoid only meeting the needs of the few who participated. The three mechanisms for the scalability of co-creation discussed here will include crowdsourcing, customisation and prosumer behaviour. Examples, benefits and limitations of each of these mechanisms will be discussed.

Crowdsourcing

Crowdsourcing is one mechanism to engage a larger audience in co-creation. Using online technology, crowdsourcing is a distributed problem-solving and production model that encourages users to actively participate (Brabham, 2008). Crowdsourcing often supports user-generated ideas and suggestions and can be applied through various means and along various points of the value chain. In higher education, universities could ask potential students to crowdsource ideas for orientation activities, or they could ask students to crowdsource ideas for a new building on campus. Using either a mobile application and/or a website portal, crowdsourcing is a relatively easy way to collect data on students' opinions and perspectives. Crowdsourcing further touches upon both concepts of co-creation, co-production and ViU. As students crowdsource they contribute resources and innovate the service, but they also can derive more value from the service or activity if it is tailored to their specific needs and preferences.

However, important to note are some of the drawbacks to the crowdsourcing model. First, as some scholars have pointed out, crowdsourcing is actually more co-creation between users and technology, as organisations do not

input their own resources (except for choosing the topic to crowdsource) (Anderson, 2011). Anderson (2011) uses the example of a stagnant online course, where students can integrate their resources (i.e. time, energy) to learn from the online content, in some ways co-creating the learning experience and yet never involving a university staff member. Another pitfall of crowdsourcing is that often crowdsourcing models separate user-generated ideas from professional designers, researcher, and industry experts. Therefore, these multiple stakeholder populations do not work together, but almost, rather against one another, which can limit innovation.

Customisation

Customisation is another mechanism that can be supported with technology towards greater scale of co-creation. While co-creation and co-production both advocate for collaboration with stakeholders from the beginning or initial design of the process, customisation is a final stage modification and is often quite superficial. An example would be students choosing the layout of their student ID card. Customisation often occurs in this way, late in the value chain, because it is not cheap (Ogawa & Piller, 2006). It can even take years to develop a technology or business model that allows organisations to customise services on a large scale. Further, as it is late in the value chain, customisation does not allow for user flexibility in innovation, as users are unable to give suggestions or ideas that may reshape the design or principles of a service (Wind & Rangaswamy, 2001).

Yet there do exist ways that customisation could be further explored in relation to co-creation, especially to enhance ViU. One such area to date has been customisable dashboards or learning analytics software. For example, the Student Relationship Engagement System (SRES) allows teachers to choose what data they would like to collect and then personalise emails they send to specific groups of students (Arthars et al., forthcoming). Teachers and students, in this scenario, therefore both could benefit from increased value, as teachers can align the software to their own individual perspective on teaching design and students can receive emails that were curated for them. Industry educational platforms such as Lynda are further exploring customisation, as they allow segments of professional development videos to be curated and then distributed, allowing for the curator to, in a way, design their own subject.

Prosumer behaviour

Prosumer behaviour, sometimes known as ‘prosumption’ is a third mechanism that can support the scalability of co-creation. Prosumer behaviour is when users produce content or other related value in the service (Toffler, 1980). Famous examples include platforms such as Facebook and Twitter where organisations have created the platform, but the content is written by users (Ritzer, 2013). Prosumer behaviour therefore has limitations, as users cannot modify or edit the structure or platform. Prosumer behaviour, however, can lead to brand communities, or groups of consumers who strongly identify enough with a brand that they willingly donate resources. For example, in Linux, an open source model, many hobbyists donate a code to the platform as that process actually offers them intrinsic rewards (Brabham, 2008).

An example of co-creation in higher education prosumer behaviour could include students creating a website or social media content for universities. Another example comes from Khosravi, Cooper and Kitto (2017) in a peer recommender system where students write questions for the subject and have the ability to rate the question. Similar to a recommender software like Netflix, this allows popular, well-rated questions to be seen more commonly, and less useful questions less so. Thus, students and staff co-create the learning resource and content and participate in what is known as ‘prosumer behaviour’. However, prosumer behaviour and crowdsourcing models need the organisation to distribute control and power in ways the organisation may not have done before. For the co-creation in both of these processes to be authentic, students, and all stakeholders should have equal ability to contribute ideas and even see those ideas come into practice. Therefore, it is important to caution that co-creation is not for organisations that are unable or unwillingly to give up full control.

Future directions of research

Can co-creation be scalable? To this, the answer is both yes and no. Co-creation through technology-enabled mechanisms such as customisation, crowdsourcing and prosumer behaviour can extend into greater numbers of stakeholders, include more people, and thus be more scalable. However, what research is yet to uncover is if these more scalable options also reap fewer benefits within the co-creation process. Benefits of co-creation, for example, often are the relationships between students and staff (Dollinger, Lodge & Coates, 2018) which are unlikely to be replicable in a large online format. Future research should continue to investigate this area and explore the costs and benefits of co-creation scalability. Further, research should seek to explore the value of co-

creation beyond service innovation to understand how the approach could enhance educational effectiveness.

For universities that are interested in providing more co-creation opportunities to students and other stakeholders, three mechanisms outlined here, crowdsourcing, customisation and prosumer behaviour are all relatively easy to implement and good first steps to allowing for co-creation. This is important as it is likely that for co-creation to be implemented on a more in-depth level likely requires participants to have some previous experience with it. However, it is with caution that mechanisms such as customisation, crowdsourcing and prosumer behaviour are suggested as strategies for co-creation as these online supported mechanisms could easily offer less transparency and authenticity than f2f co-creation.

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Please cite as: Dollinger, M. (2018). Technology for the scalability of co-creation with students. In M. Campbell, J. Willems, C. Adachi, D. Blake, I. Doherty, S. Krishnan, S. Macfarlane, L. Ngo, M. O'Donnell, S. Palmer, L. Riddell, I. Story, H. Suri & J. Tai (Eds.), Open Oceans: Learning without borders. Proceedings ASCILITE 2018 Geelong (pp. 346-350). https://doi.org/10.14742/apubs.2018.1969