

## The impact of an innovators group on the development of a culture of innovation in the use of educational technologies

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Realising the full potential for educational technologies to improve the student experience is a challenge for higher education institutions. Although academic resistance is often blamed for poor dissemination of teaching technologies, recent literature has more satisfactorily framed the issue in terms of intransigent organisational culture. Features of higher education organisational culture that are conducive to innovation include senior executive support, freedom to experiment and permission to fail and interdisciplinary and cross-institutional engagement. One approach to changing organisational culture is to establish new organisational structures embodying positive traits. This study qualitatively evaluated a technology in teaching innovators group established in 2018 in a science, health and engineering faculty of an Australian university; it provides evidence that the group improved the culture of teaching technology innovation by creating a safe space for innovation, which members then disseminated into their departmental communities. The study also found that the group created a forum for teaching technology innovators to engage with stakeholders in the university's learning and teaching and information and communication technology units, leading to improved outcomes for the university's learning environment.

### *Implications for practice or policy*

- Teaching technology dissemination in higher education can be enhanced through a community of practice model.
- Higher education learning technology environments can be improved through an innovators group leading to greater cross-institutional collaboration.
- Educational technology staff may be able to overcome academic resistance to strategic projects by pursuing a community of practice approach.

*Keywords:* higher education, organisational culture, educational technology, innovation, dissemination, community of practice, thematic analysis

## Introduction

This paper describes a community of practice approach to innovation capacity building that was implemented in an Australian university faculty over 3 years. The potential for technology to improve the student experience has long been recognised in higher education. The recent experience of teaching alongside COVID-19 restrictions has highlighted the affordances of learning technologies for essentially all teaching staff, which include bringing staff and students together remotely, enabling rich, asynchronous learning activities, catering for diversity and personalising the learning experience. And although not all learning activities can be delivered online, even those which cannot, such as labs, practicals and clinical skills classes, can still benefit from the efficiencies and capabilities provided by technology. At the same time, the dissemination of learning technologies and best practice in their use amongst teaching staff poses complex challenges to higher education institutions. Universities often encounter “academic resistance” to centrally sponsored technology implementations (Birch & Burnett, 2009; Johnson et al., 2012; Sakala & Chigona, 2020; Smith, 2012; Watty et al., 2016); likewise innovative

individuals trialling emerging teaching tools typically find their efforts unsupported centrally, and their innovations seldom make their way into mainstream institutional learning environments (Lašáková et al., 2017). This disconnect between top-down and bottom-up innovation poses a serious challenge to universities aiming to improve the student experience through the affordances of learning technologies.

Finding ways to foster a culture of innovation in learning and teaching will be crucial for the long-term competitiveness of higher education institutions. Organisational culture and higher education innovation literature suggest that progress towards embedding a culture of innovation in universities can be achieved through three key steps: creating separate, safe spaces, in which experimentation and innovation are welcomed and permission to fail is granted; bringing together relevant staff from diverse units across the university in an atmosphere of trust and collaboration; and allowing the new group culture to spill over progressively into other parts of the institution (Christensen, 2006; Lašáková et al., 2017; Schein, 2004; Scott & McGuire, 2017; Setser & Morris, 2015; Tierney & Lanford, 2016; Zlatanovic et al., 2020).

In 2018, a community of practice which came to be known as the Innovators Group, was established within a science, health and engineering faculty of an Australian university, with the aim of improving the culture of teaching technology innovation across the faculty. This study provides an evaluation of this group over a 3-year period, based on qualitative analysis of semi-structured focus group discussions.

This work complements an earlier publication (Loch et al., 2021), which mapped the diffusion of an identified set of technologies throughout the faculty, as facilitated by Innovators Group members, to demonstrate the effectiveness of the strategy. The current study presents an analysis of qualitative data to further investigate the effectiveness of the group in transforming learning and teaching innovation across the faculty. It investigated the following research questions:

- (1) What evidence is there that the Innovators Group improved the culture of teaching technology innovation in the faculty?
- (2) How did the group improve the culture of teaching technology innovation in the faculty?

## **Literature review**

There is recognition in the higher education sector that plans to transform the student experience through teaching technologies often encounter thorny challenges in the implementation phase. In their systematic review of literature investigating academics' adoption of learning technologies, Liu et al. (2020, p. 1) reported that the full potential of these technologies:

Often fails to be achieved ... Academics do not necessarily adopt learning technologies in ways that transform teaching ... and institutional efforts to innovate are reported to fall short of intent.

### **“Academic resistance” and organisational culture**

Although there is a long tradition in some higher education circles of attributing a poor record in teaching technology innovation to “academic resistance” (e.g., Birch & Burnett, 2009; Johnson et al., 2012; Sakala & Chigona, 2020; Smith, 2012; Watty et al., 2016), a more nuanced understanding of the issue is emerging, which looks instead towards the wider organisational culture for explanation. Such literature will be the particular focus of this section.

As early as 2003, Bennett and Bennett (p. 55) sought to understand the phenomenon of “academic resistance” to teaching technology innovation in terms of structural as well as attitudinal issues, such as:

The amount of time and effort required to properly integrate technology into the curriculum, persistent doubts about the pedagogical benefits of the technology being utilized, and the failure of many tenure-and-promotion systems to recognize teaching with technology.

Also countering the discourse of “academic resistance” is growing recognition of technological innovation implemented by academics autonomously, as they seek to improve their teaching delivery. Hasanefendic et al. (2017, p. 104) highlighted the role played by:

Academics, as individuals in higher education who manage to ‘manipulate’ highly institutionalized settings and implement transformative and disruptive change at their departments with far reaching implications for the institutions.

More often, though, innovations by enterprising academics remain at the individual or local level and do not lead to institutional change (Lašáková et al., 2017).

These contributions highlight an apparent paradox, in which academics, whose work typically requires creative and innovative thinking, have come to be seen as the main blockers of teaching technology innovation in universities. As foreshadowed above, it is increasingly apparent that the resolution of this paradox lies in changing the organisational culture within higher education institutions. This, however, is widely acknowledged as more easily said than done (Schneckenburg, 2009; Welch, 2017; Zhu, 2015; Zlatanovic et al., 2020).

We base our understanding of organisational culture on the work of Schein (2004), who asserted that corporate culture comprises a set of assumptions held in common by the members of an organisation, which have arisen over time as the result of successfully overcoming challenges. After repeated successes these assumptions gain the status of unquestioned common sense or ideology, making organisational culture strongly resistant to change. Schein argued that change will only come about if there is a “disconfirmation” (p. 320) experience, by which he means the appearance of clear evidence that the organisation is failing to meet emerging challenges. Even then, the resulting “survival anxiety” (p. 322) will only lead to change if it exceeds the “learning anxiety” (p. 329) associated with the change itself.

Schein (2004) argued that a “parallel system” (p. 378) of management structures is needed to implement change. Christensen (2006) took this a step further to propose a strategy for changing an organisation’s culture that involves creating a separate team, setting it to work on a task reflecting the new environment and iterating this many times until a new culture begins to emerge in the separate group. Staff can then be transferred progressively from the old structure into the new team. Christensen noted that “attempts to change culture or process by directly attacking culture and process are unlikely to result in significant change” (p. 7).

We argue these findings, which primarily concern business organisations, can be applied to the higher education sector, to the extent that the peculiarities of academic institutional culture are taken into account. In this regard, the influential work of Becher and Trowler (2001, p. 23) has established the “tribal” nature of academic culture, whereby accepted behaviour within academic “tribes” is strongly influenced by discipline epistemologies:

In practice, academic cultures and disciplinary epistemology are inseparably intertwined ... disciplinary knowledge forms are to a large extent constituted and instantiated socially.

And although it is difficult to determine any basic social unit of academic organisation – Becher and Trowler (2001) discussed discipline, speciality within discipline or even segment within speciality – the departmental structure of most universities, however arbitrary, typically results in the department being the most clearly defined subunit of culture. But these discipline cultures are not completely isolated either: academics usually have “no difficulty in enumerating the disciplines which [are] more or less closely related to their own” (p. 58). Departmental subcultures are also influenced by the institution-wide organisational culture.

Although our study focused on a particular community of practice, one that was intentionally created and supported by dedicated learning and teaching staff, social learning theory understands large learning

systems as consisting of many communities of practice, with varying degrees of overlap or isolation (Lave & Wenger, 1991; Wenger, 2010). What goes on at the boundaries of these communities of practice is therefore critical for concerted action at the institutional level or indeed cultural change in response to new challenges. Wenger (2000) detailed the roles played by “brokers” (p. 235) and “boundary objects” (p. 236) in transferring learning beyond individual communities of practice: brokers are people who are able to facilitate the transfer of practices from one community to another, including by being a member of more than one, while boundary objects are the artefacts through which this transfer is mediated, including documents, tools, shared processes and even discourses. According to this construction, we can envisage the Innovators Group as being one community of practice among the many departmental communities (and no doubt many others), with common members playing the role of brokers and the various learning technologies, or rather the brokers’ personal experiences with them, being the boundary objects through which positive attitudes towards innovation are diffused.

Studies on cultures of innovation in higher education remain scarce (Fuad et al., 2020; Zlatanović et al., 2020), but evidence points to extreme variation. For example, Arundel et al. (2016) found that perceptions of senior executive support for service innovation varied greatly across 38 Australian and New Zealand higher education institutions, ranging almost evenly from a low of 20% to a high of 83%. Although their study focused on universities’ service departments, it is reasonable to infer that similar variation exists in perceptions of executive support for learning and teaching innovation. One conclusion of Arundel et al. (2016) was that in cases where an innovation underperforms or is abandoned, “the most significant independent variable is the senior executive’s support of an inclusive innovation culture” (p. 17). Other studies have underlined the need for technology dissemination strategies to be comprehensive, integrated and supported by senior executives (Birch & Burnett, 2009; Peters et al., 2022).

Additional factors identified in the literature as influencing innovation culture in higher education institutions include cross-institutional cooperation, both among different disciplines and between academic and service departments such as information technology units (Lašáková et al., 2017), the existence of peer-to-peer communication networks between academics (Hasanefendic et al., 2017; Scott & McGuire, 2017) and intangibles such as an appetite for “taking initiatives without prior instructions” and “tolerance for failure and mistakes” (Zlatanović et al., 2020, p. 445).

### **Frameworks of innovation in higher education**

The literature provides at least two frameworks for understanding a university’s culture of innovation. Tierney and Lanford (2016) proposed a conceptual framework for innovation in higher education that is based on two sets of three institutional features. Firstly, they argued that diversity, intrinsic motivation and autonomy impact an institution’s ability to innovate. Diversity in “backgrounds, proficiencies, and voices” (p. 24) is by now universally recognised as a crucial component of any positive organisational culture, justifying its presence at the top of this list. In the higher education setting, Tierney and Lanford argued, intrinsic motivation should also be plentiful, owing to the salience of enquiry in the academic identity. However, they observed, intrinsic motivation requires self-determination in order to be activated, as “the institutional culture of a stable organisation could ... become too ‘risk-averse,’ precluding ... teachers from attempting innovative pedagogical tools in their classes” (p. 25). Enabling self-determination is described by the third of the first set of features in the Tierney-Lanford model: autonomy.

Although these three features are relatively uncontroversial, Tierney and Lanford (2016) identified three further “emerging dimensions that complicate the innovative process” (p. 26): time, efficiency and trust. The significance of time may go without saying in the current higher education context; however, Tierney and Lanford highlighted two aspects justifying its inclusion. One is that “people avoid the complex cognitive processing obligatory for innovation if they are constantly working under deadlines” (p. 27). The second is that if institutional roll-out is rushed, “employees may be reluctant to undertake the training necessary to effectively utilize an innovation” (p. 28). Concerning efficiency, while “efficient innovations” may be attractive to university administrators, in general “efficiency is a disincentive that precludes innovative inquiry ... as it negatively impacts the trial and error process necessary for innovation” (p. 28).

Finally, they urged “a thorough consideration of how to effectively nurture trust between different institutional levels and individuals” (p. 31), including through interdisciplinary engagement and openness towards diversity in background and viewpoint.

Tierney and Lanford (2016) also postulated that while “disruptive innovation” (p. 17) has achieved buzzword status, a more incremental, sustainable approach is better suited to established institutions such as universities, as this has proved “more resilient and prosperous than proponents of disruptive innovation are willing to concede” (p. 22). The value of incremental, non-disruptive change is confirmed by the general organisational culture literature, including by Schaffer (2012) and Schein himself (2004, pp. 388–389).

An alternative framework for innovation in higher education is provided by Setser and Morris (2015), who identified seven factors driving innovation in three main ways: leadership and communication *catalyse* innovation; resource allocation, capacity, and structure and process *enable* innovation; and the learning agenda and policy environment *sustain* innovation. Within each factor, they also identified 3–7 components, leading to a total of 30 elements. Setser and Morris went on to describe the subcomponents of each of these elements and how they interact dynamically to enhance or impede an organisation’s culture of innovation. The Setser and Morris framework contains a number of elements in common with the model proposed by Tierney and Lanford (2016) – published later but without reference to Setser and Morris (2015). For example, corresponding to Tierney and Lanford’s *autonomy*, Setser and Morris identified *permission* under their leadership factor, which includes “the freedom to fail as [team members] design and test new ideas and ways of thinking” (p. 15). Furthermore, a number of descriptors under Setser and Morris’s *communication* factor align with the *trust* element described by Tierney and Lanford, including engagement of “key stakeholders as often and authentically as possible” (p. 16) and transparency, by which they mean “sharing lessons honestly” (p. 16).

Although there is insufficient scope in our study for a detailed comparison of the two frameworks, it is clear that both describe complex organisational cultures in which suboptimal dissemination of educational technology cannot simply be reduced to “academic resistance”. Nevertheless, a useful starting point would be to better understand how academics perceive their motivations for engagement and the sorts of impact valued by them.

In this brief survey of the literature, we have identified a number of elements of higher education organisational culture considered conducive to innovation, highlighting those of particular relevance to this evaluation of a community of practice approach to innovation capacity building.

## The Innovators Group

As part of a strategy to improve the culture of innovation in learning and teaching in our science, health and engineering faculty, a Technology in Teaching Innovators community of practice was established early in 2018. Members were primarily teaching academics, predominantly at junior levels – and perhaps therefore more likely to be innovators (Sánchez-Caballé & Esteve-Mon, 2022) – initially nominated by their schools. Group membership later evolved via expressions of interest. Starting with 18 members, by 2021 there were just over 50, with typically 20–25 attending meetings.

Meetings held every 6 weeks consisted of practice-sharing presentations followed by hot topics, such as education technology issues needing escalation, or sticking points brought by members for group problem-solving. Secretariat workload was provided to support the group, which was chaired initially by the faculty’s deputy provost learning and teaching and later by her senior adviser. Membership encompassed representatives from the central learning and teaching and information and communication technology (ICT) units.

The community of practice, which came to be known as the Innovators Group, became a catalyst for innovation adoption, both within the group, but also beyond, as members took ideas back to their local

discipline communities. The group also successfully lobbied for a series of institutional educational technology adoptions, including a site-wide Camtasia licence, the creation of lightboard or green screen studios on the two largest campuses, and the roll-out of H5P. The group played a major role in the acquisition of an institutional Mentimeter licence and a planned roll-out of the Student Relationship Engagement System. The group was also regularly consulted regarding educational technology issues, for example, by the central ICT unit in the lead-up to an learning management system upgrade and in the course of developing audiovisual standards for teaching spaces.

## **Methodology**

Anecdotally there had appeared to be differences in how academics perceived innovation. Focus group discussions allow participants to consider concepts from a broader perspective and so provide opportunity for reflection. To explore how academics perceived their involvement in the Innovators Group, four focus groups were held on 12 and 15 April and 5 and 6 July 2021. In line with key aspects of Tierney and Lanford's (2016) conceptual framework for innovation in higher education, namely motivation and autonomy, focus group participants were invited to comment on their motivation for joining, the perceived benefits of membership, what they saw as the group's achievements including any diffusion of innovation beyond the group and the group's contribution to the university's COVID-19 response. Participants were also asked what they saw as key elements ensuring the group's success, including the significance of multidisciplinary and what, if any, improvements could be made in the future. All focus groups were recorded and transcribed.

Transcripts were analysed using the techniques of thematic analysis described by Braun and Clarke (2006) and Clarke and Braun (2017) and a direct content analysis approach of the manifest content (Hsieh & Shannon, 2005). Initially coding was used to assign transcript excerpts to the following five areas: reasons for involvement; perceived benefits; achievements; key elements of the group's functioning; and areas for improvement. Next, responses in the transcripts under each area were grouped into categories. Quotes to demonstrate each category were selected, and the number of responses in each category counted, as a form of summative content analysis, to provide an estimate of category usage across the group (Hsieh & Shannon, 2005).

Ethics approval for this research was granted by our institution's Human Research Ethics Committee (reference number HEC20487). In what follows, quotes from focus group participants are referenced by a letter unrelated to the participant's name.

## **Results**

A total of 18 members of the Innovators Group took part in focus groups: 11 females and 7 males, all academic staff members, representing 5 of the 7 schools in the faculty.

### **Reasons for involvement**

Table 1 lists the reasons focus group participants gave as their motivation for joining the Innovators Group. Learning about innovations in teaching technologies either from their colleagues or more generally were the most frequently coded categories. An explicit aspiration to improve the student experience was also expressed, with one focus group participant linking this to accessibility and inclusion:

We know that we have a number of students with learning access plans who – but even in the typical student population we have visual learners, we have auditory learners – so to try and present materials in different ways to help different learning styles across my cohort really is one of the biggest motivating factors. (F)

Some were prompted to join the group, either because they were nominated by their school or approached by a third party to do so.

Others had personal motivations. One referred to the promise of greater efficiency in learning and teaching processes, while three focus group participants were motivated by the idea of meeting with like-minded peers, for example:

I love the idea about a group of people that were keen to try new things and so I felt yep, that's for me. (J)

Table 1  
*Reasons for involvement*

Category	Count
To learn about colleagues' innovations with teaching technologies	7
To keep abreast of the latest teaching technologies	7
To improve the student experience	4
Nominated by school or approached by third party	3
To meet like-minded peers	3
Promise of greater efficiency in learning and teaching processes	1
To disseminate information about teaching technologies to departmental colleagues	1

### Perceived benefits

The perceived benefits cited by focus group participants are listed in Table 2. The most commonly identified benefit was a sense of affirmation for individual innovation efforts that group membership accorded. Comments included in this category demonstrate the utility of the group in fostering a culture of innovation:

When you're sort of the only one trying new things, new and weird things ... it's easy to feel like is this even right, should I be doing this, is this completely wrong, and then you come to the group and it's just like, yes do that, yes do more in fact. (E)

With people who are trying to stretch the boundaries ... you're not held back by oh, this is the way we've always done it so let's keep on doing that. (J)

I just really, really appreciate one big aspect of this group: the lack of resistance which exists everywhere else, so when you talk about new technology, and it's just a breath of fresh air not to be told, well no we can't do it that way. Yes we can, and we will. (L)

Another benefit for both individuals and the institution was that the group facilitated collaboration on research projects, including with the aim of publication:

I think it's a bit of a motivating factor to go out and experiment then report back and collect feedback. So it's sort of a self-fulfilling cycle, I think, and I love the group aspect of that. (O)

We interpret this culture of evidence-based evaluation of interventions as indicating that group members were taking a pedagogy-driven approach to learning technology adoption.

Another perceived benefit linked group membership with trial or adoption in the member's own teaching practice. For example, one focus group participant reported that:

I feel like I've heard three or four different things that I've gone and tried stem out from this room. (H)

Other benefits included group troubleshooting, access to software licences and hardware, conference participation, and support for a promotion application:

I applied for a promotion and I used part of the Innovator’s stuff as part of my narrative about operating at level B. (B)

Table 2  
*Perceived benefits*

Category	Count
Sense of affirmation for personal innovation efforts	9
Opportunity for research collaboration and publication	6
Inspiration for innovation in teaching practice	5
Group troubleshooting of problems	4
Access to software licences	2
Access to hardware	1
Conference participation	1
Support for promotion application	1

**Achievements**

Table 3 lists the perceived achievements of the group that were of benefit to the institution. Achievements mentioned incidentally in response to other questions were included in this section. Examples of diffusion of innovation were the most commonly nominated achievements, including within the group, but also extending to the transfer of information beyond the group, and cases of facilitating teaching technology adoption by a departmental colleague. The following examples illustrate information transfer beyond the group:

The achievements of sharing what’s coming out of the room with the department I don’t think can be underestimated. Several times colleagues have been talking about things and we’ve been planning curriculum design and I’ve gone, oh [name] had a really good example of this, or, you know, talk to [name] about this. (H)

Cases of adoption by departmental colleagues include:

I presented on the lightboard and [participant A], you presented, we presented on tablets and the light-board at the [discipline] retreat ... And then from there other people started using tablets and then other people started using the lightboard. (B)

Perceptions of influence at the institutional level extended beyond technology diffusion, with focus group participants citing concrete examples where they had affected institutional decision-making, such as the adoption of H5P, Mentimeter and the Student Relationship Engagement System and regarding an LMS upgrade. The following example describes the group’s cumulative influence:

The other key achievement of this group is that it has allowed through the community of practice, through growing interest, through communicating about what the university high level is doing with technology, they are starting to then get the feedback, listen to it, and I’m finding that there’s better outcomes with technology ... I think now we’re seeing much better solutions coming through because of that, and I think that’s a massive achievement, as well. ... For what you’re investing in you’re getting a far more useful technology implementation and far more uptake because then we’ve got input into it so we have far more trust in what you’re giving us to use, that you’ve actually considered what our needs are. (D)

Participants testified that they felt well-placed to deal with the challenges posed by the rapid shift to online learning at the start of the COVID-19 emergency in March 2020. Several reported being able to provide support to their colleagues, which they connected to their involvement in the Innovators Group:



We could guide our departments if there was any sort of question about, well, are we doing the best thing, are we using the best platform, is it going to work for our students ... As a department I don't think we had any major stumbling blocks for transitioning online because of that, and the student feedback seems to support that. We got great feedback for all of our subjects and the completion rates were still quite good. (F)

Group membership also provided visibility for those who had developed expertise in a certain area, as departmental champions:

I am part of my school's teaching and learning committee, and we have a list of technology experts, and I am on the list of technology experts. So we help other members in our school if they have issues with technology and things like that, and a lot of the things I've learned have come from here. (M)

Finally, the formation of university-wide connections supporting innovation were seen to provide several advantages, for example:

I've found it's been really nice as well to be in a room with people from ICT, Education Services ... That is one of the biggest gaps I've found in the university, is that those different areas don't often get the opportunity to sit together and talk. (D)

It's been fantastic to meet so many different people in different aspects of both teaching and also professional staff across the university as well. Sometimes it's been useful to know who the expert is in the professional staff to find out a particular answer. (F)

Table 3  
*Achievements*

Category	Count
Diffusion of innovation	28
Transfer of information beyond the group	12
Adoption of teaching technology by a colleague	9
Within the group	7
Influence on institutional decision-making	15
Role in emergency transition to online teaching – COVID-19 in March 2020	14
Identification of champions	13
University-wide connections supporting innovation	6

**Key elements of the group's functioning**

Table 4 lists the key elements considered to have contributed to the group's success. The most common response was ensuring the composition of the group's membership remained representative of both academic units and relevant professional services, was of sufficient size for critical mass but also not too large as to be unwieldy. Focus group participants were also prompted to comment on whether they felt interdisciplinarity was an important factor, and this element also found support:

It's been fantastic seeing what other disciplines are doing. So you're not quite so stuck in your silo of living in a [discipline] world, you get to see what people in other areas of the university that have a slightly different approach to their teaching, perhaps more clinical based, perhaps lots more practical things in there, online, blended, all of it. It's really nice [to] gain that opportunity. (D)

Another key element identified by focus group participants was high-level sponsorship of the group:

I think having a leader who has a lot of influence within her position helps drive a lot of it ... I think it's important to have someone who does have those contacts further up and can push for things. ... We've got a leader that can take that further up and get action. (B)

Key elements for success identified by individual focus group participants included departmental recognition that "you are part of an Innovators Group, you have a role to play in the department to disseminate best practice and to get some staff buy-in" (O) and the informal nature of group meetings.

Table 4  
*Key elements of the group's functioning*

Category	Count
Diversity of membership	8
Interdisciplinarity	8
High-level sponsorship	5
Departmental recognition of role	1
Informality of meetings	1

### Areas for improvement

Finally, focus group participants were asked about how they felt the Innovators Group could be improved. Table 5 lists the identified themes and their counts. Areas for improvement included streamlining administrative processes (for updating membership, setting meeting agendas, reporting back to departments), and formalising university-level impact. Regarding the latter, although there was recognition that the group had successfully played this role, as described in the Achievements section, the comments in this category indicate that cementing this function is crucial for the group's self-perceived relevance:

We spoke about what motivates you to be in this group: impact motivates me. So I want to know that this additional time that I put into this, that it's going to actually make a difference. (L)

Other ideas concerning how the group could be improved included the creation of a resource hub for storing the group's artefacts, the setting of outcomes to work towards which might include addressing institutional priorities, ensuring the diversity of the group and consistently branding resources created as stemming from the Innovators Group.

Table 5  
*Areas for improvement*

Category	Count
Improved processes	7
Formalising institutional-level impact	7
Resource hub	6
Setting group outcomes	5
Ensuring group diversity	4
Branding artefacts	4

As described above, diversity is a key element in building a culture of innovation in higher education, according to the Tierney and Lanford (2016) framework. Interestingly, in our results diversity of membership was cited both as a key element of the group's functioning and as an area for improvement (by different focus group members), possibly reflecting a degree of satisfaction, with room for improvement.

## Discussion

We argue the testimony of Innovators Group members supports a number of conclusions concerning our community of practice approach to developing a culture of innovation in learning and teaching within our faculty.

Firstly, study participants indicated that they found group membership affirming of their own innovative efforts, describing it as “motivating” (O), providing “inspiration” (E) and “a breath of fresh air” (L). Focus group participants provided a number of examples of ideas they had learnt about in the Innovators Group which they then implemented in their own teaching. It also appears that innovative activity spurred confidence to tackle further innovation, as the following quote relates:

You hear about what other people are doing and then they're interested in what you're doing, and then that gives you more confidence as well, and so now I don't shy away from it anymore. I don't shy away from things that I'm not familiar with. So I try and seek it out a little bit more now. (B)

As identified by Schein (2004) and Christensen (2006), creating a separate team free from the constraints of the existing organisational culture is a necessary first step towards cultural change. Our findings suggest that the Innovators Group cultivated the autonomy needed to unleash the intrinsic motivation of the individual academics involved, a key element highlighted in our discussion of the Tierney and Lanford (2016) model above. The Setser and Morris (2015) framework described a similar phenomenon under “permission” (p. 15), and Zlatanović et al. (2020) discussed appetite for taking the initiative. Though none of the focus group participants used this language explicitly, this cultural quality is also referred to as permission to fail (Setser & Morris, 2015; Zlatanovic et al., 2020).

Furthermore, focus group participants testified that group membership fostered evaluative collaborations and evidence-based reporting on teaching technology initiatives. Cross-disciplinary networking between academics is also identified in the literature as a prerequisite for an innovative institutional culture (Hasanefendic et al., 2017; Lašáková et al., 2017; Scott & McGuire, 2017). A culture of evaluating learning and teaching interventions through collecting evidence is moreover an indication that group members understood the importance of pedagogy driving teaching technology innovation. This is an encouraging finding and goes some way towards countering criticism of teaching technology innovation as being novelty driven, or innovation for the sake of innovation (Flavell et al., 2019; Smith, 2012). It is also worth restating that improving the student experience was explicitly mentioned in focus groups as a motivating factor for becoming a member of the group.

Secondly, many members took it upon themselves to report findings and outcomes arising from the Innovators Group to their respective disciplines and departments, typically at regular meetings or sometimes just in the context of corridor conversations with their colleagues. Although this was not a formal expectation of membership, a number of focus group participants reflected that it should be. The importance of evaluative information from near peers in the decision to adopt is well known from diffusion of innovation theory (Rogers, 2003, pp. 34–35). In a world – and particularly a higher education environment – awash with information, even reaching teaching academics with potentially useful information is a challenge. In the words of one focus group participant:

The biggest barrier that people have is where do I find this information, and where is the best place, who's my trusted source. I think now it's really interesting because people are finding some of these working groups [e.g., the Innovators Group] as more of a trusted source because they know that there's a diversity of application given the membership. (D)

Particularly during the COVID-19 emergency, members of the Innovators Group were seen as valuable reference points for much-needed expertise.

Thirdly, in addition to the flow of information from the Innovators Group out into the various departments and disciplines within the faculty, focus group participants also provided many concrete examples of actual adoption of a teaching technology by someone in their department as a result of their advocacy. We argue that academic-to-academic diffusion is a particularly effective dissemination pathway in higher education, because academics attach greater credibility to information emanating “from people who are already using technologies, so they’ve established a method that works, and they’re using a specific technology to enhance their teaching” (A). Peer-to-peer information transfer also means academics can “ask questions ... and hear from people [on] the ease of use in implementation, and I think it actually negates a lot of that fear around, oh it’s going to cause me a heap of more workload” (C). Community of practice literature allows us to interpret group members as “brokers” (Wenger, 2000, p. 235) between communities of practice, transferring educational technology innovation from the Innovators Group to their departmental communities, where their personal testimonies function as the “boundary objects” facilitating this transfer (Wenger, 2000, p. 236).

Fourthly, focus group participants valued the diversity of the membership of the Innovators Group, not just in terms of its interdisciplinarity, but also the inclusion of representatives of the learning and teaching and ICT units, to discuss improving the student experience through technology innovation with the inclusion of key institutional stakeholders. In the words of one study participant:

Where else in the university, I would love to know, do you actually get to sit with those arms of the university together? (D)

Senior executive support has been clearly identified in the literature as a key prerequisite of a culture of innovation (Arundel et al., 2016; Birch & Burnett, 2009; Peters et al., 2022), and our findings support this. However, whereas senior leadership from academic, ICT and learning and teaching divisions may meet regularly to set high-level priorities concerning the student experience, in certain cases the Innovators Group meetings appeared to fulfill an otherwise absent level of coordination: that of ironing out the issues surrounding on-the-ground implementation of strategic priorities. Examples of these kinds of conversations include:

Academics understand better if ICT say, well look this is our budget, this is what we can do. What’s your priority? (D)

We’ve had people from ICT .... and put them in front of the firing line and said well, why can’t we fix this, and some things have gotten fixed as a result. (J)

We contend that such negotiations amongst stakeholders at the implementation level are an often overlooked but essential element of higher education policy implementation. The importance of communications between academics and service staff has also been highlighted in the literature (Lašáková et al., 2017; Setser & Morris, 2015), as has the resultant institutional “trust” that this communication engenders (Tierney & Lanford, 2016, p. 29).

Finally, focus group participants were able to identify a number of cases in which the group’s expertise influenced university level decision-making on teaching technologies, even though this was not a formalised process. One focus group member reflected that:

I feel like academics are being more heard, which is really lovely. Like I said, we often see people in Education Services being the only people that give feedback, and they’re not student-facing ... very skilled, very good at pedagogy, but don’t ever have to live that coalface of ... implementing the technology with students. (D)

Impact at the university level was identified by focus group participants both as an achievement of the group, as well as an area for improvement. While the experience of sharing practice with a group of like-minded academics, and the fostering of teaching innovation amongst members as well as more broadly

across the faculty were motivational factors for Innovators Group members, being able to have an impact on university decision-making and institutional roll-out of teaching technologies was clearly also something that members valued highly. It was significant, therefore, that the group provided a pathway for innovative academics to influence institutional decision-making, as a way of addressing the disconnect between top-down and bottom-up innovation that typically characterises higher education organisational culture.

### **Limitations of this study**

We recognise the limitation of drawing conclusions about the effectiveness of the group solely from the testimony of group members themselves. We draw attention, however, to our earlier publication (Loch et al., 2021) providing objective evidence of the group's role in the dissemination of teaching technologies in our faculty. We also observe that the institutional teaching technology roll-outs referred to by group members are uncontroversial and verifiable, even if the precise influence of the group may be more subjective.

We also recognise that although focus group participants were encouraged to identify areas for improvement in the functioning of the group, they were not explicitly prompted to identify examples of diffusion of innovation that had not succeeded.

### **Conclusion**

Failed or only partially successful rollouts of teaching technologies in higher education contexts often lead to a discourse of "academic resistance". Our approach turns this on its head, and instead recognises innovative and early adopter academics as a valuable resource in the dissemination of innovation to their more hesitant peers. Our Innovators Group community of practice created a safe space where experimentation was mutually encouraged and failure tolerated, a "separate team" (Christensen, 2006, p. 7) in which a culture of innovation could be nurtured, free from the ingrained constraints that had formed over the decades of successful operation of a large organisation. In this way, the Innovators Group was able to provide the self-determination identified by Tierney and Lanford (2016) as necessary for academics' intrinsic motivation to be unleashed. The group opened up communications, not just between like-minded academics in different (albeit related) disciplines but also with representatives of key service units, namely learning and teaching and ICT departments. The group's culture of innovation spread both horizontally and vertically: horizontally to peers in members' academic departments and vertically through involvement in decision-making processes, which led to several cases of institution-wide technology adoptions and input into improving the university's educational technology environment. The hope that the culture of innovation nurtured within the group would spill over into the faculty, and indeed the institution as a whole, appears to have been realised.

Returning to our first research question, we found the following evidence that the Innovators Group improved the culture of teaching technology in the faculty. Focus group participants testified that membership of the group encouraged them to be more innovative in applying technology in their own teaching, that they took on the role of broker for the dissemination of innovation beyond the Innovators Group and into their respective departments, and that they did in fact bring about adoption of teaching technologies amongst their peers. Regarding our second research question, how the group improved the institutional culture of learning technology innovation, members reflected that the group was able to function as a bridge between disparate units of the university, including academic and teaching-related administrative divisions, that enabled it to play an advocacy and consultative role, which led to better results for institutional teaching technology initiatives.

It is possible, given the tribal nature of academic organisational culture, and the phenomenon of discipline closeness, that the faculty basis of the Innovators Group might be a factor in its success, and that a university-wide community of practice may suffer from greater disciplinary cultural differences. Further, although the Innovators Group had the backing of faculty leadership, there was no explicit support

established from the senior executive of the university, beyond general statements in strategy documents on the importance of innovation (e.g., La Trobe University, 2017). Nevertheless, the success enjoyed by the Innovators Group at the faculty level provides grounds for investigating the effectiveness of an institution-wide strategy along similar lines.

The main characteristics of our approach to building a culture of innovation in educational technologies can be summarised as follows:

- A community of practice made up primarily of teaching academics with a passion for innovation, as much as possible representing all academic departments.
- The inclusion of a small number of key stakeholders from learning and teaching and ICT units.
- Regular meetings (ours were 6-weekly) consisting of informal presentations on teaching technology innovations from members, and others from experts within the institution (including from professional staff), but also from external representatives. Our meetings also set aside time for round-table discussions on current issues (hot topics). Secretarial workload was provided.
- The expectation that trials of technology in teaching need to include an element of evidence-based evaluation of the student experience.
- Established protocols for members to report back to their departments or disciplines on innovations of potential interest.
- Established protocols for involving the group in decision-making on teaching technology implementation at the institutional level, including a pathway for bottom-up ideas to be considered and possibly implemented.

We close in a philosophical tone. Although the COVID-19 pandemic ushered in a period of unprecedented innovation in technology-assisted learning and teaching across the sector, it also took an immense financial toll on higher education institutions around Australia and indeed internationally. A university restructure at the end of 2021 saw the disestablishment of our faculty and the winding-up of the Innovators Group. Although this eventuality highlights the importance of executive-level support for initiatives aimed at improving an institution's culture of innovation, we do not, however believe, that it invalidates the arguments put forward above.

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