

FUTURE CONSIDERATIONS IN THE ADOPTION OF EDUCATIONAL TECHNOLOGIES

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Abstract

Higher education institutions are increasingly incorporating innovation in education into institutional strategic and academic plans. Yet, they grapple with defining and implementing the concept and articulating and measuring the results of their efforts and investments. Drawing from a research foundation and her experience, the author presents a perspective about what innovation is and isn't in the context of higher education in Canada then provides considerations for creating a culture of innovation and some steps for ensuring that innovation is relevant and meaningful within an organization.

Introduction

Innovation in education is increasingly associated with institutional strategic and academic plans, and has even resulted in the emergence of job titles such as Vice Presidents and Directors of Education and Innovation. Parallel to this situation, educators are also faced with technology-driven hype that often seems driven by a Silicon Valley agenda. For example, in the past five years, higher education has seen the rise and descent of MOOCs, MOOC platforms, learning management systems that promise to be more mobile, feature and user friendly, and the growth of cloud based technologies whose primary purpose is to collect user data for goals that are not obviously revealed to the user.

At some point as educators we find ourselves asking the question: are these 'innovations' solving higher education problems? In my own institution, where students are incredibly mobile, programs are built around two- or three-day intensive courses, and where applied, experiential learning (often scenario based) is the norm, we have been critically assessing the mother of all educational technology tools – the Learning Management System (LMS) – for its ability to meet our own pedagogical needs. In a context where funding for public higher education is increasingly at risk, we have had to ask ourselves whether we have over invested in the LMS (which is often the most costly educational technology an institution will acquire) at the expense of innovation that solves our own higher education problems.

At the same time, the word *innovation* has become overused to the point where a certain degree of skepticism is expressed by many of us who feel that our institutions have been unable to live up to its promise. I feel that innovation is important – even critical - to higher education, and that there are practical steps that can be taken to get to a place where innovation is no longer thrown around as a vague buzzword.

Innovation in the Context of Higher Education

But first, I'd like to establish my position, how I think about what innovation is and isn't in the context of higher education (in Canada). Then I'll talk about some considerations for creating a culture of innovation, and conclude with some steps for ensuring that innovation in your institution is relevant and meaningful.

Some Observations About Innovation

1. *One innovative initiative does not make an innovative institution.* Often institutions identify a high profile flagship initiative (e.g., MOOCs, OERs, a tablet program, videoconferencing, flexible learning) but not only is it an "eggs in one basket" approach, but it's difficult to gain momentum if there is only one innovative initiative, since you're essentially banking on the majority of the institution being (a) interested in it and seeing value in it and; (b) it succeeding.

2. *Innovation requires an institutional tolerance for a certain amount of failure.* This is why a flagship innovation approach can be problematic...if you put all your eggs in one basket and it's not as successful as your marketing and communications department has promoted it to be, you have few wins to celebrate and difficulty maintaining momentum.

3. *Innovation requires momentum.* When innovation is truly happening, it engages everybody and inspires spin offs. I think of innovation as a snowball that becomes big and then spins off other snowballs.

4. *Innovation is not a project, a policy, or a committee.* Innovation is first and foremost an institutional attitude that needs to be embraced and supported. Innovation is messy and sometimes isn't successful. This makes administrators uncomfortable, from which emerge project plans, policies and steering committees to control what is perceived as risky, chaotic activity. These efforts lead to what could be called in academic terms "inhibiting boundary objects" or gatekeeping devices that will essentially void any strategic plan or job title change efforts. But it also doesn't mean that innovation is a rogue "anything goes" activity that costs institutions large amounts of money either. More on that below.

5. *Innovation is not retroactive catch up or large tech projects.* Sometimes institutions mistake their latest enterprise software implementation as innovation, when it's usually status quo with a new twist. Just because your institution's implementation is a lot of money and resources, it doesn't mean it qualifies as innovation. In fact, if your efforts are taking money away from your innovation initiatives, your institution should take a critical view of why that is happening, and for what benefit. (Sometimes expensive implementations are about taking the path of least resistance, and this is where I think institutions should be looking at whether a more innovative approach could have saved money.)

6. *Innovation doesn't have to be expensive.* In fact, if you are fighting the bean counters on the value of innovation when you've said that it sometimes fails, and failure is okay, you will want to minimize the financial risk. So showing the institution how much you can do with a small pocket of change is a great way to get momentum and buy in.

Some Steps in Defining Innovation

One of the first steps in creating a culture of innovation is figuring out what your institution means when they say they want innovation. This should be obvious, but chances are different stakeholders (the Deans, the President, the CIO, the faculty) all have different ideas as to what is innovation and what they want. Innovation is a relative construct, and within an institution there will be small, medium, and large understandings as to what will constitute innovation. Rather than impose your view, you will need to work with theirs, but without losing sight of where you think the institution needs to go, of course. This requires doing a good job of the following:

1. Develop a clear vision for innovation based on what you learn about the institution. Articulating a vision for innovation is a key step in making sure that the path that emerges is meaningful and relevant to the institution. For example, there is a temptation to jump on the latest and greatest ed tech buzz (e.g., mobile learning, e-portfolios) and roll it out as an institutional must-do innovation. But if mobile learning or e-portfolios makes no sense at your institution because of the types of programs, students, professions, etc., don't do it. This doesn't mean that you have to abandon it completely – this leads us to #2.
2. Distinguish between institutional innovation and program level innovation initiatives. In the previous section, I cautioned against flagship innovation initiatives, which are often rolled out and positioned as institutional must-do projects. Flagship initiatives aren't necessarily bad, but you will want to make sure that you are sensitive to innovation initiatives that might only make sense to one or two programs. For example, moving all your history students to a tablet program probably doesn't make any sense, but for your medical program it might be a no-brainer. Program level initiatives also have the advantage of snowballing into other programs in more of a grassroots way, which is good for buy-in.
3. Look for opportunities for convergence of smaller initiatives. The method to the madness with flagship initiatives is that you are introducing a big, broad bucket of options that faculties will be able to identify with. The risk with this approach is that it is (a) too big of a bucket for faculty to see how flagship program will solve their immediate problems and (b) so broad that it intimidates or disengages since faculty feel like the learning curve is too big. I think there's a better chance of success in converging separate, smaller initiatives gradually. For example, a WordPress initiative can converge nicely with a tablet initiative into a bigger bucket called mobile learning, rather than starting with mobile learning and trying to have faculties understand all the options in that bucket.

Of course, all of this is nice in so long as you have an environment that facilitates innovation (as opposed to inhibits innovation). This is often where institutions get stuck and is the focus of the next section.

Removing Barriers to Innovation

Rogers' (1962/2003) *Diffusion of Innovations* is a well-known and cited tome on innovation, and I've found that senior administrators really grasp the idea of diffusion and innovation. But in order to get a better understanding of what is happening in an organization at a macro level to inhibit or foster innovation, and what to do about it, I

structure my thinking around Engestrom's (1987, 1999, 2001) activity theory and the concept of boundary objects (Fox, 2011). I think of boundary objects as organizational artefacts – people, committees, money, positions, policies, procedures – that can be *inhibitive* or *facilitative*. They sit at the boundary of many spheres of activity, and sometimes institutions also need to create new boundary objects. The key is understanding which ones are important to the innovation vision that you have proposed (and has been endorsed) so that you can move ahead with your plans.

There are some obvious first places to examine in your institution and assess whether they are facilitating innovation or inhibiting it. The most obvious place to start is the teaching and learning centre.

Teaching and Learning (T&L) Centres. Teaching and Learning centres in my experience are a bit of an innovation paradox, in that they are well positioned to be an innovation hub for the institution but often need to be reinvented and transformed in order to do this. This is especially the case with well-established T & L centres that have become highly invested and good at doing one or two things (curriculum development, faculty development) at the expense of others. While the role of T&L centres is generally to enhance teaching and learning at the institution, my view is that given that these centres are often centrally funded, ultimately their role is to make the lives of teaching and learning staff easier. As with *innovation*, this means different things to different people. The Vice President Academic might very well see the T & L centre's priority to increase the quality of teaching at the institution, but is this the dean's immediate priority? The dean's priority might be to have a simpler way of managing curriculum in its faculty. The faculty members might just want some support on the online course environment that they've been asked to teach in. Within this context, innovation competes with numerous other priorities.

If this is the case at your institution, then I like the idea of invoking (in academic terms) a third space (Gutiérrez, Baquedano-López, & Tejada, 1999) – a sort of fail safe zone or zones for innovation and transformation that is separate yet connected to the T & L centre. Plenty of institutions do this, and sometimes it can look like off-the-side-of-the-desk rogue activity, or unofficial clusters of activity, but I think it stands a better chance of succeeding if it has been endorsed and supported by the senior administration and the budget, rather than being an under-the-radar secret.

In order for these third spaces to work, they need to consider other barriers to innovation: time, money, people, and bureaucracy. Simply put, if the innovation space requires a lot of effort to access the equipment, money, people, then it's not really helping anybody. This might be stating the obvious, but here are a couple of examples I've seen:

1. *Innovation equipment locked up in a separate room 3 or 4 buildings over from the teaching site. Only the most keen and confident instructor will bother getting to campus early to go and grab the equipment and set it up.*
2. *Innovation funding processes that require filling out long, elaborate forms, that then have to be endorsed by multiple committees over a several month process. Faculty are busy, and if it takes more hours to get the money than to use the money then there's little ROI for them. Also, if they have an idea*

they want to implement, it's usually time sensitive. This process also doesn't support the notion that innovation is messy and sometimes fails.

3. *Innovation that has to fit into existing systems, technologies, world views, e.g., an e-portfolio project that has to use the institutionally endorsed (read: expensive) e-portfolio tool.* This is a tricky one. On the one hand, supporting innovation means that it should support the innovation vision of the institution and it's not an "anything goes" environment. But on the other hand, you have to know where you can let it go and challenge existing thoughts on this. For example, does the innovation really have to tie into the institutional LMS, SIS, or existing policy XYZ? For me, third spaces should challenge the status quo where appropriate, otherwise it's not really innovation.

Institutions often get into trouble with #3, because they've over invested in certain technologies and want to see a measurable return on investment, have created overly inhibitive structures (steering committees, policies), or lack vision and leadership on innovation. Which unfortunately means that if you're in a senior position with innovation as part of your job title/portfolio, and you don't have the means or senior support to remove the barriers, then you've got a really tough job ahead of you.

Creating a Culture of Innovation

In the previous section I mentioned the importance of the idea of third spaces in creating a culture of innovation and in removing barriers to innovation. I focused solely on the T & L centre as an obvious starting point for a third space or facilitative boundary object, but it is also important to identify the inhibitors, which are often administrative departments, steering committees, and processes. I find that often these inhibitive structures don't really know how to be facilitative of innovation and, like T & L centres, need some transformation. Since you can't always dismantle these structures, what can you do to keep innovation from devolving to a *project* (see the first section as to why innovation shouldn't be a project) that only you care about?

I see this as a series of steps with various inherent mechanisms. Some of these might seem to be a bit obvious, so often go unacknowledged.

Talk to people and find the innovation on the fringes. Chances are there are some people in your institution doing some really interesting, innovative stuff that not many people know about. Find out why that is, how they are getting stuff done, and what is getting in the way. Then figure out how you will be able to help them move from the fringes to key examples of people doing great things that the institution supports. You might also find out (as I did on more than one occasion) that something that they are doing that wasn't on your innovation radar should be a key initiative.

Support the people who want to do some great stuff, but have no idea how to get going or get the support they need. Higher education by design is full of smart, creative people who want to do cool things. But sometimes the smallest things become barriers to getting them to implement their ideas. For example, I've come across a situation where a faculty member's amazing idea required purchasing a 500\$ flip camera that he couldn't get his department to buy. His idea was simple, cheap, and would have had a great effect on student learning. Making sure you have some budget for supporting people on the cheap is a great way to get some quick wins and momentum – in the first

year we did this we were able to support 5 or so projects with less than \$3000, and these projects became highly showcased and led to other great developments.

Don't kill the innovators with process. In our T & L Centre we have an innovation pilots initiative (see above) where people with ideas can access money and/or expertise support in order to try out their idea. This is available at any time of the year...there are no calls for proposals, blessings by committees, or long discussions about *what ifs*. We don't require success, in fact we let people know that they are allowed to fail. But since it's not a free for all, we have a one-page project plan that is filled out. Knowing that this is a barrier for people with little time, we ask them to come to a one hour meeting with us where they tell us verbally what they want to do and what they need from us, and we fill out the form for them in the meeting. Our one pager covers the following:

- Strategic Goals Addressed – what Academic plan, strategic plan or ed tech plan does the project align with?
- Purpose of the pilot—what is the problem/s you are trying to solve?
- How are you planning on doing it?
- Equipment/people needs
- Evaluation: How you will know if it is successful/not successful?
- Timeline

We find that this process becomes a collaborative conversation between the people with the idea and the people that can support it, and it sets the right tone for the relationship and the project. We want people to feel empowered by the step they've taken rather than intimidate them with “how are you going to do this, what if XYZ happens...”

Pilots are your friend. At every institution I've worked with, small innovative ideas have a habit of becoming complexified when certain stakeholders throw the *but what ifs*, the *we can't because*s, and the *but we don't have*s. Often this is a fear driven reaction to culture where unknowns are viewed as a risk. To counter this, I've had good success with using pilots as a sort of boundary object that is introduced as a way to alleviate fear of failure. Pilots by definition are ways of trying things on and figuring out whether an idea is worth pursuing through more formal channels, once a good assessment is made of the value and potential to the institution. I like to point out that they are actually a low risk way of innovating in that they give the institution time to properly assess and learn about whatever is being implemented.

The other nice thing about pilots is that you probably have a good idea of some must-have tool/innovation that you want to introduce to the institution, but don't quite yet have the buy-in. You can keep a tool/innovation in pilot until it has enough momentum and buy-in to transition it successfully to being institutionally supported. Basically, once it becomes indispensable to the institution (WordPress in our case) you have plenty of examples to demonstrate your case without trying to convince people why the tool is needed. Keep in mind that the key with this whole approach is that you need to have the authority to initiate and support pilots. Finally, pilots are useful in showing that you actually do have a process and guidelines for introducing innovation to your institution – this is important because you don't want people to think that you are jumping on any new shiny thing without having thought about it, or that you are shoving your favourite pet technologies/innovation onto the backs of already busy people.

Considerations for Educational Technology and Innovation

The previous sections have really been about establishing and defining parameters for innovation. I've organized the talk in this way, because innovation is such a big topic and such an important influence on our activities. However, in many ways, starting with innovation is not the place to begin with considerations for educational technology. This section is about applying some considerations at a very practical level to the decisions that need to be made in establishing innovation initiatives and a culture of innovation. I use my own institution to illustrate the process.

For starters, it's important to highlight [Tony Bates' well-established SECTIONS model](#) for selecting educational technologies or media. It's a great place to start if you are an instructional designer trying to make decisions about educational technology in course and program design. But when talking about innovation and educational technology at an institutional strategic level, I think it can be a good idea to take a step back and ask some bigger questions of your institution.

To begin, I think it's important to begin with a thinking (or erasing) exercise that asks you to forget everything you know or think you know about educational technology and start over. At many of our institutions ed tech thinking starts with the LMS, and whether we like it or not the LMS's institutionally friendly attributes have an important role in shaping our thinking about teaching and learning.

Once you've erased your educational technology slate, you are ready to embark on some considerations:

1. Consideration #1: What is the learning trajectory of students who interface with your institution? What data do you have about your students, and does it tell an accurate story about the trajectory?
2. Consideration #2: What is the key driver of educational technology decisions at your institution (e.g., access, best possible learning environment, institutional profile, institutional differentiation). You have to pick one, but you can acknowledge that others come into play.
3. Consideration #3: What does innovation mean at your institution by the various stakeholders? Does it line up with #1 and #2?
4. Consideration #4: What are the problems that need to be solved that could be solved by ed tech? Is your current ed tech environment solving or hindering these problems?
5. Consideration #5: Can you afford to not be/go open in some areas of your activities?
6. Consideration #6: What can be done to get at 4 and 5? This is innovation.

If I were to go back in time six years when I started my role at my institution, JIBC, I would try to systematically engage in a process to get at some of these questions. In reality, the questions emerged over time and in a different order – #2, 3, 4, 6, 1, 5. This is how it played out for us:

Consideration #2. It was pretty consistently stated that JIBC’s driver for educational technology came from a provincial mandate, meaning we have to deliver our programs across a very large geographic area, including rural and remote communities. So for us, educational technology was primarily about access – making it possible for rural and remote communities to avoid expensive travel to Vancouver and to give greater opportunity for BC communities to access our programs.

Consideration #3. Given #2, there was a very strong collective desire to innovate on how to do this. We had an LMS, and had a web conferencing tool, but there was a sense that this wasn’t enough and was producing satisfactory but not good enough results. So innovation meant finding new models of delivery, new formats for our courses and programs, and better tools. There was also a common theme in that JIBC felt like it had been a leader in educational technology in the past, but hadn’t evolved or kept up enough to maintain that status.

Consideration #4. JIBC had a huge appetite and appreciation for educational technology, and unlike other institutions I’d worked at previously, there wasn’t a need to sell the importance at the institution. There was a greater need to push the envelope, but it took a while to get at the problems that needed to be solved. For example, it took some innovative people in some of our programs to turn me onto mobile (Consideration #6) by putting it into a real professional context. The President, and JIBC generally, didn’t feel like the ed tech environment that existed was solving the problems that needed to be solved. But being able to translate this collective dissatisfaction into an articulation of a future direction emerged over time. This is partly because we hadn’t really unpacked #1.

Consideration #1. We arrived at a clear articulation of the JIBC learner trajectory through a number of data points. Institutional data showed that approximately 50% of our students come back to do additional programs and credentials, many of which are very niche, unique kinds of course and programs not offered elsewhere. In other words, we are truly a lifelong learning institution for many of our students, partly because of the kinds of programs we offer. And because of the kinds of professions and communities that we work with, we know that our students often have a relationship with JIBC before enrolling in our programs. Additionally, one of our research surveys showed data that most of our students are working full time while attending our institution (see Figure 1), and age group distribution is fairly equal between 18 and 60+ (see Figure 2).



Figure 1. JIBC student employment data.

Please indicate the age range which applies to you	Response percent	Response total
19 or less	2.8%	30
20-24	8.3%	90
25-29	11.5%	125
30-34	9.8%	107
35-39	12%	131
40-44	13%	142
45-49	12.4%	135
50-54	13.1%	143
55-59	8%	87
60 and over	9.1%	99

Total # of respondents 1,119.
Statistics based on 1,089 respondents; 0 filtered; 30 skipped.

Figure 2. JIBC student age distribution.

The different data points about our students lead us to the following description of a JIBC student trajectory, where we tried to articulate the student relationship with the JIBC before, during, and after taking a course or a program (Figure 3). This, of course, had important implications for educational technology decisions and innovations, namely, that things that we create or implement should be things that students not only use while they are at JIBC but have direct application and use in the professions or communities in which they work. This is also how we ended up at # 5.

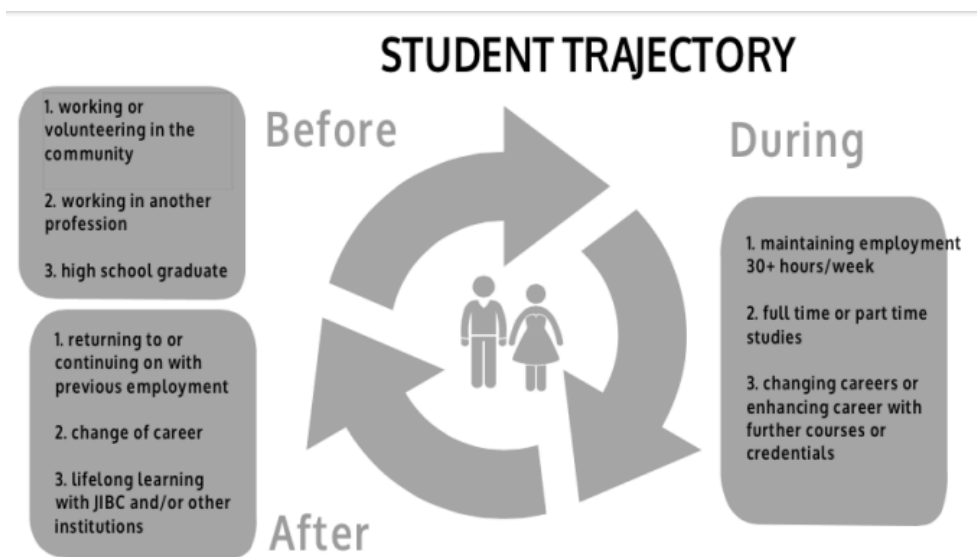


Figure 3. JIBC student trajectory illustrating student relationships with the JIBC before, during, and after taking a course or a program.

Consideration #5. In British Columbia we are fortunate to be part of a higher education sector that encourages and supports open practices, facilitated by BCcampus. Once we had an understanding of #1, the rationale to go open in some areas of our activities was clear. Using WordPress to make courses and parts of courses available to students at any phase of their learning trajectory ended up being a win for both students and the communities with whom we work.

Our Current Ed Tech/Innovation Formula

JIBC didn't go the flagship innovation initiative route, but instead focused on a few smaller initiatives that have converged. (We also do a lot of scenario-based experiential learning and simulations, but this was already well established at JIBC.) Our new innovation *formula* -for lack of a better word – ended up being mobile + wordpress + open = innovation (Figure 4). However, it has to be underlined that the context for this is a combination and result of considerations 1-6, which obviously will be variable depending on the institution. This is why I think it's important to scrutinize both current ed tech environments and the latest innovation flavours of the month, be they e-portfolios, mobile, augmented reality, etc., since it's quite possible that it doesn't make sense in a particular institutional context.



Figure 4. JIBC innovation formula.

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