

Bridging the Divide: Facilitating the exploration of emerging technologies that support innovative learning and teaching

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Abstract

There is a growing swell of interest across education, with educators seeking to harness the power of emerging technology in ways that enhance learning and teaching. Despite this, educators frequently do not have access to adequate support and consultation to aid them in bringing to fruition their visions for innovative teaching practices.

The primary focal point of this discussion paper is to elaborate on the nature of the growing divide between so-called “users” and “non-users”, propose solutions for bridging the gap, and inspire discussions that seek to identify and resolve this issue.

Importantly, this paper will also discuss the presence of another divide – one between providers of support opportunities, and the developing user community that requires these services. This divide is seen to represent a barrier to uptake and exploration of emerging technology that amplifies the disparity of the primary divide between users and non-users.

Introduction

The following discussion paper was inspired by a series of separate, but related conversations between users of Twitter and Edublogs in the beginning of March 2008. Their comments have highlighted the presence of a growing divide in eLearning in which experienced users of emerging technology are increasingly excelling in their use in innovative ways, while others who are not afforded the same opportunities are growing increasingly alienated.

As Kelly Christopherson from *Educational Discourse*¹ discusses:

“I worry that the gap between the “users” and “non-users” will widen because teachers who are full-time classroom teachers don’t have the time to work with these resources. Even tech-savvy educators find it difficult to keep up with the conversations and the tool-sharing because they don’t have time to take in all that is happening or become part of the constant conversation that takes place. Being a follower [on Twitter], the exchange of information is wonderful but it is very fast, always constant, without form and too large to backtrack. Those who have the time are building the networks, others who are being introduced are trying but,

¹ "[Go to the source](http://kwhobbles.wordpress.com/2008/03/07/go-to-the-source/)", Kelly Christopherson, Educational Discourse, 7 March 2008 , <http://kwhobbles.wordpress.com/2008/03/07/go-to-the-source/>

I've noticed, many fall away because they don't have the time to keep up with the conversations."

Common barriers to uptake and development include time constraints, lack of experience or familiarity with applications and their purpose, reservations about the relevance of emerging technology for education, and importantly lack of access to support and expert consultation.

Amplifying this disparity is the fact that recent innovations in web technology have resulted in faster and more immediate ways to communicate and collaborate. Instant messaging applications such as Skype for example enable real-time discussions independent of geographic location and can include multiple concurrent participants if desired.

Furthermore, the inception of so-called microblogging applications such as Jaiku, Pownce and particularly Twitter expand the potential network and audience even further by enabling communication by SMS, Instant Messaging, Web Interfaces, RSS, and a legion of 3rd party applications developed off of their APIs.

In the case of Twitter, the 3rd party applications enable use by mobile phone, PDA's and other handheld devices, meaning users do not even need a computer to follow the real-time discussions. Peer networks are accessible whenever and wherever the user may be.

Educators who have the expertise, established peer networks, and available time to devote to interacting via these means are afforded the exposure to countless peers and colleagues. Importantly these peer networks often serve as filters for locating relevant information and worthwhile resources, as well as discursive forums for brainstorming their value and use.

Those without these networks, expertise and/or time however are in a much different position in which the sheer masses of available information are preventatively overwhelming and in many cases come to represent a barrier to uptake and professional development.

Section One: Identifying the Growing Divide

In response to Christopherson's blog entry (2008) I posted the following comment:

I thought I might jump in the conversation here because I come from an entirely different perspective that may be of some use. I work at the uni level in a non-academic unit that provides support and consultation to academics wanting to get started with eLearning (or "that whole Web 2.0 thing" as it's frequently referred), but don't know how.

I don't have any experience at the High School or Primary School level, but I would suspect no such support exists there; I think this absence is the source that

Kelly is referring to. From my discussions with educators and my personal experience, the learning curve in this area is astounding. And when you add to that the speed with which innovation continues to occur, the growing divide we see here becomes clearly identifiable.

To amplify the problem, those of us who are fluent in the technology often times take the learning curve for granted and forget how much effort is actually required to develop our skills and comfort levels to the point where we can make the leap from “How DO I use this tool?” to “How CAN I use it effectively?”. The questions are worlds apart really.

I think what’s really crucial, as Kelly suggests, is the implementation of a framework that caters to educators interested in exploring the technology, but with assistance and consultation. There is simply too much information for many to sift through, let alone digest - in many ways I think this needs to be left to a specialised role, which can then ask the important question:

“What do you want to be able to do?”

Then based upon that boil down the available resources and tools to what is relevant; but not only that, actually show people how to use it, and how to use it effectively.

By this I don’t mean telling teachers how to teach. They know how to do that already. You are the experts in your field, not me. But what eLearning people like me can do is help translate offline activities to an online framework that considers the myriad of other factors you see in web use that don’t exist offline.

From my perspective, both arguments are quite valid; they just come from two different sides of the fence. What my job is as an eLearning person [is] to assess the pre-existing knowledge and comfort levels, and then having done that, to help develop a plan of attack for the next stage.

The fact this role doesn’t exist in other levels of education is a huge problem that needs to be remedied...

Bridging the Divide

In light of the growing divide, despite interest to the contrary, I would like to propose the following support model for consideration by institutions, schools, districts, and other regions where interest in the educational use of emerging technology exists, but support opportunities are lacking. Use of this model is quite common in higher education, however the above discussions seem to suggest it is less familiar elsewhere. Therefore some exposition is perhaps warranted here.

The model includes elements and phases that seek to:

- Increase awareness of emerging technology, particularly in its capacity to enhance learning and teaching;
- Model effective use and best practice in a way that holistically integrates pedagogical factors;
- Establish a comprehensive support framework;
- Embed eLearning activities in wider policy measures.

The Model Explained

What follows is a brief explanation of each dot point listed above.

Increase awareness of emerging technology, particularly in its capacity to enhance learning and teaching

As Christopherson infers, time is a limited commodity for many educators. As a result much of the discovery and discussion on emerging technology occurs unbeknownst to most of the educational population and results in missed opportunities. Over time as expertise grows and knowledge is increasingly amassed and aggregated amongst what Christopherson refers to as the population of “users”, while the population of “non-users” remain unaware and uninformed, the divide expands.

To stem this growing inequality, the population of non-users need an efficient alternative means of gaining access to this information. At minimum this must address two basic questions:

- “What technology is emerging?”
- “Is it relevant to education?”

For experienced users, the investigative process involves a two-fold approach that includes a) constant interaction with their peer network to debate and discuss new tools and ideas; and b) their own tireless efforts in evaluating and experimenting with new technology and then reflecting on their findings.

The problem is this can require a hefty time investment; therefore alternative options need to be made available for those who cannot afford to devote the time and energy, or who lack the expertise. The key for these individuals is the availability of access to a trustworthy source of information in the form of an eLearning or emerging technology consultant.

The role of the consultant is to engage in all the peer networking and evaluative activities that others cannot perform themselves, and then having done that to share their findings with the wider community.

Model effective use and best practice in a way that holistically integrates pedagogical factors

Modelling best practice is not just explaining how technology works, but demonstrating its use in an ongoing way. Especially when considering communicative technologies - such as blogs, instant messaging, and wikis - where the core principle is interactivity between users, the best example is a participatory one, not a theoretical one.

Taking this point even further, this aspect is key for education. Not simply in the modelling of how these technologies can be used effectively, but also in the demonstration of how to follow best pedagogical practice in their curricular implementation.

Ideally this would involve examples of online activities or environments that are fully embedded within a solid pedagogical framework, and include a clearly stated learning strategy that caters to multiple learning styles and prior knowledge or experience, as well as methods that facilitate and encourage cognitive or personal development (such as graduate attributes).

This aspect of the model is critical for new users of technology, because it establishes a compass point for what is possible.

This is especially true when considering that an inevitable challenge in the adoption of new technology is the learning curve. Educators find themselves faced with a new application they've never seen before and must slowly acclimate to its inner workings, with all the button pushing and experimentation this entails. This may unfortunately include periods of stagnation and frustration in which it would be all too easy for an educator to lose sight of their ultimate objective, and become lost amongst the tools and settings instead of the impassioned by the possibilities.

The availability of examples depicting best practice provides an ongoing reference for these critical early stages and for some may even come to represent targets to aspire to.

Establish a holistic support framework

Following on the last point, another inevitability in exploration of new technologies is the notion: "the deeper you delve, the more ideas and questions you'll have." This is perhaps where most educators run into trouble, especially when there are no formalised avenues for support in their school. This is the jumping-off point where theory is put into practice.

In this critical formative stage, it's essential that there is adequate support available to assist educators in bringing their vision to fruition.

Ideally educators should be supported from start to finish – from the inception and planning stages, through curriculum development and learning design, to the delivery and

assessment stages, and ultimately to the point where reflection and evaluation occur regarding what went well, and what didn't.

It should be noted too that support comes in many forms – including print based documentation, online videos, presentations, screen captures and tutorials, face-to-face support, training, and phone or email-based help desks for problem resolution. There is much to consider here, but generally speaking the more opportunities available for both self-service and consultative support, the better. This should include mixed media formats as well and not just text-based documentation.

The scope and scale of this single segment of the overall model is potentially massive. Therefore given the importance of support to the overall process it is recommended that careful consideration be given to this phase, because there are no substitutes for a solid support model.

Embed eLearning and innovative teaching practices in formal policy measures

In many areas of education, eLearning is perceived as an add-on, with the main focal point being the traditional classroom environment. True learning and teaching is seen to occur primarily within the physical walls of the institution or school where face-to-face interaction is possible. As a result, eLearning elements are not afforded the same consideration as face-to-face ones in planning and policy frameworks, and frequently are not even directly discussed.

This omission has serious implications that not only serve to create artificial perceptual divisions between eLearning and learning, but also to establish obstacles and preventative barriers for implementation of effective services and innovative opportunities for educators.

Gaining formal recognition of eLearning and innovative teaching practices as a stated educational priority addresses several needs, which seek to:

- Increase the profile and realised educational value of eLearning in general;
- Promote recognition and reward for innovative learning and teaching practices;
- Establish funding opportunities for related activities, support structures, and service frameworks;
- Facilitate best pedagogical practice in the use of emerging technology.

With eLearning and innovative teaching practices listed as an identified educational priority you gain a solid argument with which make the case for the points listed above. Then, once these aspects and opportunities exist, you can begin to work towards the lofty goal of properly integrating eLearning with standard classroom practices.

Growing a culture of encouraged exploration and active collaboration

What has been discussed thus far relates to high level change management that can and should be addressed in the upper levels of educational organisations – be they university-wide, school-wide or district-wide – however ultimately these changes can only take root and flourish with sufficient cultural change at the local level.

Change of this nature cannot be effectively imposed; it must be embraced

As I indicated in a comment on Kate Olson's blog, Reflection 2.0² :

The change management process you mention is a really important one that I think IT people really need to consider - not just for students, but staff as well. I'm guilty of this as much as anyone.

You touched on this inadvertently via one of your Tweets too regarding the educator who feels they don't have time to keep up with all the innovation going on. That's completely understandable and represents a huge reality check for eLearning folks like me.

In many ways I think this should get rolled into learning design. I suppose at a uni level this sort of thing might be called a graduate attribute - increasing student comfort levels and digital literacy when collaborating via different modes of communication. Then again, at the uni level we're starting to see students coming in who are quite comfortable with the new tools, while instructors are not.

So perhaps one of the crucial planning elements, even before the subject matter is covered, becomes *the establishment of a culture of encouraged exploration and active collaboration* in which all members of the class - instructor and students alike - are encouraged to experiment and develop their own appreciations of what the tools do and how they see themselves using them.

...Without the digital literacy component the whole equation starts to fall over I think. So in that sense adequate change management is essential.

² "[Edmodo - I scored an alpha invite!](http://googtweetblog.edublogs.org/2008/03/06/edmodo-i-scored-an-alpha-invite/)", Kate Olson, Reflection 2.0, 6 March 2008, <http://googtweetblog.edublogs.org/2008/03/06/edmodo-i-scored-an-alpha-invite/>

Section 2: Reality Check - What can the individual do?

Having said all that, the aforementioned model is the ultimate objective. In reality a substantial amount of organisational change needs to happen first, and this can take time – not simply to implement the changes, but to develop an appreciation and willingness to do so. So more than likely the formalised aspects of the model will only occur in the second half of the adoption curve after senior-level administrators and managers have been convinced of two key points:

1. The technology's relevance and value to education; and
2. The existence of sufficient demonstrated interest amongst educators to warrant the time and resource investment.

This begs the questions: What is an educator meant to do before this happens? What can the individual do to influence change?

The role of the individual

The individual educator is key to this entire equation, because they are ultimately responsible for facilitating the learning process on the front lines. Senior managers help provide the opportunities, but ultimately the curricular implementation relies on educators capitalising on these opportunities. It stands to reason then that decision makers will look not simply to what educators say is needed, but what they *see* is needed; so the more evidence that can be gathered to highlight the realities, the better.

So in terms of what the individual educator can do to influence change, there are two basic phases:

1. Take action
2. Document everything

Depending on the perspective of the educator these points could have empowering implications, overwhelming ones, or perhaps both. Regardless it should be borne in mind that in taking these steps educators are not only actively seeking to influence a desired outcome, but also continuing to develop expertise and experience.

Take Action

When formulating a plan of action it is wise to consider the formal support model discussed earlier. Despite the ultimate target of a larger-scale, centralised and officially recognised support structure, three of the four key points in the model are quite relevant here and can be translated to a smaller-scale context (e.g. your course, school, or department).

These points are:

- Increase awareness of emerging technology, particularly in its capacity to enhance learning and teaching;

- Model effective use and best practice in a way that holistically integrates pedagogical factors;
- Establish or contribute to an informal support network;

Drilling down into the detail, these points can be fleshed out into specific targeted activities. While by no means a comprehensive list, some examples are as follows. It should be noted that the realities of organisational structures, educational levels, and local academic culture vary across education, so the most effective activities will depend on local circumstances.

Participate in Grassroots movements

When implemented successfully, grassroots movements are a tremendously effective way of influencing change. They bring together the activities and efforts of a group of people in pursuit of a shared goal or purpose. In this context, a locally based grassroots movement could be used to address several needs.

<i>Activity</i>	<i>Key Point Addressed</i>
Publicise/Collectivise: seek out interest; especially people using the technology in isolation. Can be done as an individual or group. Start small if needed, just start.	Increase Awareness
Hold information sessions	Increase Awareness
Bring in guest speakers	Increase Awareness; Model Use
Track use-cases or resources using del.icio.us or a wiki; make sure people know where it is/how to access it.	Model Use
Create screencapture videos or virtual presentations to share with colleagues via email (for later viewing)	Support Networks
Join/form online peer communities	Support Networks

It should be noted though that while these activities would greatly benefit from peer collaboration so as to spread out the time investments required, it does not preclude advocacy at the individual level. Besides, inception of a movement can happen in one mind or many; if the passion, enthusiasm and persistence are there it will gather steam over time.

Document Everything

As important as the activities themselves, a crucial component in influencing change is documenting your experiences. This information enables the decision makers to follow the logic and process from start to finish – from inception, through planning and implementation, to outcomes, evaluation, analysis and reflection. This enables them to develop a much more holistic appreciation for the overall vision that simply looking at the end result.

Importantly, this documentation also becomes the proof to support the argument that more assistance, resources, and/or support opportunities are needed, because the gaps will be reflected by the data in the reports.

There is a great deal that could be incorporated into this documentation, but at minimum the following topics/sections should be covered:

<i>Topic</i>	<i>Seeks to encapsulate</i>
Aims and Objectives – both project level & pedagogically.	What are you trying to do? How do you intend to do it?
Discoveries and experiences	What happened? What was observed?
Successes and failures	What worked and what didn't?
Identified needs or gaps	What was needed that didn't exist? Importantly this should discuss how additional resources or opportunities would have helped.
Learning outcomes, student opinions/feedback	What were the pedagogical results?

Conclusion

Emerging technology is gaining increasing recognition amongst forward-thinking educators for its capacity to enhance learning and teaching activities. This has spawned the inception of many close-knit peer networks – largely online - developed for the purposes of investigating its use and potential to serve education.

These networks enable engaged users to participate in rapid, real-time discussions and collaboration that enhance their appreciation of new tools and their education application. This in turn enhances the educator's capacity to utilise the tools more pedagogically effectively.

The time investment and expertise required to participate in these discussions is relatively high however, and educators farther along the adoption curve are finding the participatory requirements difficult to maintain – and in some cases impossible. As a result existing users are excelling, while new-users or non-users are finding themselves left behind.

To stem the growing disparity in opportunity, the aforementioned model has been proposed to cater to the time limitations and still-developing expertise of new- or non-users through the provision of specialised roles, support services, and policy amendments. While primarily addressing the essential contributions of more senior and centralised levels of educational organisations – particularly in the creation of support and policy frameworks - in order to be truly affective in nurturing change the process must be embraced at all levels, including that of individual educators.

In saying this however it is likely that decision makers will lack the motivation to implement formalised support structures without the availability of existing use cases and data based on the experiences of local educators and early-adopters..

It is therefore advisable that advocates for educational use of emerging technology form grassroots movements to promote and document their activities, as well as provide informal support channels and networks for later-adopters. Suggestions have been put forth to inspire discussion in this area and it is hoped that an open dialogue will develop that seeks to address these challenges.

Avenues for Further Study

The wide scope of this discussion paper necessitated a somewhat generalised overview of the existing problems and recommended solutions. In order to facilitate informed decisions it is strongly recommended that specific case studies be outlined and documented.

These would seek to identify specific real-world examples of instructors who are attempting to implement emerging technologies in their courses, their methods of doing so, and the results of their experiences – including learning outcomes, obstacles and problems they experienced. Having done this, it would then be necessary to analyse the educator's experiences in order to locate a root cause or causes of the problem and make specific recommendations on what could have prevented the problems.

Contact

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References:

1. Christopherson, Kelly (2008.) "[Go to the source](#)", Kelly Christopherson, Educational Discourse; 7 March 2008
2. Olson, Kate (2008). "[Edmodo - I scored an alpha invite!](#)", Kate Olson, Reflection 2.0; 6 March 2008