

Infecting professional staff with the emerging technology ‘virus’: how the leadership game has changed

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ABSTRACT

The role of professional staff ‘outside the classroom’ is increasingly recognised by Australian universities as vital for student engagement, retention and satisfaction. Staff who deliver information, programs and services at all stages of the university calendar have a relationship with students very different from that of academic staff. This important connection between staff and students typically occurs face-to-face although there is a growing expectation that existing programs will be complemented by flexible online delivery and engagement, often involving emerging technologies that students feel comfortable and confident using. This paper introduces a new model of educational leadership that uses the ‘viral’ metaphor to explore how professional staff can acquire, apply and spread knowledge about emerging technologies. By departing from traditional leadership models which typically rely on a top-down, cascade style of knowledge transfer, the viral model enables leadership to develop within a network structure, where staff can lead change in ways that are not predetermined or even entirely predictable. The result is an organic, responsive, multidirectional leadership network. With funding from the Australian Learning & Teaching Council (ALTC), we are applying and testing this viral leadership model across three universities in Western Australia using a short structured course and ongoing scaffolded networking. Early findings suggest the emergence of a number of ‘infector’ types within the underlying network, to which we have assigned the following preliminary classifications: *super-infectors*, *regular infectors*, *niche infectors*, *edge infectors*, *surface infectors* and *formal infectors*. Our ongoing research focuses on describing and visualising the face-to-face and online connections between these types of infectors in order to better understand how universities can create a sustainable and flexible model of leadership in emerging technologies for professional staff.

INTRODUCTION

The use of technologies to enhance the student learning experience is in some ways neither new nor revolutionary. Students have long used email, mobile phones and online learning environments to communicate with staff and their peers, to administer various aspects of their university lives, and to manage their course content. However, the growing educational use of web 2.0 tools (which allow users to interact with each other as well as create and contribute content) has generated much discussion about how students learn and work together, the skills they need in order to engage with the tools effectively, and the extent to which this engagement contributes to student learning and the quality of the students’ experience (Krause, 2007; Tinto, 1993).

Our research asserts that the role of professional staff is as important as that of academic teaching staff in leading change in the area of student engagement at universities. Enhancing student engagement with their learning community outside the classroom has a positive impact on learning outcomes for students, and collaboration between academic and professional staff results in measurable improvement of the learning environment (Light, 2001, p.8). A challenge for professional staff exists in the lack of continuity between, on the one hand, developing knowledge and skills in a structured professional development course and, on the other hand, implementing these in the workplace as well as building on them and spreading their use among colleagues. Our project aims to overcome this challenge by implementing a viral model which can complement a more traditional cascade model of knowledge and skills dissemination. This viral model allows leadership to develop within a network structure, where professional staff can lead change in ways that are not predetermined or even entirely predictable. This can in turn lead to ongoing capacity building for professional staff.

Whilst content teaching conducted by faculties may typically be seen to constitute ‘core business’, the contribution made by libraries, student guilds and societies, transition programs and academic skills units is integral to the way students engage with and connect to their institutions. Staff members in these ‘non-teaching’ areas recognise the complex issue of leadership as they are located at the interface between student and institution. Marshall (2006) reminds us that ‘efforts to develop leadership capacity within an organisation need to focus on **all** members of the organisation’ (p.4). In this project we focus on the leadership role professional staff can take in applying emerging technologies, particularly web 2.0 tools, to engage students outside the classroom.

Our project, entitled *Professional Staff as Leaders in Enhancing Student Engagement: Building Capacity in Emerging Technologies Through Cascade and Viral Leadership*, has been funded by the ALTC from 2010-2012. It is referred to in this paper as the ALTC Viral Project. It is jointly run by Lisa Cluett and Judy Skene, professional staff from Student Services at the University of Western Australia (UWA), who bring extensive experience with staff development and training, and Mark Pegrum, an assistant professor in the Faculty of Education at UWA, who contributes expertise in

emerging technologies. This paper outlines the background and justification for the project, explains the concept of viral leadership, describes how the project is being built, highlights our initial explorations and findings, and provides an indication of future research.

Background and justification

Many students are already reasonably comfortable using sophisticated web 2.0 tools in social settings and are developing advanced skills in interacting online (Cluett & Skene, 2007; Skene, Cluett & Hogan, 2007). The pervasiveness of students' online presence now raises expectations of what universities should provide to students in terms of online programs, advice, support and connections with peers. Students themselves may feel comfortable with technology for social and entertainment purposes, yet they often need guidance on how to apply these same tools in an educational setting (Cluett, 2010; Pegrum, 2009). Universities have a responsibility to enter the interactive online domain strategically by empowering professional staff to lead their organisations in the application of these tools and to develop what Anderson and Johnson (2006) call 'a culture of enthusiasm for change' around the use of technology. It is critical, therefore, that professional staff have the capacity to use new technologies in a way that reflects students' own use of these tools, as well as modelling innovative practice in an educational context (Cluett, 2009; Cluett & Skene, 2010). There is little doubt that in encouraging student engagement beyond the classroom through the use of students' preferred communication modes, professional staff can help enhance students' learning experiences.

The complexity of the issues around technology uptake and student engagement means that far more is required than professional development courses for staff. To create a culture that is receptive to change and open to exploration, we must certainly offer training in the use of web 2.0 and other emerging technologies, including a solid pedagogical framework and the capacity to adapt tools to local/institutional needs. However, in the interests of sustainability in a rapidly growing and changing technological environment, we must also enable staff to adopt leadership roles in implementing, building on and spreading the use of such tools. We believe that to do this successfully, a new model of leadership is required, one that is matched to the immediacy of emerging technologies and targeted to the needs of professional staff.

VIRAL LEADERSHIP

In universities, leadership is traditionally hierarchical, training generally follows a cascade model of knowledge and skills dissemination, and professional staff – especially at lower levels – are usually not viewed as leaders or as particularly influential. While acknowledged leaders in universities may not always be enthusiastic adopters of new technologies and may be unlikely to receive or disseminate knowledge through digital networks, our students increasingly are. This gap is the space in which we are working, as we promote an alternative model of leadership, focused on but also partly enabled by emerging technologies, to help professional staff gain greater influence within their institutions. On the one hand, this means they can engage more closely with students by hooking into but also shaping the latter's educational uses of new technologies. On the other hand, this means their influence may spread more broadly, including filtering upwards through more traditional management structures, as they promote understanding of the potential of new technologies. We have termed this kind of leadership 'viral'.

Viral leadership is a relatively new concept, though relevant discussions are found in a number of areas. In business, Watkins (2007) has written about 'infectious leadership' and organisational change, and Herrero (2008) has discussed viral change based on 'networks of influence which are often below the radar of the organisational chart' (cf. Templeman, n.d.). There is emerging interest in such models in education, too. For example, Eveline's 2004 *Ivory Basement Leadership* examines 'urgent questions of power, leadership and change agency' (p.2) in Australia's universities, highlighting a model of 'companionate' leadership that is based on networking and collaboration (p.35). There have also been previous leadership projects funded by the ALTC (formerly the Carrick Institute) which have developed distributive leadership models.¹ Relevant educational research is currently underway on personal learning networks, or PLNs, which are trusted networks of teachers and experts, colleagues and peers, tools and resources, through which ideas and information can flow and where collective intelligence can emerge (Pegrum, 2010). PLNs are generally viewed as an alternative or a complement to more formal learning structures.

More broadly, recent years have seen the development of 'network theory', or 'the science of networks', which focuses on the increasing salience of network structures in human interaction (Barabási, 2003; Buchanan, 2002; Watts, 2003; for an overview, see Pegrum, 2010). Informed by disciplines as diverse as physics, biology, mathematics and sociology, network theory models, amongst other things, the viral spread of ideas and information within networks, and highlights the role within those networks of key figures – notably referred to by Gladwell (2002) as 'connectors' and by Barabási (2003) as 'hubs' – who may have a particularly influential, or indeed leading, role. While there is some debate over the

¹ See, for example, University of Wollongong, University of Tasmania & Flinders University's *Distributive leadership for learning and teaching: Developing the faculty scholar model*, and the published work of Lefoe, Smigiel & Parrish (2007).

accuracy and viability of models of viral spread (Thompson, 2008), such models are currently attracting considerable interest.

Drawing on other recent studies and projects, then, we are attempting to further develop and consolidate a viral notion of leadership. We are not working with a biological model of viral spread, but rather with a social model. Our main aim is to describe an alternative leadership structure in terms that make sense to professional (and academic) staff, and ultimately help them conceptualise and shape this structure in such a way as to successfully build leadership capacity. Our current working definition, which is subject to ongoing review and remodelling as our project progresses, is as follows: *viral leadership involves the promotion of ideas, knowledge and skills on an ad hoc basis via informal personal connections based on mutual interest and enthusiasm, possibly though not exclusively in the context of a scaffolded network*. Unlike the kind of leadership associated with more formal training and a cascade model of knowledge and skills dissemination, it can be seen that the viral model builds on the interconnected links between participants, with ideas, knowledge and skills spreading ‘like a virus’ through the network.

In order to promote this alternative vision of viral leadership, and build a platform for its realisation, the ALTC Viral Project combines two key elements:

1. *A formal training course* in the applications of emerging technologies, delivered to two initial cohorts of professional staff. As in a more traditional cascade model, these staff can, as appropriate, conduct further large- or small-group training for colleagues in their own organisations and/or areas.
2. *A scaffolded network* in which course participants pass on ideas, knowledge and skills to colleagues on an ad hoc basis driven by needs, interests and connections. As they do so, they may recruit new members into the growing network consisting of past course members and interested staff who, although they may not have attended a course, have some knowledge of or enthusiasm for learning about applications of emerging technologies.

The formal course, while quite a traditional training format, is being used in this case to seed the scaffolded network with potential leaders in emerging technologies. While these staff can then interact with each other within the network, online or offline, in practice it may not necessarily be effective to simply leave viral leadership to random connections and conscientious individuals. As Hayes (2008) suggests, ‘viruses need help to spread’. Our project therefore scaffolds the viral model with a number of supporting elements including networking events, supporting resources and materials, and peer mentoring. In a sense, by making the networking process less random, we are attempting to strengthen the flow of ideas, knowledge and skills pertaining to new technologies.

While such an approach appears to be in line with emerging research, questions remain about its practicality. Are networks sufficiently robust to enable leadership to develop amongst individuals who might not normally see themselves as leaders, and to allow them to exert influence even on a small scale? Can individuals who establish a reputation within a network transfer their influence outside the network to the rest of their institution, or even beyond their institution? Are networks sustainable enough to influence change over time in institutions like universities? These are areas we will investigate as our project continues to unfold.

THE NATURE OF THE VIRUS

Our project spans three Western Australian universities – Edith Cowan University (ECU), Murdoch University, and UWA, the last of these being the lead institution. Each institution is notably different from the next in terms of student cohort, size, history, and staff structure. As noted above, our emphasis is on professional rather than academic staff. However, the structure of our project is flexible enough to ‘cross-infect’ academics also experimenting with web 2.0, which will have widespread benefits across partner institutions. An additional feature is the active involvement of students as leaders and teachers. Students are invited to present their perspectives on web 2.0 tools at group events and forums, and can even serve as mentors to staff learning about new technologies.

Incubating the virus – the project to date

There is a 3-tiered model of staff involvement in the ALTC Viral Project, as seen in Figure 1. At its core is a cohort of 20 professional staff who undertook a 5-session formal learning course entitled *ALTC Emergent Technologies in Education* (<http://e-language.wikispaces.com/emergent-technologies>) in July-October 2010. (This cohort will eventually be joined by the cohort from the second course, to be staged in 2011). Entry to the course was via a competitive application process, although places were reserved for each institution (6 for ECU, 6 for Murdoch and 8 for UWA). Participants were chosen for their role and interest in student engagement, and their potential to ‘infect’ other staff with a curiosity and enthusiasm for emerging technologies. Course costs (AUD \$1,000 per participant) were met with ALTC project funds and every effort was made to create a sense of community, sharing and support amongst peers who might not have met prior to the course.

The rationale for beginning our project with the *Emergent Technologies in Education* course was to provide a formal learning component – specifically to ‘broaden and deepen understanding of digital technologies and their applications in the context of higher education’ – and to create a core of enthused, informed and receptive members for the growing network. Based on a program originally designed for the UWA Library (Pegrum & Kiel, 2011 forthcoming), the course is built around a number of thematic sessions entitled ‘From Novelty to Normalisation’, ‘Online Learning’, ‘Digital Literacies’ and ‘Sociopolitical Issues’, with accompanying tools sessions focusing on technologies ranging from discussion boards and blogs through social networking, folksonomies and RSS to podcasting, vodcasting and virtual worlds. Participants engage in class discussions about the practical applications of digital technologies; attend computer lab sessions to experiment with the digital tools in a hands-on way; collaboratively build an online class wiki with dedicated pages for reflection, discussion and project development; and build online resources for an assessed project. Participants who wish to do so may treat the course as a basis for a cascade model of leadership, using the materials to formally present elements of the course to groups of their colleagues. This option has been little used to date.

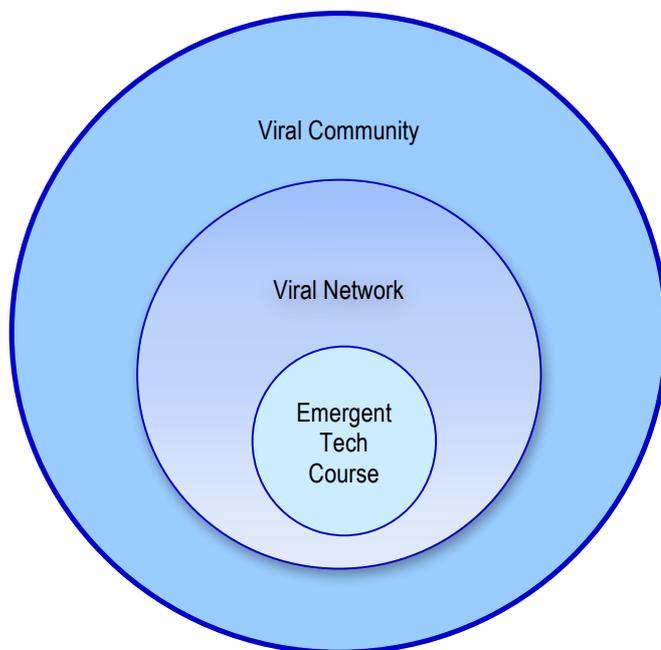


Figure 1: The **ALTC Viral Project** is made up of three overlapping forms of staff involvement: the annual *Emergent Technologies in Education* course for 20 participants; the *Viral Network*, open to all professional staff in partner institutions; and the broader *Viral Community*, open to anyone who wishes to follow and discuss the project online.

The *Viral Network* (<http://www.altc-viral.groupsite.com>) is a broader tier which, in addition to course participants, welcomes any professional staff from partner institutions who are interested in online student engagement and networking with other staff. The interactions within this tier are scaffolded through face-to-face events involving guest speakers and discussion panels (such as a student panel on new technologies, and a social media policy debate in 2010); an annual mini-conference; targeted training sessions; peer mentoring; special interest groups; project brainstorming; and resource development. All of these are also supported online. To date, staff who have joined this network without taking the course were generally already keen on emerging technologies, and some were already working to engage students online. They preferred to hone and develop their skills through networking rather than a course.

The rationale for setting up this network was a belief that formal learning in emerging technologies is rarely sufficient to initiate long-term organisational change. Rather, the combination of some formal learning with the parallel development of a network (in effect, a PLN or, more exactly, a web of interwoven PLNs) can result in increased awareness, collaboration and normalisation of technologies (Bax, 2003) across all levels of an organisation. Most importantly, it was in the scaffolded *Viral Network* that we hoped to see the development of viral leadership capacity. Having effectively seeded the network with professional staff whose capacity in emerging technologies was largely developed through the first formal course, we have indeed witnessed the beginnings of such leadership in this network, with a number of members – including but not limited to past course participants – enthusiastically spreading ideas, knowledge and skills as they teach and learn from each other. New leaders are emerging through, or entering into, the network, resulting in a shift towards what we hope will be a critical mass of leaders in emerging technologies. It is hoped that the three ALTC Project leaders may be required to provide less scaffolding as the network becomes self-sustaining: that is, with more of its members contributing to shaping their own interactive environment as they individually and collectively apply their expertise to maintaining knowledge and skills, developing and spreading ideas, and building new competencies according to their needs and wishes.

The *Viral Community* (like the *Viral Network*, accessible at <http://www.altc-viral.groupsites.com>) is an even broader tier which, in addition to course participants and network members, encompasses any university staff with an interest in the project or the events organised within it, including academic staff and staff outside the partner institutions. These staff can join the online community and create a profile, connect with others, and share goals around emerging technologies. A monthly electronic newsletter is sent to all community members, who are then able to participate in a related online discussion.

The rationale for establishing a wider group of this nature was to open up further networking possibilities, creating the opportunity for ideas, knowledge and skills to spread virally in multiple directions – and, eventually, perhaps even beyond the three tiers which constitute our project. By December 2010, the ALTC Viral Project (encompassing all three tiers) had a total of 114 members.

Monitoring the virus – how does a network grow?

A viral leadership model implicitly recognises the organic and multidirectional spread of ideas, knowledge and skills through a network. Our research is currently focused on how such a network grows through both online and face-to-face ‘infection’. It appears that members may demonstrate viral leadership in two distinct, if frequently complementary, ways. Firstly, they may spread new ideas, generally to existing members, in what is often an iterative process of idea development across the network; this is important in an area of rapid change – and, more broadly, an *era* of rapid change, where success is dependent on ‘continually refresh[ing] our stocks of knowledge by participating in relevant “flows” of knowledge – interactions that create knowledge or transfer it across individuals’ (Hegel, Seely Brown & Davison, 2010, p.11). Secondly, members may spread the ‘bug’ of enthusiasm for new technologies in general, which is important to sustaining flows among existing network members but is equally important in attracting new staff to the network.

Early observations of network development, conducted during the first year of the project, have allowed us to create a tentative set of categories to describe the characteristic interactions of network members around new technologies. These categories will be tested and mapped in the second year of the project. For the time being, they are proposed as descriptive rather than analytical constructs.

- *Super-infectors*, much like Gladwell’s ‘connectors’ or Barabási’s ‘hubs’, are key points of contact for other network members, and easily see connections between work areas, ideas and projects. They typically have established relationships with other staff in the network, frequently spread ideas virally through the network, often infect new staff (thus recruiting them to the network), and are vocal in their support of the network. They attend and assist with networking events and are regular contributors to the online community.
- *Regular infectors* make up the bulk of members and are primarily seeking to build their own knowledge and skills, but also help spread ideas virally within the network, and infect a moderate number of new staff. They attend networking events and participate in the online community.
- *Niche infectors* participate in the network for particular professional reasons. They seek specific types of connections and gather or spread specific types of ideas. They infect and/or may be infected by staff they see as relevant to their niche and typically make such links quickly, but they are less likely to make connections with network members outside their niche area of interest. They attend face-to-face events directly relevant to their area of interest, and participate in the online community with the same focus.
- *Edge infectors* have a peripheral relationship with the network in that they are infected by other staff and take on board ideas from the network, but are unlikely to spread ideas further or to infect new staff. They may have a casual interest in network activities and willingly participate for their own development. They may attend some events if infected by another member and may join the online community, but tend to have little ongoing involvement.
- *Surface infectors* have a twofold relationship with the network by being strong advocates and infecting new staff, whilst only having minimal participation themselves. They rarely attend networking activities and are unlikely to join the online community.
- *Formal infectors* participate in the network as a result of their official role or job title. They may be senior members of staff with direct control or responsibility for staff development, professional training or emerging technologies, and are often active in promoting the network. They are fairly likely to attend face-to-face networking events and participate in the online community.

These are broad categories, describing tendencies rather than fixed characteristics, and are not mutually exclusive. Nevertheless, to the extent it is possible to identify these infector groups (which will be tested in our second year) it might be useful to consider how each contributes to the overall health of the network. Characteristics of the *super-infectors* category may be especially worthy of further investigation because it is difficult to predict who these staff

members might be, yet they appear to be pivotal to network growth and success. Our research to date suggests there is no clear link between a staff member's job title and the likelihood he or she will be a *super-infector*, thus implying that viral leaders do not necessarily hold traditional leadership roles in their organisations.

Our initial observations highlight that infection (and re-infection) occurs initially and easily along established paths (through existing staff relationships, within the same work areas and the same institutions, etc) but it is also possible and relatively straightforward to encourage contamination through scaffolded networking activities (for example, by connecting two staff members in a mentoring partnership built on one element of common interest). Network growth occurs in bursts, with an initial peak and then 'mini-epidemics' when the virus reaches a previously untapped existing network and infection increases at a higher than normal rate. A similar phenomenon can occur when a new *super-infector* joins the network.

Social network analysis (Wasserman & Faust, 1994; Krebs, 2000) planned for the second year of the project will test the descriptive categories proposed above by mapping data gathered from participants about their connections with other network members. Data is currently being gathered about existing and newly formed connections: for example, network members are surveyed at face-to-face events and are asked how many people they know, how many people they think know them, who they invited to the event, who told them about it, and who they expected to see but did not attend. The connections made through the online community, such as visits to the site, discussion board posts and comments, are also included. In time, this will allow us to draw more definitive conclusions and create a richer map of the budding viral leadership network.

CONCLUSION

Professional staff play a key role in encouraging student engagement, which nowadays also involves engaging students through emerging technologies. Such staff work in the gap between the hierarchical management structure of universities, where emerging technologies may not be widely adopted, and the technology-rich interactions which are increasingly typical of student life. To some extent, this gap may be bridged with a viral leadership model for spreading the application of new technologies. Unlike a top-down leadership model which involves disseminating knowledge and skills through formal learning, the viral model combines organic, multidirectional leadership with ongoing informal networking. This may allow professional staff to engage more closely with and guide the technology use of students, while also spreading their influence more broadly across their institutions and beyond.

By exploring this leadership model in the context of professional staff learning about emerging technologies, we have begun to develop a picture of the key characteristics of this type of networking, including an indication of the important role of *super-infectors*. The project is now gathering data about face-to-face and online connections between network members in order to perform ongoing social network analysis and visualisation. It is hoped that in time our developing understanding of viral leadership may enable universities to complement traditional leadership models based on formal learning with potentially more sustainable models of multidirectional leadership and scaffolded networking – first and foremost, though not exclusively, in building the capacity of professional staff in the area of emerging technologies.

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