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Beginning Teacher Support in Australia: Towards an Online Community to Augment Current Support

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Abstract: This paper describes opportunities to improve the current support provided to beginning teachers in Australia. It holds that there is a need for approaches that go beyond school-based induction and support. The paper presents data from a survey of beginning teachers in Queensland, with aims to determine current access to support and perceptions about gaps in support. It uses these findings alongside existing evidence to make arguments that some beginning teachers are effectively unsupported and that universities have the potential to play a greater role in beginning teacher support. Further results are used to suggest guidelines for developing a national online community of pre-service and beginning teachers. A case study of a successful online professional support community is used as a model for how this may be implemented.

It has been well established that induction and mentoring programs provide effective support for beginning teachers when these programs are successfully implemented (Barrera, Braley, & Slate, 2010; Bickmore & Bickmore, 2010; Carter & Francis, 2001; Hudson, 2012; Ingersoll & Strong, 2011). Mentoring and induction programs are typically school-based, in the sense that they are reliant for both presence and quality upon the school community at which the teacher is based. Two groups of beginning teachers that are disadvantaged by the reliance upon school-based support are casual/short-term teachers and teachers in remote schools.

Over 16% of all primary teachers and 10% of all high school teachers are employed in either casual work or on contracts of duration less than one year (McKenzie, Rowley, Weldon, & Murphy, 2011). It is likely that beginning teachers (defined as those in their first year of teaching service) are over-represented in these numbers. Numbers differ between states in the country. The state of Queensland can be used as an example of this over-representation where in 2013 only 197 Queensland teaching graduates secured permanent positions in public schools whilst 348 were given temporary employment (Chilcott, 2013). It is difficult for a school to provide a quality induction or mentoring program for these casual or short-term teachers. These beginning teachers often have reduced time spent in their school and may even be teaching at multiple schools.

There is also variation between schools in the level of support that they can provide to beginning teachers. For example, the opportunities for collegial support and community development for a beginning teacher at a small remote school are likely to be lesser when compared than those available at a large urban private school. A comprehensive induction program of significant length and depth of support can assist teacher retention (Ingersoll & Strong, 2011), but requires school based support for delivery. Mentoring can form part of such an induction program.

In this context, there is a need to augment current school-based programs with additional forms of support (Long et al., 2012). This paper presents a survey of 118 teachers within their first three years of service, responding to questions about their first year of teaching. The aims of this survey were to establish use of current forms of support and to establish design considerations for future research to augment this support. Teachers within their first three years of teaching were asked about their experience of support in their first year of service. Based upon the results of the survey and a case study of a related innovation, an approach is developed for the provision of an online knowledge-sharing community for beginning teachers.

A Need to Support Beginning Teachers

There are numerous accounts of the difficulties faced by beginning teachers in Australia (Ewing & Manuel, 2005; Hinds, Williamson, & Gardner, 2011; McCluskey, Sim, & Johnson, 2011). Early career teacher attrition rates are one measure of the effects of these difficulties, both in Australia and around the world. This appears to be a long-term issue with an attrition rate in the first 5 years widely accepted to be higher than 20% in Australia (APPA 2006; Buchanan et al., 2013; DEST 2003; Macdonald, 1999; Plunkett & Dyson, 2011). Attrition is not always a problem, such as the case of the teacher ill-suited to the profession, yet there is a cost to society, to individuals and to the profession when good teachers are being lost due to inadequate support (Buchanan et al., 2013; Plunkett & Dyson, 2011; Skilbeck & Connell, 2004).

Beginning teachers face many problems. Commonly encountered issues are high expectations combined with entry shock, relations with other staff and administrators, and discipline and behaviour management issues (Ewing & Manuel, 2005; Fetherston & Lummis, 2012). Beginning teachers must contend with all of these problems whilst building a professional identity (Northfield & Gunstone, 1997; Sanford, 1988). A USA study found that the two most cited reasons for leaving the profession were lack of on-the-job support and workplace conditions, typified by discipline problems, poor administrative support and poor overall school culture (Boser, 2000). Beginning teachers suffer the challenge of developing their teaching practice amidst the layered concerns of day-to-day classroom problems, a challenging context within the school and an uncertain context within the profession.

The effects of these problems are most visible in rural teachers. It is often discussed that schools in remote areas in Australia can be hard to staff (Beutel, Adie, & Hudson, 2011; McKenzie et al., 2011) and that attracting and retaining rural teachers is a complex issue (Collins, 1999; Plunkett & Dyson, 2011; Roberts, 2005). One of the commonly discussed problems is that of the *isolation* experienced by these teachers due to distance and disconnection (McCluskey et al., 2011; Munsch & Boylan, 2008; Sharplin, 2002). Whilst specialised pre-service training can assist in preparing for these difficulties (White, 2011), being a beginning rural teacher remains a significant challenge given the 'tyranny of distance' in Australia.

In summary, it is widely recognised that being a beginning teacher is difficult. Some beginning teachers do not have effective access to mentoring and induction programs for numerous reasons. Whilst in some cases there are alternative programs for support there remains a strong motivation to search for ways to augment the support provided to beginning teachers, especially forms that are easily accessible to those in remote school communities.

Approaches to Beginning Teacher Support beyond Induction and Mentoring

Many approaches to beginning teacher support and professional development have been proposed beyond the induction and mentoring paradigm. The notion of greater collegiality (and implicitly continuity of the pre-service community) can be identified as a theme in many of these approaches (Long et al., 2012). Further motivation to consider such approaches can be found in results indicating that mentoring alone can be less effective at addressing new teacher attrition than more comprehensive efforts (DeAngelis, Wall, & Che, 2013). This may be due to the feedback received from mentoring and the absence of additional support to help teachers understand and respond to that feedback, thus prompting teachers who are struggling to consider other career options. A targeted and tailored approach based on teachers' needs would be beneficial, as opposed to the more common one-size-fits-all approach to induction (DeAngelis et al., 2013).

Teachers in their beginning years rely upon their connections with other teachers. It is fitting then that approaches to support that go beyond mentoring and induction look to facilitate and improve these connections (Long et al., 2012). Many such interventions have taken the form of *communities of practice* (Lave & Wenger, 1998) both in the form of face-to-face communities of teachers (Hanson-Smith, 2006; Loughran, Brown, & Doecke, 2001; Sim, 2006) and online communities (Barab, Kling, & Gray, 2004; Herrington, Herrington, Kervin, & Ferry, 2006; McLoughlin & Lee, 2010). These approaches were limited in focussing upon single institutions and in using the technology of the era but had success in creating communities of peer support. They provide the insight that the pre-service community of teachers developed during the years of study can be utilised to develop collegiality. These studies were successful in maintaining links between peers across the transition from higher education into the years of service.

Teacher professional development has also been considered as a vehicle for support of early career teachers, however these programs are often one-size fits all and may not meet the needs of pre-service teachers (McCormack, Gore, & Thomas, 2006). There has been increasing recognition that informal learning has great value, the kind of learning that is integrated into day-to-day work as opposed to separate induction or professional development opportunities (de Laat & Schreurs, 2013; Hoekstra & Korthagen, 2011). This marks a shift in beginning teacher development away from traditional metaphors of acquisition and transfer towards participation, construction and becoming (Boud & Hager, 2012). These ways of thinking about beginning teacher support serve to maintain a broad perspective of the potential ways that support might be provided.

In order to synthesise such approaches and deepen the research into supporting beginning teachers there is a need for studies that build upon existing evidence, expand the base of evidence, draw from other disciplines and undertake design-based research into addressing issues in support (after Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2009). This paper aims at synthesising an approach to beginning teacher support by conducting an empirical study and drawing from another discipline to lay a foundation for future design-based research.

A Context for an Online Community

This paper is concerned with exploring the potential for deepening the *online community* approach to teacher support. Teachers are increasingly connected to the internet. Smartphone usage in Australia has doubled since 2011 (Google & IPSOS, 2013) and the National Broadband Network is providing (and will provide) improvements to internet

connectivity in remote school communities

(<http://www.nbnco.com.au/assets/documents/nbn-satellite-factsheet.pdf>). There is potential in this era to go beyond the small-scale networks of teachers seen in the literature and explore the potential for larger communities at the national scale.

Recent initiatives by government bodies at national and state levels have aimed at achieving a similar goal (e.g. PLANE, Scootle Community and The Learning Space). However, these communities do not focus upon beginning teachers and do not appear to be meeting their needs. In particular, they do not appear to be fostering the sense of collegiality that the literature suggests is required.

A Survey of Beginning Teachers

A survey was conducted with the aims of establishing: (i) the sources of support that beginning teachers are currently utilising; and (ii) beginning teachers' perceptions towards an online community approach to support. An objective in achieving these aims was to verify anecdotal evidence that beginning teachers are using social media to stay in touch with their university community.

Method

The survey was conducted of teachers in Queensland in early childhood, primary and high schools in both the government and non-government systems. Teachers were recruited randomly through two Queensland teacher unions and the alumni from one Australian university. Given that questions relate to the first year of service in teaching the criteria were developed for accepting responses from qualified teachers who have been teaching for no more than 3 years. The survey was attempted by 200 respondents of whom 118 completed the survey and met the criteria. Questions related to their recollection of the support that they accessed in their first year of teaching. A second survey was available by prompt after completion of the first survey. This second survey focussed on perceptions towards potential online support systems and was attempted by 64 teachers.

The instrument was an online, anonymous survey involving multiple choice, ranking and short answer questions. Qualitative data from the survey was coded into categories by two raters. An inter-rater reliability analysis using the Kappa statistic was performed to determine consistency amongst raters and found to be $Kappa = 0.79$ ($p_o=0.94$ $p_e=0.73$) indicating substantial agreement (Landis & Koch, 1977). Following established reliability, all discrepancies were discussed for 100% agreement.

Results

Respondents were presented with 6 descriptions of support typically provided to beginning teachers (randomly ordered for each respondent) and were asked to rank them from most to least supportive. Table 1 shows the results, with respondents listing support from their school as the most valued source.

<i>Description</i>	<i>Mean ranking (6 as highest)</i>	<i>St. Dev.</i>
Support from my school (such as mentoring)	5.09	1.34
Support from other online resources	3.92	1.23
Employee induction program	3.59	1.52
Support from another source not listed here	3.33	1.82
Support from networks formed at university (including online networks)	2.81	1.68
Beginning teacher networks (such as BETA, the Beginning and Establishing Teachers' Association)	2.26	1.03

Table 1. Ranking of support (n=118). Respondents ranked six descriptions with 6 indicating the highest ranking.

Respondents who ranked “another source not listed here” within their three most important forms of support were prompted to provide details about this other source of support in the form of a short answer question. These responses were then coded into categories by the two raters. Table 2 shows the occurrence of categories identified within the 66 responses. One response could potentially be included in multiple categories during rating based upon the types of support that it referred to. Almost 61% of responses identified support from other teachers as a form of support. A negative comment (referring to an overall lack of support) was found in 12% of responses. Responses typical of this category were one word replies such as “Nil” and “Limited”. Longer answers implicitly referred to a gap between the expectations of the beginning teacher and the support they had within their school:

I had a friend who was a long time teacher based in another town and found that if I had questions she was the best person to ask. There was no induction process at my school and I found it very difficult to get help from others at a local level.

<i>Description</i>	<i>Count</i>	<i>Percentage</i>
Teachers	40	60.61%
Family & friends (non teacher)	14	21.21%
Negative response	8	12.12%
Online resource	7	10.61%
Professional development or workshop	5	7.58%

Table 2. Other forms of support accessed by beginning teachers (n=66)

All respondents were given a short answer question to state the ‘most important support’ that they received as a beginning teacher. Table 3 (in comparison with Table 2) shows similarly high reliance upon other teachers of 82.11% and an even higher incidence of negative responses of 18.95%.

<i>Description</i>	<i>Count</i>	<i>Percentage</i>
Teachers	78	82.11%
Negative response	18	18.95%
Induction	9	9.47%
online resource	8	8.42%
Family & friends (non-teacher)	6	6.32%
Professional development or workshop	6	6.32%
Agencies or organisations	6	6.32%

Table 3. Most important forms of support accessed by beginning teachers (n=95)

Respondents were asked “in which of the following ways did you communicate with your university community during your first year of teaching?” and presented with 6 options of which all that applied could be selected. An explicitly stated option to not respond if no communication occurred was presented. The responses show that 62 of 118 respondents (53%) had any communication with their university community. The results from the 6 options, Table 4, show that email was the most common medium used by 71% of those who did communicate with their community using this medium. The second most common was Facebook, used by 47%. Of the three respondents who selected ‘Other’, two indicated that their communication was through a wiki.

<i>Description</i>	<i>Count</i>	<i>Percentage</i>
Email	44	70.97%
Facebook	29	46.77%
In Person	22	35.48%
Telephone	14	22.58%
Other	3	4.84%
Twitter	0	0.00%

Table 4. Mediums of communication with university community during first year of teaching (n=62)

Respondents who listed Facebook as a medium of communication (n=29) were further queried “to your best estimate, how many of your university colleagues are you still in touch with through Facebook?” The result, Table 5, shows that 73% were in touch with fewer than 20 contacts.

<i>Description</i>	<i>Count</i>	<i>Percentage (n=26)</i>
0-10	12	46.15%
11-20	7	26.92%
21-30	3	11.54%
31-40	1	3.85%
41-50	1	3.85%
50+	2	7.69%

Table 5. “To your best estimate, how many of your university colleagues are you still in touch with through Facebook?”

A second survey posed questions about specific design features that could potentially be provided within an online platform to support beginning teachers. A Likert scale questionnaire showed agreement with the four choices presented, Table 6. Beginning teachers saw significant utility in both being able to ask questions of experienced teachers and of being able to access Frequently Asked Questions (FAQ) and answers from their peers across the country. Both received 95% either agree or strongly agree responses.

<i>Description</i>	<i>Strongly disagree, disagree or neutral</i>		<i>Agree or strongly agree</i>	
	count	%	count	%
Being able to ask questions of experienced teachers	3	5%	57	95%
Being able to access an easily searchable and moderated FAQ from all 1st year teachers in the country	3	5%	57	95%
Suggestions for connections to other first year teachers	10	17%	50	83%
Streamlined contact with peak bodies such as the union, accreditation bodies and employment agencies	12	20%	48	80%

Table 6. Responses to the question “Please state whether you agree that the following features may be useful to teachers in their first year of teaching” (n=60)

Discussion

Negative Perceptions of Support

The survey suggests that some beginning teachers are falling through the gaps and receiving very little, if any, support from their school. In Table 3, 18.95% of teachers made an unprompted negative comment referencing a lack of support when asked about the most important support they had received.

The Staff in Australia’s Schools survey gives further evidence to support this notion (McKenzie, Kos, Walker, Hong, & Owen, 2008; McKenzie et al., 2011). This survey of a large sample of Early Career Teachers (defined as first five years of teaching; n≈1500 primary; n≈2150 secondary) found that 20.8% of primary teachers and 23% of secondary teachers had no designated mentor. Further, 27.2% of primary and 16.4% of secondary teachers were provided with no induction program. A comparison of the change in this support from 2007 to 2010 shows that there was an increase in support during this time, Figure 1.

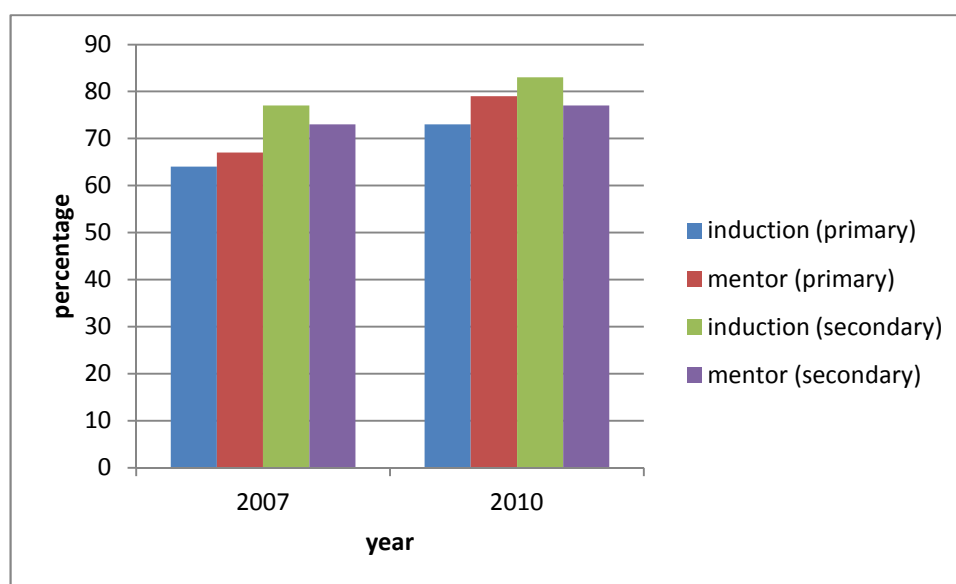


Figure 1. Provision of induction and mentoring support to early career teachers (McKenzie et al., 2008; McKenzie et al., 2011)

The results from the Staff in Australia's Schools Survey (SiAS; McKenzie et al., 2011) along with the survey results support a hypothesis that around one in five beginning teachers are not receiving either mentoring or induction support. It is significant that the negative responses were garnered unsolicited with the question "Please describe the ways in which you have been supported during your first year of teaching service. Please focus on those supports that were most significant to you." Responses in the survey suggest that there are diverse reasons for this lack of support.

A hypothesis prior to the study was that with reliance upon school-based support it might be expected that beginning teachers on casual or short-term contracts would struggle to access induction or mentoring programs. One respondent referred to this explicitly:

Best advice from retired teachers. As a relief/short contract teacher, I have been given little support from the schools that I have been associated with.

There was further an expectation that teachers in remote schools would have less access to support due to fewer teachers and a lack of resources. One teacher referred to this in their response:

I have no mentor teacher because of the school's structure and the induction program is not as I expected it to be. I am the only Maths B/Chemistry teacher, so I have to find my way around to prepare my units. Have to ask other teachers when I need to know something. However, I am used to work independently

The SiAS survey suggests that over 90% of teachers who were provided with a mentor found this helpful. However, some indication of why the quality of mentoring appears to be variable is shown in a teacher response:

Limited support. A mentor teacher was assigned to me but her workload was such that there was little time to effectively help. Sink or swim!

This notion of 'sink or swim' for beginning teachers has been around for many years (Varah, Theune, & Parker, 1986) and is clearly a phrase widely used amongst beginning teachers to describe the lack of support in their role:

I don't believe I have had much support. I was thrown in on day 1 to sink or swim. I needed to form my own networks with other teachers to help me out.

Many teachers saw themselves as exempted from the expectation of support for a variety of reasons. In one example the teacher does not expect support due to their teaching at an international school:

I was not supported at all, but was in an international school where it's generally expected you are already experienced to some degree. I started teaching prior to completing my teaching qualifications.

Another teacher placed the reason for a lack of support upon their status as a mature age student:

I feel I was very poorly supported in my first year of teaching. I feel this was because I was a mature age student and thus not seen as a 'new' graduate. There was an expectation that I did not need and was not offered support from my school employer. I sought out support through other teachers in my year level, although they were often too busy to help, and my most significant support came from a friend who had been a teacher for many years. She worked with Ed Q and was able to answer most questions I had, although from a distance.

Taken in combination with the SiAS results a strong case can be made that there are many beginning teachers receiving effectively no support. The diverse reasons for this require further investigation, but hypotheses can be listed as: (i) casual or short-term contracts making access to support difficult; (ii) poorly implemented programs with negligible impact; (iii) specific cases such as mature age students and specialised types of schools; and (iv) small school communities (such as those often found in remote areas) where a teacher may be the only practitioner in their discipline.

Continuity of the University Community

In the SiAS survey only 34% of teachers considered “follow-up from your teacher education institution” as a form of support they received (McKenzie et al., 2011). This suggests that 66% had a perception of having received no support whatsoever from their institution after leaving. In the survey described here questions were asked to focus not on perception of institution support, but on the continuation of contact with members of their university cohort. The results showed that only 53% of beginning teachers maintained any contact with their university cohort.

If there is to be support for beginning teachers independent of the school system then universities are strong candidates to take responsibility. Pre-service teachers in universities typically spend a number of years studying with a cohort of their peers prior to commencement of service. Once they leave university they are separated from this community, in particular the valuable ‘weak connections’. There is the potential for universities to establish communities that commence in the final years of study, and are aimed at maintaining continuity across the transition into service. Universities are in a position to harness the potential of digital technologies to support graduates as they move into the world of work. Beginning teachers have access to digital devices to enable online interaction anytime, anywhere.

The two most popular ways in which these teachers maintained contact with their university community were through email (71%) and Facebook (47%). The use of email suggests one-to-one communication, and a further analysis of the use of Facebook for contact suggests that this social media platform was used largely as a proxy for email (i.e. accessing personal messaging facilities within this platform), rather than in its capacity to support large communities and activities such as resource sharing.

The Use of Facebook by Beginning Teachers

There was an expectation that the age of respondents would be a significant factor in determining Facebook use, with younger teachers using this service more. It was similarly expected that more recent graduates would have higher use of Facebook. No such significant factors were found, however this result is inconclusive due to the small sample size with distribution focussed on teachers currently in their first year.

There was a further expectation prior to the survey that there would be a high incidence of Facebook use to maintain contact, based upon anecdotal evidence of large communities of pre-service teachers within this social media platform. Respondents who listed Facebook as a medium of communication (47%) were further queried “to your best estimate, how many of your university colleagues are you still in touch with through Facebook?” The results seen in Table 5 show a trend suggesting that most respondents use Facebook for either individual or small groups contact with colleagues, with 73% of them in touch with fewer than 20 contacts and 46% in touch with fewer than 10 contacts. This contradicts the anecdotal evidence of large communities, however further investigation is required to determine the nature of this usage. The question remains as to whether the use of Facebook tends towards discussion within small groups or whether these results arise from a number of one-to-one discussions between teachers.

The Design of an Online Community for Teachers

Beginning teachers were queried about their perceptions of what would be useful to find within an online community of support. They were given closed questions (rating of specific features) and given the open challenge “if you had a limitless budget to design a mobile application to support teachers in their first year, and a strong community of teachers to use it, what would you include?” In the Likert scale responses to closed questions (Table 6) the ability to access an FAQ of peers and the ability to ask questions of experienced teachers were both found to be useful with 95% support. The short answer responses to the open question further supported the notion that teachers view utility in both of these suggestions. The most surprising finding in the short answer responses was the request for help in finding and accessing quality resources, typified by a teacher asking for:

LOADS of resources and ideas for lesson planning which are highly relevant and engaging. This was where I struggled the most and ended up just creating all my own resources which took up soo much time!!

This explicit call for resources was observed in 21 of 46 responses. One teacher produced a comprehensive response that covered this call for resources amongst many other requests:

- A chat service (or very quick response) service between beginning and experienced teachers, which is relevant to the year level/subject area of the beginning teacher
- A comprehensive and well organised list of online links to assist beginning teachers (with resources, communities, etc)
- Free resources for beginning teachers (which can be easily printed/used in the classroom)
- Example lessons plans, unit plans, work programs, etc for beginning teacher in every subject area
- An annotated version of each curriculum document (or some way to help [beginning teachers] make sense of them easily!)
- Forum areas organised for different subject areas (which also involves experienced teachers to help provide advice)
- Easy access to industry organisations
- Easy informatio about further study/support options for beginning teachers
- Explanations of how policy changes, etc would impact us
- Clear information about rules for beginning teachers in regards to hours of work, planning time, etc.

The call for resources is interesting, as there are many resources that have been developed to support teachers and many of these are available online. Given the large supply of resources it suggests that there is a problem for beginning teachers in accessing these resources possibly through difficulty in finding specific quality resources or even knowing that such online resources exist.

Teachers took this short answer question as an opportunity to compile a list of all the things that they wished they had known at the start of their first year:

FAQ, free resources, links to useful websites, opportunity to ask experienced teachers questions, links to cheap suppliers of resources such as whiteboard pens that beginning teachers need to buy before starting school and having access to their classroom budget, lists of useful online resources ie. ipad apps and online educational games.

The suggestions provided by respondents point to the potential for much greater support to be delivered through online modes. There is strong support for both online support from experienced teachers and an FAQ platform for all beginning teachers.

Potential for Online Community Knowledge-Sharing for Beginning Teachers

Whilst the design of a potential online support for beginning teachers is beyond the scope of this paper, there is potential to propose some foundational ideas based upon what we refer to as a 'community knowledge-sharing' approach, drawn from a successful example found in the information technology (IT) professional community. The rationale for proposing this idea are that the recurring themes within the literature and the survey are of continuity (of the university community) and of collegiality (between beginning teachers and with experienced teachers).

Case study: Online Community Support in the IT Profession

The IT profession has had success in establishing online and sector-wide networks of support in a way that has not been attempted by the teaching profession. This is typified by the website Stack Overflow (<http://stackoverflow.com>), a website established in 2008 for IT professionals to help one another. The paradigm for Stack Overflow is community knowledge-sharing in which IT professionals help one another through a highly refined question and answer format (Treude, Barzilay, & Storey, 2011). The website combines a typical Q&A format with aspects of gamification (badging and point scoring) and community engagement (commentary on questions and answers, edits, voting up and down).

The Stack Overflow community is widely recognised as being extremely successful, with over 2,000,000 users (<http://stackoverflow.com/users> last accessed 11th October 2013) and over 5,800,000 questions (<http://stackoverflow.com/questions> last accessed 11th October 2013). Over 92% of questions that are asked get answered, and the median time for having a question answered on the site is 11 minutes (Mamykina, Manoim, Mittal, Hripcsak, & Hartmann, 2011). This success can be attributed in part to having developed an active corps of experts, all of whom are volunteers who answer the majority of questions on the site (Pal, Chang, & Konstan, 2012).

The motivation for this brief case study is to posit the possibility of a similar portal in which the success of Stack Overflow might be replicated within the domain of education professionals in Australia. The suggestion is for a website in which teachers might receive expert advice on their questions within minutes of asking it. Whilst there is clearly a difference between the problems encountered by IT professionals and those encountered by teachers, some of the lessons from this success are applicable to the design of the next generation of online teacher support networks. Mamykina et al. (2011) identify reasons why Stack Overflow is successful:

- (1) *Making competition productive*: Using gamification and a reputation system to harness all types of participation. Creating a culture of to-the-point answers.
- (2) *Credibility in the community*: The developers have credibility in the IT community, beginning with a small dedicated community to establish the culture on the website before expanding. This fits the model espoused by Shirky (2010) that the culture you have with 100 users in an online community is the same culture that you will have with 1,000,000
- (3) *Evolutionary approach to design*: The developers establish a continuous feedback loop with their users to improve usability and features.

The community knowledge-sharing approach as typified by Stack Overflow is proposed as the basis for an approach to supporting beginning teachers. Whilst significant design work would be required to map the idea into the educational domain, it presents as a candidate for addressing the support needs of teachers.

Conclusions

Current work is underway to conduct a pilot study of the online community knowledge-sharing model across multiple teacher education institutions in order to establish effective design principles. The end goal of the research is a community of teachers that provides collegiality and support for one another in the 21st century context of the profession.

In summary, the need to support beginning teachers beyond the current school-based approach is recognised with the observation that many teachers are being left unsupported. Greater collegiality in the profession has been identified as a key goal for supporting beginning teachers. The continuation of the university community from pre-service into service has been acknowledged as a potential source of collegiality for beginning teachers. Beginning teachers also report that greater connection with experienced teachers is desired.

The approach of an online community knowledge-sharing platform has been presented as a way of synthesising a solution to the support needs of beginning teachers, drawing upon an example from another discipline. A case study of such a platform has been described. The paper has aimed to lay a foundation for future designed based research, where the context of current support and the needs of beginning teachers have been established.

References

- Australian Primary Principals' Association. (2006). Reports on the experiences of beginning teachers. Kingston, ACT.
- Barab, S., Kling, R., & Gray, J. H. (2004). Designing for virtual communities in the service of learning: Cambridge University Press.
<http://dx.doi.org/10.1017/CBO9780511805080>
- Barrera, A., Braley, R. T., & Slate, J. R. (2010). Beginning teacher success: An investigation into the feedback from mentors of formal mentoring programs. *Mentoring & Tutoring: Partnership in Learning*, 18(1), 61-74. <http://dx.doi.org/10.1080/13611260903448383>
- Beutel, D. A., Adie, L. E., & Hudson, S. M. (2011). Promoting rural and remote teacher education in Australia through the over the Hill project. *The International Journal of Learning*, 18(2), 377-388.
- Bickmore, D. L., & Bickmore, S. T. (2010). A multifaceted approach to teacher induction. *Teaching and Teacher Education*, 26(4), 1006-1014.
<http://dx.doi.org/10.1016/j.tate.2009.10.043>
- Boser, U. (2000). A picture of the teacher pipeline: Baccalaureate and beyond. *Education Week: Quality Counts 2000*, 19(18), 16-17.
- Boud, D., & Hager, P. (2012). Re-thinking continuing professional development through changing metaphors and location in professional practices. *Studies in Continuing Education*, 34(1), 17-30. <http://dx.doi.org/10.1080/0158037X.2011.608656>
- Buchanan, J., Prescott, A., Schuck, S., Aubusson, P., Burke, P., & Louviere, J. (2013). Teacher retention and attrition: Views of early career teachers. *Australian Journal of Teacher Education*, 38(3), 112-129. <http://dx.doi.org/10.14221/ajte.2013v38n3.9>
- Carter, M., & Francis, R. (2001). Mentoring and beginning teachers' workplace learning. *Asia-Pacific Journal of Teacher Education*, 29(3), 249-262.
<http://dx.doi.org/10.1080/13598660120091856>
- Chilcott, T. (2013). Most teaching graduates fail to secure jobs. Retrieved November 11, 2013, from <http://www.couriermail.com.au/news/queensland/most-teaching-graduates-fail-to-secure-jobs/story-e6freoof-1226557050784>

- Collins, T. (1999). Attracting and retaining teachers in rural areas (ERIC Digest). Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools.
- Committee for the Review of Teaching and Teacher Education (Australia). (2003). Australia's teachers: Australia's future: Advancing innovation, science, technology and mathematics. Australian Centre for Educational Research (ACER) Retrieved from http://research.acer.edu.au/cgi/viewcontent.cgi?filename=2&article=1000&context=tll_misc&type=additional.
- de Laat, M., & Schreurs, B. (2013). Visualizing informal professional development networks: Building a case for learning analytics in the workplace. *American Behavioral Scientist*, 57(10), 1421-1438. <http://dx.doi.org/10.1177/0002764213479364>
- DeAngelis, K. J., Wall, A. F., & Che, J. (2013). The impact of preservice preparation and early career support on novice teachers' career intentions and decisions. *Journal of Teacher Education*, 64(4), 338-355. <http://dx.doi.org/10.1177/0022487113488945>
- Dede, C., Ketelhut, D. J., Whitehouse, P., Breit, L., & McCloskey, E. M. (2009). A research agenda for online teacher professional development. *Journal of Teacher Education*, 60(1), 8-19. <http://dx.doi.org/10.1177/0022487108327554>
- Ewing, R., & Manuel, J. (2005). Retaining quality early career teachers in the profession: New teacher narratives. *Change: transformations in education*, 8(1), 1-16.
- Fetherston, T., & Lummis, G. (2012). Why Western Australian secondary teachers resign. *Australian Journal of Teacher Education*, 37(4), 1-20. <http://dx.doi.org/10.14221/ajte.2012v37n4.1>
- Google & IPSOS. (2013). Our mobile planet Australia: Understanding the mobile consumer, from <http://www.thinkwithgoogle.com/mobileplanet/en/downloads/>
- Hanson-Smith, E. (2006). Communities of practice for pre-and in-service teacher education. *Teacher Education in CALL*, 301-315.
- Herrington, A., Herrington, J., Kervin, L., & Ferry, B. (2006). The design of an online community of practice for beginning teachers. *Contemporary Issues in Technology and Teacher Education*, 6(1), 120-132.
- Hinds, M., Williamson, J., & Gardner, C. (2011). 'Teaching... I can see myself not doing that forever': The beginning teacher experience-a study of the changing career expectations and required competencies of beginning teachers. Paper presented at the Australian Teacher Education Association Conference (ATEA 2011), Victoria University, Melbourne.
- Hoekstra, A., & Korthagen, F. (2011). Teacher learning in a context of educational change: Informal learning versus systematically supported learning. *Journal of Teacher Education*, 62(1), 76-92. <http://dx.doi.org/10.1177/0022487110382917>
- Hudson, P. (2012). How can schools support beginning teachers? A call for timely induction and mentoring for effective teaching. *Australian Journal of Teacher Education*, 37(7), 71-84. <http://dx.doi.org/10.14221/ajte.2012v37n7.1>
- Ingersoll, R. M., & Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers: A critical review of the research. *Review of Educational Research*, 81(2), 201-233. <http://dx.doi.org/10.3102/0034654311403323>
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 159-174. <http://dx.doi.org/10.2307/2529310>
- Lave, J., & Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*: Cambridge University Press.
- Long, J. S., McKenzie-Robblee, S., Schaefer, L., Steeves, P., Wnuk, S., Pinnegar, E., & Clandinin, D. J. (2012). Literature review on induction and mentoring related to early career teacher attrition and retention. *Mentoring & Tutoring: Partnership in Learning*, 20(1), 7-26. <http://dx.doi.org/10.1080/13611267.2012.645598>

- Loughran, J., Brown, J., & Doecke, B. (2001). Continuities and discontinuities: The transition from pre-service to first-year teaching. *Teachers and Teaching: Theory and Practice*, 7(1), 7-23.
- Macdonald, D. (1999). Teacher attrition: A review of literature. *Teaching and Teacher Education*, 15(8), 835-848. [http://dx.doi.org/10.1016/S0742-051X\(99\)00031-1](http://dx.doi.org/10.1016/S0742-051X(99)00031-1)
- Mamykina, L., Manoim, B., Mittal, M., Hripcsak, G., & Hartmann, B. (2011). Design lessons from the fastest q&a site in the west *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 2857-2866). New York, USA: ACM.
- McCluskey, K., Sim, C., & Johnson, G. (2011). Imagining a profession: a beginning teacher's story of isolation. *Teaching Education*, 22(1), 79-90. <http://dx.doi.org/10.1080/10476210.2010.542807>
- McCormack, A., Gore, J., & Thomas, K. (2006). Early career teacher professional learning. *Asia/Pacific Journal of Teacher Education*, 34(1), 95-113. <http://dx.doi.org/10.1080/13598660500480282>
- McKenzie, P., Kos, J., Walker, M., Hong, J., & Owen, S. (2008). Staff in Australia's Schools 2007: Main report on the survey. Australian Council for Educational Research (ACER) Retrieved from <http://www.ada.edu.au/ADADData/reports/ADA.REPORT.01153-6.pdf>.
- McKenzie, P., Rowley, G., Weldon, P., & Murphy, M. (2011). Staff in Australia's schools 2010: Main report on the survey. Australian Council for Educational Research (ACER) Retrieved from http://foi.deewr.gov.au/system/files/doc/other/staff_in_australias_schools_2010_main_report_on_the_survey.pdf.
- McLoughlin, C., & Lee, M. J. (2010). Developing an online community to promote engagement and professional learning for pre-service teachers using social software tools. *Journal of Cases on Information Technology (JCIT)*, 12(1), 17-30. <http://dx.doi.org/10.4018/jcit.2010010102>
- Munsch, T., & Boylan, C. R. (2008). Can a week make a difference? Changing perceptions about teaching and living in rural Alaska. *Rural Educator*, 29(2), 14-23.
- Northfield, J., & Gunstone, R. (1997). Teacher education as a process of developing teacher knowledge. *Teaching about teaching: Purpose, passion and pedagogy in teacher education*, 48-56.
- Pal, A., Chang, S., & Konstan, J. A. (2012). Evolution of experts in question answering communities *Proceedings of the Sixth International AAAI Conference on Weblogs and Social Media* (pp. 274-281). Dublin, Ireland: Trinity College.
- Plunkett, M., & Dyson, M. (2011). Becoming a teacher and staying one: Examining the complex ecologies associated with educating and retaining new teachers in rural Australia. *Australian Journal of Teacher Education*, 36(1), 32-47. <http://dx.doi.org/10.14221/ajte.2011v36n1.3>
- Roberts, P. (2005). Staffing an empty schoolhouse: Attracting and retaining teachers in rural, remote and isolated communities. Sydney: NSW Teachers Federation.
- Sanford, J. P. (1988). Learning on the job: Conditions for professional development of beginning science teachers. *Science Education*, 72(5), 615-624. <http://dx.doi.org/10.1002/sc.3730720507>
- Sharplin, E. (2002). Rural retreat or outback hell: Expectations of rural and remote teaching. *Issues in Educational Research*, 12(1), 49-63.
- Shirky, C. (2010). *Cognitive surplus: Creativity and generosity in a connected age*: Penguin Press.
- Sim, C. (2006). Preparing for professional experiences incorporating pre-service teachers as "communities of practice". *Teaching and Teacher Education*, 22(1), 77-83. <http://dx.doi.org/10.1016/j.tate.2005.07.006>

- Skilbeck, M., & Connell, H. (2004). *Teachers for the Future: The Changing Nature of Society and Related Issues for the Teaching Workforce*. Canberra: Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA).
- Treude, C., Barzilay, O., & Storey, M.-A. (2011). How do programmers ask and answer questions on the web? (NIER track). Paper presented at the Software Engineering (ICSE), 2011 33rd International Conference on, Honolulu, Hawaii, USA.
- Varah, L. J., Theune, W. S., & Parker, L. (1986). Beginning teachers: Sink or swim? *Journal of Teacher Education*, 37(1), 30-34. <http://dx.doi.org/10.1177/002248718603700107>
- White, S. (2011). Preparing teachers for rural and regional settings: the RRRTEC project. *The Curriculum and Leadership Journal*, 9(20). Retrieved from <http://www.curriculum.edu.au/leader/articles,57.html?issueID=12471>

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