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Abstract

Action research has an extensive history of being used to improve teaching and learning in many different professional settings, for example, schools, colleges, universities health and social care services. Educational action research embodies a process that necessitates honesty and openness and which lends itself to the betterment of one's practice; in the current e-learning climate, where education is rapidly changing and the role and practice of the educator is evolving yet uncertain, action research has never been more valuable. This article explores and presents how social media have been used to enhance the teaching of action research and also how students gained an understanding, appreciation and an evolving experience of action research. Exploring the intricate relationships between action research, new technologies and the learning that took place during an Understanding Action Research module, this article is written from the perspective that the module team was interested in ensuring that students acquired

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a fully rounded understanding of action research in order to utilize it in the improvement of their own practice.

Keywords

action research, education, learning, social media, teaching, web technologies

Introduction

Action research has an extensive history of being used to improve teaching and learning in many different professional settings, for example, schools, colleges, universities and health and social care services. Educational action research embodies a process that necessitates honesty and openness and which lends itself to the betterment of one's practice. In the current e-learning climate, where education is rapidly changing and the role and practice of the educator is evolving yet uncertain, action research has never been more valuable. As technology further opens up the world of education – making educators think about the opportunities, but also about the possible uncertainty and disruptive effects it might bring to education (Kop, 2008) – action research has the potential to play an important role in improving and developing online teaching practice. It has the capability to enable educators to explore how they might enhance their own practice with the new interactive, communicative and social possibilities that online education brings. However, whilst acknowledging the macro, systemic and theoretical influences and implications for improving online teaching practice, it is also important to zoom inwards to the micro dimension, to consider the role these new technologies might play in improving and developing an understanding of action research in situ – its direct impact on learners and their learning and educators and their reflexive practice.

In light of this, we have chosen to look more closely at how social media can enhance the teaching and learning of action research. This article focuses on the use of new Web 2.0 technologies and our work on an action research module in the ABCD project. ABCD is a programme using Web 2.0 technologies and social media to up-skill people who are 'under-employed' in South Wales, UK. *Understanding Action Research* is one module of this online programme and in this article we explore and present how social media have been used to enhance the teaching of action research and also how students gained an understanding, appreciation and an evolving experience of action research. Exploring the intricate relationships between action research, new technologies, the learning and teaching that took place during the module, this article is written from the perspective that the module team was interested in ensuring that students acquired a fully rounded understanding of action research in order to utilize it in the improvement of their own practice.

What is action research?

Even a brief review of the literature reveals multiple definitions and explanations of action research. Yet most of these (not all) centre around the relationship between 'action', the doing and 'research' including informed, critical thinking (Winter & Munn-Giddings, 2001). Other authors place emphasis on improvement, through people understanding their situations better and changing them to reflect more justifiable, moral practices (Elliott, 1991; Greenwood, 1984; Kemmis & McTaggart, 1988). Greenwood and Levin (1998) add the notion of 'self-direction' to action research processes that requires the conjunction of three aspects: research, action and participation. The purpose of the enterprise is fundamentally social, with social change that enhances communities or peoples' ability to act autonomously and constructively and to 'keep improving their capacity to do so' (Greenwood & Levin, 1998, p. 6). In what is regarded as a seminal text, Reason and Bradbury (2001) acknowledge that there is no short answer or definition of the term, and that it has been used in many different ways. They understand and use the term action research to describe a broad range of approaches to inquiry which are participative, grounded in experience, and action-oriented.

Action research involves people working together in order to democratically and collaboratively produce knowledge that can be used to produce accountable change. Significantly, the power to define valid knowledge is placed with action researchers themselves, rather than those traditionally called researchers (in either academic or corporate research roles). Reason and others (Reason & Bradbury, 2001; Reason & Hawkins, 1988; Reason & Heron, 2001) have explained a key feature of the social and personal elements of action research as research done *with* others and not *on* others, emphasizing democratic and collaborative values.

In curricular terms, programme developers and educators face challenges when planning action research modules/programmes; in particular, in reconciling complexity and diversity – understanding the notion of change as self-organized adaptation; the role of agent interaction; inherent unpredictability and sensitivity to initial conditions; feedforward and feedback; self-organization and system stability (Phelps & Hase, 2002) – with sufficient clarity that students are able to learn meaningfully. This impacts directly upon process (teaching and learning) and there are congruent links between the aims of action research and learning how to become action researchers. Specifically, action research, learning and teaching share key characteristics with practice. They aim to promote and encourage self-reflection relating to personal, social and practice experiences. This reflection is critically informed and systematic rather than ad hoc. The relationships with co-researchers and colleagues are productive and constructive, based on democratic values that encourage participation, diversity and honesty. Improvement in practice is regarded as an indicator of the dynamic process and links between critical thinking, appraisal and practical action.

So how can programme developers help educators, and in their turn, how can educators help students learn to become action researchers? Essentially, through engaging in learning activities that promote individuals and groups to:

1. develop a plan of critically informed action to improve what is already happening;
2. act to implement the plan;
3. observe the effects of the critically informed action in the context in which it occurs; and
4. reflect on these effects as a basis for further planning, subsequent critically informed action and so on, through a succession of cycles (based upon Kemmis & McTaggart, 1988).

Learning, teaching and social media

In the past 10 years a new learning environment has emerged due to the proliferation of Information and Communications Technologies, the emergence of social media, the convergence of technologies such as television, telecommunications, mobile and wireless technologies and computers. People are now using social media in their everyday lives and when students see materials, which use web tools such as wikis, podcasts, blogs, they are no longer taken aback, but are positive and believe these tools can help them to learn (Conole, de Laat, Dillon, & Darby, 2008). New social media have already shown how they influence people outside education, as they seem to be particularly good at strengthening the 'weak ties' between people (Jones, Ferreday, & Hodgson, 2008) and generating streams of connections and interactions between people, interwoven with information, resources and digital artefacts on social networks. They have the potential to form a bridge between the informal and formal (Carroll, Kop, & Woodward, 2008) to create a holistic learning experience.

These technological developments parallel with a growing need to make education more adaptive and people-oriented rather than predictive. Barnett (2002) would like to see curriculum and pedagogy to move away from knowledge and skills to be a 'pedagogy for human beings' as we now live in a world characterized by 'super-complexity', uncertainty and change. He values education which involves learners thinking about and confronting the uncertainties and dilemmas in their lives and in their field of knowledge, in which the human being itself would be implicated. Moreover, Wheelahan (2005), when discussing vocational education, indicated the importance of an integration of learning and living in an ever changing world to give students the scaffolding to consider propositional knowledge – an intellectual tool to be used in practice.

For educators, the learning curve – that comes with using these technologies – might be steep as they have been conditioned in traditional professional patterns. The technology might push them to adapt to a change in their role as providers of

content to one of facilitator or supervisor. However, some head teachers of schools have started using their students to teach the teachers the intricacies and opportunities for education offered by new technology. Change has taken place so rapidly in the last decade that it has become near impossible for teachers to go with the flow and adapt to the next level of new technology (Dodson, 2006). Ronald Barnett pointed out that in this world of 'supercomplexity' the world of work is changing: 'Work, communication, identity, self, knowing and even life: the meaning of fundamental concepts are no longer clear in a world of change' (Barnett, 2002, p. 9). It has been part of the academic brief over many decades to research changes in society and develop policies and practice to reflect and respond to these changes within educational institutions, but in reality, the accelerated pace of technological change is problematic and will require some professional adaptation from educators and from learners alike. Our research addressed the question on whether the combination of action research with social media as part of the educational process would enhance the learning and teaching experience.

Web 2.0 and social media in action: The ABCD project

The ABCD project was a programme for people who were 'under-employed' in small, medium and social enterprises in South Wales, UK. The ABCD programme was initiated by the Department of Adult Continuing Education at Swansea University and was a two-year-long HE level 1 programme that was put online to accommodate students (i.e. workers) who could not feasibly follow the more traditional style classroom based course due to geographical distances and work commitments. The programme included, a face-to-face module to familiarize the students with the new technologies, in addition to online modules on 'Information Literacy and Critical Thinking', 'Reflection, Innovation and Creativity', and 'Understanding Action Research'. This article focuses on the module *Understanding Action Research* and is twofold:

1. It explores the approach of the programme management and module team in the way the technological tools were being used. In doing so, it highlights how Web 2.0 technologies and social media might be integrated with the action research content to encourage action and interaction and a making of connections. Educators (i.e. tutors) were encouraged to be facilitators; providing the tools for learning and signposting learners to resources while the creation of activities that would encourage learners to direct their own inquiry-based learning were also incorporated. The learners would have access to a learning environment that they could personalize, where they would be more autonomous than in a traditional learning setting. Moreover, it was envisioned that they would be given the opportunity to direct their own learning by using Internet-based collaborative tools and online networks. Indeed, the blog, the wiki and the chat tools were chosen for their participatory nature. The tools were used to slowly enculturate learners in a community of action research practice, in which they

were encouraged to plan their own enquiries and research project and reflect on their actions. The tools were used to enhance the students' ability to reflect and interact with their peers and the educators, and to create digital artefacts and a research project as part of the process.

2. The article gives a flavour of the level of 'presence' and 'place' in the design and development of the online programme. The physical setting, the activities and the meanings are three components which have been noted to promote a sense of place (Relph, 1976). Aware of these from the onset, the ABCD development team tried to create a place (a learning environment) that was social, relaxed, encouraging, supportive and inspirational, a place where dialogue could take place and all interactions and content could easily be seen, accessed, followed and engaged with. To achieve this, videos and visuals were added to the mix of tools named earlier in order to generate a form of 'social presence' that Anderson (2007) included as an important factor in successful online teaching and learning. Moreover, two other forms of presence were also fostered when developing the programme: cognitive presence, that ensures a certain level of depth in the educational process, and teacher presence as Anderson posits that deep and meaningful learning results if these forms of presence are also given importance.

As the following sections will demonstrate, the real test was taking the students beyond merely using technologies and giving them optimal control for enlarging on their own experience of action research (i.e. deepening their understanding of the democratic and collaborative values needed to work with others in order to produce new knowledge and change).

Blogs as tools for reflection and feedback

On the ABCD programme, the blog took two forms, that of a private journal (i.e. online diary) and that of a discussion forum. In the private journal, students could write freely from a personal point of view and only the educators on the module could access these in order to provide feedback, encouragement and to answer any questions raised. This form of blog was primarily used to encourage the students to reflect on what they were learning and experiencing on the module; through their interactions, reflections and also their actions in the form of the production of artefacts. The reflective blogs were also used as the educator's regular personal feedback channel to offer support and encouragement to the student, aiming at facilitating the development of iterative cycles of reflection, planning of new activities and critical informed action.

We have highlighted one example of the use of the reflective blog in the context of action research as a subject for study and a method of researching. The technology allowed students to tease out the threads associated with the concept of reflection (with the support of the educator) whilst also providing them with an accessible and direct way of putting this understanding into practice through

reflecting on their own experiences and learning, the planning and execution of their research project on the module. Reflection is an important component of the action research cycle and an important component in any learning process and by using the journal to encourage reflection and making sense of the action research cycle they were actually practising what they were learning about.

I am at the point of reflecting on my reflecting and yes – on the whole – I think my diary has fared quite well. Sometimes I wonder why I'm putting an entry in but now I see that it's as a reminder – in fact you can't put too much in as you need to recollect as much as possible! (Student 1)

The private journal, I can reflect on a lot of my progress through the course and this place, well, I can retreat, I can feel comfortable, safe. I know the tutors have access to that so I can be open and honest and I'm sure that some of the lecturers can vouch for the fact that I have been quite honest. (Student 8)

The private journal provided the students with a very personal and immediate way of expressing their thoughts, ideas and feelings and it became clear that in doing so they were not only probing deeper into subject matter but more importantly they were experiencing first hand the action research process and what it takes to be an action researcher. It is about making connections, it is about transparency, being democratic and collaborative; it is about making sense of existing knowledge and teasing out and creating new knowledge. As the following example demonstrates, the students were making connections within their own personal situations as a way of understanding the subject area.

One of my hobbies is to Draw and so that helps me relate to a picture, but like AR making a drawing is combination of methods and is always on going... You have to do a bit of research on what you would like to draw, make sure you have all the right equipment. Then when you start to draw, like with Action research is on going, you'll keep coming back to the drawing, to add new things, or take away parts of the drawing that don't quite work, even when you've finished the drawing, you'll will analysing the drawing and thinking of ways you can make or improve on the drawing next time, Like with AR, you can invite people/groups to look at your work, and give them insight on what they think, and offer feedback and advise. (Student 6)

The private journal was a place where students were able to explore and express their thoughts and feelings and begin planning their research. As the findings show, it was the added input (i.e. feedback and comments) from the educators that moved and guided the students further in their reflection and understanding of the subject and spurred them into action; the production of digital artefacts – research questions, proposals, reports, etc. The private journal permitted all educators to have a strong presence on the module and in doing this, gave them the flexibility to

support the students in developing their own reflective processes. As the students noted:

Just wanted to say, journal, that it is great that Tutor 1's feedback to the students is so comprehensive so far – the fact that I can not only read and absorb what other students' interpretations are, but read Tutor 1's extensive follow-ups too, helps me understand the subject so much more richly. Thanks Tutor 1! (Student 3)

Thanks again for the feedback. I am happy with the subject matter for the project now – I really thought that I needed to change the world with my assignment when in fact need to start the ripple effect! I'm doing quite a bit of reflective thinking at the moment so the assignment is purely thought. I'd like to say that I really enjoyed this module, your openness and positive support. Thanks/Diolch! (Student 1)

From these findings, we can see how the private journal promoted both engagement and motivation in learning amongst the students. It gave students (and tutors) a comfortable and very accessible way to ask (as well as appreciate) challenging questions and in doing so, enabling them with the opportunities to make personal sense of a diverse set of experiences. As Tutor 1 envisioned:

Am impressed with how much tutor 2 is responding to the students and impressed with the level of engagement by the students – I sense that it is gaining momentum – I am visualizing the slow start – the chaos – and next a sort of settling down – and then some surges of learning and reflection – with some chaos thrown in – then back to a settled pattern and some head down work and more reflection, ending on a real high note with achievements and learning. (Tutor 1)

Indeed, one of the main benefits of the private journal was its role in enhancing the students' engagement in the module. It helped create a place where both students and tutors could clarify their thinking and develop their own ability to communicate their thoughts, feelings and ideas. Even though sometimes difficult – floundering, unsure, inarticulate – these questions (and the interactions generated from these questions) got students engaged and pushed them forward in their own learning.

It was clear from observing the ABCD environment, that the higher the number of interactions in the diary between student and tutor, and the higher the intensity of these interactions and the quality of the tutor's feedback, the higher the level of reflection, motivation and learner engagement as displayed in Table 1.

The journal's success or not depends on the use of the journal by tutor and students. Where high levels of interactions coincided with high quality feedback, it has been one of the most successful tools used on the course and we would recommend its use in future courses.

Table 1. Relation of level of interactions and quality of feedback in journal

	Low quality tutor feedback in journal	High quality of tutor feedback in journal
Low level of interactions in journal	Low level of reflection, motivation and learner engagement	Medium level of reflection, motivation and learner engagement
High level of interactions in journal	Medium level of reflection, motivation and learner engagement	High level of reflection, motivation and learner engagement

The discussion forum as tool for communication

With the discussion forum, the impetus was less at the individual level and more directed by the group; here the students engaged with one another in the creation and sharing of thoughts and ideas whilst the forum also encouraged them to build relationships. In this form of blog, every student had the means to make a posting and every student and educator had the choice to read and comment on it. In this network of interactions every student was given the opportunity to make immediate connections, to ask questions, and exchange points of view. In that sense, the discussion forum (i.e. blog) can be described as being very different from the traditional type of learning environment. It has a growing reputation of being a more dynamic, informal and enriching way of gathering and sharing information and of creating new knowledge. It enlivens the content of the more traditional course and In terms of action research, it has provided a crucial step for students in their quest for understanding in this complex and diverse subject. The discussion forum empowered students through enabling them to share their thoughts and ideas whilst also offering them the opportunity to critically reflect and comment on other people’s ideas as shown in these reflections on the use of the discussion board by two of the students:

I made a posting and somebody else has used that to help their understanding. They make a posting and it is like a building block process back and forth to get to an ending where we understand more and we agree as a group on our particular topic/subject. (Student 8)

Student 7, however, questioned the value of receiving other students’ opinions and also wondered about other students’ credibility as a source:

Sometimes other people’s thoughts are just their thoughts and not my thoughts and I think, well I’d rather think about it myself really. If it was coming from somebody with some sort of credibility then you tend to take a little bit more notice of it, but if it

is just another student, you think, well, you know... have they got the right angle here? They could be misleading even. (Student 7)

Although the remarks by Student 7 indicate a scepticism by some students regarding the credibility of the knowledge of their peers, most emphasized that they valued the opinion of 'critical friends' to enhance their learning. As students started to interact and get to know one another, they really started to take on board the more facilitative model of learning where instead of the educator passing on the answers to the student, there was more a dialogue of equals and everyone started to learn from one another. This model was strongly encouraged by the educators (i.e. who listened to the students ideas, challenged them, and helped them to find alternatives) and helped instil within the students the confidence to answer some of their own and other students' questions. Particularly from the work-based perspective of the module, many of the students started to realize that they could be 'critical friends', that they had many of the answers themselves and that their own expertise meant they could help others in their learning. The forums were used to facilitate this communication with a 'critical friend' and the act of being a 'critical' friend and the act of sharing ones ideas and thoughts with a 'critical' friend proved to be an important part of understanding the whole action research ethos.

Hi Student 1... Looks like you have quite a challenge. From an action research point of view I'm wondering what you could do in a cyclical way that can be 'fine tuned' over time. Are you considering... Although I've posed questions I think they are more points to mull over. Hope this helps! (Student 4)

As this extract shows, the discussion forum provided an effective and direct means for students to not only build a relationship with fellow students (i.e. potential critical friends) but also to be a critical friend themselves. Again the communicative experience that the tool affords was helpful in reaching an understanding of the subject.

The wiki for group collaboration

In order to further the ideas of reflection and the making of connections, the wiki tool was also integrated into the action research module to encourage students to work together to untangle difficult concepts and tease out new knowledge and ideas. The wiki can be best described as a cross between a web site and a word document in that it allows people to read and reflect on information on a website whilst also permitting them to join with other people to edit and add to this information. As mentioned earlier, its real strength is in its affordance of collaboration and the fact that the more people become involved the more interesting and potentially comprehensive the outcome. 'Wikis are possibly the social software tool that best represents the fact that the greater the user base, the greater the potential for

real knowledge construction' (Guth, 2007). In the action research module, the wiki was primarily used to encourage students to work together to create definitions, explore complex issues such as ethics and tease out answers to questions posed by the educators. Participating on ABCD, each student had the autonomy to input information into the wiki whilst also having the power to amend, remove or change the existing information. In encouraging this, each student had the opportunity to exercise and develop both their democratic and collaborative values. However, initially, the majority of students were reluctant to work 'wholly' together; they each contributed to the wiki but on a very individual basis. As the students reflected:

Maybe students have been reluctant to amend wikis into one piece because the separate thoughts by separate students may differ to a degree (they should not too much, of course!), so students who are last to contribute have the biggest dilemma. It is vital that the merger of work is from the first, or better still, the second person to add to the wiki, and then each student thereafter. (Student 3)

I don't think we helped each other out and supported each other in the way we should have really... If you are there face-to-face, meeting up and getting on with a piece of work, so you do it, don't you? (Student 7)

I do like the fact that with the wiki I get a little sort of light bulb that comes in from one of the other contributors that makes you think 'ah, I didn't consider that' but I'll think about it again. Whether I add to the wiki myself depends but it certainly helps my thought process. (Student 8)

One of the wiki characteristics that people found difficult to cope with was that anybody was able to change anything other people had written. This might have influenced the level of unease as it required a level of trust in the integrity of other learners: 'I found the wikis a little bit new to use at the start because you weren't sure if you were writing over somebody else's work' (Student 2). Students 8 and 9 said:

it's finding that balance between making sure that people know you've done some work and put some effort in but at the same time not trying to damage what other people have done, because you respect them as a student or as a tutor. (Student 8)

Nobody wanted to kind of mess around with anybody else's work. So it all tended to be again to end up as a sort of discussion that people put their entry on under the last one. Only a couple of times that I've really tried to edit what was already there. But that was specifically when I'd been teamed up with somebody and we had to collaborate and pull something together and it was well understood that we were contributing together. (Student 9)

I put down stacks of information from my perspective. And when I looked back at the wiki several weeks later not much had changed. And in a way I felt a bit guilty because I was thinking, I want to sort of express and give my views as much as I can, I want to but at the same time if nobody is adding to it, am I restricting their sort of creativity? (Student 8)

Despite the slow ‘collaborative’ start for the wiki, it is clear from the above extracts that students were self-reflecting and wanted to improve the situation. Again, feeding into a greater understanding of the action research process it can be said that the wiki has been successful in encouraging a sense of reflection and hence building a familiarization and understanding amongst students on the dynamics of collaborative work. The research showed that wikis are at first challenging tools to work with as they require learners to collaborate with a different mindset than they are accustomed to. People also have to trust each other not to destroy one day what was created the one before. With persistence in their use, however, learners started to understand how powerful and effective they can be in collaborative work. In terms of the content created, the wiki clearly demonstrates how students have engaged and collaborated together to create new content. In some of the early instances, the wiki artefacts, despite being a collaborative and joint creation, appear quite segmented with very individualistic contributions. For example, some of the early ‘definition’ tasks (i.e. in this wiki work together to tease out what you think action research is?) were made up of very individual ideas/discussions instead of one working definition. However, as the module progressed, the educationalists and technologists acknowledging these work patterns, started to redesign the wiki tasks to more comfortably accommodate the individualistic whilst also promoting a joint approach (i.e. work as a group to tease out possible questions which you then might use to trigger/initiate action research in your own workplace, etc.). As a result, the students started to gain more confidence in their usage of the wiki; they started to understand the nature of collaborative work as well as the workings of the wiki tool (especially the history feature) and began to merge their thoughts and ideas into more holistic contributions. In hindsight, the true strength of the wiki demonstrated in this module is how it instilled in students a greater understanding of the dynamics of collaborative work (and the various different levels of collaboration) whilst also providing the scaffolding for the production of some successful collaborative artefacts.

Chat to create social presence

Similarly, the online chat tool played an important role in enhancing learning in that it offered students a synchronous text-based interaction to further explore and share their thoughts on the subject. During the module, all online chats were in real time, but had to be pre-planned to ensure that all students were online at the same time. In terms of enhancing the understanding of action research, the chat tool provided flexibility to express, interact and explore ideas and experiences in a

number of different ways. First, it was used as a tool to help students and educators to get to know one another; in fact, as the findings show a community of students and educators who at the start of the module did not know one another, but by the end were on nickname terms. Second, it was also used as a way of clarifying the understanding of the material (i.e. asking and answering questions, highlighting areas of importance, etc.); the chat room proved a successful place for the educators to be themselves while openly, honestly, critically and productively supporting the students. Finally, it had the potential to tease out information and create new understandings through the sharing process and encouragement by peers (i.e. all students under the educators' guidance could work together in disseminating material further). In the chat room, the students and educators are seen to be very comfortable with one another and are building relationships within their learning community. What was particularly interesting was how each educator and student had developed their own voice and had engaged in the content:

I really did enjoy our online chats and I thought that Tutor 1 and Tutor 2 came across as very nice people, I did feel a bond with them and the students, it's also helped that a few of us students have been doing the ABCD project from the start, so by Module 4, started to get used to each other ways and feelings. (Student 6)

I think without the chat room, more of us students (and tutors) would feel detached from each other. I was also surprised and happy about the moral support from tutors and students... (Student 3)

I really used the chat, yes, I felt that was one of the best parts of [ABCD]. People like Tutor 2 seems a really nice bloke online... towards the end it felt like a group you know, a group of friends then, that's what I got out of it. At the start you didn't know what to say because you didn't know anybody, but towards the end then the group grew sort of thing, we got used to each other's ways... it was new to all of us and then we all grew together... it was a bit of fun as well towards the end. (Student 2)

From the students' experiences on the *Understanding Action Research* module, it seems that the integration of Web 2.0 tools and their use not only by students, but also by educators has changed the overall outcomes of the module. Their use in providing feedback has been especially important: Student 9 said: '[The journal was] very important. Just encouragement... I mean the more that you feel your input is right, the better you feel inclined to crack on with it.' And Student 8 commented:

the action research course has been the best one so far... you can feel the passion that they [tutors] both have for their subject and the encouragement that they give you has been really amazing... the feedback reflects that it has been very positive and very upbeat and I just think that they like you to contribute and that they encourage you really.

The fact that educators also provided reflective feedback on the process of learning was very much appreciated by the students. An example is the following comment by Tutor 2:

I'm also convinced (I mean this supportively) that your lack of clarity is actually a good thing – action research is complex and messy and if you thought it was clear and unambiguous I would be questioning your grasp of it all! The important issue (easier said than done I know) is for you to try and tolerate the ambiguities – I'm convinced that doing so will actually help you begin to see your own understandings AND how they help you make your own choices about how to do action research and learn through and from doing it... please keep letting us know of your concerns. (Tutor 2)

It has changed the ABCD VLE (virtual learning environment) from being just a space to store lectures and word documents, to being a 'place' that holds meaning for the students, a 'place' where students can meet, share, interact and form relationships. In terms of the action research content, the tools and their opportunities for communication and collaboration have enabled students to develop a deeper and more meaningful understanding of the subject. Indeed, the Web 2.0 tools have supported students to move from:

I am struggling a bit with this module as I am reading too many different articles and neither are giving me a better understanding of visualizing action research... (Student 2)

to becoming more confident and motivated; to be able to make their own decisions and to take control of their own learning:

It was difficult to know which entries to choose to read in the links provided after McNiff's, as there were so many different reports and readings to choose from... I am using McNiff as the trunk of my current learning 'tree' and have read through the subsequent links too, in order to gain additional knowledge on the same subject, as they seem to form the same conclusions (I can learn little 'extras' from each one). (Student 3)

Affective issues also seemed to become important as the module advanced, more students enjoyed the experience, and the more engaged and creative they became. As Picard et al. (2004, p. 2) highlighted in their research, 'a slight positive mood does not just make you feel a little better but also induces a different kind of thinking, characterized by a tendency toward greater creativity and flexibility in problem solving, as well as more efficiency and thoroughness in decision making'. Similarly, Greenwood and Levin (1998) explain the value of connections between humour, irony and critical reflection. The absurd often causes us to stop thinking for a moment and to see new connections and patterns that push our thinking in unanticipated directions, often leading to our acting upon tacit knowledge.

Discussion

The educators on the *Understanding Action Research* module were also Web 2.0 learners although they were experienced educators, academics and researchers; this certainly added to the sense of trepidation and also enthusiasm felt as they embarked on this journey of discovery together. This was a journey which resulted in the formation of a 'community of learning', a community where a group of people from different backgrounds, sharing common values and beliefs, were actively engaged in learning together, for and from each other. Such communities have become the template for a cohort-based, interdisciplinary approach to higher education – an advanced kind of educational or pedagogical design (Goodyear, De Laat, & Lally, 2006). Community psychologists McMillan and Chavis (1986) state four key factors to define a sense of community: '(1) membership, (2) influence, (3) fulfillment of individuals needs and (4) shared events and emotional connections.' In terms of action research, the community formed during the ABCD project was made up of students, educators and learning technologists, and there certainly was a sense of loyalty to the group/learning enterprise that motivated a desire to work together, to help others in their understanding and in their achievements. The foundation of this motivation was in the use of the social media. The tools gave the students a great deal of fulfilment through the innovative approaches they afforded, enabling people to explore, connect with others, and to express personal opinions, ask for help or specific information and share experiences, ideas and stories. These feed into and characterize the overall 'enjoyable' experiences (*emotional connections*) of the module (Bonk, Wisher, & Nigrelli, 2004).

Perceiving they were part of a community was fundamental to students learning the concepts underpinning action research. The social media functioned to promote the desired teaching and learning characteristics, such as openness, reflection, support and feedback that allowed the core values of the action research process to flow and to emerge seamlessly. The tools were 'just the job' as they prompted reflection, reflexivity, appreciation of paradox and chaos, collectivism and democracy. This community of learning which included students and the team behind the learning materials, worked in open and creative ways as a collective endeavour as well as at the individual level, with each person responsible for her/his input, learning and achievement. The social media supported individuals and the collective community, enabling so much more than just a course/module to be taught/learned.

At a micro level, there were various degrees of learning occurring throughout the module. For example, the work that students did alone, the dialogue with educators in the journals, the discussions with peers and educators in the forums, the collaboration on the wikis and the live online chats enabling interaction on all levels from cracking jokes to enquiring about health and one's family and also asking for help grappling with complex concepts, running ideas past the group or getting practical tips. Also, the educators were learning behind the scenes as they worked with the learning technologist to develop interfaces that would promote

meaningful learning using imaginative materials in this new learning environment with its diverse and innovative possibilities. One example of this was the use of video by educators to introduce themselves and to help students overcome fears that invariably arise when faced with new material and ideas. These videos were unscripted and conversational, serving to portray educators as approachable and humanized, helping students to identify with the community of learning, as Student 8 emphasizes:

In Action Research I found that Tutor 1 and 2 made great use of the video... They were motivating, and encouraged you to be more positive about your approach as a student. It wasn't like in-her-face close up of one tutor's head and them just monologuing to you. They were talking to each other, which was nice. It was like watching a soap opera. You could sort of empathize, and feel that you were part of it without being directly there, and take a lot out of it. So I liked that. (Student 8)

In summary, the learning and teaching processes afforded by the social media provided new dimensions to online teaching and learning that would have been much harder to achieve without the use of these technologies, and they related well to action research, particularly aspects of reflection, dialogue, change, and feedback. They facilitated a dynamic process with students offering continual feedback to educators and learning technologists and vice versa; a learning and teaching feedback loop which created a strong sense of community and in turn, a very effective way of creating a more in-depth understanding of action research, subject and process.

Conclusion

Social media have much to offer the teaching and learning of action research. As has been discussed in this article, social media have the means to become closely aligned with the action research teaching and learning processes and the action research process and might help the learner in reaching an understanding of the action research cycle of planning actions, acting, observing and reflecting. The very nature of the blog, chat and forum tools help instil in students not only the motivation but also the opportunity to experience the inner mechanics of action research. As McLuhan (1964) once said the medium is the message and through his eyes modern media were seen as extensions of the human senses. We found that the social media played a similar role in this module; they were used by students, almost like probing extensions, to deepen their thoughts, feelings and understanding of the subject and their learning. As mentioned at the beginning of this article, educators face challenges when reconciling the complexity and diversity of action research with a sufficient clarity that enables students to learn meaningfully. A key aim of this article, therefore, was to show, share and promote with other educators, practitioners, and students the potential of social media in the teaching and learning of action research. In many ways, the article is advocating a broader educative

practicum for action research, which encourages a community of learning and provides action research educators and students with opportunities to consider more critically their teaching and learning.

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