Agile Education: Student-driven knowledge production

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In thinking about re-envisioning education's purpose, what are the current realities and why are they inadequate? Western mainstream education is confused. Messages about the purpose of education are conflicting. Phrases of the moment include 'life skills' and 'skills for the knowledge era'. What exactly do they mean and how do these translate into practice in the classroom, if they do at all?

In Australia we hear policy makers, researchers and educators defending goals of the Adelaide Declaration of Nation Goals for Schooling in the 21st Century: "…. when students leave school they should:

- Have the capacity for, and the skills in, analysis and problem solving and the ability to communicate ideas and information, and plan and organise activities and to collaborate with others
- Have qualities of self confidence, optimism, high self-esteem, and commitment to personal excellence as a basis for their potential life roles as family, community and workforce members…." (The Council for the Australian Federation 2007, p.29)

….and so on.

While not many of us would disagree with such virtuous aspirations for the citizens of tomorrow, integrating these skills and competencies within an education system which is steadfastly concerned with individual achievement through indicators, outcomes, state-wide testing and ENTER scores – in recognition of departmental accountability – shifts educators' focus to skill and drill repertoires. Through a charter focusing on the purposes of primary education, the Australian Primary Principals Association (2007, p.1) recently voiced their concern about the impact of state-wide testing and accountability on classroom practices, acknowledging the imperative "to restate the importance of a rich, vibrant classroom and of schools which focus on creative, cooperative and innovative teaching and learning". If the real purpose of education is to prepare students for life in the twenty-first century there is a mismatch between this purpose and how governments support schools and educators to go about achieving it.

To be successful in a world characterised by easy access to information and rapid change in globalised economies, students need to be not only numerate and literate, but additionally creative and adaptive (The New Commission on the Skills of the American Workforce 2006) – they need to be agile. Agile education and the push for benchmarking and standardisation do not align: being agile celebrates diversity, standardisation stifles it. The term *agile education*, as inferred in the title of this paper, will be discussed in further detail to demonstrate how thinking of education in terms of agility can provide a re-envisioning of education's purpose and how to align this with practice.

The Agile movement, based on a formalised approach to software development and project management, is typically associated with the technical domain. In light of the influences instigated by the pace of change in an increasingly globalised world, a group of software development specialists came together in Utah, in 2001, to unify their similar work approaches under one umbrella (Agile Alliance 2001). Their contemporary software development practices had been modified to align with a business world heavily affected by changing technology, and therefore the effects of global activities impending on local markets, or 'glocalisation' as it is sometimes coined – the affect of the US stockmarket on the world and local economies is an example of this: the effects are felt in average homes in all pockets of the Western world.

The software specialists recognised that the plan and execute methods of traditional approaches to software development were leading to failed projects and dissatisfied customers. New approaches based on principles and values focused on "continuous delivery of working software in short timeframes; interactive communication between customers and teams; willing adaptation to changing requirements" (Smith 2007, p.1), and became the hallmarks of an increasing number of contemporary software developers. Agile was born. What might be the point of connecting activities arising in the technical domain with education?

Cross-disciplinary studies can be informative and provide a rich source of ideas. The book by Frans Johansson, *The Medici Effect* (2006), discusses the factors relating to innovative ideas resulting from frenetic activity that occurs at a place in the brain: the 'intersection'. There is a rather enchanting introduction to Johansson's (p.1) argument that innovation is the product of disparate ideas from various, unrelated disciplines, bumping into each other:

> Peter's Café sits on a hillside in Horta, a port city on one of the Azores islands in the middle of the Atlantic Ocean. By the time you reach the docks in the harbour, you can tell that this place is special. Bright, colourful paintings of sailboats and flags line the piers – hundreds and hundreds of them, drawn by visiting captains and crew members from every corner of the globe. Horta is the one place between the Americas and Europe where world-traveling sailors stop to take a break…They come from different backgrounds and cultures. And all of them converge upon the rustic-looking Peter's Café…

When Johansson first saw this place he realised that "the serene environment of the café actually concealed a chaotic universe" (p.1). The café was a guise for world perspectives, a kaleidoscope of colliding ideas. If the agile concept intermingles with the education space, interesting notions of schooling can spin out of the 'intersection': a re-envisioned purpose for education.

Agile Education: Student-driven knowledge production. What does it mean? What does it involve? What are the implications for schools, teachers and students? And, in fact, why bother trying to understand it in the first place?

A useful way of talking about knowledge production in schools is to use the term 'research projects' – although this does not really capture what is involved at a higher level, but it at least gives students and educators a phrase with which they are familiar! And although heavily science focused, and relating to a post-compulsory education audience, the discussions on knowledge production generated by Gibbons et al. (1994) and then the follow-up work by the same authors Nowotny et al (2001), have informed the definition of knowledge production in this discussion. This definition will be expanded and extrapolated somewhat to consider knowledge production as a cross-disciplinary social practice that can be enacted just as effectively by students as adults.

Discussions around knowledge production tend to locate it in the business or research and development sectors – knowledge management, knowledge workers, for example – with educators even tending to refer to knowledge production as an activity undertaken by adults to audit and compile best practice (in knowledge banks). What happens if this practice is enacted by students?

At a basic level school knowledge production takes the form of research – inquiry, problem-based goals and objectives are set and assessed by the teacher. This is referred to as Mode 1 knowledge production by Gibbons et al. (1994). At a deeper level, Mode 2 knowledge production involves an issue or problem to be solved, or a product to be made – there is a practical purpose to the quest. This form of knowledge production builds on the basic, research approach as described but it goes a step further. Mode 2 knowledge production, or projects, involve a heterogeneous set of students and experts, "working together on a problem defined in a specific and localised context….It does not simply apply already existing knowledge, but is shaped by a diverse set of intellectual and social demands that may give rise to the creation of genuinely new knowledge…" (Ang 1999). There is collaboration with a purpose: to create a product, a plan, a video, some sort of school or local community resource which has value, as defined by the stakeholders, for that community.

Connecting schools with their local communities is not a new concept. There are many exciting programs operating between schools and their local communities for different purposes and in a variety of forms. In some instances the objectives are as simple as engaging students or fulfilling the requirements of a citizenship unit. Typically, however, these programs are a deviation from usual classroom lessons, taking place for one or two weeks of the school year. In such cases the benefits to be gained from involvement in Mode 2 projects are not usually the driving reasons for implementing these projects. Having a clear understanding of purpose, as did the Agile Alliance, can assist educators to refine and align their practice with their objectives.

Mode 2 student-driven knowledge production acknowledges the potential to connect students and schools with their local communities through sustainable and reciprocal practices. Why is this important? To be successful in an era of globalised economies and easy access to information, having a collective knowledge about the local community will enable members' access to shared expertise and a considered point of view. Schools are located physically within communities. The strength of communities lies in their ability to harness social and economic activity to support the members within that community. Identity with community builds perspective in the individuals within that community. And perspective allows more considered decision making. "In a world which appears destined to be increasingly shaped by financial and information forces which operate globally, having a rich source of knowledge about itself will

provide a community or region with an improved basis from which to read and act on the global influences that it encounters" (Bigum 2003b).

Furthermore, through supporting students to organise, plan, negotiate, execute and evaluate projects which they have undertaken, habits and skills of importance for the 21st century are addressed. Michael Fullan (2003, p.6), discussing the lack of *depth* of learning objectives currently being advocated by many Western governments, cites Guy Claxton's (2002) suggestions that to develop 'learning power', four aspects of student learning require attention: being resilient (in the form of engagement); being resourceful (strategies and methods); being reflective (to think profitably about learning); and being reciprocal (making use of relationships). Student-driven knowledge production embraces these aspects of learning.

Reflect now on the previously discussed agile concepts as the above habits and skills are teased out a little further to illustrate the potential for a richer level of understanding to be gained through students being involved in Mode 2 knowledge production.

To begin with Mode 2 projects provide students with opportunities to socialise with adults with whom they are not necessarily familiar, including experts who may be required to assist with particular aspects of the project; teachers become one of several sources of knowledge. Students can develop transferable social skills with a broad range of people: skills which will be increasingly important in contemporary society.

Mode 2 projects will often require students to liaise with others outside the school, thereby legitimising the notion that education is not confined to the classroom and within the school fence: it is indeed important to develop 'learning ecologies' (Seely Brown 1999) and extend 'global conversations' (Siemens 2004).

Additionally knowledge production celebrates diversity. Students who may appear to be 'failing' within the rigid requirements of contemporary education are exposed to alternative understandings of what success might entail. It is not uncommon for a classroom teacher to be responsible for the educational needs of a student who is scoring poor results in a variety of tests at school, yet shows remarkable expertise in some non-curriculum area. An example springs to mind of a young teenager who was managing his own lawn mowing business, complete with slick promotional pamphlets to drop into letter boxes, and spreadsheets on his

computer plotting earnings and potential, value-added inclusions to his service. This teenager was being agile within his lifeworld, yet these skills were not valued within education. Outside school the boy was successful, yet at school he was deemed a 'failure' – he did not succeed within the common parameters of what was considered to be educationally worthwhile.

Challenged by how such thoughts might eventuate in practice, and drawing on an awareness of similar re-purposed educational initiatives happening here in Australia and the USA (Buck Institute for Education 2006; Edutopia 2005; EdVisions Cooperative 2006; Rowan & Bigum 2005; The Metropolitan Centre 2006; Thomas et al. 2005), I decided to investigate the issues surrounding the implementation of a *Knowledge Producing Schools* (KPS 2005; Rowan & Bigum 2005) project with a middle-class, mainstream, group of Year 6 students, who had not previously been exposed to such concepts. This research formed the basis of my Master of Education (De Vincentis 2006).

The *Knowledge Producing Schools* (KPS, Rowan & Bigum 2005) initiative is currently the focus of individual study by another Deakin University student and myself. In a small number of schools located in Australia and New Zealand, projects based on local need, as defined by stakeholders, are planned, negotiated and executed by students. Examples include brochures for a local tourism authority, and a promotional video of the local beef cattle industry which was presented by the students to an international cattle farming delegation. Building positive, productive relationships and harnessing expertise external to the school where required is paramount. The end products, which adhere strictly to a quality outcome, are of value to stakeholders external to the classroom (Rowan & Bigum 2005). Community building through collaboration and constant re-evaluation of the project is imperative. KPS celebrates individual expertise, supports the benefits of collaboration and diversity, and situates the school as a nexus for community renewal. It is the difference between students being movie *makers* as opposed to movie *goers* (Bigum 2003a). Knowledge is produced, not consumed.

The group of Year 6 students I was responsible for, who were the school leaders, were given the task of compiling a promotional DVD of the school for the school information pack which is sent home to prospective school families. The school principal requested the project. My role was to support the students with the necessary skills to complete the project without taking control of decision making or the project itself. Fairly quickly the students ascertained that a home movie quality end-product was to be avoided. That was when the first obstacle became

apparent. None of the students had edited a movie, or DVD, or were even sure how to transfer the footage from the video camera to the computer. And there was no point in asking me. At that stage I had no idea either!

Prior to compiling the footage for the DVD, students met weekly for a thirty minute group discussion, chaired by one of the students, with another student taking notes to keep track of responsibilities and progress. A student would video these meetings for my records, and I observed, noting where support was required. Follow up skills sessions focused on definitions of team work, and organisational skills such as preparing for interviewing. There were also matters of legality and liability to be attended to such as checking with the principal in regards to school procedures for obtaining consent to video students around the school.

Where were the problems? It became apparent that although the students had exceedingly developed critical skills, making decisions as a team was an elusive concept. It was six weeks before the group began making informed decisions about the content to be included on the DVD. These students, although quite accustomed to working at a high standard individually, appeared collectively puzzled by how and where to locate information which would assist them with the project. They agreed there was a need for assistance with the filming – how to use the video camera to its full potential for a professional finish – but who could help? Similarly, where does someone locate a person with editing expertise? As the supervising teacher of this group and a parent at the school, I was aware of individuals within the school community who had the skills the students needed, and so were the students, but their thinking remained on teachers – especially the IT technician (who was not particularly helpful) – and other students who could possibly help. Searching for assistance via the school newsletter or outside the school required much prompting.

Additionally, when it came to dealing with adults, especially adults with whom they were unfamiliar, a number of the students felt uncomfortable. On one occasion a school parent was waiting days for contact from a student who had previously agreed to make contact, but the student had become so nervous at the prospect that she needed to give the task to another group member.

And as for my role as advisor, there were moments when I regressed to habitual methods of teaching – not providing enough time for the students to reflect on what was being asked of them or worse still, giving them the answers! Being time aware caused me to lament at the students' circular discussions about what to include or exclude from the DVD. I came to the conclusion, however, that with explicit social and organisation skills teaching, and continuous opportunities to work in a similar way on these types of projects, students could develop the capacity and confidence to address 'life skills' for a globalised, 'knowledge era'. And in increasingly shorter time frames than the project discussed here!

Eventually the project was executed to a fabulous standard: subtitles; background music; interviews with teachers, parents and students; typical scenes around the school; and for the finale, the credits rolling over the 'bloopers' accompanied by the Benny Hill theme song. A valued product was the outcome of all their hard work. All reported how much they had enjoyed working with fellow student leaders – students who they would not necessarily choose, or have the opportunity to work with. The students met a few unfamiliar school parents and local community members. They developed agile skills – new ways of thinking about teamwork and fulfilling objectives of stakeholders. Some new multimedia skills were honed. At the end of the day what did these students 'learn'? How did this project align with current expectations regarding indicators and outcomes? Were the educational experiences embraced by these students any less relevant, necessary, important or… lacking 'quality' than regular, curriculum based lessons?

These concerns point to the type of re-envisioned purpose education might take into consideration. Across Australia regulated, prescribed curriculum is failing to address these concerns (Victorian Curriculum and Assessment Authority 2004). There are some schools which are connecting with their communities in all sorts of valuable ways, for many of the reasons discussed, and with little support from their respective governments. It is acknowledged that there is a non-compliance of knowledge producing projects to be governed by disciplinary-based indicators and outcomes: an end product may not be predictable from the outset or may drastically alter over the project's course. This will more accurately reflect the real world – a world with an agile climate; a world where relationships matter. Not all that is educationally rich and vibrant is predictable, assessable or transferable. The challenge for all involved in education is to accept this and to question some of the commonly regarded assumptions of what knowledge and 'quality' education might look like, and entail in practice.

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