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Doing futures: futures education and enactivism

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In New Times (Hall, 1996), there has been much rhetoric about school's role in equipping students for the future. Futures education, or futures pedagogy, provides an interdisciplinary approach in which alternative futures may be explored, designed and articulated. Enactivism, as a theory of learning, affirms my contention that it is not enough to talk about the future. Rather, I propose that education must act as an agent of change, in equipping teachers and students alike, to imagine, critique and create possible, preferable and probable futures. This paper, then, explores the co-emergence (Manturana & Varela, 1992) of an explicit futures dimension, and teaching and learning drawing upon case studies of practice in schools.

‘Doing the future’ seems like an undoable task (Bell, 1996). Gallant (2003) suggests that the struggle for the future, in our world today, will not be between the social and economic classes but the structures of consciousness. The future is clearly unknown, and there is great scepticism about the use of esoteric and alternative approaches, such as soothsaying, clairvoyance, star gazing and channelling, which are traditionally connected to futures speak. These approaches are not utilised within futures education, which favours the recognition of multiple futures which are possible, and encourages the development of skills, and production of knowledge which empower participants, to actively shape, contest and enact possible, preferable and probable futures (3Ps). These futures are identified, and interconnected, in personal, local and global contexts.

For the purpose of this paper, doing the future contests the rhetoric of curriculum documents, which suggest that it is enough to give lip service to the future in prefaces to curriculum direction for teachers, without articulating the futures for which education is oriented. As described in previous research (Gidley, Bateman, & Smith, 2004), States and Territories of Australia engage with the futures dimension to varying degrees. This paper describes the practice of enacted futures dimensions in schools, in transforming, personalising and authenticating learning.

In this publication, I begin with a short exposition of futures education, and describe it as underpinning, and being underpinned by, interdisciplinary and transformational modes of teaching and learning. I recognise futures education, as drawing upon the futures field, and develop a brief rationale for its implementation in educational contexts. Further, I will precise enactivism as a theory of learning, and consider how futures education and enactivism co-emerge (Manturana & Varela, 1992). Finally, I offer an exemplar of futures education enacted in a Queensland primary school, where teachers and learners reflect upon their ability to critically engage with the futures dimension, and further, recognise their roles in actively contributing to the shaping of multiple futures.
What is futures education?

Futures education is considered an interdisciplinary approach to planning for teaching and learning. An interdisciplinary approach is defined as "the synthesis of two or more disciplines, establishing a new level of discourse and integration of knowledge (DeZure, 2003). Futures education is derived from futures studies. Futures studies is a field of inquiry traditionally derived from psychology, history and philosophy (Slaughter, 1998). As an interdisciplinary approach, futures education facilitates a process for achieving an integrative synthesis that often begins under the rubric of a problem, question, or issue that allows of and requires a multiple disciplinary output (Bernd, 1971). For example, an interdisciplinary approach would underpin an investigation of the AIDS pandemic, global warming or sustainability, and the shaping of alternate scenarios.

An interdisciplinary approach is a means of solving problems and answering complex questions that cannot be satisfactorily addressed using single disciplinary approaches. For Hayes-Jacobs (2004), such pedagogy can assist students to a new awareness of the meaningful connections that exist among the disciplines through the presentation of content, skills, thinking processes and assessments. Interdisciplinary approaches encourage students to consider the aesthetic, ethical, political, scientific, and technical dimensions of human experience and culture and to recognize the commonality and diversity of human experience, beliefs, and practices (Department of Interdisciplinary Studies, 2005). Futures education emphasizes global and environmental interdependence and social responsibility as part of its effort to prepare students for a lifetime of cultural, social, environmental, and technological change.

Futures education is "likely to bring a challenging futures perspective, along with critical and creative thinking skills to other more traditional disciplines" (Gardiner, 1998, p. 37). In this way, futures education can be referred to as a transformative style of learning. Transformative learning style is described as "learning that challenges and sometimes dramatically changes the personal paradigms of learners" (Rogers, 1998, p. 212). Such an approach places an emphasis on participatory and experiential modes of learning, fostering pupil autonomy (Hicks, 1991). However, it must be explicitly present within the curriculum (Hicks, 1991; Gardiner, 1998). And, whilst elements of the future of learners are related to employment, relationships, leisure and citizenship, the curriculum must directly be focused on the more powerful concept of the future(s) themselves, and make its approach in a structured and systematic way (Gardiner, 1998).

Beare and Slaughter (1993) have published rationales for implementation and enactment of futures education in schools and other domains. I have already summarised these rationales within the context of a rapidly changing world, and the students' existing awareness about the future, elsewhere (see Bateman, 2003). The rationales clearly emphasise the need to develop clear connections between what occurs within the natural world, humanity, and technology for the future generations that will inhabit the earth. The "impetus for futures education in Australia has come from a growing body of research on the perception of young people about the future" (Gardiner, 1998, p. 36). Furthermore, futures education highlights the value of placing
events within a context of time, and asserts the need for education to become more futures oriented, rather that working from roots strongly placed in the past.

Slaughter (1996) describes the futures field as a forward looking history and emphasises the important connections which can be made with the past. Using the “Foresight Principle” (Slaughter, 1995), students are taught to take glances back to history and those who have come before us, in order to make a good judgement in going forwards. Slaughter uses the analogy of driving a car. In order to reach a destination, you consult a street directory to map out a plan. In changing lanes, or going forwards, or changing directions, a smart and safe driver always checks the rear vision mirror to make sure. Similarly, Elise Boulding (Polak, 1973) discusses the notion of the extended present, traditionally a psychological concept developed by Piaget (Harner, 1982; Piaget, 1969). Rather than describing the present as an instant moment, Boulding uses varying lengths of the time to view a world from different glances.

Toffler (in Hicks, 1996) argues that children learn from a young age that they are passive recipients of whatever future arises. Futures education however, teaches learners that they do not have to accept what is presented and that the future is “what people can shape and design through their purposeful acts” (Bell, 1996, p. 3). Futures education provides learners with the means to recognise the possibilities and probabilities of future times, as well as to identify their preferable future to which they may work. It also identifies choices and changes which have occurred, and considers the limits and scope of human capacity within these contexts. In this way, futures education endeavours to maintain and improve the welfare of humankind and the life sustaining capacities of the earth (Hicks, 1991). This occurs as learners become more conscious of their capacities and powers not commonly used in everyday life. Along with others (see also Masini, 1999; Shor, 1992), Rogers (1998, p. 203) identifies within the world a “critical need for people to change fundamentally their perspectives, feelings, value priorities and ways of living”. Many of these changes are dependent upon learning.

In particular, the knowledge, concepts and tools of futures education provide a strong basis for students to more critically and fully participate in the shaping of future global scenarios. There is also the structure to allow them to be more conscious of their opinions and beliefs about the world, and ground them in solid conceptual understandings. Futures education encourages creative and critical thinking about the world in which students live. Slaughter (1998, p. 49) asserts that “the release of human potential is the key to cultural renewal”, and further that as the most dominant force on the planet, the human species must take responsibility for its actions. In this way, futures education creates the basis from which students can critically, constructively and creatively move away from negative images and fears regarding the future. By increasing a student’s future orientation, the curriculum has the potential to redirect current attitudes in students towards those of engagement, empowerment, resilience, hope and “real progress towards new stages of civilisation” (Slaughter, 1998, p. 51). The possibilities for both personal and global futures are only limited by the scope of the thinker. What will the future bring? Futurists claim that it largely depends on the choices that people make and actions that they take (Bell, 1996). It is my contention, that futures are enacted.
What is enactivism?

Enactivism is a theory about learning, and knowing, that draws from many discourses including phenomenology, constructivism, ecology, and systems and complexity theories (Reid, unknown). Begg (2002, p. 4) describes enactivist "learning and knowing as complex, emergent processes by which dynamic agents maintain fitness with one another and within dynamic contexts". Two key concepts, encapsulated within enactivism, are an expansion of the notion of cognition systems; and the combining together of knowledge, activity and identity (Begg, 1999, 2002; Davis & Sumara, 1997; Mousely, 2001). In this way, Reid (1996) suggests that enactivism can be captured by the clause “knowing is being is doing”.

Before delving into a description of what enactivism is, it is important to acknowledge that whilst enactivism draws from constructivism as a theory of learning, it simultaneously critiques it. Begg (1999), and Hanrahan (2003) list six main criticisms of constructivism. These include:

- A lack of models for constructivist teaching.
- A lack of a critical dimension which means that there is no mechanism to avoid the construction of undesirable outcomes.
- An undue influence in education and in what constitutes knowledge by the dominant culture, which is the white middle class.
- A concern only with cognitive knowing.
- A lack of explicit links made between constructivism and the learning theories that brain-science or neural biology offer.
- A lack of cohesion between relativist and objectivist views of knowledge, pertaining to different types of constructivism, and distinctions between them.

In later research, Begg (2002) describes his understandings of enactivism, in relation to theories education has upheld for many years, as ways of making sense of what one believes is happening; with new theories as complementing older ones and, simultaneously enriching one’s view of the world.

Enactivism and the notion of cognition systems

"The knowing agency emerges from, and is nested in other complex systems" (Begg, 2002). The learning and knowing capacities of humans are complex, and may be discussed within physical, neurological, cognitive and non-cognitive contexts, which are all interrelated. According to Waldrop (1992, p. 11 as described by Reid, unknown), a system is complex if "a great many independent agents are interacting with each other in a great many ways". Davis, Sumatra and Luce-Kapler (2000) categorise learning theories as complicated or as complex. They suggest that

"complex theories are those in which a web of interrelationships is seen to be in play, where cause and effect mechanisms do not provide an adequate explanation, and where the best one could say is that some things might influence other things".

Frielick (2004) insists that what we think of as an individual mind, is but one part of a larger and interconnected web of mental processes, which include exchanges and transformations of information.
According to Frielick (2004), the teaching and learning setting can be viewed as a system that is characterised by mental events. The dialogical processes of language and communication between teachers, students and the subject within these nested contexts can be seen as the pathways in which the processes of information exchange and transformation occur. As a complex theory, it is assumed that the subject matter is not learnt in a linearly ordered way. This is because complex systems create themselves, in the sense that they come into being and remain in existence through their own internal interactions. These complex systems are evident within enactivism in two ways. The first way in which this complexity can be observed, is in the assertion that “learning affects the entire web of being, thus what one knows, what one does, and who or what one is cannot be separated” (Begg, 2002, p. 5). Breen (2003) describes this interconnectedness of knower, knowing and emerging knowledge, as a circular system, where organism and environment enfold into each other and unfold from one another in the fundamental circularity that is life itself. He suggests that “this aspect of circularity (or complexity as opposed to complicatedness) also introduces elements of reciprocity not just with me and the other, but also with the environment”. These systems are regarded as self-creating, or self-generating. Systems that continually create themselves, are referred to, as autopoetic, in enactivism (Begg, 2002; Davis & Sumara, 1997; Hanrahan, 2003; Manturana & Varela, 1992; Reid, unknown).

An autopoetic systems is an “active self-updating collection of structures capable of informing (or shaping) its surrounding medium into a world through a history of structural coupling of it” (Reid, 1996). Manturana and Varela state that the components of autopoetic systems “must be dynamically related in a network of ongoing interactions”. Simply stated, this means that the components interact in ways which are continually changing, but which at the same time allow for the continuation of interactions so that the systems continue to exist. Also arising from these interactions are new interactions, new components, and new ways of knowing. These new aspects are referred to as evidence of co-emergence. Co-emergence implies that in being, doing, and knowing, a system defines the world in which it lives (Reid, 1996). Clark (1998, as quoted by Begg, 2002) sees this emergence as embodied cognition.

Enactivists (Davis, 1996) talk of cognition/knowledge and knowers as being co-implicated and co-emerging and says that knowledge is not apart from the world but embedded in it in a series of increasingly complex systems (groups, schools, communities, cultures, humanity, biosphere). Begg (2002) suggests that here lies the most significant difference between enactivist approaches and constructivist approaches, in that the latter is based upon the modernist assumption that self is separated from others, and from the world. Enactivism does not assume this separation. "Cognition is thus understood as a process of organizing one's own subjective world experience, involving the simultaneous revision, reorganization, and reinterpretation of past, present, and projected actions and conceptions" (Davis & Sumara, 1997). From a systemic perspective then, mental activity or cognition is thus the encoding and interpretation of information exchanges that are characteristics of an entire system, rather than the function of an individual that is separate from a cognitively inert world (Frielick, 2004).

Enactivist teaching and learning theories acknowledge two main forms of knowing. Davis refers to what we think and say as formulated ways of knowing, and suggests that historic theories are focussed on this epistemology. Alternatively, enactivist
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approaches also acknowledge *unformulated* ways of knowing. Begg (2002) and Davis (1996) describe *unformulated* thought as that which we do without conscious thought. Davis (1996, p. 6) sees unformulated knowing as important because learning involves "resolving tensions between tacit and explicit knowing, between emotional and reasoned actions, and between intuitive and calculated responses . . . meaning has an affective dimension that is often ignored".

**Enactivism, knowledge, activity and identity**

"Piaget saw self as continually changing but enactivists see change as not happening to self, but as being self" (Begg, 2002, p. 5) In this way, it is suggested that we need to consider individuals as they influence, and are influenced by the cultural context which, in turn, affect and are affected by emergent environmental circumstances. In the enactive approach, reality is not a given: it is perceiver dependent, not because the perceiver "constructs" it as s/he pleases, but because what counts as a relevant world is inseparable from the structure of the perceiver (Breen, 2003; Manturana & Varela, 1992). Thus, the process of being is fundamentally the process of learning. Enactivists suggest that instead of seeing learning as 'coming to know', that we can envisage the "learner, the learned, the knower, the known, the self, and the other, as co-evolving and co-implicated" (Begg, 2002, p. 7).

Enactivists identify learning as autopoetic, in that interactions are dynamic, emerging, self-organising, and self referencing. These interactions demand that learners and teachers couple structurally; that is to adapt and fit in order for the system to work, in order for new knowledge, new interactions and co-emergence to evolve. For Heywood (2003), "learning involves resolving tensions between tacit and explicit knowledge, between emotional and reasoned actions, and between intuitive and calculated responses". Enactivists assert that "learning is both an active and a participatory process. In this way, enactivism challenges current classroom practices, in questioning the practices of preselecting learning content, and predetermining the activities which will develop these understandings for learners (Davis, 1995).

Davis (1996; Davis et al., 2000; 1997) describes teaching as hermeneutic listening, and the role of teacher in the classroom as one of interpreting students' actions, to inform future curriculum development. "Teaching involves providing rich learning activities to help learners negotiate meaning towards acceptable and shared views" (Begg, 2002, p. 8). Learning and the development of knowledge and understanding, as a result, emerge from the complex interactions between the different parts as information travels around the physical and mental pathways that constitute the total ecology of mind or mental system (Frielick, 2004). Enactivist theory suggests that understanding and knowledge emerging from classrooms should not be about facts, results or static ideas, but rather knowing how to apply these ideas practically, and in a variety of contexts. Ecologically minded theories such as enactivism (Frielick, 2004), emphasise being connected which is more powerful and dynamic than the pedagogy of making connections (Begg, 1999).
Futures education as embodied. A model of cognitive and non-cognitive engagement

Gallant (2003) suggests that it would seem advantageous for a ‘hopeful future’ if students’ education had an emphasis on fostering integral conscious. She suggests from her research, that education offers transformational experiences to very few. Rogers (1998) reflects on past studies highlighting the transformational aspect of futures engagement within her own classes. She claims from students interviewed, an interdisciplinary futures approach has indeed encouraged autonomous, imaginative and critically reflective qualities. The students related their sense of personal power to their abilities to make choices, make changes, and to speak out and take action. Similarly, much of their hope for the future was based in their confidence in their abilities to change their own lives as a result of this empowerment. Along with others, such as Masini (1999), Rogers (1998, p. 203) identifies within the world a “critical need for people to change fundamentally their perspectives, feelings, value priorities and ways of living”. Many of these changes are dependent upon learning. Within futures education, there are systems of thought, which enable learners to be more conscious of their opinions and beliefs about the world, and ground them in solid conceptual understandings.

![Diagram](Figure 1 - Learning about global futures; a conceptual model (Rogers, 1998: p. 205))

Rogers (1998) provides a useful conceptual model of transformational, and enactivist learning in futures education (Figure 1). In it she represents the development learners undertake in considering future global perspectives. Like Mezirow (1997), Rogers identifies the transformative cycle of futures knowing - cognitively, affectively and soulfully - as occurring in four stages. The first stage is an “awakening of the mind” (1998, p. 206). Awakening of the mind describes the cognitive process of engaging the learner intellectually, and encouraging knowledge acquisition, a range of ways of thinking about things, and setting challenges for student thinking. Through this awakening of the mind, Rogers (1998) suggests that students will have the opportunity to develop global futures knowledge and perspective.
The second level of awareness of the future occurs when there is an “awakening of the heart” (Rogers, 1998, p. 208). This affective realm describes the scope of futures education in identifying emotional responses, developing coping strategies and in understanding processes of personal recovery or resilience, as well as developing empathy for others. Students who have been immersed in futures education often describe the emotional journey as being akin to a roller-coaster ride. In being confronted with global threats to humanity and the environment, students have often described responses filled with negativity, fear and a sense of hopelessness (Hicks, 2002; Rogers, 1998). In relation to Rogers’ model, these emotional responses are enacted and interpreted as a means of expressing deep caring for humanity and planet now and in the future.

Hicks (1991, p. 625) claims that “young people should have the opportunity to explore a range of contemporary issues” to explore a futures concept. Further, Hicks (1991, p. 630) states that learners “recognise and confront ethical dilemmas, rather than just describe them”. This is what Rogers (1998) describes as an “awakening of the Soul”. The soul is defined in her writing as the essence of humanity, the core values a person holds, and the meaning for existence, and the sense of life purposes. In leading students to consider their place on the earth, as one of many living organisms, the awakening of the souls leads to an emergence of care and empathy for others. From this awakening of the soul, Rogers suggests that there is clear motivation and preparedness to identify a need for action, as well as considering what that course of action may include. It is here suggests Rogers (1998, p. 210) when the path of action has been established that “students experienced relief, calmness, certainty, lightness and excitement”. Certainly, in case studies undertaken, students are positively immersed, as futures (education) are enacted.

Kimberley Park State Primary School

Kimberley Park State Primary School in Brisbane is innovative in its organisation, with multi-age classrooms based on a ‘thinking curriculum’ developed around four organisers: Change, Perspectives, Interconnectedness and Sustainability (www.kimbparkss.qld.edu.au). The 60 students in each class are taught by two teachers who stay with the students for a minimum of two and maximum of three years, echoes of a Steiner approach. With the exception of specialist areas, all teaching and learning is based on integrated or multi-disciplinary strategies, and parental participation is strongly encouraged.

FE was introduced at Kimberley Park through the initiative of a former Principal, Paul Thompson. Two teachers, Christine Stephenson and John Kennedy, developed a comprehensive, and innovative year long, unit for their Year 5/6/7 students. They started by asking students for their images of the future and what they wanted to know about the future. The result was “Doom, Gloom or Boom – is ours a fascinating or frightening future?” which was developed into a series of micro units based on questions generated by the students:

- The Future - prediction or foresight?
- Superhumans – mechanical humans or human machines?
- Will tiny machines rule the world?
- The technology revolution impacts on our world, but will it be sustainable?
The teachers used a variety of futures strategies such as the Y-diagram to explore possible and preferable futures that formed the basis of independent learning projects. FE also formed the basis of a number of homework tasks aimed at encouraging students to engage in Futures discussions at home, particularly with their grandparents. Talking to grandparents had a profound effect on some of the students, and stimulated a sense of the extended present. They found that they had similar views of the future to theirs, and were amused to think that their grandparents were now living in their own future. The grandparents said that they did not want their grandchildren to make the same mistakes as their generation had which had led to war and subdividing too much land.

Conclusion

Technology was a key focus of this unit, and students were able to share enthusiastically their knowledge of nanotechnology and possible implications of its use. At the end they felt that they knew more about the world and how technology could impact on the future. They showed a healthy ambivalence to technology, recognising its importance but also that it was not always necessarily positive. Some students were concerned that “technology might make people lazy” or “could be used for negative ends such as weapons”.

At the end of the year, the class held a summit simulation, attended by parents and the wider community. Students presented and justified their views of the future through their responses to the micro unit questions. They were enthusiastic about sharing their knowledge and work with the wider community. They showed that they were able to use the language of futures such as the ‘3Ps’. They described how they felt that the environment was a ‘gloom’, with issues such as the ozone hole and the degrading of the web of life through species extinction featuring strongly. As one student put it: “things would have to get very bad, before people realised how bad they were, to be motivated to fix things”. The students also expressed concern about the threat of war and terrorism.

In spite of the gloom, students felt very positive about their experiences in FE, and hoped that they would be able to continue with in secondary education. They believed the skills they had learned empowered them to make a difference in their own futures, but that this would take hard work. The students also felt that had a realistic view of the future and were able to recognise that images of the future in popular culture could be unrealistic. The unit had clearly opened up the possibility of alternate futures and the notion of being proactive rather than reactive. Similarly, the teachers believe that FE is a necessity for empowering students to be proactive in creating a brighter future and working towards their chosen futures.

Gallant (2003) asks “what sort of education will prepare our children for a world, which is already upon us but few care to recognize?”. Further, she reflects that it would be ironic if educational institutions are amongst the last to recognize and reflect changes within, and requirements of, society and the world. Enacting futures, demands even more than this. Educators must be provocative in developing curriculum, which stimulates, invites and engages students in learning, which in turn, empowers them to co-emerge with preferable and positive futures. It is not enough to assume that the
learning outcomes generated by a single future perspective will address the multitude of possible future scenarios evolving within our world. Education must become more flexible, open-ended and learner directed, if we are truly going enact to authentic and purposeful motivated engagement in schools, for and amongst our learners.

References


