

## Reconceptualising higher education pedagogy in online learning

Nicole C. Green\*, Helen Edwards, Brenda Wolodko, Cherry Stewart, Margaret Brooks and Ros Littleldyke

*School of Education, University of New England, Armidale, Australia*

*(Received 14 June 2010; final version received 10 July 2010)*

The purpose of this collaborative inquiry project was to examine teacher education practices in two early childhood degree programmes in a school of education at a regional university in Australia. All students are enrolled in these online courses as distance learners. The reconceptualised online pedagogy immersed students, peers and their lecturers in ‘teaching through assessment’ (Edwards, 2010) in a collaborative online environment that mirrors the complexity that students are experiencing in their workplaces. This article describes the pedagogical and conceptual underpinnings we used to reconceptualise our degree programmes. It also outlines our evolving conceptualisations of learning as knowledge creation (Hong & Sullivan, 2009) in the context of our teaching and learning in online courses.

**Keywords:** higher education; online learning; knowledge creation; sociocultural-historical theory; teaching through assessment

### Introduction

In January 2009, the early childhood education (ECE) academic team at the University of New England in Australia began the reconceptualisation process to realign the terrain in which it was teaching and learning. Reconceptualisation is not a new term, but its meaning and intent vary considerably. Our understanding of it in this study has been guided by Jipson’s (2001) description of where early childhood education is located:

The ongoing reconceptualisation of early childhood education is, at its very centre, a process of reflection and realignment across multiple, intersecting terrains – those of identity, both of the child and of the early childhood professional; those of curriculum, both in its development and in its enactment; and those of social context and of social responsibility. (p. 4)

We made a commitment to a collaborative project that aimed to revise 16 subjects across two early childhood degree programmes – the Bachelor of Teaching (BTeach ECE) and Bachelor of Education (BEd EC). Currently, the BTeach ECE and BEd EC are only offered at a distance (off campus), in one of two learning management systems (LMS). The BTeach ECE and BEd EC are each one-year degree programmes, and build on students’ previous study and work experience. The majority of the students

---

\*Corresponding author. Email: [ngreen7@une.edu.au](mailto:ngreen7@une.edu.au)

in both programmes are working full-time in the early childhood sector, while enrolled in part-time study in the degree programme. Many of them perceive their university studies as an integral part of their ongoing professional development; hence, they embrace opportunities to co-construct ‘new knowledge of children’s learning and teaching ... and not simply be delivered passively to teachers by experts’ (Enfield & Rogers, 2009, p. 562). In examining the bridge between theory and practice Stetsenko and Vianna (2009) reminded us that:

Knowledge and its application need not be seen as two separate enterprises and that instead the findings from use-inspired basic research can directly inform the practice and at the same time generate insights that help to advance theoretical knowledge. (p. 41)

At this university, the courses or subjects within a degree are called units. Each of the units within the early childhood degree programmes is one semester (150 hours). The units focus on early childhood curriculum and pedagogy (birth to eight), and include opportunities to study philosophy, leadership, exceptional development, play, multi-literacies, mathematics, relationships with families and communities, creative arts and science as they relate to young children, learning and teaching.

The reconceptualist work evolved quickly into an unfunded research project. Participation in the development of the online teaching materials for the BTeach ECE and the BEd EC was, and continues to be, a declared requirement of the ECE team’s workload, though collection of data for the research was entirely voluntary. As part of the process, the team specifically examined the online teaching and learning environments provided for distance education students holistically across the two degree programmes. Goals were set to reorient the content, assessment, learning tasks and activities associated with each unit of study, based on an engagement with the literature and inquiry methods. As such the focus of this work was on reconceptualising online pedagogy and not on the delivery mechanism, as ‘many researchers continue to conduct studies that principally seek to determine the effectiveness of the delivery medium, rather than [that of] the instructional strategies and tasks’ (Reeves, Herrington, & Oliver, 2005, p. 96).

An outline of the design of the collaborative inquiry follows. The findings are then presented with a focus on demonstrating the key conceptual and pedagogical underpinnings that have guided the reconceptualising work. The findings are discussed and recommendations made for further research.

### **Design of the project**

This collaborative project was guided by design-based research, also called development research. Design-based research equates with the process of participatory action research (Reeves et al., 2005; Wang & Hannafin, 2005). In both approaches the researchers are reflecting individually and as a team on the pedagogy being utilized. Data from the reflections provide the basis for decision-making about how to change what is happening to optimise the outcomes, particularly for students and academics. Below are the six characteristics of design-based research (Reeves et al., 2005) we utilised to describe our collaborative project. With each characteristic, we include a description of the processes and methods engaged in.

***Characteristic 1: focus on broad-based, complex problems critical to higher education***

The collaborative inquiry project was fuelled by the need to respond to new national early childhood education curricula – Early Years Learning Framework (Department of Education, Employment and Workplace Relations, 2009), the National Australian Curriculum (Council of Australian Governments [COAG], 2010) and professional teaching standards (AEEYSOC National Standards Expert Working Group, 2010) in the sectors in which our students will engage in their professional careers (including early primary school years). As teacher educators we identified a lack of guidance for higher education related to the new curricula, initiatives and policies on how to achieve the mandatory standards. The current draft of the Australian Curriculum, for example, states that teachers are to better prepare young people for their participation in a changing and increasingly globalised world. The curriculum outlines *what* to teach, but does not define *how* to teach it and what the implications are for higher education and the preparation and professional development of student teachers.

The curricula and other standards are documents that in the early childhood education profession are mandated to replicate, as indicated in Figure 1. Previous pedagogy adopted by the ECE team reflected this and framed the unit content. Assessment practices were then built from the content. As a consequence, typically the students regurgitated the curricula and standards content. Knowledge was understood to be deposited within each student.

The problem was not the curricula and other standards, but the pedagogical response to them. The regurgitation of content provided no context-sensitive links to the communities our students were a part of. Neither critical engagement nor ownership was required of them or the community.

New curriculum initiatives and teaching standards in Australia support a notion that students need learning environments that assist in preparing them to cope with the complexity of the profession (Hoban, 2005). For example, the Early Years Learning Framework (Department of Education, Employment and Workplace Relations, 2009) indicates educators must draw upon their creativity, intuition and imagination in working with families and children in various times, places and contexts of learning. Also, educators are expected to be decision-makers who draw upon a range of theories, approaches and perspectives to organise the context and depth of learning, and to consider the implications of their curriculum decision-making for each child (COAG, 2010).

Higher education also demanded a reconceptualisation of teacher education and as a consequence our academic team aligned its philosophies, curricula and professional standards, online pedagogy and assessment. There had been some migration from paper-based course materials to online teaching and learning prior to 2009. The units

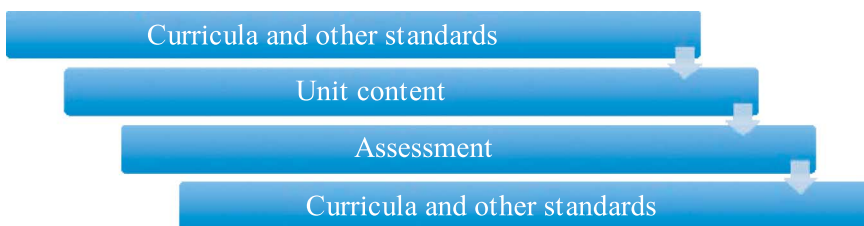


Figure 1. Locating assessment in prior curriculum development.

were provided on CDs supplemented by asynchronous discussion groups in Blackboard. This format did not facilitate responsive interactions between students and lecturers. For example, the previous blog tool was individual and did not allow other participants to leave comments. This format did not facilitate dialogic interactions between students and lecturers. No wiki tool (or equivalent) was available to student teachers to share and to build on each other's evolving insights. The absence of this tool resulted in less collaborative interactions between students and lecturers. The philosophies and professional knowledge that emerged were typically narrow. Students produced predominantly essay-style assignments that applied theory to their practice and/or practice into theory. Our previous teaching and learning with students lacked explicit focus on facilitating students to engage in dialectical understanding of the relationship between theory and practice so as to think about the theory/practice as related rather than the separation of theory and practice (Edwards, 2010).

In January 2009, the research group began to explore alternative online pedagogies we hoped would support a sociocultural-historical approach to teaching and learning. Importantly this reconceptualisation supported the move away from paper-based materials to teaching and learning online.

***Characteristic 2: integration of known and hypothetical design principles with technological affordances to render plausible solutions to complex problems***

A review of large-scale funded assessment-related projects in higher education conducted on behalf of the Australian Learning and Teaching Council (2009) highlighted that there had been a focus on assessing content and/or what was learned in higher education; that is, assessment had been viewed as the endpoint for learning. In this collaborative project, the reconceptualisation of the units within the online learning environment involved a shift in our positioning of assessment. Like James, McInnis, and Devlin (2002) we believed that an analysis of online assessment offered an opportunity to examine what we did and why we did it; and even more importantly to come to an agreement about how to make the changes we needed in our practice to fully implement our philosophies.

Our previous use of paper-based materials and requirements in the original iterations of the LMS were primarily defined by enhancing the efficiency of 'knowledge acquisition' (see Hong & Sullivan, 2009, framework in Table 1). Prior to our engagement in this collaborative inquiry project, we pre-defined the knowledge our students needed to acquire and did not emphasise the community of learners. Our teaching and learning paradigm was focused on transmission and reproduction strategies. Through our own collaborative discussions we began trialling strategies to emphasise a full range of higher order learning outcomes, such as advocacy, advancing community knowledge, adaptiveness and promisingness (Hong & Sullivan, 2009).

***Characteristic 3: rigorous and reflective inquiry to test and refine innovative learning environments, as well as to reveal new design principles***

As teacher educators, the team believed in the importance of engaging students in teaching and learning experiences they could use in their own practice. This approach is explained in Edwards' (2010) statement: 'Teacher education represents a unique form of teaching in which both the content of the teaching and the practice of the teaching form the basis of what is being taught' (p. 10). No longer did we plan to teach

in a way that treated students as isolated learners passively receiving the theories, concepts and ideas in the readings sent to them in the postal system. Throughout the reconceptualisation of online teaching and learning the team discussed, drafted and agreed on a shared philosophy for the early childhood degree courses. Three philosophical premises were outlined to all students via mail in an effort to communicate explicitly what guides the courses, as detailed below. This helped to provide a shared position to begin and a projection of where we wanted to go. Our shared philosophy was based upon internationally recognised, sociocultural-historical perspectives of early childhood education (Fleer et al., 2006; Penuel & Wertsch, 1995), with the intention of opening up more dialogic teaching and learning possibilities within the online learning environment. Sociocultural perspectives of early childhood education acknowledge the contexts of the learner and the ways in which the learner interacts with and learns from the people and artefacts in the community. The following is a summary of our shared philosophy, informed by sociocultural-historical theory.

We believe that our students are members of wider learning circles – within the university and their course and units, early childhood contexts, and local communities and beyond. We value students' previous experiences, values, understandings, beliefs and insights, and acknowledge the unique contribution of the personal professional knowledge all students bring to each unit. Our goal is to facilitate opportunities in the online environment for students to communicate, reflect, share and respond to and about their sociocultural histories.

We believe that social interactions form a pivotal base to effective learning processes; interaction among students plays a central role in learning. Our goal is to create online units facilitating a more authentic form of interaction in which students experience learning as more meaningful and supportive. Our intention is for students to feel authentically and purposefully engaged in the online learning environment, rather than because they have been instructed to do so.

We acknowledge that the teaching and learning in our two degree courses prepare students for various employment opportunities in local, national and/or international communities. Our goal was to utilise the tools in the online learning environment to scaffold students' engagement with, and in, contemporary knowledge, cultural sensitivity and understandings, and diverse leadership, problem solving and collaborative relational skills – all requirements in the complex profession of early childhood education. These opportunities to operate within groups to explore the application of theory simulate communities of practice, described by Ritchie, Maxwell, and Bredekamp (2009) as promoting meaningful teaching and learning through regular engagement of education professionals in processes to examine and refine instructional practices to improve teaching and learning processes for children:

A community of practice promotes a mindset that pushes practitioners past the notion that a simple right answer or a formula will solve complex problems they encounter in the classroom, to one wherein situations they encounter drive them to seek new information, value the knowledge and experience of other professionals, and inquire into their own practice. These kinds of established networks need to start during preservice and be facilitated as an essential aspect of ongoing professional development. (p. 28)

As described, we believe in facilitating opportunities for our students to share knowledge between peers and work together to problem solve and construct group responses to assessment tasks so as to create and embody new knowledge, skills and understandings.

We honour multiple ways of students demonstrating their knowledge, abilities and understandings; and multiple ways of reflecting and communicating. Our goal is to offer open-ended assignments and encourage the use of multimedia such as video, audio, photographs, PowerPoint<sup>®</sup> and other publishing software to present the outcomes from their group's deliberations. We intend the online learning environment to provide tools to enable students to learn experientially through and about the process of sociocultural-historical pedagogy.

***Characteristic 4: long-term engagement involving continual refinement of protocols and questions***

Academic staff met weekly with an educational developer as an entire team in the first semester of 2009. In the second semester and into 2010, a smaller research group continued to share emerging knowledge and to critically examine its practices. In this manner, the research became an integral part of our own professional practice as teacher educators and evoked 'deeper understandings of the aims, methods, and outcomes of [our] work with beginning teachers' (Dinkelman, 2003, p. 8) within the two distance education courses.

Data collection methods within the research group included recorded focus group meetings, individual interviews, metaphor expressed through photography, and personal written reflections. With our students, we have conducted a survey (n = 68), which was designed to gauge their opinion on the effectiveness/value of prior assignments in the courses. We analysed prior and reconceptualised student assignments and artefacts. We reflected upon the outcomes of unit evaluations conducted by the university's Teaching and Learning Centre. Each data collection activity informed our ongoing analysis and reconceptualisation of the units.

***Characteristic 5: intensive collaboration among researchers and practitioners***

The research group concurrently examined its pedagogical practice and the process of students' learning through weekly meetings and research activities. Such an intense examination of our pedagogy 'requires a need to accept that it carries inherent vulnerability because learning through such meaning is a risky business' (Loughran, 2006, p. 29). It was in the analysis of outcomes, unpacking with colleagues, and at times with our students, that we became aware of the multiple layers and complexities involved in enacting an online pedagogy of teacher education (Russell & Loughran, 2007; Wells, 2009). This process enabled critique of our assumptions, while looking in depth at our practices and how they fitted with our beliefs. The act of putting pedagogy ahead of technology (Ascough, 2002) allowed us to achieve more effective teaching and learning in our online distance education courses. Our pedagogical inquiry work was also important for modelling the process for collaborative learning to our student teachers.

As recommended by Enfield and Rogers (2009), the 'process was designed to draw on the pedagogical and experiential knowledge' of the participant lecturers and the educational designer, 'building on their collective experience and expertise' (p. 561).

***Characteristic 6: a commitment to theory construction and explanation while solving real-world problems***

Three pedagogical frameworks have provided the lenses through which we have inquired into online teaching and learning in this study: sociocultural-historical theory

(Fleer et al., 2006; Penuel & Wertsch, 1995), teaching through assessment (Edwards, 2010) and learning as knowledge creation (Hong & Sullivan, 2009).

**Sociocultural-historical theory** (Fleer et al., 2006; Penuel & Wertsch, 1995) informed our team's shared philosophy for our two-degree courses. Although the ECE team's shared philosophy had previously guided many of our past practices with young children as educators and leaders, in teacher training and in work with various groups, committees and organisations, team members initially experienced difficulties in enacting this philosophy in an online environment. We struggled with the practicalities of the technologies and their relationship with the pedagogy. We were challenged by how best to scaffold students in the online learning environment. At this point, Susan Edwards (a colleague from the Monash University ECE programme) agreed to take on an ongoing mentoring role with the nine academics of the ECE team. A two-day intensive workshop facilitated by Edwards began our pedagogical shift away from traditional approaches to assessment, which retained a focus on what was learned, towards using assessment as the vehicle of teaching itself (Edwards, 2010).

**Teaching through assessment** (Edwards, 2010) opened up pedagogical possibilities in the online learning environment and provided a framework for realising our philosophy in practice. This approach challenged us to put pedagogy ahead of technology and effectively use the LMS tools to teach and learn with our students. As exemplified in the findings and analysis, teaching through assessment supported and promoted changes to online pedagogy and facilitated the skills, knowledge and understandings essential to our complex profession.

We adopted the process of teaching through assessment (Edwards, 2010) by merging technology and assessment to create contexts in which our students work towards building learning communities. We came to realise that online learning environments could be designed to support students to simultaneously create their own learning contexts, access the intended content in multiple ways and, finally, represent their own interpretations of both the content and theory/practice in publishable and public forms. The use of the online learning environment and its associated tools helped to create contexts in which theory *and* practice were integrated in the outcomes that were produced. Here students were encouraged to explore the pedagogical potential of the tools in an online environment; and they supported one another within collaborative learning groups.

The assessment tasks and tools used in the online learning environment supported each other, while providing a context for theories, ideas and concepts. Academic staff facilitated student engagement with the content and their critical consideration of how it could be used to move their own thinking forward. Assessments required students to work together (in groups) to agree on what common artefacts of their learning they would produce, as well as how, when and why. At other times, we set individual tasks where each student was expected to collaborate with colleagues, families and children. The assessment tasks set the parameters, but ultimately responsibility rested with the students to take an active, responsible role in their own personal and professional development. Their responses to the assessment tasks demonstrate their learning to be of a higher quality and more in depth than the assignments received from students in previous years.

The aim of our approach was to teach through assessment, in a manner that effectively supported learning as knowledge creation. Although learning as knowledge creation is well justified in the literature (Hong & Sullivan, 2009), in our collaborative

inquiry project an important issue remained to be explored in the reconceptualisation work: What represents effective online pedagogy to support learning as knowledge creation? We respond to this question below, where we explain our use of **learning as knowledge creation**, the third pedagogical framework.

### Releasing our philosophy in practice online

In the following section we outline how we used Hong and Sullivan's (2009) approach to teaching and learning and its contribution to our evolving conceptualisations about our online courses for students studying through distance education.

#### *Learning as knowledge creation: deepening our understanding of reconceptualised online pedagogy*

Through collegial debates, we evolved with a deeper shared understanding of Hong and Sullivan's (2009) idea-centred, principle-based design approach to support learning. We used the three learning perspectives suggested by Hong and Sullivan to describe the process: (1) learning as acquisition; (2) learning as participation; and (3) learning as knowledge creation. Hong and Sullivan's framework is reproduced in Table 1 below to depict the positioning of our initial design practices (light grey); and to our current position (dark grey) in the transition to distance learning as knowledge creation.

Our current approach to online pedagogy now conceptualises assessment to reflect 'learning as knowledge creation', requiring examination and changes to our pedagogical, psychological, epistemological and sociocultural perspectives in the presentation of coursework and learning processes (Hong & Sullivan, 2009).

The online pedagogy of teaching, represented in Figure 2, begins with assessment practices to create knowledge. This may lead to adaptive know-how and know-that,

Table 1. Positioning initial and current design practices (based on Hong & Sullivan's [2009, p. 3] learning design framework).

	Learning as acquisition	Learning as participation	Learning as knowledge creation
Pedagogical	Enhancing efficiency in knowledge appropriation	Learn through participation	Knowledge innovation to innovate is to learn
Psychological	Automatic processes	Controlled process	Both automatic and controlled processes
Epistemological	Routine know-how and pre-defined know-that	More adaptive know-how with pre-determined know-that	Towards adaptive know-how and emergent know-that
Sociocultural	Community not emphasised	Community of learners	Knowledge-creating community
	Individual Knowledge appropriating culture	Structured social activity Knowledge exchanging and collaboration culture	Community Knowledge innovating and creating culture



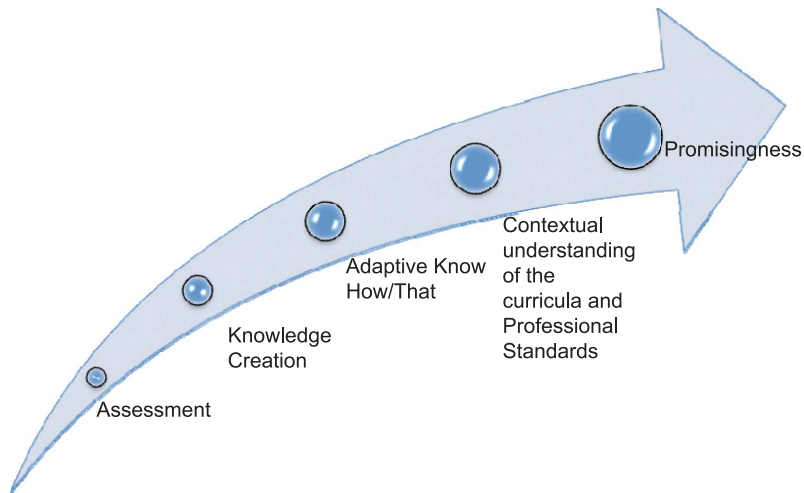


Figure 2. Teaching through assessment.

resulting in adaptive interpretation and implementation in each student's workplace. The notion of learning as knowledge creation is highly relevant for our students and the early childhood education sector in general. Curricula and other standards are no longer viewed as a defined mass, which can be contained as content to be learned and regurgitated. Teaching and learning is context-dependant and requires the critical engagement of students in which processes supported and promoted include: advocacy, advancing community knowledge, adaptiveness and promisingness. The following examples demonstrate the way our team is moving toward online pedagogy as knowledge creation.

### **Advocacy**

In developing students' advocacy skills, we recognised that teaching was about change. The team's response to the Early Years Learning Framework and the Australian National Curriculum have enabled it to experience curriculum in ways that prepares teachers for their professional practice. In this way they embrace varied and layered contexts in which teaching and learning with children and their families takes place. Through the content, assessment, learning tasks and activities associated with each unit of study within the online environment, students engage *through* understanding rather than *by* understanding. This nurtures their ability to be agents of change.

The team's goal is to prepare graduates with the skills, confidence and willingness to open up to new possibilities. Early childhood teachers need to be aware of the importance of asking new questions, to challenge old beliefs, and deepen their understandings. In the example in Table 2, the learning processes have been conceptualised as self-sustaining generative change. This entails our students making changes in their basic epistemological perspectives, their knowledge of what it means to learn, as well as their conceptions of classroom practice (Franke, Carpenter, Fennema, Ansell, & Behrend, 1998). Psychologically, we have journeyed from a controlled process where students could produce limited and often homogenous artefacts. Assessment was the endpoint valued by students, which created barriers to teaching and learning. The example in Table 2 highlights that new knowledge can concurrently be contextualised in students' online environments and in their workplaces. Knowledge creation is

Table 2. Teaching through assessment for advocacy: Example of change in focus.

Prior assessment	Examples of student artefacts	Reconceptualised assessment	Examples of students artefacts
In a science unit, students were asked to develop an action research project based on early science learning and activities.	Students typically produced research reports outlining how they grew beans in a cup with the children and recorded the growth on a chart.	Students are now required to focus on a science-related question, issue or problem in their centre. In addition, they are asked to advocate for change related to science practices in their workplace.	Students have, for example, submitted a digital plan to town council requesting funds for an environmentally sound addition to the preschool; surveyed families about their children's science interests and created a digital booklet of activities for the home context; and translated this into the seven languages represented in their workplace.

conceptualised from a process perspective. Progressive problem solving is now the focus of the learning and valued by students.

### *Advancing community knowledge*

Traditionally a *culture of expertise* has guided teaching and learning of students in higher education. Novinger, O'Brien, and Sweigman (2005) have challenged us to reconceptualise expertise as being developed in dialogic ways, through collaborative work, rather than something a select few bring to the table.

Our students are now more productively engaged in assessment, sharing their knowledge and supporting one another in knowledge construction as a result of the reconceptualised online pedagogy. We have journeyed from scripted cooperation to a knowledge exchanging and collaborating culture. The community knowledge captured in their learning artefacts is greater than the individual knowledge of each student and also extends beyond the unit into their workplace.

The example in Table 3 aimed to challenge students' taken-for-granted discourses, to develop new languages and discourses, new perspectives and lenses as educators. They demonstrated a willingness to speak social justice into existence by interrupting those whose language demeans child learners and their families (Genishi & Goodwin, 2008). The students no longer reproduced theories, concepts and ideas in identical formats; the students became creators of knowledge through critical engagement, representing their learning in a variety of ways. The assessment practices brought into focus the intellectual side of becoming a teacher – which comprises critical engagement with theory, robust and continual synthesis of ideas, and active participation in decisions about the substance and nature of their learning as they become teachers (Erickson, Darling, & Clarke, 2005).

The online sharing of community knowledge becomes adaptive knowledge creation within the individual, which in turn impacts the wider community.

The notion of collaboration illustrated in Figure 3 includes small group work, yet moves to a position 'where an individual's interests are pursued through evolving and

Table 3. Teaching through assessment for advancing community knowledge: Example of change in focus.

Prior assessment	Examples of student artefacts	Reconceptualised assessment	Examples of student artefacts
In a unit on social justice, content knowledge came largely from topic notes, several readings and one chapter in a book.	The students were required to submit a two-page essay which reflected information from the unit material.	Students are now required to work together as a group developing common conceptual and pedagogical underpinnings, drawing from the unit materials. Students are asked to create a presentation together to advance community knowledge in their workplaces and communities regarding a social justice issue.	Students have submitted presentations that explicitly draw upon six individual's experiences, knowledge and evolving understandings following engagement with the unit materials.

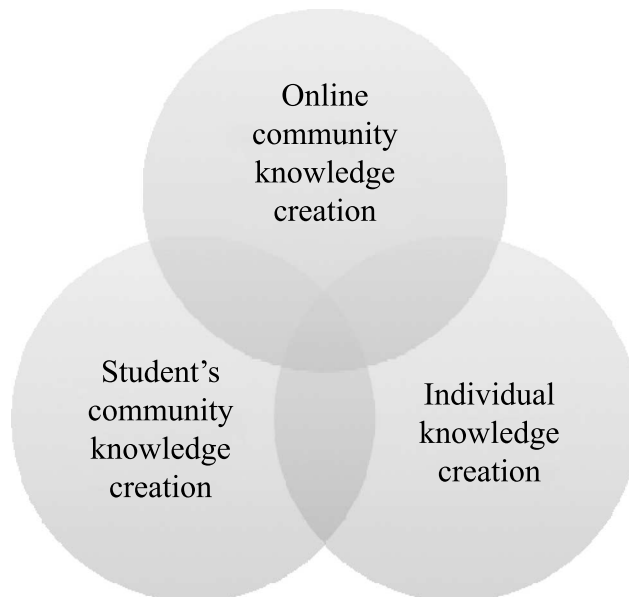


Figure 3. Collaborative group work.

continuing intellectual relationships with others (Hong & Lin, 2008) towards the end of advancing public knowledge' (Hong & Sullivan, 2009, p. 12). Students bring to the assessment task their unique interests and they become conscious of shared and/or overlapping knowledge, which they develop into a group response.

### *Adaptiveness*

In order to achieve higher levels of adaptiveness, Hong and Sullivan (2009) urged us to rethink the design of instructional activities, which are largely undefined rather than

Table 4. Teaching through assessment for adaptiveness: Example of change in focus.

Prior assessment	Examples of student artefacts	Reconceptualised assessment	Examples of student artefacts
In a unit on families, students were asked to individually respond to a controversial statement and write an essay following a pre-defined format and headings.	The students' written essays looked similar and regurgitated the content from the readings of the unit.	Students are now required to work in groups of four to share their interpretation of the controversial statement, and their original reflections. They are then required to make sense of the unit's readings and other multimedia resources. Students are asked to submit an electronic resource, which responds both to the statement and the unit materials.	Group produced audio recording of a scripted conversation on a radio programme between various experts; information pamphlets or newsletters produced for various audiences; workshop for colleagues and/or the community engaging the audience in similar learning and thinking processes through which they had been.

pre-defined, emergent and self-organising. The example in Table 4 shows adaptive know-how viewed as the primary learning goal rather than the assessing of the unit's content. Epistemologically, we have journeyed from a routine 'know-how' and a predefined 'know-that', towards an adaptive know-how and an emergent know-that. In teaching through assessment, know-that, or declarative knowledge, becomes less specifiable ahead of time.

Our students represent very diverse roles in rural, regional and urban contexts, such as directors of childcare centres, family day care providers, and childcare workers in health and community organisations, primary school teachers and lecturers in tertiary settings. Our online pedagogy therefore requires flexibility, adaptability and space to allow the know-how and know-that knowledge to emerge as a function of teaching through assessment (Hong & Sullivan, 2009). Our use of the LMS has assisted us to develop a community of learners who build a collaborative knowledge base through resource sharing and personal reflection. In this case the focus is on building upon what students already have experienced and what they already know, and identifying what is possible within their own sociocultural environments. The students have the opportunity to work flexibly as a group to arrange their learning environment, creating joint documents and other forms of presentation. As the students' knowledge and understandings evolve, they change or modify the content and record these developments.

### ***Promisingness***

Promisingness has been described by Hong and Sullivan (2009) as a kind of knowledge facilitated in online learning environments through a progressive curriculum, unfolding and emerging.

Table 5. Teaching through assessment for promisingness: Example of change in focus.

Prior assessment	Examples of student artefacts	Reconceptualised assessment	Examples of student artefacts
In a unit on mathematics, students were required to conduct a variety of mathematics activities in the early childhood classroom. Students were also asked to determine what the children know about mathematics and determine how to plan for further learning.	The student artefacts were essays explaining the activity, what the children did and future planning. A reflective section of the essay uncovered a continued dislike or fear of mathematics for most students, but a greater understanding of mathematics and young children.	Students are required to conduct a survey of embedded instructional practices in early mathematics. They are also expected to analyse the mathematics that occurred in an incidental manner throughout the day, including the students' role in the event. Students submit a 'back map' to the curriculum standards for further intentional planning of mathematics.	Blog conversations revealed that students were excited because they were seeing mathematics everywhere. Their staff was excited and involved in looking for mathematics. Students expressed greater confidence in recognising the mathematics that is occurring and in deciding how to become more intentional in their teaching and learning practices.

When routine know-how is pursued as an important knowledge goal, know-that is more likely to be specifiable content knowledge that can be used to fulfill the routine know-how. As such, know-that and know-how are both ends of learning, and typically in many school settings they are reified as textbook knowledge guided by a well-structured and circumscribed curriculum. Normally, when curriculum is structured in this way (with routine know-how and specifiable know-that), little room is left for students to develop the third kind of knowledge of "promisingness." (p. 6)

The example in Table 5 demonstrates the increasingly flexible content, tasks and assessment in our units. The sociocultural-historical context of current students requires us to focus on preparing them for the current context, whilst developing an individual who is capable of changing the context. This requires adaptive skills, to go beyond curricular and disciplinary boundaries. In a school subject typically viewed as bounded by particular content and context, the students in the unit on mathematics experienced movement towards seeing the promise within the incidental mathematical learning occurring with their workplace, which empowered them with curriculum authority for decision-making with children and adults in the future.

The teaching and learning through assessment that was achieved in the reconceptualised online environments was facilitated through the elements of blogs, wikis, discussion forums, chat rooms, announcements and resources folders. Each of these elements supported the sociocultural-historical philosophy described earlier, which underpinned our reconceptualisation work.

### Recommendations

The reconceptualisation work continues and extends beyond what is described in this article. We feel strongly that there is never a time when a course or unit is 'finished'

and we understand further collaborative inquiry is required. Analysis and evaluation of the project is ongoing and will be published in follow-up papers. These will include insights and perspectives from students and further personal journeys of academics:

The curriculum is always emerging from moment to moment and is inevitably experienced differently by different participants ... the teacher's part in keeping the ship afloat and attempting to navigate it should also be evaluated. Similarly the students should also be involved in the summative evaluation of what was helpful to them and what was not. (Wells, 2009, p. 298)

Further reconceptualisation in online environments across courses is required to ensure the links, connectivity and consistencies across degree programmes are strong and demonstrate more meaningful professional study experiences for students. Evidence suggests that current difficulties experienced in many teacher education programmes are the direct result of teaching programmes that remain insular and unconnected (Commonwealth of Australia, 2007; Hoban, 2005).

This article offers three conceptual underpinnings, which could be trialled as a framework for research in other online courses for faculty seeking to integrate their personal pedagogies with LMS technologies, particularly in terms of modelling practices to students and facilitating them to engage with learning 'that correspond closely in method and content to what is being asked of teachers' (Ritchie et al., 2009) in their workplaces. In this way we can see that the process of developing pedagogical skills among our students requires them to also become immersed:

Just as teachers are prepared to link children's new learning to prior knowledge, they need opportunities to experience new learning in a variety of contexts and to engage in metacognitive reflection upon their learning. (p. 30)

Guided by the conceptual underpinnings of sociocultural-historical theory, teaching through assessment and learning as knowledge creation in our online teacher education pedagogy, we are confident that we are developing not only our students as professionals, but also ourselves; and moving towards developing the profession. Future exploration in this regard will include an examination of our understandings of learning communities and communities of practice in relation to Hong and Sullivan's (2009) notion of 'knowledge-creating communities' in online learning environments; and a deeper exploration of the role of advocacy in early childhood education and associated ethical and moral implications.

## **Conclusion**

Online pedagogies within the two early childhood education degree courses are moving away from efficiency of knowledge acquisition to facilitating participation and nurturing growth towards learning as knowledge creation. Sociocultural-historical theory, which informs our philosophy, is extended by notions of teaching through assessment with technologies (Edwards, 2010). Learning as knowledge creation (Hong & Sullivan, 2009) provides a framework to reflect upon and refine innovative practices as well as to reveal new design principles (Reeves et al., 2005). All three pedagogical underpinnings share the goals of situated learning and knowing, student-centred and self-directed engagement, which are culturally relevant.

This collaborative project supported the ECE research group to move from a position of compliance – that is, we were individuals working alone or in pairs trying to

implement the institutional changes to distance learning increasingly being imposed on lecturing staff. Through a process of reconceptualisation, our project focused on questions to improve our approaches to initial teacher education by studying our own teacher education practices. We are now sharing a commitment as academics to our online teaching and learning pedagogy. We have regained control of our professional identities and reframed our online pedagogies to reflect our philosophies of teaching and learning.

Our evolving understandings and theoretical insights are presented to enable us to join in the conversations within teacher education, adult education, early childhood education and distance education discourse communities of our own and other higher education institutions. We share our collaborative project to engage readers in a better understanding of the role distance education and online learning can play in the training of work-ready early childhood educators.

### Notes on contributors

Nicole Green is a senior lecturer in the School of Education, Faculty of the Professions, and a member of the ECE team. Her research interests include children's active and authentic participation in research, space and place, enacting teacher education pedagogy, and alternative approaches to education.

Helen Edwards writes from a broad experiential and theoretical knowledge base of distance education. She has been working with adult distance learners in NSW TAFE and then at the University of New England for the last 15 years. Her research interests lie particularly in action research and design-based research.

Brenda Wolodko is a senior lecturer at the University of New England. Her research interests include teacher education, teaching through assessment and mathematics education.

Cherry Stewart is a research fellow with the Distance Education Research Institute at the University of New England. Following a career in primary, vocational and tertiary teaching and instructional design, and tertiary management and leadership, she now conducts research into distance and online education, and supports staff development projects.

Margaret Brooks is a senior lecturer at the University of New England. She is interested in young children's drawing processes and the relationships between drawing and meaning making. She uses arts-based research and visual ethnography to examine the drawing processes of both children and adults.

Ros Littlelydyke has worked in ECE as a classroom teacher and teacher educator in the UK, Canada, Australia, the USA and Finland. She now lectures in ECE at the University of New England. Her research interests include the impact of the affective domain on cognitive development in young children and the professional development of early childhood educators.

### References

- AEEYSOC National Standards Expert Working Group. (2010). *National professional standards for teachers*. Sydney: Australian Professional Teachers Association.
- Ascough, R.S. (2002). Designing for online distance education: Putting pedagogy before technology. *Teaching Theology and Religion*, 5(1), 17–29. doi: 10.1111/1467-9647.00114
- Australian Learning and Teaching Council. (2009). *What's happening in assessment?* Canberra: Australian Government Department of Education, Employment and Workplace Relations.

- Commonwealth of Australia. (2007). *Top of the class* (Report on the inquiry into teacher education). Canberra: Author. Retrieved from <http://www.aph.gov.au/house/committee/evt/teachereduc/report.htm>
- Council of Australian Governments. (2010). *National Australian curriculum*. Canberra: Australia Government.
- Department of Education, Employment and Workplace Relations (2009). *Early years learning framework*. Canberra: Australia Government.
- Dinkelman, T. (2003). Self-study in teacher education: A means and ends tool for promoting reflective teaching. *Journal of Teacher Education*, 54(1), 6–13. doi: 10.1177/0022487102238654
- Edwards, S. (2010, April). 'Teaching through assessment': *The merging of technology and assessment in teacher education learning contexts*. Paper presented at ACEC2010: Digital Diversity Conference, Melbourne.
- Enfield, M., & Rogers, D. (2009). Improving science teaching for young children. In O.A. Barbarin & B.H. Wasik (Eds.), *Handbook of child development and early education: Research to practice* (pp. 558–576). New York: Guilford Press.
- Erickson, G., Darling, L., & Clarke, A. (2005). Constructing and sustaining communities of inquiry in teacher education. In G. Hoban (Ed.), *The missing links in teacher education* (pp. 173–192). Amsterdam: Kluwer Press.
- Fleer, M., Edwards, S., Hammer, M., Kennedy, A., Ridgway, A., Robbins, J., & Surman, L. (2006). *Early childhood learning communities: Sociocultural research in practice*. Sydney: Pearson Education Australia.
- Franke, M.L., Carpenter, T., Fennema, E., Ansell, E., & Behrend, J. (1998). Understanding teachers' self-sustaining, generative change in the context of professional development. *Teaching and Teacher Education*, 14(1), 67–80. Retrieved from <http://www.jstor.org/stable/3202495>
- Genishi, C., & Goodwin, A.L. (2008). Diversities across early childhood settings: Contesting identities and transforming curricula. In C. Genishi & A.L. Goodwin (Eds.), *Diversities in early childhood education: Rethinking and doing* (pp. 167–182). New York: Routledge-Falmer.
- Hoban, G.F. (2005). *The missing links in teacher education design: Developing a multi-linked conceptual framework*. Dordrecht: Springer.
- Hong, H.-Y., & Sullivan, F.R. (2009). Towards an idea-centred, principle-based design approach to support learning as knowledge creation. *Educational Technology Research & Development*, Retrieved 8 December 2009 from [www.springerlink.com/index/220r77mn74712767.pdf](http://www.springerlink.com/index/220r77mn74712767.pdf), doi: 10.1007/s11423-009-9122-0
- James, R., McInnis, C., & Devlin, M. (2002). *Assessing learning in Australian universities*. Melbourne: Centre for the Study of Higher Education, The University of Melbourne and The Australian Universities Teaching Committee.
- Jipson, J. (2001). Introduction. In J.A. Jipson & R.T. Johnson (Eds.), *Resistance and representation: Rethinking childhood education* (pp. 1–12). New York: Peter Lang.
- Loughran, J. (2006). *Developing a pedagogy of teacher education: Understanding teaching and learning about teaching*. Abingdon: Routledge.
- Novinger, S., O'Brien, L., & Sweigman, L. (2005). Challenging the culture of expertise: Moving beyond training the always, already failing early childhood educator. In S. Ryan & S. Grieshaber (Eds.), *Practical transformations and transformational practices: Globalization, postmodernism, and early childhood education* (pp. 217–242). Oxford: Elsevier.
- Penuel, W., & Wertsch, J. (1995). Vygotsky and identity formation: A sociocultural approach. *Educational Psychologist*, 30(2), 83–92. Retrieved from <http://131.193.130.213/media/PenuelWertschIdentity.pdf>
- Reeves, T., Herrington, J., & Oliver, R. (2005). Design research: A socially responsible approach to instructional technology research in higher education. *Journal of Computing in Higher Education*, 16(2), 96–115. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.110.652&rep=rep1&type=pdf>
- Ritchie, S., Maxwell, K.L., & Bredekamp, S. (2009). Rethinking early schooling: Using developmental science to transform children's early school experiences. In O.A. Barbarin & B.H. Wasik (Eds.), *Handbook of child development and early education: Research to practice* (pp. 14–37). New York: Guilford Press.



- Russell, T., & Loughran, J.J. (Eds.). (2007). *Enacting a pedagogy of teacher education: Values, relationships and practices*. London: Routledge.
- Stetsenko, A., & Vianna, E. (2009). Bridging developmental theory and educational practice. In O.A. Barbarin & B.H. Wasik (Eds.), *Handbook of child development and early education: Research to practice* (pp. 38–54). New York: Guilford Press.
- Wang, F., & Hannafin, M.J. (2005). Design-based research and technology-enhanced learning environments. *Educational Technology Research and Development*, 53(4), 5–23. doi: 10.1007/BF02504682
- Wells, G. (2009). The social context of language and literacy development. In O.A. Barbarin & B.H. Wasik (Eds.), *Handbook of child development and early education: Research to practice* (pp. 271–302). New York: Guilford Press.

Copyright of Distance Education is the property of Routledge and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.