

Early childhood designs for multiliteracies learning

Sandra Hesterman

Murdoch University

ABSTRACT

The Australian Government has recently mandated the implementation of an Early Years Learning Framework in early childhood educational settings across the nation. The framework identifies an early childhood pedagogy that will provide children with the best start in life, and maximise their learning potential. This research study investigated how teachers' pedagogical considerations, evident in different teaching approaches, impact on the integration of information and communication technologies to support Multiliteracies learning. Five case studies, constructed over a nine-month period and employing ethnographic methodology, illustrated how teacher pedagogy impacts on the quality of children's Multiliteracies learning experiences. An analysis across the five cases with reference to the Australian Children's Education and Care Quality Authority Quality Improvement Plan identifies a Reggio-inspired teaching approach as best supporting the Early Years Learning Framework outcomes and Multiliteracies learning.

Introduction

Within the education community information and communication technologies (ICT) have long been considered central to Australia's educational future, inspiring new ways of teaching and learning (Kalantzis & Harvey, 2004). However, until recently, early childhood teachers have been wrestling with how best to facilitate use of ICT to support and enrich children's learning. Fortunately, various initiatives over the last decade have begun to support this process.

In 2008, the Australian Labor government embarked on an education revolution to secure the nation's long term economic prosperity. To achieve high quality and consistent standards in the area of early childhood education (ECE), the Council of Australian Governments circulated its inaugural *Early Years Learning Framework* (EYLF) (2009) to all early childhood education settings. This provides detail on early childhood pedagogy and aims to secure young Australians' entitlements: to become successful learners; confident and creative individuals; and active and informed citizens (Ministerial Council on Education, Employment, Training and Youth Affairs, 2008). An EYLF *Quality Improvement Plan Template*

(QIPT) was created by the new Australian Children's Education and Care Quality Authority (ACECQA) in 2011.

Furthermore, the Australian Research Council (ARC) and interested industry partners have granted funding over the past decade to support teacher professional development university-based research projects with the following aims: to determine the most effective pedagogy for the use of ICT in ECE; to investigate how ICT can best be used for enhancing children's learning; and to identify specific ways in which teachers can develop Multiliteracies in ECE environments (Lee, 2004). Utilising Multiliteracies pedagogy is considered the most effective way to integrate ICT in ECE. Educational principles that guide this pedagogy include adopting a broadened definition of literacy and utilising technologies to support individual cultural purposes while also contributing to wider global knowledge.

In 2004, I was granted an Australian Postgraduate Award in order to complete research contributing further insight to two ARC project investigations: *Investigating Literacy in Early Childhood Centres* (2002–2003) and *A Pedagogy for Multiliteracies with Information and Communication Technologies in*

Early Childhood Education (2004–2006). It can be argued that the quality of children's ICT and Multiliteracies experiences are entwined with teachers' pedagogical considerations. This research builds upon this idea by exploring how five teachers with different approaches and pedagogical stances integrated ICT in their early years programs to facilitate Multiliteracies. Ethnographic methodology was used to construct case studies in kindergarten and pre-primary classrooms in Western Australian schools over a nine-month period. This article presents the study's findings and analyses the five teaching approaches through the lens of the ACECQA QIPT.

Context ICT and multiliteracies

Critics have long argued for the need to review school-based literacy practices, believing the definition of literacy should be broadened to encompass more than instructing students how to master sound-letter correspondence 'alphabetic' literacy, which is the reproduction of a 'tightly confined set of linguistic conventions' (Mills, 2009, p. 7).

The term 'Multiliteracies' embraces the notion that there are multiple 'modes of representation' which are much broader than language alone (Cope & Kalantzis, 2000, p. 5). Multiliteracies pedagogy 'encourages a broader perspective of the student as a learner and values diverse ways of knowing, thinking, doing and being' (O'Rourke, 2005, p. 10). It is underpinned by multimodal theory, which asserts that children create meaning using a '... multiplicity of modes, means and materials' for self expression (Kress, 1997, p. 97). The theory postulates that from birth a child actively seeks to make and understand 'messages and meanings' in accordance with their interests and using available resources that may include ICT. Children's lives 'are digital and they communicate in a variety of modes with myriad materials that are made of bits and bytes' (Yelland, Lee, O'Rourke & Harrison, 2008, p. 1).

Multiliteracies pedagogy can support children in: developing a strong sense of identity and well-being; feeling connected to their world; and becoming confident and involved learners who can communicate effectively using their preferred 'languages' of communication. Multiliteracies pedagogy also invites teachers to reflect critically on how their teaching approach enables different sorts of learning, and how they can support 'new forms of communication which are necessary to participate fully in our dynamic and culturally diverse society' (Mills, 2009, p. 10). Teachers must look beyond the 'dominant paradigms of English literacy education and their teaching strategies [that]

can marginalise students, particularly those who come from families and communities where English is a second or third language' (Tan, 2008, p. 145). The EYLF QIPT, outlined next, now provides Australian teachers with a new lens through which to re-examine teaching strategies.

The EYLF and the QIPT

Fundamental to the EYLF is teachers' reflective practice. This includes teachers reviewing their teaching approach to determine how best they can support children's achievement of the framework's five broad learning outcomes:

1. Children have a strong sense of identity;
2. Children are connected with and contribute to their world;
3. Children have a strong sense of wellbeing;
4. Children are confident and involved learners;
5. Children are effective communicators.

While government directives advise teachers that how they implement the framework will be determined by their unique early years context, the QIPT (ACECQA, 2011) will assess the effectiveness of implementation processes by means of government standard specifications. For example, it will consider the extent to which the EYLF informs the development of the early years program towards enhancing each child's learning and development, and how successfully teachers design and implement programs that support children's learning.

Early childhood teaching approaches

On initial observation, Western Australian kindergarten and pre-primary classrooms present as having similar learning environment, program, teacher role and staffing requirements. However, on closer examination it is evident that there are significant differences in teaching approaches. Embedded within different teaching approaches are educational ideologies which are shaped by cultural considerations, philosophical principles and theoretical perspectives (Crotty, 1998; Briggs & Potter, 1999; Mac Naughton, 2003). For the purpose of this study, I limited my literature review to examining five teaching approaches. This section provides brief descriptions of these approaches: Traditional-Structured, Play-Based, Developmentally Appropriate Practice, Multi-Aged Grouping and *Reggio Emilia*-inspired.

1. Traditional-structured approach

A curriculum associated with this approach is characterised by a high level of formality, particularly in

relation to learning literacy skills. Program activities are predominantly teacher-directed and prescriptive:

For each new activity, materials were changed and distributed to every child by adults ... The teaching focus was on academic skill development and close adherence to the formal syllabus pre-planned for the year, mainly the ability to read and write the alphabets and numbers. The educational philosophy offered little scope and opportunity for children to develop skills in self-expression. (Gupta, 2001, p. 35)

In this research study, 'traditional' pedagogy within a 'structured' program targeted child development utilising the Western Australian Department of Education Level 1 (Year 1) student outcomes and standard measurements.

2. Play-based approach

Teachers adopting a play-based approach aim to give guidance to self activity and free play in a non-prescriptive manner while remaining responsive to children's interests. Evidenced in the literature are many examples that support the efficacy of play in ECE:

...through play, children demonstrate improved verbal communication, high levels of social and interaction skills, creative use of play materials, imaginative and divergent thinking skills and problem solving capacities. Play and playful forms of activity potentially lead towards increasingly mature forms of knowledge, skills and understanding. (Anning, Cullen & Fleer, 2004, p. 21)

While play is recognised as a means of promoting child-initiated learning of literacy, its provision (time, space and resources) within an early years setting is teacher dependent. With curricular constraints and policy mandates for teaching the three R's, early intervention and primary school program integration, the quality of play in ECE has eroded.

3. Developmentally appropriate practice approach

As pressure to provide more structured learning activities in early childhood education increases, so too does interest in developmentally appropriate practice (DAP). Supporters of this teaching approach believe that while there are individual differences in child development, nurture can stimulate language development providing that age-, individual-, social- and cultural-appropriateness of language activities is ensured.

In recent years, the word 'development' has become a loaded term, implying there are universal stages that 'normal' children progress through to adult maturation. Research has shown that developmentally appropriate practice is culturally determined, thus culturally

biased. A culturally specific childhood is defined for mainstream education purposes. A DAP program will reflect the teacher's 'cultural orientation [towards language development] and their personal beliefs regarding what is best for young children' (Szente & Hoot, 2002, p. 30).

4. Multi-aged grouping approach

Typically, Multi-Aged Grouping refers to 'educational settings which have two basic features: (a) there is a mixed age grouping of children, and (b) these children are deliberately organised for teaching and learning according to educational principles which assume that they will benefit from mixed age strategies' (Scott, 1993, p. 52). Advocates for Multi-Aged Grouping contend that cross-age learning environments better accommodate children's uneven development.

Research confirms that the Multi-Aged Grouping (MAG) approach in the early years is a philosophy as much as a practice and in classrooms that include non-compulsory (kindergarten and pre-primary) and compulsory ECE, teachers tend to adopt 'more formal types of learning, which included whole group team teaching and modified Year 1 curriculum for pre-primary [and kindergarten] children' (Stamopoulos, 2003, pp. 10–11).

5. Reggio-inspired approach

The *Reggio* approach, which originated after World War II in Northern Italy, promotes social constructivist learning principles; the idea that 'knowledge is socially constructed in a cultural setting' (Hill, Stremmel & Fu, 2005, p. 7) and that 'there is no knowledge independent of the meaning attributed to experience (constructed) by the learner, or community of learners' (Hein, 1991, p. 1). Children are recognised as 'unique individuals with rights', who are 'rich in resources, strong and competent' (Rinaldi, 1998, p. 114). Children are encouraged to take leadership in planning, and to assume responsibilities for their own learning.

The term *The Hundred Languages of Children*, synonymous with the *Reggio* approach, denotes how children learn and communicate in a myriad of multi-levelled and multimodal ways. In the classroom, children have ready access to a wide range of media (including ICT) that they can use to design meaning. In Australia, the potential for a *Reggio-inspired* approach to broaden the definition of literacy depends on school support.

While the five approaches identified above are described as generic forms, in reality teachers will reject, adapt, modify, and blend many different approaches based on what they perceive as the role of ECE.

Methodology

Ethnographic inquiry strategies were considered most appropriate for this study for two reasons. First, the research was exploratory and needed a flexible methodology which was responsive to unpredictability. Second, ethnographic inquiry facilitates the use of inductive strategies to learn about cultural conditions, local knowledge and teaching approaches (Flick, 2002). The approach assists the researcher 'to recognise that different people ...inhabit quite different worlds' and that their 'different worlds constitute for them diverse ways of knowing, distinguishable sets of meaning, separate realities' (Crotty, 1998, p. 64). The fieldwork included 'a process of deliberate inquiry in a setting' (Erickson, 1986, p. 140). Methods employed to gather data included classroom observations, semi-structured interviews, document analysis of school literature, teachers' early years programs and children's work samples.

Observations in each classroom occurred on a fortnightly basis over a nine month period for a minimum of five hours per visit. A total of 120 children (aged 4–5 years) were observed participating in classroom activities. The five teacher participants were females aged between 35–50 years. Each was highly respected within their own school community for their outstanding professionalism in ECE. Four of the teachers had participated in an Australian Research Council (ARC) action-research project, *A Pedagogy for Multiliteracies with Information and Communication Technologies in Early Childhood Education*, and volunteered to be participants in this research study. During action research workshops (2004–2006) the four teachers wrestled with a range of philosophical issues pertaining to broadening literacy definition and ICT integration appropriate for ECE. My concern that ICT experiences supporting Multiliteracies learning would not be observed in their classrooms during fieldwork led me to contact a fifth teacher. This teacher had not participated in the workshops, was unfamiliar with the term Multiliteracies (although well-acquainted with *The Hundred Languages of Children*) and actively sought authentic ways to integrate ICT in student learning.

Following fieldwork completion and data transcription, a three-fold process was undertaken. First, a series of individual case studies were compiled directly from the fieldwork data. Case studies were selected as the most appropriate method of presenting the individual data as they enabled capture, through rich description, of the culture of individual ECE settings, and emphasised culturally specific language, concepts and events. Second, further analysis was undertaken, using both inductive and deductive processes. Inductive analysis,

described by Neuman (2000) as 'open coding', was used to identify broad themes in individual cases and then to establish theme commonality between cases. Deductive analysis was then used to re-examine all raw data for the purpose of gathering additional information on theme attribute difference. Third, a cross-case analysis of the data using the EYLF QIPT was undertaken.

The multi-stage process yielded rich findings, illuminating powerfully how different pedagogical considerations shaped the dialogic intersection of ICT, Multiliteracies and ECE. However, in the process, 'local narratives' were fragmented (Rosenau, 1992, p. xii). To remedy this, the presentation of the individual case studies was altered to emphasise 'the uniqueness and holism' of each case, whilst retaining the thematic analysis (Noblit & Hare, 1998, p. 7). I elected to use *Blank Verse* poetry as a narrative medium that would enable my communication of participants' voices (pseudonyms used) on significant themes and convey the 'local narratives' – story excerpts of participants' told experience (Rosenau, 1992, p. xii). I selected and grouped words spoken by the teachers, to emphasise my utterance as the storyteller as I believed this was more effective than ordinary prose. Tedlock (1983, cited in Brady, 2005, p. 994) argues that treating oral narratives (such as those communicated during semi-structured interviews) as dynamic poetry can yield many analytic and aesthetic rewards:

The apparent flatness of many past translations is not a reflection but a distortion of the originals, caused by the dictation process, the notion that content and form are independent, a pervasive deafness to oral qualities, and a fixed notion of the boundary between poetry and prose. Present conditions, which combine new recording techniques with a growing sensitivity to verbal art as performed event rather than a fixed object on the page, promise the removal of previous difficulties. (pp. 54–55)

Consistent with the qualitative paradigm, it is acknowledged that these case studies retain uniqueness and holism, and have been shaped by multiple realities of 'truth'. No attempt is made to treat them as a representative sample of wider Western Australian ECE. In the following sections the analysis of the data is presented and discussed. First, I present the thematic analysis of the case studies and the case study poems, and discuss their implications. This is followed by the cross-case analysis.

Individual case studies

The five case studies are presented below, each with:

- A brief contextualising summary of the teacher's pedagogical stance.

- A case study poem voicing the teacher's perspective on four themes identified during data analysis as common to all participants. These are: *Image of the child*; *School context*; *ICT integration*; and *Multiliteracies*.
- A discussion of how ICT was integrated in ECE to support Multiliteracies learning, and of the effectiveness of this integration.

Case-study 1: A Structured-Traditional Approach

Lea believed it was important that her students learned societal values and behavioural protocols in order to 'fit in the [public] school system'. She lamented families' inability to facilitate mainstream socialisation, and this perception of deficiency validated her structured teaching approach. While Lea believed students' learning activities initiated 'off the cuff' were more meaningful and more responsive to students' interests, she preferred not to adopt this teaching approach. She insisted, 'It has to suit your personality type.' From this statement, it could be theorised that teachers whose preference is to implement a structured program with tightly controlled routines do not feel comfortable accommodating an emergent curriculum because of its unpredictable nature.

Lea's Voice: Moving Forward

*The child is dependent, is vulnerable,
Needs structure, a safe environment with
Tight routines, high predictability.
Must learn to fit in, move forward,
Needs traditional, conservative ways.*

*It's an old school, isolated, quite sad,
With limited funding for resources,
With limited support from anyone.
You learn to make do, stop asking,
You learn to compromise.*

*ICT are great tools, but they're expensive.
They need to be handled so carefully.
With clean hands in a controlled environment.
ICT resources are unreliable, inaccessible,
Lots of trouble, not working brilliantly.*

*Multiliteracies helps to understand
New literacies for a fast changing world,
Cultural changes in communication,
Involves teacher-directed activities,
Teacher-selected resources.*

Integration of ICT to support Multiliteracies learning
In this early years classroom a high level of

teacher-modelling of ICT functions and applications was evident during whole-class traditional-structured literacy lessons. The learning environment was tightly controlled and except for a few children chosen to perform teacher-directed tasks under close adult supervision, most children were passive observers. There was limited support and few resources for children's 'hands-on' ICT experiences. Thus, ICT supported Multiliteracies learning minimally, incidentally, and at random for select children. While Lea acknowledged that Multiliteracies encompassed 'new literacies for a fast changing world', learning to speak Standard Australian English was assigned highest program priority in her program, as expected by school administration.

Whilst a teacher may be motivated to integrate ICT into an ECE program for the purpose of moving children forward in their development, may agree in principle with the merits of broadening literacy definition, and may attend ARC university-based teacher professional development workshops, this is arguably not enough to secure its effective integration in the sense of children's 'hands-on' ICT experiences and their design, construction and communication of individual 'messages and meanings'. When teacher pedagogy is directed towards children 'fitting in' and 'moving forward' in the mainstream school system, guided by the Department of Education 'adult-centred' curriculum approach, a structured ECE program is prepared and implemented. The measurement of outcomes and standards dominates literacy activities. The completion of teacher-assigned learning tasks through overt instruction is assigned high priority, resulting in less time for children to initiate individual designs of meaning. When the child's right to take initiative for their learning falls away, less cultural and linguistic diversity is evident.

This case also illustrates the impact of teachers having inadequate ICT classroom support and inaccessible or unreliable ICT classroom resources.

Case-study 2: A Developmentally Appropriate Practice (DAP) Approach

Marlene adopted her pedagogical stance on the basis that the *Curriculum Framework* (Western Australian Curriculum Council, 1998) mandated that teachers provide students with 'developmentally appropriate' learning experiences. Marlene was receptive to new ideas and ways to better connect her teaching to student learning. Her teaching approach was orientated towards achieving Department of Education pre-defined learning outcomes. She provided students with structured activities related to a study theme to connect all classroom learning. Time for students to play and

assume ownership of their learning was a peripheral program consideration.

Marlene's Voice: Enhance the Learning

The child can perform tasks with skill and Independence, does magnificent work. Needs to be supported, to 'have a go'. Needs to listen, to follow instructions. Needs time to play, to learn the basics.

The centre is new, resources are new. Parents generous, assistants supportive, Teacher colleagues are super-committed. I'm in a good situation, I'm valued. There's time to meet, to discuss new ideas.

ICT are tools that can support learning, I have access to many ICT resources; An ICT Information Centre, ICT Committee, ICT gurus. There's a generous ICT budget.

Multiliteracies is fashionable, nothing new. It is a combination of the five senses, with a linguistic emphasis. Coping with a changing society. Individual learning style, a good thing to do.

Integration of ICT to support Multiliteracies learning
ICT learning processes occurred during a series of language lessons using teacher-selected resources under close teacher supervision. Children's 'hands-on' ICT experiences occurred during group work and during the teacher's one-on-one instruction. A high level of teacher-modelling was evident. Opportunities to experiment with ICT occurred largely during free-choice computer time for interested children. In this classroom, ICT supported Multiliteracies learning incidentally and when the teacher perceived it as enhancing the achievement of predefined program aims. Multiliteracies was considered 'fashionable but nothing new' as it involved multi-sensory experiences and accommodating individual learning styles, which are strong ideological beliefs embedded in ECE philosophy.

This supports Case 1 findings in that while an ECE teacher may be motivated to integrate ICT into their program to enhance learning, and may agree in principle on the need to broaden literacy definitions, this is not enough to secure its effective integration. In Case 2, unlike Case 1, the teacher had ready access to high level ICT school support, ICT gurus, and a wide range of accessible and reliable ICT resources. In this case, program design was dominated by a developmentally appropriate practice paradigm. Thus, ICT was integrated only if the teacher deemed it was

'appropriate' – i.e. when it was perceived as enhancing learning within the parameters of a pre-defined program. Young children's ICT literacy interests may be recognised but not necessarily integrated as stimuli for Multiliteracies learning. Pedagogical consideration of 'technology play' is accommodated but remains a peripheral feature. Unless specifically planned for, opportunities for Multiliteracies learning occur incidentally during children's 'free-time' play investigations. Its potential to support cultural and linguistic diversity remains untapped.

Case-study 3: A Multi-Aged Grouping (MAG) Approach

Nicky's primary consideration was that all learning should be meaningful and child-centred. Nicky had a positive attitude towards trialling the MAG approach across her school's four early years classrooms. However, school administration expectations that she implemented a formal learning program to facilitate students' achievement of Department of Education English learning outcomes in reading and writing resulted in her adopting a more structured teaching approach. Nicky stated that she had always focused on the children's interests, but now she needed to collaborate with three other MAG teachers to ensure the four MAG classes completed similar lessons with common literacy tasks. Nicky confirmed that the MAG program largely determined lesson content hence there was less program flexibility to respond to student diversity.

Nicky's Voice: Making Connections

The child is resourceful, their own person, An individual, making decisions. Can express themselves in different ways. They're wanting to share interests, to connect, To realise their early childhood dreams.

Admin, really behind us, in a MAGs way. Working collaboratively, heaps of ideas. Multi-aged grouping, streamed ability. Structured timetable, restrictive. I want to provide more materials, time, space. ICT, is all different technologies. Tools to be used in different ways, That can support learning, can express feelings. Designing in an interactive way, To show others, help others, to take turns. Multiliteracies involves learning styles, Multiple intelligences, thinking hats, Multiple ways of communicating. Need resources; paper, paints, blocks and glue, Small and large working spaces to design.

Integration of ICT to support Multiliteracies learning
Duplicate literacy learning experiences occurred for all children during a series of teacher-planned lessons using teacher-selected resources. In this classroom, ICT supported Multiliteracies learning incidentally, as a free-choice activity for interested children and on occasion during structured language lessons. ICT supported Multiliteracies learning in ECE as a peripheral feature of a teacher-directed MAG program. Multiliteracies were associated with Gardner's (1983) theory of *Multiple Intelligences*, De Bono's (1985) *Six Thinking Hats*, and Malaguzzi's (1998) *The Hundred Languages of Children*.

This case suggests that having a receptive ICT pedagogy 'making connections' with child learning is insufficient. MAG, aimed at increased flexibility in class structures to provide for the needs of identified groups of children, resulted in pedagogical compromise and restriction of ICT integration and Multiliteracies learning. In the context of streamed-ability groupings and adult-centred curriculum programs there were fewer opportunities to integrate these processes in ways that enabled personal connection to students. The school assigned higher priority to early intervention practices aimed at promoting child learning of 'alphabetic' literacy. School ICT resources and support were insufficient to realise individual teachers' pedagogical aspirations. Whole-school priorities focusing on students' ability to reproduce a tightly confined set of linguistic conventions impeded opportunities for them to flourish as independent makers of meaning.

Case-study 4: A Play-based Approach

Diana wanted her students to become independent initiators of their own learning, including Multiliteracies learning. Diana considered that the most important aspects of her program were supporting socialisation processes in a *Reggio*-inspired learning environment through child-initiated play. Diana did not feel the need to teach students to count, know their letters, identify colours, or become IT-savvy in readiness for formal schooling. Her pedagogical considerations were directed towards providing an informal early years learning program where students could access a richly-resourced environment to support their learning interests with minimal adult intervention.

Diana's Voice: Independence

*The child has a strong sense of ownership,
Has a point of view, can make sound judgements,
Can be quiet, shy, very reserved.
Is perceptive, can demonstrate success
In a middle-class way, can be at risk.*

*Country living, relaxed, remote, removed,
Freedom to do what I want, teach how I want.
Large space, well resourced, Reggio-inspired.
Environmental constraints, budget constraints.
Need someone to support my ideas.*

*ICT, definition uncertainty.
Visual record, electronic media.
There's 'hands-on' experiences, no finite goal.
I'm not pushing it, it's another resource.
No-one came to see my ICT ideas.*

*The term Multiliteracies is awful, imposed,
It's the 'literacy' bit, a stumbling block.
Prefer The Hundred Languages of Children,
Accessible resources on trolleys, on shelves.
Supporting activities children are interested in.*

Integration of ICT to support Multiliteracies learning
Learning occurred as a 'hands-on' activity for interested children, through child-initiated spontaneous use, and was supported by peer tutoring during a flexible school day where provision for 'play' was assigned high priority. Children could access a range of ICT resources independently which supported their Multiliteracies learning. Within a relatively unstructured program, there were multiple opportunities for children to express cultural and linguistic diversity to no one in particular. In this classroom, ICT supported Multiliteracies learning incidentally for interested children during spontaneous technology play experiences and was supported mostly through informal peer tutoring. Diana associated the term Multiliteracies with traditional-structured teaching practices. She believed that new pedagogies for expanding communication landscapes (Healy, 2008) were better aligned with *The Hundred Languages of Children*.

This case illustrates the importance of teacher access to colleagues interested in regular pedagogical discussion of ICT, ECE and Multiliteracies. While a teacher may have receptive pedagogy, ICT skills, adequate ICT resources and an interest in ICT integration to support Multiliteracies learning, this is insufficient. Teachers implementing ICT to promote children's 'independence' in Multiliteracies expression without the support of interested like-minded colleagues can result in motivation 'burn out', thus limiting the potential for these processes to become powerful forces in children's early years learning. This case confirms that Multiliteracies pedagogy is best supported within the context of a community of peers.

Case-study 5: A Reggio Emilia- Inspired Approach

Zoe used the term ‘social constructivist’ to describe her pedagogy, stating that the *Reggio Emilia* teaching approach to ECE provided the best example of its principles in action. In her classroom, the ‘social component’ of social constructivism occurred when students learned how to: form a group, listen carefully, challenge group members’ ideas, and scaffold one another’s learning within a group setting. Zoe designed a program that involved three class meetings a day (each averaging thirty minutes in duration). There was generous provision of time and opportunity to ‘bake their ideas’. Learning projects remained broad-based and open-ended, enabling students to determine their study direction and use of available resources.

Zoe’s Voice: Possibilities

*The child already knows so much.
Is imaginative, resourceful, competent,
Naturally improvises, inquires, theorises.
Needs time to bake ideas, build ideas.
Has something to say. I need to listen.*

*I want to support children to achieve their goals.
The environment is very important.
Classroom learning needs to be transparent.
I am working with like-minded teachers.
We teach in a social constructivist way.*

*ICT has a broad definition.
Transferring knowledge, communicating.
It’s about providing the best resources.
Letting children explore possibilities.
We are so lucky, have backup, all share.*

*The Hundred Languages of Children means
Finding the best way to express learning,
Whatever language best suits the purpose.
To provide the best resources we can.
To try out ideas, to construct theories.*

Integration of ICT to support Multiliteracies learning
ICT was used throughout the school day, informally, during investigations when interested children found a purpose. It was accommodated through emergent curriculum and used to facilitate expression of *The Hundred Languages of Children*. There were multiple opportunities for children’s ‘hands-on’ experiences to design personal meaning and express cultural and linguistic diversity using a wide range of ICT resources. In this classroom, ICT supported Multiliteracies learning during short and long-term child-initiated, teacher facilitated, and open-ended project investigations. Zoe associated a pedagogy of Multiliteracies with children

communicating their knowledge and understanding in many different ways using *The Hundred Languages of Children*.

This case can be considered an exemplar, illustrating effective integration of ICT in ECE that facilitated Multiliteracies expression. Pedagogy and school culture were instrumental in supporting these processes. The teacher provided children with generous periods for child-initiated project work where spontaneous experimentation with the ‘constructional’ aspect of ICT and Multiliteracies learning were actively supported and new learning possibilities were explored. During class meetings there were multiple opportunities for children to voice their understandings and share ICT expertise and Multiliteracies learning. The school community generously funded ICT integration and Multiliteracies learning through a *Reggio*-inspired teaching approach and a commitment to *The Hundred Languages of Children*.

Cross-case analysis

Table 1 (below) provides a cross-case analysis of the five case studies, using the National Quality Standards and Elements of the ACECQA QIPT (2011). As noted earlier in this article, the QIPT (*Quality Improvement Plan Template*) was created by the new Australian Children’s Education and Care Quality Authority (ACECQA) in 2011. Whilst EYLF implementation is context-specific, the QIPT assesses the effectiveness of this implementation using standard specifications. The table focuses on Standards 1.1 and 1.2 of the QIPT, each of which contains several sub-elements. The italicised text provides an integrated, comparative analysis of how effectively the five case study teachers were observed during the study to have implemented each element of these QIPT standards.

Conclusion

The five teachers involved in the study were all committed to integrating ICT in their early years programs, and recognised the necessity of broadening literacy definitions to include multimodal forms of communication. However, they all approached this differently, both because of their different pedagogical stances, and because of the differences in the way they accommodated children’s cultural and linguistic diversity. Each individual case study provided insight into a unique school context and classroom culture, factors which had a significant impact on ICT integration and its potential to support Multiliteracies learning.

The cross-case analysis clearly identified a *Reggio*-inspired approach as best supporting children’s achievement of the EYLF outcomes. While the Italian

Table 1

Standard 1.1 An approved learning framework informs the development of a curriculum that enhances each child's learning and development		
Element 1.1.1	Curriculum decision making contributes to each child's learning and development outcomes in relation to their identity, connection with community, wellbeing, and confidence as learners and effectiveness as communicators.	<i>While all teachers designed a program aimed at enhancing children's learning and development, learning outcomes did not necessarily relate to children's sense of identity and wellbeing. Study themes evident in the traditional-structured, DAP and MAG approaches that sought to make community connections were teacher-selected and the activities were teacher-directed. These activities did not afford children ownership of their learning and therefore did not promote children's confidence as independent learners. There was minimal time for children to voice an opinion on all matters affecting them. The play-based program afforded opportunity for these processes to occur but only if the teacher was involved in the children's play. The Reggio-inspired approach provided opportunities for children and teacher to collaborate on child-initiated learning projects. Cultural and linguistic diversity was accommodated. Each child's identity was valued and their confidence to share knowledge and understanding with others was actively supported.</i>
Element 1.1.2	Each child's current knowledge, ideas, culture, abilities and interests are the foundation of the program.	<i>Opportunities for each child's current knowledge, ideas, culture, abilities and interests to be used as the foundation of the early years program were most evident in the Reggio-inspired program. The play-based program integrated these qualities incidentally, and they were facilitated through an emergent curriculum. Evident in the traditional-structured, DAP and MAG programs were teachers' knowledge, ideas, culture, abilities and interests, used as the foundation of the program.</i>
Element 1.1.3	The program, including routines, is organised in ways that maximise opportunities for each child's learning.	<i>The classroom timetable had an impact on children's learning opportunities. In the traditional-structured, DAP and MAG classrooms, a rigid timetable was enforced to the extent that time to play became a peripheral feature occurring between teacher-assigned tasks. The play-based and Reggio-inspired programs were free from program fragmentation. Learning was maximised as activities could continue uninterrupted by school bells and whole-school demands.</i>
Element 1.1.4	The documentation about each child's program and progress is available to families.	<i>Four teachers prepared portfolios displaying children's work. Uniformity of this work was most evident in the traditional-structured, DAP and MAG programs. The play-based program provided a daily visual diary for parent perusal of class activities. The Reggio-inspired program most captured the cultural and linguistic diversity of children, without any evidence of template worksheets and conformity.</i>
Element 1.1.5	Every child is supported to participate in the program.	<i>As evidenced during fieldwork, not all children were equally supported to use ICT to support Multiliteracies learning. In the traditional-structured, DAP and MAG programs the teachers decided what and how children would learn through the implementation of a structured program. Multiliteracies learning occurred minimally, incidentally, at random for select children. Children's interests were peripheral considerations.</i>
Element 1.1.6	Each child's agency is promoted, enabling them to make choices and decisions and influence events and their world.	<i>Young children's 'hands-on' ICT experiences that express their designs of meaning using preferred resources is critical if the 'constructional' merits of ICT and relevancy of Multiliteracies learning is to be realised in contemporary Western Australian ECE. The Reggio-inspired approach recognises the children as unique individuals with rights, who are rich in resources, strong and competent. Teachers adopting this approach are more likely to promote each child's sense of agency and allow them to make decisions affecting them.</i>
Standard 1.2 Educators and co-ordinators are focused, active and reflective in designing and delivering the program for each child		
Element 1.2.1	Each child's learning and development is assessed as part of an ongoing cycle of planning, documenting and evaluation.	<i>All teachers implemented an ongoing cycle of planning, documenting and evaluation. It was the parameters of learning that significantly differed. Teacher-centred approaches specified learning outcomes in terms of Department of Education outcomes and standards, with activities imposed on the child. The play-based and Reggio-inspired approach accommodated emergent curriculum based on the interests of the child. These interests served as a catalyst for program planning, documentation and critical reflection.</i>
Element 1.2.2	Educators respond to children's ideas and play and use intentional teaching to scaffold and extend each child's learning.	<i>Fieldwork observations confirmed that within the traditional-structured, DAP and MAG programs, play was a peripheral feature with little interaction between the teacher and children during play. Therefore there was little opportunity to scaffold and extend children's ideas and interests whilst playing. In the play-based and Reggio approach, play was considered a powerful learning medium that was used to stimulate learning, particularly in oral language. Intentional teaching, involving purposeful and thoughtful deliberations, was evident in all approaches.</i>
Element 1.2.3	Critical reflection on children's learning and development, both as individuals and in groups, is regularly used to implement the program.	<i>During semi-structured interviews all teachers reflected critically on their early years programs, identifying strengths and limitations. Reflections were shaped by the unique school context and teachers' personal beliefs of how ECE should be conducted. Teachers sought support that was in alignment with their beliefs. Like-minded colleagues (on and off school site) reinforced teacher's personal belief systems on how best to facilitate student learning.</i>

Reggio approach has developed its 'own distinctive and innovative set of philosophical and pedagogical assumptions, methods of organisation and principles of environment design' (Edwards, Gandini & Forman, 1998, p, 7) it provides Australian teachers with an alternative education model that can promote *The Hundred Languages of Children* (including ICT) and in so doing support Multiliteracies learning. The Reggio approach will resonate with teachers who recognise the complexities of learning to be literate in the 21st century. Traditional-structured approaches to Multiliteracies learning in a world that has become highly technologically sophisticated are not only inadequate but an impediment to educational innovation and change.

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Sandra Hesterman is a Senior Lecturer in Education at Murdoch University, Western Australia. Sandra's research and teaching expertise lies in the integration of information and communication technologies to enhance multiliteracies learning and expression. Sandra has a wide range of experience working with children, families and schools in Western Australian and international schools. She has a particular interest in critical pedagogy and philosophy of education.