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Preservice early childhood teachers' self efficacy, teacher preparedness and facilitating children's learning of concepts in multiple contexts.

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Abstract: The Bachelor of Education (Early Childhood) at the University of Southern Queensland (USQ) focuses on pedagogy that emphasizes children's ability to recognize concepts in multiple contexts. While preservice teachers at USQ are assessed in many ways to determine their ability to create and facilitate high quality learning appropriate to syllabus requirements and children's needs, a detailed assessment of preservice teacher's success in implementing learning experiences that facilitate children's capacity to recognize concepts in multiple contexts does not typically occur. There is very little research that addresses the extent to which preservice teachers understand this pedagogical paradigm or implement it in a critical way. Without research-based evidence providers of preservice teaching programs are unable to make strategic decisions in terms of course improvements, course content and structure of professional experience tasks. The research reported in this paper will provide information crucial to improving undergraduate early childhood preservice teaching programs and graduate effectiveness. Preservice teacher's feelings of preparedness, confidence to achieve teaching goals, related student motivation and the impact of self efficacy on praxis will be developed in this paper.

Keywords: **Preservice teacher education programs**

Introduction

Current literature indicates that a personal pedagogical paradigm is a continuum which builds at varying rates during life and is modifiable when an individual's beliefs are confronted by changing realizations and new realities. Archetypes and mentors have significant influence on individuals' inclination to change paradigms and the way and extent to which a shift occurs. Teacher efficacy is perception based and results oriented and is both context and subject-matter specific. Since early childhood teachers most frequently see themselves as carers they typically incorporate this view into their personal pedagogical paradigms. Similarly, whether their paradigms are built on internal or external loci of control may also strongly influence their perceptions of self-efficacy. But as an element of personal pedagogical paradigm it is difficult to obtain valid and reliable measures of self-efficacy. In addition, although consideration of multi-modal theory as an element of teacher effectiveness has received some opposition, research in this area is showing support on the basis of constructivist theory. The focus issue of pedagogical paradigm and the associated issues of teacher efficacy and multi-modal learning in relation to fourth year Bachelor of Education in the context of early childhood education underpins the discussion in this paper. It is hypothesized that undergraduates' pedagogical paradigms shift during the course of their formal preservice teacher education as their knowledge base increases and they are exposed to realities of the classroom on their professional experiences.

Pedagogical Paradigm

A review of current literature indicates that the individual's pedagogical paradigm has been found to follow the pattern of their personal paradigm; that is , their way of

viewing and thinking about the world as they experience it, shaped by their values, experiences and personality dispositions. Our view of the literature leads us to propose that personal paradigm is a continuum, responding to or effected by accumulating experiences and knowledge (Grundy & Hatton, 1998; Holt-Reynolds, 2000; Zanting et al, 2001). It builds steadily during a student's life, accelerating in undergraduate years and the first one to three years of teaching, and then continues to develop at a more steady pace during the professional years. It is not broken or interrupted as such but modified as individuals' beliefs are confronted by contradicting aspects of reality (Gordon & Debus, 2002; Richardson, 1996). Additionally, preservice teachers' existing pedagogical paradigms are derived from their personal experience as children in school and from familial culture and archetypal influences. This is supported by Grundy and Hatton (1998) who emphasize the "importance of acknowledging the influence of biography in understanding teachers' work" (p.121).

A further influence on pedagogical paradigm is the psychology of the individual (Buendia, 2000). He examined the issue of individual psychology and in his single case study found a correlation between the individual's pedagogical paradigm and their personal paradigm. In arguing the importance of these relations to responding to ecological perspectives on practice formation he notes that "in learning to be a teacher, preservice teachers summon a cacophony of discourses to conceptualize their pedagogical practice" (p. 151). Buendia (2000) also highlights the fluidity of preservice teachers' relations with the various entities of their environment as influencing their paradigm, both personal and pedagogical. For instance, when a pre-service teacher dealt with a pupil behaviour management incident that pre-service teacher coded the pupils' actions consistent with her own psychological / individual

discourse. Holt-Reynolds' (2000) work on constructivist pedagogies, similarly, considered the importance of classroom discourses but in relation to pupils recoding of discourse and the issue of engagement and pupils' participation.

In addition, it is suggested that the attrition rate of beginning teachers, i.e. during their first three years of teaching, is influenced by pedagogical paradigm. For instance, Goddard and Foster (2001) found archetypal dynamics, i.e. the dynamics of role models, to be crucial to neophyte teachers' determination of teaching as an appropriate career. Regardless of whether the archetype was a family member or teacher or both, the pedagogical paradigm giving rise to the career choice was seen as deriving from the strong influence of the conceptual affinity with the archetype. This corresponded with Salisbury-Glennon and Stevens (1999) work on preservice teachers' conceptions of motivation, showing that their "prior knowledge about teaching and learning may differ substantially from the theories and ideas presented in their education courses" (p. 741).

Besides being important for teaching in general, research into subject-specific areas has shown pedagogical paradigm to be equally important e.g Mapolelo's, (1998) work in mathematics. Richardson (1996) argues that preservice teachers hold beliefs about teaching and learning such as, what learning is, what a teacher's tasks are and how a teacher can manage a class. These beliefs are seen as personal and based on their own experiences. These personal beliefs are modified during preservice teacher education and continue to shift during the early in-service years, particularly the first year, and as teachers' personal experience and efficacy grow throughout their career (Gratch,1998): "first year teaching experiences are powerful influences on teachers' practice and attitudes throughout the remainder of their careers" (p. 354).

Shultz, Neyhart, and Reck (1996) highlight the importance of understanding *how*
teachers' beliefs, attitudes, and dispositions are interwoven with their knowledge,
skills, and behaviors of classroom teaching. Changing the pedagogical paradigm is
seen as more of a modifying process that varies in rate over time rather than a break or
shift because individuals have an inherent psychological predisposition to resist
confrontation of their belief system, i.e. an ego defensive response. It would seem
that teachers' growth in confidence to teach, which implies them believing they are
being successful in their teaching, might be another key factor in facilitating positive
pedagogical paradigm changes (Taylor & Sobel, 2001).

Zanting, Verloop and Vermunt (2001) argue that the dynamics operating between mentors and
student teachers impacts on preservice teachers' pedagogical paradigm. They consider how
preservice teacher beliefs acts as "the filters through which new knowledge, ideas, and
experiences" noting that preservice teachers are more likely to change their pedagogical
paradigm when confronted by "a teaching situation in which . . . [they] cannot hold on to. . .
[their] beliefs" (p. 725-726). In their consideration of the impact of professional experience
Zanting et al, (2001, p. 727) cite Leinhardt, McCarthy Young, and Merriman's (1995)
argument that " . . . there is a need for 'theorizing practice' and 'particularizing theory'" yet
they also found that " [m]entors are not inclined to articulate practical knowledge, and
student teachers are not trying consciously to access it". In other words, preservice teachers
need to comprehend why mentors do what they do when they teach but that knowledge may
not always be forthcoming or understood.

Mallette, Kile, Smith, McKinney, and Readence's (2000, p. 594) work on pre-service
teachers' construction of meanings found that in the absence of a master teacher there

was "a strong need for contextualized situations . . . [in this case] student teachers

tended to revert to basals and teacher's guides because they felt unsure of how to

implement reading instruction to meet all the students' needs" (p. 594). Further, these

preservice teachers had a low level of confidence and as Mallete et al. (2000) suggest

the children respond to this:

" as beginning teachers, their students often perceive and internalize the meanings that

the teachers bring with them" (p. 594). Although the literature isn't clear it may be

that this reversion behaviour, in the absence of the mentor teacher, is the result of

preservice teachers retreating to a position where they are heavily reliant upon written

text rather than mentoring.

In Wood and Bennett's (2000) investigation of early childhood teachers' theoretical and

practical change it was argued that change followed a three-stage model. It was seen as

beginning with reflective considerations, followed by problematizing practice and changing

theories and practice. It was found that "contextually situated stories enabled the teachers to

articulate the complexity of their thinking and practice and provided a professional discourse,

thus providing an ' inside-out' perspective on the theory-practice continuum [such that] . . . the

perception of practice as problematic is a prerequisite mental state for change" (pp. 644-645).

Teacher Efficacy

The work of Tschannen-Moran and Hoy (2001) define "teacher's efficacy belief [as] .

. . a judgment of his or her capabilities to bring about desired outcomes of student

engagement and learning, even among those students who may be difficult or

unmotivated" (p. 783). They enlarge on this definition by noting that teacher efficacy

is related to a range of educational outcomes. These include teachers' persistence,

enthusiasm, commitment and instructional behavior and students' achievement,

motivation, and self-efficacy beliefs.

A teacher's perception of his/her own efficacy is seen as affecting the effort they

invest in their teaching, as well as the goals they set and their level of aspiration in

their professional field and career (Gordon & Debus, 2002) (Minor et al, 2002)

(Tschannen-Moran et al, 1998). Teachers with a strong sense of efficacy have been

found to manifest greater levels of planning and organisation in their work, to be more

open to new ideas and to be more willing to experiment with new teaching methods.

They are more persistent in their teaching effort, less critical and more able to sustain

empathy and support for their pupils. They have greater enthusiasm for and

commitment to teaching and more tenacity in their work and profession (Ashton &

Webb, 1986).

Given that teachers' confidence in their own efficacy is based on their own perception

of it, and that perception is fed by results, it follows that a construct is inferred by the

literature. Preservice teachers' confidence and perceived efficacy will have grown as

they move from novice status through their practicum experiences. As they become

neophyte teachers their confidence in their efficacy can decline as they find they are

unprepared for the characteristic loneliness of teaching and the political competition

for teaching resources. The literature indicates that neophyte teachers' archetypes

exert an influence on the extent of such decline, though archetypically derived

knowledge may provide some measure of preparedness. Additionally, Mapolelo's

(1998) subject-specific research on mathematics teaching found that preservice

teachers' efficacy declined in response to less than adequate lesson planning, instructional activity and reflection after teaching.

Thus, while recognizing teacher efficacy as a key variable the validity and reliability of its measurement is under some question. The development of a measurement tool has been difficult and protracted. In addition, the conceptualization of efficacy, its specificity to given contexts and the transferability of efficacy beliefs across contexts has been a source of disagreement. Approaches to measurement of teacher efficacy have applied Rotter's social learning theory (Burke, 1983; Pervin, 2004) that focuses on the correlation of teachers' perceptions of their efficacy as to whether they perceive their efficacy to be controlled either externally by the environment or internally by their own ability to teach (Ashton et al, 1982). Guskey's (2003) 30-item survey instrument identified a significant correlation between teacher efficacy and student outcomes. Pertinent to this research is the fact that teachers were found to assume greater responsibility for positive rather than negative student outcomes, and greater efficacy was related to high teaching ability confidence. This was consistent with the locus of control indicators in Rand's work (Henson, Kogan & Vacha-Haase, 2004).

More recently, Rose and Medway's (1981) *Teacher Locus of Control (TLC) instrument* proved to be a better predictor of teacher behaviors than Rotter's internal – external scale. (Rose & Medway, 1981) In essence, they found that teachers with high efficacy on both measures (responding to: I can, teachers can) had more internally oriented scores on the TLC for both student success and student failure than teachers who scored low on both (I can't, teachers can't). Further, another line of enquiry,

developed from Bandura's (1986) social cognitive theory proposed outcome

expectation in addition to and distinct from efficacy expectation. It was asserted that,

whilst outcome expectation added little to the predictive power of efficacy

expectancies it could provide incentives and disincentives for a given behaviour.

Gibson and Dembo (2002) developed the teacher efficacy scale (building on the work

of Rand and Bandura) into a more popular survey but conceptual and statistical

problems remain. Since efficacy is both context and subject-matter specific,

specificity in teacher efficacy measurement remains a problem and the predictive

value and generalisability of global measures remain undetermined. There is general

conceptual agreement about *personal* teaching efficacy, however the concept of

general teaching efficacy remains the subject of debate. To date, examinations of the

relationships between the various measures have found most to be too general,

lacking sufficient specificity from which to predict and generalize. Gordon and Debus

(2002) examined the effect of preservice teachers' own learning approaches on

personal teaching efficacy and considered interventions involving course redesign.

Whereas the literature indicates that pedagogical paradigm is modified rather than

broken or interrupted by educational institutions, the literature does suggest that it is

possible for the development of teaching efficacy to be interrupted by specific

teaching education contextual changes. Although Gordon and Debus' work focused on

a specific teaching program which may not necessarily apply in other contexts or may

require modification to be adapted in other courses of study, they concluded that "the

process of generating these potential modifications . . . may be transportable to other

settings" [and that] ". . . beginning teachers whose efficacy beliefs were formed on the

basis of deep learning approaches may demonstrate greater resilience to the threats to

efficacy identified to impact on teachers in their early years in the profession" (p. 506).

Mentoring of preservice teachers, therefore, is a significant issue as is the subject of pedagogical paradigm. Preservice teacher efficacy, mentoring and practicum reflection are seemingly intertwined in the literature. Self-perception of efficacy would be expected to reach a peak during the professional experience before declining in the first year of in-service teaching. Dobbins (1996) found that during the practicum mentor-related reflection correlated with efficacy. This work area examined the current conventional views that reflection adds power and control to the preservice teacher's own learning and sense of efficacy, and that teaching, and the teaching climate are changing, and that teaching is a moral endeavor as well as practical and intellectual activity. It was concluded that reflection in the practicum is qualitatively improved by "clarifying one's definition of reflectivity, being clear about one's priorities for a practicum, being explicit about how beliefs are put into practice and being prepared to step outside the roles and relationships to which we may have become accustomed" (p. 278). Martinez (1998) argues that "the practicum in preservice teacher education can be seen as a rich site for further exploration" (p. 104) and as Lovat (1999) has stated "[f]ield experiences must be more than practice without reflection, rules without understanding" (p. 125).

When the concerns of preservice teachers are considered, Mau (1997) found the greatest concern to be that of class control, followed by meeting the needs of pupils, (who were unmotivated or achieving at different levels from the norm). It was noted that even a pedagogical course on teaching, motivating and managing pupils did not change this priority of teaching concerns. This correlates with the findings of Ben-

Peretz, Mendelson and Kron (2002) regarding the images that teachers hold of their professional role. This study found that teachers most frequently see themselves as carers. Graham and Thornley (2000) found that many preservice teachers believe that their practical learning occurs in schools and that tertiary institutions are about theory. Thus, the retention of this perception throughout their preservice program may impact strongly on the likelihood of them changing their pedagogical paradigm.

Multi-modal approaches to teaching practices

Current literature on multi-modal approaches in teaching tend to be subject-specific (Prain & Waldrip, 2003; Russell & McGuigan, 2001) rather than being applied in general. However, research findings suggest a growing interest in this area and the potential application for a new pedagogical paradigm. For instance, Russell and McGuigan (2001) and Dolin (2001) found that learning through different representational modes in science produces more effective learning outcomes in both primary and secondary classrooms. In considering the view that learning is enhanced when a range of approaches are used in relation to the same concept, it was argued that learners need opportunities to generate a variety of representations of a concept and to recode these representations in different modes.

This is consistent with the notion of learners' different learning styles within the area of human functionality. It would be expected that a diversity of teaching modes would cater for differing learning pathways. This is supported by Prain and Waldrip (2003), whose research into multi-modal representations of concepts in learning science, found that students responded poorly in both attitude and performance when they moved from the student-centred approach to learning in primary school to the more didactic pedagogy in the secondary school. This kind of change in teaching

modes and learning pathways suggests that a close examination of preservice

teachers' (and mentor teachers') practices in this regard would be of substantial value

in improving teacher education programs. It would be expected that the identification

of shifts in pedagogical paradigm for preservice teachers, mentor teachers and

teachers in general has the potential to encourage reflective practice.

However, Klein (2003) cautions against modality theory of learning styles, believing

it to be "fatally simplified". While arguing that learning style is described as the

"qualitative differences among individual students' habits, preferences or orientation

toward learning and studying" (p. 46), Kavale and Forness (1987) argue that no such

typology exists. Nevertheless, the current body of multi-modality literature indicates

that, whilst the subject is characterized by the absence of a clear consensus, there is

sufficient existing research that shows multi-modal representations have a valid place

in pedagogy (Glesne & Peshkin, 1992; Gonzalez et al., 2003; Russell & McGuigan,

2001). Further, there is sufficient reason to anticipate generalisabilty to warrant

further research (Dolin, Mettzer & Klien, 2003; Prain & Waldrip, 2003). Literature to

date also indicates that multi-modal representations may be a logical application of

cognitive theory with benefits for pedagogical paradigm and preservice teacher

learning outcomes, thus contributing to the argument for a new pedagogical paradigm

being inferred from cognitive theory. It is suggested here that this emerging

pedagogical paradigm that incorporates diverse representational modes, catering to

diverse learning pathways is highly relevant to early childhood teacher education.

METHODOLOGY

The first component of the research entailed development of a survey to gauge pre-service

early childhood teachers' attitudes and understandings of the pedagogical paradigm to which

they had been exposed in their undergraduate teaching program. All preservice early

childhood teachers in their final-year of a four-year Bachelor of Education program were

surveyed three times over a period of a 16-week semester, in weeks 7, 14 and 16. The

participant sample consisted of fifty preservice students as they transitioned through semester

7 from their third last semester (semester 6) to their final fourth-year semester (semester 8).

In Semester 7 these preservice teachers prepared for their interviews with officers of the

major employment authority to have their suitability and level for potential employment

assessed. Semester 7 was also the semester when students participated in their program's

major professional experience of five continuous weeks duration in multiage settings.

Participants were required to rate the extent to which they agreed or disagreed with a range of

philosophical and practical features of their undergraduate preservice program. The features

were extrapolated from course objectives, set resource materials and professional experience

support materials. The questionnaire contained fifty questions requiring a rating response

from *one* to *six*, represented as a Likert scale response (*one* representing the level "To a very

little extent" and *six* indicating "To a very high extent"). Eight open-ended short response

questions were also part of the survey.

The survey items reflected preservice teachers' understanding of the requirements of the

professional experience, perceived knowledge of what is required and a self report on how

confident they felt with regard to a set of success factors (based on the course professional

experience materials, course and program objectives, Early Childhood Code of Practice and

the like). In particular participants were asked to rank statements about themselves to

indicate their *level of confidence* in relation to a range of items such as ability to teach in key

learning areas, ability to develop children's co-operative learning, ability to teach using small

groups, ability to assess children and ability to integrate multi-modal learning experiences;

and also in relation to their *beliefs* about key aspects of pedagogical theory e.g. the

importance of the socio-cultural dimensions that influence children's learning, the

importance of trans-disciplinary and integrated learning, the importance of homework, the

importance of embedding learning in meaningful experience and the significance of

developing multi-modal learning experiences. The survey items were randomly ordered on

the survey but were able to be grouped into the following categories: teaching across the

curriculum, beliefs about children's learning, the nature of pedagogy, confidence to teach

literacies and respond to diversity, community and professional development, classroom

management and the preservice program.

On the occasion, the survey was administered to the full cohort of preservice early childhood

teachers in week 7 of semester 7 prior to their major professional experience and job

interview. The survey was administered a second time to the same participants prior to their

job interview towards the end of the professional experience, and on a third occasion after the

job interview and the completion of their professional experience. The survey allowed

grouping of students according to "Well aware of the pedagogical paradigm", "Reasonable

awareness of the pedagogical paradigm", "Little awareness of the pedagogical paradigm" and

"Some lack of awareness of the pedagogical paradigm".

A second component of the data collection comprised:

(a) analysis of the same preservice teachers' documentation of children's learning as

part of a task undertaken on the professional experience. This task required the preservice

teachers to create a learning experience that facilitated children's ability to recognise a

concept in multiple contexts; and (b) case studies of a stratified sub-sample of nine students

selected on the basis of their survey responses with regard to levels of confidence to teach

and knowledge of the pedagogical paradigm. Three participants, each from the following

categories, were identified: *high confidence/strong knowledge* (i.e. three pre-service teachers

whose ratings indicated a high level of confidence and strong knowledge of the pedagogical paradigm prior to their professional experience); *average confidence/average knowledge* (i.e. three preservice teachers whose ratings indicated an average level of confidence and a fair knowledge of the pedagogical paradigm prior to the professional experience); and low *confidence/poor knowledge* (i.e. three preservice teachers whose ratings indicated a low level of confidence and a limited knowledge of the pedagogical paradigm prior to the professional experience).

Each member of the subsample was observed by one of the researchers while teaching a multimodal learning episode towards the end of their professional experience. Observations were followed by a focused discussion of the preservice teacher's survey responses. The purpose of this was to ascertain the extent to which the preservice teacher's actual teaching approach reflected her survey ratings. In effect to answer the question "Did they have the capacity to relate practice to theory in terms of multi-model learning". Case study data collection also included researcher perusal and analysis of these preservice teachers' planning documents.

Data from only the pre-professional experience survey (Survey 1) and the post professional experience survey (Survey 3) were analysed owing to the lack of response to the second survey. (This lack of response appeared to be the result of inappropriate timing during the beginning of the professional experience when students were working intensively on their professional experience planning requirements and job application. In addition, only data from the fifty items of the Likert scale part of the survey are analysed in this report. The analysis of responses from the surveys' open-ended questions and from classroom observations will be

reported in a separate paper in progress. The findings presented in this report are

provided as preliminary findings.

ANALYSIS AND FINDINGS

The fifty items on this survey were randomly organized but related to the categories of beliefs about children's learning, the nature of pedagogy, confidence to teach across the curriculum, confidence to teach literacies and respond to diversity, communication, community and professional development, teamwork, classroom management and the preservice program. The results of Survey 1 showed that the majority these final-year preservice early childhood teachers' believed they were both confident to teach using a multi-modal approach and well prepared for beginning their future career. Also the data indicated strong support by the preservice teachers for the theoretical and philosophical underpinnings of the multi-modal approach. For example, the preservice teachers were between 85% and 100% positive when ratings were aggregated across the 4 to 6 range (positive ratings) across the fifty questions for all but seven items. Six of the seven lowest positive response ratings were associated with *teaching across the curriculum* (see Table 1). While the preservice teachers were very positive regarding their confidence to teach dance and drama and felt competent with ICTs they were much less positive with regards to their confidence to teach music, health and physical education, study of society and environment, the visual arts and to a lesser degree science and media studies.

Table 1 Preservice teachers' percentage ratings in relation to their confidence to teach across the curriculum

Item	To what extent ….	Survey 1 %positive ratings	Survey 3 %positive ratings
Item 7	Do you feel confident about teaching music?	45.5	55.3
Item 8	Are you confident about teaching science?	80	90
Item 11	Do you feel confident about teaching media studies?	82	92
Item19	Do you feel confident about your ITC competency level?	88	95
Item23	Do you feel confident about teaching visual arts?	75	78
Item25	Do you feel confident about teaching drama?	90	98
Item38	Do you feel confident about teaching health and physical education?	66	71
Item49	Do you feel confident about teaching Dance as part of your Arts program?	95	98
Item50	Are you confident about teaching SOSE?	68	85

Preservice teachers' ratings indicated greatest confidence in relation to items relating to

children's learning (Table 2) and *the nature of pedagogy* (Table3). Percentage positive

response ratings ranged from 90 to 100%. These items were reflective of the preservice

program's focus on the importance of creating supportive classroom environments, the

influence of socio-culture factors in children's learning, the relationship of learning theories,

planning and pedagogy, children's ability to apply their understandings in new situations, the

constructivist approach, the importance of extra curricular activities, the importance of

"hands on" learning experiences.

Table 2 Preservice teachers' percentage ratings in relation to beliefs about children's learning

Item	To what extent…	Survey 1 %positive ratings	Survey 3 %positive ratings
Item1	Do you believe your personal beliefs influence children's learning?	90	92
Item14	Do you believe a supportive classroom environment makes a difference to children's learning?	99	97
Item21	Do you believe socio-cultural dimensions influence children's learning?	99	100
Item40	Do you believe a supportive classroom environment makes a difference to children's learning?	100	100
Item42	Do you believe taking account of Piaget's theory of cognitive development in planning learning experiences will influence children's learning?	99	100

Table 3 Preservice teachers' percentage ratings in relation to the nature of pedagogy

Item	To what extent ….	Survey 1 %positive ratings	Survey 3 %positive ratings
Item2	Do you believe learning is demonstrated if the learner can apply understanding in new situations in flexible and thought-provoking ways?	98.7	100
Item3	Do you believe learning environments that encourage children to talk about their ideas develop children's learning?	100	100
Item4	Do you believe learning is more effective when information is embedded in purposeful and meaningful experience?	100	100
Item24	Is the idea of trans-disciplinary integration going to contribute to your planning?	95	100
Item26	Will assessment inform your daily teaching?	95	100
Item27	Do you believe taking account of Vygotsky's theory of proximal development in planning learning experiences will influence children's learning?	98	100
Item29	Do you believe curriculum documents are useful in planning your program?	100	100
Item30	Do you believe learning environments that ensure children participate in excursions, camps and community visitor's programs develop children's learning?	100	100
Item45	Do you believe implementing a systematic homework program will influence children's learning?	94	98
Item47	Do you believe learning environments that allow children to participate in hands on activities develops children's learning?	100	100

Table 4 shows preservice teachers' percentage positive response ratings with regards to their *confidence to teach literacies and respond to diversity*. In contrast to the Arts area their ratings show that prior to their final professional experience between ninety-one and ninety-six percent were very confident about their ability to develop creativity in their curriculum program, teach numeracy, literacy, multiliteracies, and reading, as well as teach children how to calculate, but only seventy-three percent rated positively confidence to teach students with learning difficulties.

Table 4 Preservice teachers' percentage ratings in relation to confidence to teach literacies and respond to diversity

Item	To what extent ….	Survey 1 %positive ratings	Survey 3 %positive ratings
Item9	Are you confident about teaching numeracy?	93.6	100
Item18	Are you confident about teaching literacy?	96	98
Item32	Are you confident about teaching children to calculate?	94	95
Item35	Are you confident about teaching multiliteracies?	91.6	100
Item41	Are you confident about teaching children to read?	93	95
Item10	Do you feel confident about developing creativity in your curriculum program?	96	100
Item33	Do you feel confident about teaching students with learning difficulties?	73	95

Another distinct area within Survey 1, where students felt most positive (identified as being rated between 93% to 100%) was associated with the areas of *community and professional development* (Table 5) and *teamwork* (Table 6). For example, these preservice teachers were very confident about their ability to communicate effectively with parents and colleagues, and listen to their mentor's advice. Their positive response ratings were also very positive in relation to their beliefs that it is important to participate in in-service programs after graduating and to participate in extra-curricular school activities and to take the initiative to collaborate with school colleagues. Similarly, they were very positive in relation to teamwork, rating highly their liking to work collaboratively in a team to achieve a common goal, appreciating constructive criticism and accepting that they needed to take the initiative to collaborate with colleagues at school.

Table 5 Preservice teachers' percentage ratings in relation to community and professional development

Item	To what extent ….	Survey 1 %positive ratings	Survey 3 %positive ratings
Item16	Do you feel confident to communicate effectively with parents?	96	100
Item17	Do you feel confident about being able to communicate with colleagues?	100	100
Item34	Do you feel confident about reporting to parents about children's progress?	93	100
Item39	Will you listen to your mentor's advice?	100	100
Item46	Do you feel confident to deal with misunderstandings and problems at school?	94	100
Item36	Do you believe it will be important to participate in professional development activities after your BEd?	100	100
Item37	Do you believe your participation in extra curricula school activities is important?	100	100

Table 6 Preservice teachers' percentage ratings in relation to teamwork

Item	To what extent ….	Survey 1 %positive ratings	Survey 3 %positive ratings
Item13	Do you like to work collaboratively in a team to achieve a common goal?	96	97
Item43	Do you appreciate constructive criticism about your work?	99	100
Item44	Do you believe you should take the initiative to collaborate with colleagues at school?	100	100

Percentage positive response ratings were also very high for Survey 1 in the category of

classroom management (97% to 100% positive) (Table 7). Preservice teachers indicated a

high level of confidence with regards to incorporating opportunities for children to take

control of their own learning, developing children's co-operative learning skills, teaching a

class of small groups and teaching the class as a whole group.

Table 7 Preservice teachers' percentage ratings in relation to classroom management

Item	To what extent ….	Survey 1 %positive ratings	Survey 3 %positive ratings
Item6	Do you feel confident that you are able to incorporate opportunities for children to take control of their own learning?	97	100
Item15	Are you confident about developing children's co-operative learning skills?	100	100
Item20	Are you confident about teaching a class of small groups?	100	100
Item28	Are you confident about teaching the class as a whole group?	98	100

When it came to preservice teachers' percentage positive ratings in relation to their

effectiveness of their preservice program (Table 8) they were between ninety and a hundred

percent positive regarding the preservice program's ability to prepare them to incorporate

sociocultural dimensions into the learning environment, take responsibility for children's

learning and to carry out their role in a professional manner. However, they were less

positive with regards to feeling confident about assessing children's learning (86%) and

being able to manage children's behaviour (87%).

Table 8 Preservice teachers' percentage ratings in relation to the preservice program

		Survey 1	Survey 3
Item	To what extent ….	%positive ratings	%positive ratings
Item5	Do you believe your preservice program has prepared you to incorporate socio-cultural dimensions in the learning environment?	90	97
Item12	Do you feel your training has prepared you to take responsibility for children's learning?	100	100
Item22	Do you feel your preservice program has provided you with the confidence to carry out your role in a professional manner?	100	100
Item31	Do you feel confident about assessing children's learning?	86	100
Item48	Do you feel your preservice program has provided you with skills to manage children's behaviour?	87	90

When the preservice teachers' positive response ratings from Survey 1 (administered before

the professional experience) are compared with those of the post-professional experience

Survey 3 the results show a positive change (as shown in the second column in Tables 1 to

8). The statistical t-test for dependent samples (alpha levels set at 0.05) shows that the

preservice teachers were significantly more positive in their ratings following their final

professional experience ($p < 0.05$) compared with before. Given that the preservice teachers

were already very confident about themselves (as derived from Survey 1 data), it is suggest

that the professional experience had a substantial impact on their views about their pedagogy.

Interestingly, all responses from Survey 3 were rated within the range of 90% – 100% across

the ratings 4 – 6, except for four items:

- Item 7 confident about teaching music (55%)

- Item 38 confident about teaching dance as part of the arts program (71%)

- Item 23 confident about teaching visual arts (78%)

- Item 50 confident about teaching study of society and environment (85%).

Clearly, these results highlight the preparation of preservice teachers with regards to teaching in the Arts key learning area, particularly music, visual and dance as requiring further investigation. Items where the preservice teachers' positive response ratings increased the most (bearing in mind that the initial survey results were largely very positive so not leaving much room for increase) suggest that preservice teachers benefited greatly from the practical work with children with learning difficulties, teaching media studies, multiliteracies and using ICTs, and teaching music and science:

- Item 33 confident about teaching children with learning difficulties 22%+

- Item 50 confident about teaching study of society and environment 17%+

- Item 31 confident about assessing children's learning 14% +.

- Item 11 confident about teaching media studies 10%+

- Item 7 confident about teaching music 10% +

- Item 8 confident about teaching science 10% +

- Item 35 confident about teaching multiliteracies 8%+

- Item11 confident about one's own ICT competency levels 7%+

- Item 34 reporting to parents about children's progress 7%+

- Item 46 confidence to deal with misunderstandings and problems at school 6%+

- Item 9 confident about teaching numeracy 6%+.

When percentage positive ratings were broken down across the positive ratings of 4, 5 and 6 Survey 3 data also revealed other increases of interest. For example, forty percent more students rated a '6' in relation to Items 16 - feeling confident to *communicate effectively with parents*, Item 17 - feeling confident to *communicate with colleagues* and Item 20 - feeling confident about *teaching a class of small groups*. Similarly, preservice teachers' opinion that their preservice program had provided the *skills to manage children's behavior* (Item 48)

increased by 32%, and their belief that one should *take the initiative to collaborate with colleagues at school* (Item 44) increased by 31% in category 6 ratings.

DISCUSSION

Data from the study indicated that final-year preservice early childhood teachers had high levels of confidence for facilitating teaching and learning that incorporated a multi-modal approach to concept development. The present study reaffirms the view that perceptions of efficacy impact upon confidence and attitude in the professional role of teacher. The students in this study viewed themselves positively as well-prepared preservice teachers. Through instruction and study of pedagogy based in multi-modal learning in their undergraduate program, the participating preservice early childhood teachers felt positive and confident about their professional trajectories across a range of teaching expectations including being able to develop children's ability to recognize concepts in multiple contexts. The preservice teachers demonstrated a capacity to evoke ConVision – their conviction of a vision of authentic early childhood pedagogy (Geoghegan, Petriwskyj, Bower, and Geoghegan, 2003). Their sense of teacher efficacy was underpinned by high levels of confidence and a belief that they were well prepared for relating their professional experience back to the theoretical perspectives underpinning the preservice program. It can be argued that the successes these final-year early childhood preservice teachers experienced further reinforced their sense of self-efficacy as teachers and practitioners. A grounding in positive self-efficacy through accessible, meaningful and relevant (multi-modal learning) instruction, in turn, positioned these preservice teachers to further develop higher degrees of self-esteem and confidence (practitioner-efficacy) within their professional aspirations. It is suggested that the resulting increase in self-efficacy was related to a high level of confidence in providing

effective learning experiences including developing children's learning through the multi-modal approach. Thus, it can be inferred that these preservice teachers would have embarked on their early careers with positive personal perceptions (high efficacy) that as Tschannen-Moran and Hoy (2001) note sustains commitment and application in the role of teaching.

However, the positive spiral of self-efficacy is dependent upon a high degree of professional reflection. The willingness, confidence and ability of the students to be reflective constituted a significant dimension in their capacity to analyse and re-analyse their roles, learning theories, perspectives and experiences as they enacted their professional roles during their professional practicum experience. A critical point in professional growth is the ability to be able to reflect on the theory to practice process in restructuring personal theories or practice to meet the needs of various teaching contexts. Such perspectives are in reflective of a multi-modal approach to generating knowledge.

Another critical component is the perception of preservice teachers with high self-efficacy that all students are teachable, including those who are difficult to teach (Soodak and Podell, 1993). The survey revealed that the preservice teachers were concerned about their ability to teach student's with learning difficulties. However the final survey showed a 44% increase in their level of confidence to work with students' with special needs within the classroom setting. These preservice teachers' overall positive levels of confidence link with the research evidence of Ashton & Webb (1986) which suggests that high self-efficacy leads to the application of adaptive problem-solving behaviours and persistence with identified solutions, leading to high levels of success. To experience success during their professional practicum experience, preservice early childhood teachers must be able to reflect upon their personal theories and practice in order to reflexively generate newer theories and perspectives into

their practices. Instruction in multi-modal learning approaches should provide the preservice teachers with opportunities to generate new theories and practice.

The challenge to comprehend the extent to which these preservice teachers adjusted to a multi-modal approach to learning and teaching is yet to be addressed. Despite their unfamiliarity, most students indicated high levels of confidence in relating their practice back to the theory of multi-modal learning with significant increases in confidence after their final five-week professional practicum experience. The preservice teachers' first hand involvement proved rewarding and reaffirming which in turn added depth and strength to self-efficacy. Through involvement in and reflection on a breadth of pedagogical approaches in their pre-service program these early childhood preservice teachers have indicated high levels of confidence in applying authentic pedagogy.

Such beginning teachers face a very serious challenge, beyond their expressed confidence, their knowledge of content, their mastery of instructional strategies lies their pedagogical paradigm. While they need intimate knowledge of learners and teaching approaches, it is important for them to comprehend their conviction, vision and application of their teaching style; one's own perception of being an effective teacher is fraught with uncertainties. As Clandinin (1986) argues, images of effective practice embody a person's experiences and are "the perspective from which new experience is taken" (p.166). The authors consider it essential that, in order for preservice early childhood teachers to develop teacher efficacy, they need to encounter new theoretical propositions for teaching and learning (e.g. multi-modality theory) and relate such perspectives to their own images, origins and foundations through professional and reflective experiences. The next phase of the current study will examine the way in which these preservice early childhood teachers planned their multi-

modal approach to teaching and their critical reflections of its application in multiage

settings.

References

Ashton, P. (1982). A study of teachers' sense of efficacy. Final report, volume 11. Gainsville, Florida. Florida University. Retrieved November 25, 2004, from EDRS database (ERIC Document Reproduction Service No.ED231835).

Ashton, P., & Webb, R. (1986). *Making a difference: Teachers' sense of efficacy and student achievement.* New York: Longman.

Bandura, A. (1986).*Social foundations of thought and action: a social cognitive theory.* Englewood Cliffs, N.J.: Prentice-Hall.

Ben-Peretz, M., Mendelson, N., & Kron, F.W. (2002). How teachers in different educational contexts view their roles. *Teaching and Teacher Education, 19*, 277-290.

Buendia, E. (2000). Power and possibility: the construction of a pedagogical practice. *Teaching and Teacher Education, 16*, 147-163.

Burke, J. P. (1983). Rapprochment of Rotter's social learning theory. International Journal of Social Behaviour and Personality, 11 (1), 81-91.

Dobbins, R. (1996). The challenge of developing a 'reflective practicum'. *Asia-Pacific Journal of Teacher Education, 24*(3), 269-281.

Dolin, J. (2003). *The use of multiple representations in physics education.*Unpublished manuscript.

Geoghegan, N., Petriwskyj, A., Bower, L., and Geoghegan, D. (2003). Eliciting dimensions of educational leadership in early childhood education. *Journal of Australian Research in Early Childhood Education, 10*(1), 12-22.

Glesne, C., & Peshkin, A. (1992). *Becoming a qualitative researcher: An introduction.* New York: Longman.

Goddard, J. T., & Foster, R.Y. (2001). The experiences of neophyte teachers: a critical constructivist assessment. *Teaching and Teacher Education, 17*, 349-365.

Gonzalez, F., Prain, V., & Waldrip, B. (2003). *Using multi-modal representations of concepts in learning science.*, from http://www1.phys.uu.nl/esera2003/programme/pdf%5C020S.pdf

Gordon, C., & Debus, R. (2002). Developing deep learning approaches and personal teaching efficacy within a preservice teacher education context. *British Journal of Educational Psychology, 72*, 483-511.

Graham, S., & Thornley, C. (2000). Connecting classrooms in preservice education: conversations for learning. *Asia-Pacific Journal of Teacher Education, 28*(3).

Gratch, A. (1998, January). Growing teaching professionals: lessons taught by first-year teachers. *Paper presented at the 1998 Conference on Qualitative Research in Education*, Athens, Georgia.

Grundy, S., & Hatton, E. (1998). Teacher educators, student teachers and biographical influences: Implications for teacher education. *Asia-Pacific Journal of Teacher Education, 26*(2), 121-138.

Guskey, T.R. (2003). Analyzing lists of the characteristics of effective professional development to promote visionary leadership. *NASSP Bulletin*, 87, (637,) 4-17. Retrieved November 25, 2004 from Academic Search Premier.database.

Henson, R. K., Kogan, L. R. & Vacha-Haase, T. 2004, *A reliability generalization study of the Teacher efficacy scale and related instruments.* http://www.emory.edu/EDUCATION/mfp/HensonEtAl.pdf, Retrieved 23 August 2004

Holt-Reynolds, D. (2000). What does the teacher do? Constructivist pedagogies and prospective teachers' beliefs about the role of a teacher. *Teaching and Teacher Education, 16*, 21-32.

Kavale, K. A., & Forness, S.R. (1987). Substance over style: assessing the efficacy of modality testing and teaching. *Exceptional Children, 54*(3), 228-239.

Klein, P. D. (2003). Rethinking the multiplicity of cognitive resources and curricular representations: alternatives to 'learning styles' and 'multiple intelligences'. *Journal of Curriculum Studies, 35*(1), 45-81.

Leinhardt, G., McCarthy Young, k., & Merriman, J. (1995). Integrating professional knowledge: the theory of practice and the practice of theory. *Learning and Instruction, 5*, 401-408.

Lovat, T. J. (1999). Searching for best practice in initial teacher education: responding to the challenges. *Asia-Pacific Journal of Teacher Education, 27*((2)), 119-127.

Mallette, M. H., Kile, R. Steven, Smith, M.M., McKinney, M. & Readence, J.E. (2000). Constructing meaning about literacy difficulties: Preservice teachers beginning to think about pedagogy. *Teaching and Teacher Education, 16*, 593-612.

Mapolelo, D. C. (1999). Do preservice primary teachers who excel in mathematics become good mathematics teachers? *Teaching and Teacher Education, 15*, 715-725.

Martinez, K. (1998). Preservice teachers adrift on a sea of knowledges. *Asia-Pacific Journal of Teacher Education, 26*(2), 97-107.

Mau, R. Y. (1997). Concerns of student teachers: Implications for improving the practicum. *Asia-Pacific Journal of Teacher Education, 25*(1), 53-66.

Meltzer, D. E. (2002, September 13, 2002). Student learning of physics concepts: efficacy of verbal and written forms of expression in comparison to other representational modes. *Paper presented at the Conference on Ontological, Epistemological, Linguistic and Pedagogical Considerations of Language and Science Literacy: Empowering Research and Informing Instruction.*, University of Victoria, Victoria, British Columbia, Canada.

Murray-Harvey, R. (1999, November). Under stress: The concerns and coping strategies of teacher education students. *Paper presented at the Colloquium, Flinders University*, Adelaide, SA.

Pervin, L. A. (2002). *The science of personality*. Oxford: Oxford University Press.

Richardson, V. (1996). The role of attitudes and beliefs in learning to teach. In *Handbook of research on teacher education* (second ed.). New York: Macmillan.

Russell, T., & McGuigan, L. (2001, August). Promoting understanding through representational redescription: an illustration referring to young pupils' ideas about gravity. *Paper presented at the Third International Conference of the European Science Education Research Association*, Stenning, K.

Salisbury-Glennon, J. D. & Stevens., R.J. (1999). Addressing preservice teachers' conceptions of motivation. *Teaching and Teacher Education, 15*, 741-752.

Shultz, E., Neyhart, K., & Reck, U.M. (1996). Uphill all the way: an investigation of attitudinal predispositions of preservice teachers towards diversity in urban classrooms. *Teacher Educator, 32*(1), 22-36.

Soodak, L., & Podell, D. (1993). Teacher efficacy and student problem as factors in special education referral. *Journal of Special Education, 27*(1), 66-81.

Taylor, S. V., & Sobel, D.M. (2001). Addressing the discontinuity of students' and teachers' diversity: a preliminary study of preservice teachers' beliefs and percieved skills. *Teaching and Teacher Education, 17*, 487-503.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: capturing an elusive construct. *Teaching and Teacher Education, 17*, 783-805.

Wood, E., & Bennett, N. (2000). Changing theories, changing practice: exploring early childhood teachers' professional learning. *Teaching and Teacher Education, 16*, 635-647.

Zanting, A., Verloop, N., & Vermunt, J.D. (2001). Student teachers eliciting mentors' practical knowledge and comparing it to their own beliefs. *Teaching and Teacher Education, 17*, 725-740.