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WORKING WITH TODDLERS IN CHILD CARE: PERSONAL EPISTEMOLOGIES AND PRACTICE

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ABSTRACT

In the present study, the personal epistemological beliefs of group leaders in toddler child care programs are investigated. Epistemological beliefs are beliefs about knowing and learning. It is considered that the quality of these beliefs is influenced by educational experiences. In this study, such beliefs are assumed to be mediating factors in the nature and quality of child care practice. Six caregivers in toddler programs (children aged 18 months to 3 years) in Australia were videoed within their programs and subsequently asked to describe their personal epistemological beliefs as well as their beliefs about how children learn. In the interviews, excerpts from the video were presented and the caregivers asked to reflect on their practices. The interview data for each caregiver were analysed to ascertain the nature of the personal epistemological beliefs and the nature of beliefs about children's learning. The manner in which caregivers' reflective responses about their practices observed in the video aligned with caregivers' personal epistemologies and their beliefs about children's learning was also considered. Two caregivers, who held relativistic beliefs, also held strong constructivist perspectives about children's learning that aligned with how they reflected on their practices. The other caregivers evidenced mixed or multiplistic epistemological beliefs. They described learning by children as an active or modelling process. These caregivers' reflections on practice were congruent with their personal epistemologies and beliefs about children's learning in viewing their educative role as a guide or a model for the children. Implications for how the exploration of personal epistemologies about knowing and learning can inform and enhance professional development programs are discussed.

In western countries, children under 3 years of age increasingly participate in centre-based child care programs. The provision and quality of such programs are important issues in the social policy agenda of many countries, including Australia (Sanson et al., 2002). It has been identified that the quality of programs is not always high (Organization for Economic Cooperation and Development, 2001). Structural indicators of group size, staff-child ratio can reflect quality because small group size and favourable staff-child ratios make it more likely that the processes of interaction between staff and children (e.g., sensitivity of interactions and high involvement by staff with children) will be enhanced. In programs for children less than three years, the extent to which staff are sensitive to children' needs and highly involved with children in supporting language and cognitive development has been linked to the level and nature of their educational qualifications and the professional development opportunities afforded to them (McMullen, 1999; Phillips, Mekos, Scarr, McCartney & Abbott-Shim, 2001).

In the present study, the personal epistemological beliefs (beliefs about knowing and learning) of staff in child care programs are considered to be influenced by their educational experiences. These beliefs are explored because they are viewed as mediating factors in the quality of practice. Other research that has explored teachers' personal epistemological beliefs has provided some insights into how the quality of these beliefs relate to effective teaching (cf. Hofer, 1994; Schommer, 1993). However, there is little research that has investigated the beliefs about practice of child care staff who work with toddlers (children under 3 years) and the relationship between their beliefs and their practices with children.

Centre-based child care services are group programs for young children in non-family settings. Such programs are characterised by the long day for which the children may attend (e.g., 8 hours or more) and that programs are provided across most weeks of the year. These programs provide care and education for young children. The care component is integrative to the educative function. These two functions are interdependent and inseparable. The care function is often seen to characterise child care programs, perhaps because of the importance attached to responding to the emotional needs of young children by sensitive and familiar caregivers, over a long day. Nevertheless, the educative function is also extremely important. Young children are learning many things about the world across any day, at home or in child care, in cognitive, language and social domains. The split of functions, that child care centres provide care, while preschools provide education is a false dichotomy. However, this dichotomy persists in the minds of parents, the community and even among professionals in early childhood education. It is based on the assumption that preschool teachers have higher levels of education and therefore provide more educationally-focussed programs. Staff in preschool programs are also more likely to be called teachers while those in child care are called caregivers. While the term, caregivers, is used in this paper, the educative role that they have and their beliefs about children's learning is an important focus of this paper.

Personal epistemological beliefs were first investigated empirically by William Perry (1970, 1981) who noticed that students moved through four main positions as they progressed through their university studies. The term, *personal epistemological beliefs,* is preferred to simply *epistemological beliefs* as it indicates beliefs held by an individual rather than broader philosophical beliefs about knowing (Kitchener, 2002, p. 94). Perry described a continuum of such personal epistemological beliefs as dualism, multiplism, relativism and commitment. Other theorists and researchers have proposed similar conceptualisations. According to Perry, individuals who held dualistic beliefs about the nature of knowledge believed that absolute truths

(right/wrong) existed and could be transmitted to an individual from an authority figure or expert. Belenky, Clinchy, Goldberger and Tarule (1986) in their study of women's ways of knowing described a similar position called *Received Knowing*. Baxter Magolda (1993) described this position as *Absolute Knowing* when investigating college students' personal epistemological beliefs. Caregivers of young children who hold dualistic beliefs about learning and knowing may support more transmissive approaches to teaching and learning. Transmission assumes that learning occurs from direction provided by knowledgeable others.

Next, when individuals conceive of knowledge in multiplistic ways, they concede that, as well as absolute truths, there are some things that can not be known with any certainty. Such individuals believe that knowledge is comprised of personal opinions and ultimate truths. Belenky et al. (1986) referred to this as *Subjective Knowing* while Baxter Magolda (1993) described a similar position called *Transitional Knowing*. Caregivers of young children who hold multiplistic beliefs may be more likely to engage in practices based on intuition and personal experience, rather than on evaluating and using theoretical and research evidence to support their practices.

The next position, relativism, constitutes a major shift in epistemological thinking because individuals consider that knowledge is actively and personally constructed and evaluated, although initially this may occur in some contexts only. Absolute truths no longer exist for them because truth is considered to be relative to individuals' personal interpretations of experiences. Belenky et al. (1986) described this as *Procedural Knowing*. Baxter Magolda (1993) referred to this as *Independent Knowing*. Caregivers of young children who hold relativistic beliefs may be more likely to engage in constructivist practices in which they seek to develop active teaching and learning partnerships with children that involve construction of meaning. Constructivism is: "… the position that reality exists only through the mental constructions of individuals. In the beliefs about learning sense, constructivism is the belief that individuals learn as they wrestle cognitively with problems of concern to them" (Shaver, 1992, p.17). Therefore, constructivism refers to a particular set of beliefs about knowing and learning that understanding exists only for the individual who actively creates such beliefs.

In the final positions related to commitment, relativistic thinking is still a feature, but particular beliefs are valued more than others with strong commitment until evidence is found to support a change in such beliefs. Belenky et al. (1986) referred to this as *Constructed Knowing*. Baxter Magolda (1993) described this world view as *Contextual Knowing*.

There is a substantial body of research that indicates that personal epistemological beliefs influence beliefs about teaching and learning. Individuals with relativistic beliefs about knowing are more able to conceive of teaching as facilitating rather than transmitting knowledge (Brownlee, 2003, Brownlee, 2001; Perry, 1981). Arredondo and Rucinski (1996) cited research that described how teachers with sophisticated or relativistic beliefs were more democratic (Silver, 1975, cited in Arredondo & Rucinski, 1996), empathetic, innovative, and able to use more effective teaching strategies (Miller, 1981, cited in Arredondo & Rucinski, 1996). This is supported by findings from research by Hasweh (1996) who investigated beliefs about knowing and teaching practice in a sample of 35 Palestinian science teachers. He found that teachers holding constructivist beliefs were more likely to detect student alternate conceptions; had a richer repertoire of teaching strategies; used potentially more effective teaching strategies for inducing conceptual change; reported more frequent use of effective teaching strategies; and highly valued these teaching strategies compared with teachers who held more dualistic beliefs

(p.47). Apart from research completed by the authors (see Berthelsen, Brownlee, & Boulton-Lewis, 2002), no research has investigated the nature of caregivers' personal epistemological beliefs in early childhood educational settings. The current research looks at the nature of caregivers' personal epistemological beliefs and considers the links between such beliefs and practice.

Drawing on the theory and research about developmental epistemological beliefs, it is suggested that caregivers of young children who hold relativistic beliefs about "knowing" in the knowledge domain of child care practice will be more likely to engage in constructivist practices and seek to develop active teaching and learning partnerships even with very young children. This stems from their awareness of how they and others construct meaning. On the other hand, caregivers who hold dualistic beliefs about learning and knowing may practice with a more transmissive approach assuming that children learn from direction from knowledgeable others. The current study with caregivers in toddler programs aims to increase understanding about the nature of personal epistemological beliefs of caregivers in early childhood programs and the relationship between these beliefs and their practices. The present research is significant because the findings will contribute to knowledge about the nature and quality of professional beliefs about practice that caregivers hold about their work. This knowledge can be used to inform professional development programs for practitioners in child care.

Method

Within six child care programs which catered for children aged 1 to 3 years, the group leader was video taped during a morning session of her program. Subsequently, she participated in an interview that included a review of the video of practice. The term, group leader, is used in Australia to refer to the person who is responsible for the direction of a group program in a long day care centre. Group leaders are not usually eligible for registration as teachers (i.e., eligibility to teach in formal school programs) because the base qualification for teaching within schools is a four year degree in education. Group leaders would usually hold a two or three year diploma in children's services or child care. It should be noted that many group leaders in child care services, including some caregivers in infant and toddler programs, do hold four-year education qualifications.

Centres were randomly selected from a listing of long day care centres in a major metropolitan city in Australia. The researchers had no information about the selected centres or the quality of their programs. Directors of the child care centres facilitated the agreement to participate from the group leader of the toddler program within the centre. A research assistant visited each caregiver to make arrangements for the video session and to build initial rapport. As video records were to be made within the programs, informed consent was also obtained from parents for children's participation.

In Table 1 the participating group leaders are introduced with details of their qualifications, years of child care experience and length of time at their current centre. Names presented are pseudonyms.

Table 1 placed here

Data Collection

In each toddler program a video record was made that focussed on interactions, for up to 3 hours in a morning session. Video observations were made of routine events (e.g., meal times, nappy change times, arrivals, departures) and non-routine events (e.g., indoor or outdoor play, music or story sessions, and incidental social interactions). The research assistant was instructed to follow the caregiver and capture caregiver-initiated interactions with children as well as child-initiated interactions with the caregiver. Field notes were also made by the research assistant about the overall activities and routine of the program.

Next, stimulated recall semi-structured interviews were held with caregivers using the video recording as a stimulus for eliciting explanations about caregivers' personal epistemological beliefs and their beliefs about children's learning. Stimulated recall interviews provide a process that makes more explicit the interviewee's thinking behind actions that are evident on the video (Meade & McMeniman, 1992).

A copy of the video record of the program was forwarded to each caregiver for review prior to the interview. The same research assistant who had made the video conducted this interview. The interview was audiotaped. A member of the research team also reviewed the video record prior to the interview, in order to identify significant events and interactions on which caregivers' comments would be sought. These events were selected as characteristic of important aspects of routine and non-routine aspects of practice in programs with young children (e.g., the arrival of a child in the program; the routine for moving from outdoor to indoor play; the routine for preparing for snack time; the nature of activities provided for children; the manner in which children's engagement in activities was supported; the support of social and play interactions between peers). Selection of these segments was on interactions that provided directions and guidance for children; elaborated interactions that encouraged problem-solving; encouragement of language and verbalisation; word plays.

At the outset of the semi-structured interview, caregivers were asked a specific set of questions about their beliefs. These questions were adapted from previous research on personal epistemological beliefs (e.g., Belenky et al., 1986; Brownlee, Purdie, & Boulton-Lewis, 2001).

The epistemological belief questions in the interview were:

- How do you go about finding out important information that can help you in your role as a caregiver?
- What have been the most important sources of knowledge that have influenced your practice?
- Do you agree with the idea that there are no right answers in child care and that anybody's opinion is as good as another's?

With respect to beliefs about children's learning, participants were asked:

- How do you think children learn?
- Can you think of an experience you have had with a child in your care where you really noticed that he or she had learnt something?
- How do you know when children have learnt something?

Data analysis

The interviews were transcribed verbatim. There were two foci for the analysis: (1) an analysis of the initial semi-structured interview questions; and (2) an analysis of caregiver responses to questions for specific video segments. The second analysis was used to provide confirmatory evidence of the nature of the belief systems apparent in the responses to the semi-structured questions. The criteria used for evaluating the personal epistemological beliefs and beliefs about children's learning were:

- Personal epistemological beliefs were analysed on a continuum of *dualism* to *relativism*. A *dualistic perspective* is one in which knowledge is seen as absolute and information is to be accepted; to *multiplism* where knowledge is understood as encompassing multiple and potentially competing perspectives but that different opinions may have equal value and are not evaluated; to a *relativistic perspective* in which the individual reasons among alternative interpretations and is committed to a personal, reasoned interpretation of different sources of knowledge using available evidence.

- Beliefs about children's learning were differentiated on the degree to which caregivers' descriptions reflected increased understanding of learning as a construction of meaning. Using these criteria, *least sophisticated beliefs* are described as reproductive (e.g., modelling). *Most sophisticated beliefs* indicate that children learn by personally constructing knowledge and directing their own learning.

- Evidence to support these beliefs was found in the video excerpts and reflected on in relation to the beliefs espoused.

A single researcher reviewed each interview transcript and initial judgements on the nature of the belief systems of each caregiver were made using the criteria as described above. These analyses were reviewed and discussed within the research team to arrive at judgements by consensus about the nature of the caregivers' belief systems.

Findings and Discussion

The categories of caregivers' personal epistemological beliefs and beliefs about how children learn will be presented followed by a discussion of how such beliefs are related to the practice observed in the video excerpts.

Personal epistemological beliefs

Using the responses, from the three questions on epistemological belief systems, caregivers were grouped according to their predominant belief system and are described as **relativistic**, **mixed and multiplistic**. No caregivers described dualistic beliefs. Two caregivers (Claire and Rhonda) whose belief systems are described as relativistic emphasised that different sources of knowledge could be evaluated and a personal, reasoned position established. The caregivers whose belief systems are described as multiplistic and mixed identified that there might be multiple sources of knowledge but these caregivers were less focussed on the need to evaluate the evidence for the validity of different perspectives. These beliefs were more focused on knowledge as subjective in

nature. Three caregivers (Bronwyn, Carol, and Kelly) held multiplistic perspectives. One caregiver (Helen) could be described as holding mixed beliefs, which included both relativistic and multiplistic beliefs. These beliefs are described and exemplified in Table 2. The exemplars reported are drawn from the question which asked, "Do you agree with the idea that there are no right answers in child care and that anybody's opinion is as good as another's?"

Table 2 placed here

Beliefs about children's learning

Caregivers described a range of beliefs about children's learning. Claire and Rhonda described children's learning as construction by indicating that learning involves self-direction and a process of making connections. Bronwyn and Kelly also indicated children learn by constructing meaning, but with much less emphasis than Claire and Rhonda, and with the identification of other ways by which children learn. Helen, Bronwyn, Carol, and Kelly described children's learning as active. While learning is described as being hands on and exploratory, there is not always a clear indication that children are expected to make connections and construct meaning. Helen, Bronwyn and Kelly also noted that children's learning also involved modelling. See Table 3 for descriptions and examples of these categories of beliefs. The exemplars are drawn from the question, "How do you think children learn?"

Table 3 placed here

Caregivers' beliefs and practice

The following table is a summary of the caregivers' personal epistemological beliefs and beliefs about children's learning as evidenced in the video excerpts.

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In summary, the caregivers in this sample who described relativistic personal epistemological beliefs also viewed children's learning as a process of constructing their own meaning. Those who described mixed or multiplistic personal epistemological beliefs tended to hold a range of beliefs that included modelling, active learning and a less focused view of learning as construction. Caregivers' personal epistemological beliefs and beliefs about learning will now be discussed in relation to the caregiving practice evidenced in videotaped excerpts. In the following sections, responses to questions about practice illustrate the congruency between how they described their beliefs about knowing and children's learning and how they understand their practices.

Relativistic personal epistemological beliefs, beliefs about children's learning, and practice

Claire and Rhonda described relativistic personal epistemological beliefs and constructivist beliefs about children's learning.

Claire describes strong constructivist beliefs about children's learning with an awareness of how children need to process information and 'to make connections'.

Children process information and come to understand situations and you can understand that from reading their body language and through their reactions and what they say. "Now I know how to do that." And you know like with painting. "I can do big lines," … and then all of a sudden, " I do a straight one," you will see from their body language again, and their eyes, this is special. You know, "I've been going round here everywhere with my brush but this is a line," and next time the paper goes out you'll probably see a straight line first. So you know that they've learnt that and now they're in control of something.

These beliefs about children processing information to construct meaning are also evident in the video footage where she interacts with a child at the water trough. Her description of this interaction is:

Well, in the water trough there were a lot of sort of items that could be named. Also there were items in bright colours so there was the seal and tortoise and a shark and frogs and they were in really bright colours. You know so you can say the green frog or the purple shark or seal and these kinds of things. So you would name what they've got in their hand. So really you're just giving them words for what they are doing, the tipping and pouring. There's Nicholas now. The tipping and pouring that he did quite a bit of, you know that is their experience. I feel that we stand back and let that happen, not, putting it into words because in one little part where Nicholas is doing it, you can see he's totally absorbed. He was watching the water turn the wheel and the water coming from the jug. It was the whole process he was going through and he would scoop again and do it. And I think that that is where you don't interrupt. That's where they are learning.

Rhonda also held strong beliefs that children construct meaning. In describing her practices in an excerpt on the video she interacts with a child at an outdoor art activity:

Initially, I thought she was getting a messy colour on the cotton bud but the cotton bud was the problem and I said, "What's the problem?" because I'm trying to get them to check situations themselves and define… it sounds very intellectual for a 2 year old, but [if they] define the situation and [they can] then try and work out a solution.

Rhonda's practice, as shown in the video excerpts, evidences the use of many open-ended activities, which allow children to direct their own learning and make choices. They are encouraged to think and problem solve. The following response about water play activities recorded in the video indicates Rhonda's strong beliefs in constructivist learning.

And cold, another sense, so we were talking about hot [and] cold. …. Sometimes we have warm water in there (water trough) so it's worthwhile to do those opposites on a regular basis. And we've been encouraging the children in their caring activities and using dolls as the medium because that transfers so well in a social emotional way to the other children, so washing the dolls, toileting the dolls, feeding the dolls, caring for the dolls, was something that I was offering. But I wasn't closing off all the other things that they could do. They could pour with funnels or

boxes or sieves or whatever, or they could just care for their dolls. Or they could just splash each other. Whatever they wanted to do, it was good for cognitive, social-emotional, as well as the senses of touch and all the language elements around there. So it was an activity I knew would appeal to all of the children. They just had to decide which way they wanted to go with it and, all of it was good. Whatever they did was fine. As it turns out they used the water to cool the crocodile later…It was their own extension. So that's how I like to work too. I offer props and where they go with it, that's up to them.

Mixed personal epistemological beliefs, beliefs about children's learning and practice

Helen held mixed personal epistemological beliefs, knowledge as reasoned but subjective. She described children's learning as an active process and as also occurring through modelling. This is similar to what Biggs (1996) describes as naïve constructivism where the focus is on active participation without necessarily encouraging children to develop their own understanding. These beliefs are supported in the manner in which she describes specific practices in the video when she works with a child called James at the puzzle table:

We were at the puzzle table one day and it was a motor vehicle puzzle, and James undid it and he was just watching, and I thought to myself "Well I'm not going to go up to him, I'll just make him do it." So anyway he had a bit of a problem trying to do it so I went in there. I assisted him and I helped him and then I took them all back out again and told him to give it a go and I walked away from him. But out of the corner of my eye I was watching him. It took him a little while. He was concentrating really hard, but he actually did achieve it. I tend to see myself as a guide rather than trying to do it for the children. I want them to be able to try it on their own.

On several occasions in the video, Helen is observed diffusing conflicts with minimal verbal interaction so it is more a guiding and modelling process than a constructivist approach in helping children to arrive at a reasoned judgement:

I always tend to, if there is conflict in the room and it's over the same toy … show the child that there are two (of) exactly the same toys, and take one child to the other side of the room, one to the other and just get them to play quietly on their own. And then gradually they'll tend to ease closer and they'll tend to play together. They'll tend to realise "Oh yeah well that, they do have the same one as me", so they tend to play together after. If there isn't another one, well I'll try to get something a bit more interesting or I'll guide them to another activity.

Helen has described a multiplistic (subjective) view of knowing and children's learning as an active process. The focus in her practices is on children doing things for themselves or modelling from other children or adults with less evidence of constructivist teaching practices.

Multiplistic personal epistemological beliefs, beliefs about children's learning, and practice

Bronwyn, Carol and Kelly described multiplistic personal epistemological beliefs with a focus on children's learning as active.

Bronwyn's perspective was that children learn through modelling, repeating, playing, from each other and basically taking things in. She also talked about the importance on children counting, learning colours and the alphabet in describing her interactions with the children in the video

excerpts. In describing her practices in the video footage Bronwyn identified that she liked children to learn to "think" for themselves by asking them open-ended questions. In commenting on a video excerpt in which she responds to a child who has a completed a painting, Bronwyn says: *Like you have got their artwork and you've been taught at TAFE, to not just say, "That's lovely." ...I should say, "Can you tell me more about that?" Sort of like open-ended questions so they can respond back to you instead of just saying, "Well done." It gets them thinking about what they're doing and also you're showing appreciation of what they've done and that the process is more important that the actual finished product.*

In commenting on another video segment, she also noted:

I might sort of give them a few like, not hints, like "Maybe you might like to turn it around that way and try it that way" ...so just get them thinking about the puzzle ...and it means they've got to think it through themselves.

These latter views indicate some constructivist beliefs about learning but mostly there was also a focus on learning academic type content. Overall, the video footage showed a strong teacher directed approach, in how children are taught to wait for their turn in activities and in transition times.

Carol held reproductive beliefs about children's learning. This was evident in her management of transition times in the video footage, which were strongly teacher centred. She notes that children learn mainly by doing and through play.

... By doing things and, just observing and interacting with what they know in their environment, as much as they can do, hands on things that they can do. They learn through play, I believe play is very important, by discovery, searching for answers, communicating with each other with peers, with their parents, just asking questions, getting solutions and, seeing their excitement in their faces when they look at you, "Look what I've done, look what I can do, I've put my shoes on," just their wonder at being able to do it.

Carol held multiplistic epistemological beliefs and an active view of children's learning. She indicates that children should be active but she also identifies that that this should involve developing personal meaning.

Kelly noted that children learn through modelling from adults but that teacher actions also need to child-centred. When asked how she knew when a child has learnt something, Kelly emphasised that this was evident when children were able to repeat or imitate an action that they had observed. However when she responded to a question about what the child was learning by singing "Old Macdonald" on the videotape she indicated a broader view of children's learning that included making meaning by relating an object to a previous experience.

I just responded to Darcy. I could hear her singing, "E..i..e..i..o" and I just wanted to build on that because obviously it is a song that she's thinking of at that moment (as she rocks on the horse). I wanted to help her extend that song and add some more elements to that song...So [the learning that was happening included] memory, remembering things, new words that she's been exposed to, relating the song to the horse, the rocking horse...a lot of cognitive development.

Other evidence that Kelly did hold some constructivist perspectives was apparent in her response to conflicts between children that appeared on the video. She was observed managing conflicts in extended verbal exchanges with children in order that they understood why certain actions were

not appropriate, as well as other inductive teaching strategies. *We encourage them not to go in (the shed) mainly for safety issues. ... We don't say, "You are not allowed to go in the shed."…. We say, "Kelly's going to go into the shed. You can wait outside until Kelly comes out. If you go in the shed, there are spiders in the shed that can hurt you." So just trying to explain. Give them reasons why they can't go in the shed again because they learn from that.*

Overall, Kelly's approach is high in responsiveness to the children. While there was some evidence of how she understands that children construct meaning this was not as strong as how Rhonda and Claire shaped their practices to facilitate children's understanding and learning.

Conclusions

Personal epistemological beliefs are considered to play an important role in influencing the development of knowledge in any domain (e.g., child care practice) because they are central or core values that are functionally connected to action (Hofer & Pintrich, 1997). The findings of this research indicate consistency between the nature of the epistemological belief systems and caregivers' explanations about how children learn. Caregivers who hold relativistic beliefs were more likely to believe that even very young children can be supported to construct meaning while caregivers who held mixed or multiplistic beliefs were less likely to hold such constructivist perspectives. The caregivers in the latter groups saw young children as active learners and/or as learning by modelling from others. They did not emphasise that children can construct personal meaning from their own experiences. The study provided evidence that these personal epistemological beliefs and beliefs about children's learning informed caregiving practices by the level of congruency found between the nature of the belief systems and then how caregivers explained their practices.

Less attention has been given by researchers to the nature and quality of "teaching" in programs for children under 3 years and the educative role of caregivers. While attention has been placed on the functions of care and nurture that children under 3 years need to receive, less emphasis has been placed on identifying the features of effective teaching that are "educational" and focussed on enhancing children's cognitive, language, and social development. Thus, the educative functions of caregivers in child care programs remain less visible, as well as undervalued by parents, other professionals and the wider community. These educational functions deserve much greater attention. The findings of this study identify that caregivers with relativistic beliefs see children as constructing meaning and, thus, as learners in their own right. Those with multiplistic beliefs were not as focussed on these young children as "meaning-makers". It may be that these latter caregivers saw their major role as care while those with relativistic beliefs placed stronger emphasis on the educative role. This understanding of role, as educative and/or care, should be explored in future research. Practitioners' beliefs may vary according to what they believe is their primary task by the age of the children or by the setting in which they are employed. Can the education and care roles be separated and/or how do they interact?

For professional development of staff who work in child care settings, stronger emphasis is needed on exploring the nature of epistemological beliefs and the sources of knowledge about children's learning which inform practice. The tentative nature of knowledge and the evaluation of personal beliefs deserve more explicit exploration and attention in professional development programs. More attention needs to be placed on students' personal understanding about how

children learn. Attention to caregivers' personal theories, in turn, provides a means for introducing and connecting more formal and current theoretical knowledge into students' existing belief structures. This approach provides an alternative way to understanding practice from that based on a conventional dichotomy that distinguishes between child-centred versus teacher-centred dimensions of practice. It provides a different focus from just understanding practice as adherence to particular tenets of a specific philosophical or psychological theory of teaching and learning. Specific theories about children's development are also subsumed within an epistemological perspective. Emphasis is placed on how practice is derived from a personal world view that may draw on diverse sources of theoretical and practical knowledge. These diverse sources may include personal experiences, the experiences and opinions of others, as well as, the theories of experts and published research.

To enable caregivers to become aware of, reflect on, and to possibly reconstruct epistemological beliefs, a relational pedagogy is required. Relational pedagogy is characterised by three elements. These are mutual respect, situating learning in students' experiences, and encouraging reflection on practices. Baxter Magolda (1996) proposed that the drawing together of self (relational) and theory (impersonal) ways of knowing be called relational pedagogy. In professional development programs, mutual respect is essential between peers and with teachers because any learning is an emotional affair that requires trust within the teaching context. Cognitive and affective dimensions of learning are inseparable in knowledge construction (Watts & Bentley, 1987). The learning environment needs to provide respect for each individual (King & Kitchener, 1994). Situating learning in students' experiences requires teachers to take account of students' prior knowledge and beliefs. The valuing of prior and existing knowledge encourages greater receptivity to new knowledge and provides a means through which linkage of new ideas with existing ideas can be made (Baxter Magolda, 1993). Developing reflectivity requires careful analysis of personal theories about the knowledge in any domain (e.g., child care practice) and ongoing opportunities to examine and justify how these personal theories are used in practice.

This exploratory research has presented a new perspective on how practices in child care settings can be understood through analysing personal epistemologies. There can be no one way and no "right" way to practice. A reasoned position for practice is developed based on evaluation of the available knowledge and self-awareness of personal beliefs and their relationship to practice. Understanding is also required that any position held, at a particular point in time, may be open to change as new knowledge becomes available. Active debate and reflection between professional peers about their personal beliefs and the knowledge that they use to inform their practices are key features for professional development programs. Such discussion and debate will serve to improve the quality of care that young children receive in child care services.

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Table 1. Demographic details of group leaders

Caregiver	Demographic information
Bronwyn	Bronwyn has completed a Diploma of Child Care (2 year qualification). She has worked in the child care field for 4 years and has been at her current centre for 3½ years.
Carol	Carol is currently completing a Diploma of Child Care (2 year qualification). She has worked in child related fields for more than 20 years. She has been at her current centre for 1 year.
Kelly	Kelly has completed an Associate Diploma in Child Studies (2 year qualification). She has worked in the child care field for 7 years and has been at her current centre for 1 year.
Helen	Helen has completed a Diploma of Child Care (2 year qualification). She has worked in the child care field for 2 years during which time she has been at her current centre.
Claire	Claire has completed an Associate Diploma of Child Care. This is a 2 year qualification. She has worked in the child care field for 12 years and has been at her current centre for almost 4 years.
Rhonda	Rhonda has completed a Bachelor of Speech Therapy and then later completed an Associate Diploma of Child Care (2 year qualification). She has worked in the child care field for 12 years and has been at her current centre for less than 1 year.

Table 2. Descriptions and exemplars for categories of personal epistemological beliefs

	Descriptions	Example statements
Relativistic beliefs	Individuals construct personal knowledge that is supported with evidence. Individuals actively create their own knowledge rather than passively receive knowledge from others. Individuals have opinions that are reasoned. Hence, some opinions are better than others because they are informed by current research as well as personal experience.	*... I don't think any one person or anybody's opinion is really valid, you know, it can only be valid to a point and then there's a better way. And you have to keep understanding that, because I think educating the carer is, with all that research that's being done, the best way to go and it needs to be passed on, and it's a slow process ... So therefore in another 5 years they will use this information that's gathered now and add to it, because that's how you gain knowledge isn't it? And again, it will be better. (Claire)*
Mixed beliefs	Individuals construct personal knowledge but this knowledge is not necessarily supported with evidence (i.e., it is subjective). As well, individuals have reasoned beliefs that may be supported with evidence. Therefore individuals can hold strong subjective beliefs as well as reasoned beliefs.	*<u>Subjective opinions:</u> …… Well I agree with that, there's definitely no right answers in child care. I think it's because no child is the same, whether it be through someone writing it in books. They may not have actually been in the field so they're just taking it as, maybe what they've read prior. Because all children are different… it's really weird but there's no right answers at all. I do believe that anyone's opinion is as good as another's. There's no harm in giving someone's opinion. It doesn't mean everyone has to accept it though… The books most of the times are correct but, you know, each child is different depending on what you need the information, what type of child it is. (Helen).* *<u>Reasoned opinions:</u> You could ask for an opinion. Everyone will have their own opinion and then…what I would probably do if I was in a situation and I had to ask for (an) expert's opinion … I would ask my colleague's opinion. I would ask whomever else I had to ask, and then I would decide for myself…(Helen)*
Multiplistic beliefs	Individuals construct personal knowledge which is not supported with evidence *and* individuals receive absolute (right/wrong and universal) knowledge from an external source. This means that individuals create their knowledge that is intuitive rather than informed and passively receive knowledge.	*There is no right or wrong in child care…children are so individual and so unique that what's right for that child may be completely wrong for the other child…so there is no right or wrong and everybody's opinion is valued…. It is possible for an opinion to be wrong. Not that I would come out and tell that person straight out… you often have people that just think we're a babysitting service…you know that they don't learn anything here they learn at preschool. So I find that opinion very, very bad. (Kelly)*

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Table 3. Descriptions and exemplars for categories of beliefs about children's learning

Categories	Descriptions	Example statements
Constructing meaning	Children process information and make connections. Children make choices and problem solve.	*To assume, that because the child is under 2, they are in an oral phase and therefore will best learn only by touching tasting and smelling, is an over-generalisation. I think that it's lovely to offer an idea from as many facets as possible, so that whatever learning track is particular to that child, or combination of tracks, will be touched upon and each child then has an opportunity of gaining the information through the source that suits them. When they have absorbed something and indicated to me, I've reached them. How important it is doesn't matter, but I've just stretched you know, that little neural track, just that little bit and they've obviously enjoyed it, because they refer back to it again. So, how children learn it through all their senses, their cognitive ability, which is often under-rated, at a young age. Each child has their own strength and it's just offering all things until you think you've reached all of them in the best possible way. (Rhonda)*
Active	Children are active without a focus on encouraging understanding; similar to Biggs' (1996) naïve constructivism.	*I don't think it's actually set down, the activities that we plan for the children, but I think it's a lot got to do with how they themselves sort of go about it. I let them explore it on their own, before I interfere. Let them try and see what they can do. If they can't do it well then I assist them and I'll help them. I'll always be on standby but I always give them the opportunity to try it on their own because deep down they could probably do it but if I'm there they won't do it. (Helen)*
Modelling	Children learn by imitation, and repetition.	*When I speak to parents and they say (the child) has learnt a new song today and (the parents say that) they have been singing in the bath I think oh wow they do take things in. You know singing it each day, they do learn I think. I actually heard one of my children the other day at the table when she was eating her lunch and she was singing like "A", "B" and you know singing the alphabet. It's just so sweet. And so they do repeat and take things home. Like memory, they take things in like each day. They might count to 10 or we might sing our ABC's and just the constant repetition saying it each day. They sort of take it in that way. (Bronwyn)*

Table 4.   Summary of caregivers' personal epistemological beliefs and beliefs about children's learning

Caregiver	Beliefs about knowing	Beliefs about children's learning
Rhonda	Relativism	Construction of meaning
Claire	Relativism	Construction of meaning
Helen	Mixed	Modelling, active
Bronwyn	Multiplism	Modelling, repeating, active, less evidence of construction of meaning
Carol	Multiplism	Active
Kelly	Multiplism	Modelling, active, less evidence of construction of meaning