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The Contribution of Pedagogical Documentation to Maternal Efficacy Among Mothers of Pre-term Infants

In the following study pedagogical documentation was used as a qualitative means of exploring the development of maternal efficacy among mothers of pre-term infants. Photo records and observation notes of six mothers with their preterm infants were gathered weekly each over an 8-week period to capture nurturing interactions during comforting, feeding, bathing and diapering routines while the infants were in the Neonatal Intensive Care Unit (NICU) at Children's Hospital in Vancouver, BC. From this, a visual and written record was created to launch discussions with the mothers concerning the challenges and successes of nurturing pre-term infants. This was followed by questions on the process of pedagogical documentation related to role definition and the image these mothers held of themselves.

Self-efficacy is the mental construction of a set of beliefs that one can carry out certain activities successfully. This performance perception as defined by Albert Bandura (1994: 71-81) acts to strengthen our resolve towards tasks we feel efficacious about and correspondingly will weaken our motivation toward tasks we feel less confident in. Bandura (1997: 175) proposes that when confronted with challenge, individuals with low estimations of personal efficacy may experience pronounced anxiety and depression as well as diminished role satisfaction. In such situations, those persons who lack efficacy tend to internalize failures, and are more likely to give up, attributing failure to factors beyond their personal control rather than attributing failure to deficits in knowledge or skills that can be corrected or acquired. He suggests that efficacy is influenced by four major factors which include a) performance success; b) seeing realistic models accomplish similar tasks; c) verbal persuasion; and d) physiological states.

Women who are able to visualize themselves in the role of mother and who

have accurate performance perception are more likely to accomplish related tasks as the result of their efficacious outlook and assurance in their capabilities (Coleman and Karraker, 2003: 128). Mothers who have high self-efficacy were found to be better adjusted to their role, experienced less role conflict and expressed fewer concerns, compared to mothers with low self-efficacy. A positive relationship is said to exist between child development knowledge, maternal efficacy and a responsive parenting style (Bornstein, Hendricks and Hahn, 2003: 285). A similar relationship has also been established between self-efficacy, maternal role development and parenting (Donovan and Leavitt, 1989: 460; Donovan, Taylor and Leavitt, 2007: 865; Jones and Prinz, 2005: 341; Teti and Gelfand, 1991: 918; Teti, Hess and O'Connell, 2005: 283). Even in stressful parenting situations, positive maternal efficacy was found to contribute to lower distress among mothers who had chronically ill children compared to mothers with low self-efficacy in similar circumstances (Silver, Bauman and Ireys, 1995: 330).

Several factors have been identified as contributing to maternal efficacy. Mothers who suffer from low maternal efficacy are said to avoid interaction, received less reinforcement and were more inclined toward depression (Donovan and Leavitt, 1989: 460; Teti and Gelfand, 1991: 918) leading to a cycle of further withdrawal and lower self-efficacy (Cutrona and Troutman, 1986: 1507). Consistent with Bandura's (1982, 1989) belief that self efficacy is shaped by task difficulty, Robin Forman and Steven Owen (1990), note that role adjustment took longer for first time mothers or when mothers were required to perform difficult tasks such as comforting infants with gas pains (247). In both cases more support and encouragement (verbal persuasion) from nurses was required to ease these mothers through tasks and help them feel more confident in their roles. As pointed out by Forman and Owen, knowing how to perform a task in itself is insufficient preparation for successful performance; one also needs confidence in the ability to succeed at the task. Consistent with Bandura's (1997: 184) notion that performance outcomes are associated with past success or failure experiences, Christin Porter and Hui-Chin Hsu (2003) found that maternal efficacy measured in the prenatal period was associated with concurrent measures of depression, anxiety, marital conflict, and levels of previous childcare experience (54-64). Although individual differences remained consistent, significant increases in maternal efficacy were also observed over time. This finding, according to Porter and Hsu suggests that first time mother's beliefs about their ability to perform nurturing routines may change from a global sense of self-competence to more differentiated perceptions of *nurturing efficacy*.

Children and adults according to Hermine Marshall (1989) behave consistently in the way they see themselves. In addition to the traditional concept of the *looking glass self* which theorizes that our developing notions of self are informed by how others view us (Cooley, 1964: 81), a sense of self can also be derived from behaviours that we attribute to *self as agent* in the environment

(Gecas and Schwalbe, 1983: 79-81). Consistent with this later conceptualization, it is theorized that documenting nurturing behaviours will help reinforce this notion of *self as agent* in the environment and can therefore be an important catalyst in developing a repertoire of effective comforting, feeding, bathing and diapering skills associated with parenting a pre-term infant. It may also help develop the sense of *agency* required to overcome additional barriers, for example apparatus for breathing and feeding or monitors for vital signs that may create a physical and psychological distance between the infant and his or her mother.

In the following exploratory study, pedagogical documentation was used as a means to support the development of maternal efficacy among mothers of pre-term infants by presenting images, dialogue and descriptions that highlight the mother's interactions with her newborn(s), and which situate the mother in a nurturing context. A final compilation of these records was given to the mothers at the close of the study and used as a point of reference for a final set of questions the mothers completed by either e-mail or regular post.

Pedagogical documentation was pioneered in the preschools of Reggio Emilia, Italy (Giudici, Rinaldi and Krechevsky, 2001: 25-27) and has been used in Kindergarten and pre-school classroom projects in Canada and the U.S. (Cadwell, 2003: 6-7; Kocher, 1999: 15). It has also been used to document the development of individual children (Edwards and Gandini, 2001) and to assess children with support needs (Vakil, Freeman and Swim, 2003: 187). Given the inherent challenges of premature birth and providing care for infants within the NICU, pedagogical documentation was chosen as a way to gain a deeper understanding of the mothers' experiences. Two questions related to the theory and practice of pedagogical documentation and maternal efficacy were explored, namely:

- 1) Does pedagogical documentation contribute to the performance appraisal of mothers of pre-term infants in the NICU? And,
- 2) Can pedagogical documentation be used to support the development of an efficacious outlook toward mothering pre-term infants?

Methodology

As part of a larger study investigating the experiences of mothers in the NICU (MacDonald, 2007), the present study involved six mothers and their infant(s) who were referred to me by a neonatologist. The referral was based on the relative stability of the mothers and infants and the infants' projected minimum length of stay at Children's Hospital of at least six weeks. Mothers were excluded from the study if they were experiencing severe depression or had extenuating health or emotional issues. Referrals were made between four and eleven weeks post-partum when most of the neonates were being transitioned to Continuous Positive Airway Pressure (C-PAP) following the

use of a respirator and were experiencing limited or no respiratory distress. At this point in the infants' course of treatment it was anticipated that further contact would occur between the mothers and their infants given that they were relatively stable, and less profound and immediate medical intervention was being performed. Near the end of the projected documentation period the mothers were also expected to be assisting their infants in the transition from nasogastric (NG) tube feeding to breast and bottle-feeding.

The study took place between March 2006 and April 2007 at Children's Hospital in Vancouver, British Columbia. All participants in the study were Caucasian with the exception of one mother of Asian descent, and all were middle class with high school or better education. All mothers had been working during the initial stages of their pregnancy, two within the health care profession, and the others in a variety of professional or management related jobs. The average age of the mothers who completed the pedagogical documentation phase of the study was 34 years. All of the mothers were very generous with their time and displayed a willingness to talk about their experiences, and were open to being observed and photographed. Two of the mothers had other children and the remaining four were first time parents. Three of the mothers had twins and three had singleton births. Of these nine infants, six were boys and three were girls. As shown in the table below, the birth weights ranged from 465 grams to 1577 grams with an average gestational age of 25 weeks or approximately 13-15 weeks prior to the full-term gestational age of 38-40 weeks. One of the infants was be considered Low Birth Weight (LBW) (>1500-2400 g), three were Very Low Birthweight (VLBW) (>750-1500 g), and five were Extremely Low Birth Weight (ELBW) (<750 g).

As mentioned above, all mothers had been working during the initial stages of their pregnancies, and had good family support with the involvement of at least a spouse and in the case of one mother a large network of family and extended family who were very involved in visiting and helping with the twins.

In addition to the six mothers who completed the study, five other mothers started the study but were unable to complete it due to discharge or transfer to other hospitals within the province. Beyond the obvious challenges this posed within the research context, this situation also provides a commentary on the transient nature of the NICU experience for medical practitioners, support workers and the families.

Data from the six participants who completed the pedagogical documentation study were collected and analyzed using the constant comparative method developed in grounded theory (Strauss and Corbin, 1990; 1998) where analyses of patterns were used to develop a provisional hypothesis about the experiences of the mothers that was later verified through further interviews. An adaptation of reflexive photography (MacDonald, *in press*) was used to co-construct understandings and interpretations as part of this data generation and verification process. Data consisted of: 1) running record protocols derived through

Table 1: Birth Weight and Gestational Age

Mother	M2	M3	M4	M6	M9	M10
Weight	Twin A 690 grams (M)	Singleton 480 grams (M)	Twin A 1299 grams (F)	Singleton 465 grams (F)	Singleton 755 grams (M)	Twin A 770 grams (M)
	Twin B 595 grams (M)		Twin B 1577 grams (M)			Twin B 576 grams (F)
Gesta- tional Age	24 weeks	27 weeks older sibling	29 weeks	23 weeks	25 weeks older siblings	24 weeks

observation (Gall, Gall and Borg, 2005); 2) photographs taken to document nurturing interactions; 3) the mothers' comments on the photographs used to generate further data and verify previous observations and responses; 4) the mothers' responses to the interview questions following a viewing of the final product of the pedagogical documentation in the form of an album; and 5) my own reflective notes used to synthesize the data and further the inquiry (Clandinin and Connelly, 2000; Clandinin, Pushor and Orr, 2007: 21).

Procedures

Research ethics approval was obtained from three research ethics boards, The Research Ethics Board at Simon Fraser University, the Behavioural Research Ethics Board of the University of British Columbia (an affiliate of Children's Hospital) and the Research Ethics Board at Children's Hospital in Vancouver, BC. Following the referral by the neonatologist, I contacted the mothers, explained the study and obtained informed consent. During this initial visit I also set up times for weekly visits and discussed the types of interactions that the mom's would like to document. The suggested times for weekly visits typically reflected a time where the mothers anticipated being involved in their child(ren)'s care. However, disruptions and changes to the routines were common, for example if the infants had a difficult night or if there were other examinations taking place our visits were re-scheduled.

Findings

Does pedagogical documentation contribute to the performance appraisal of mothers of pre-term infants in the NICU?

“Performance appraisal” was evaluated based on any comment(s) that the mothers made while viewing the documentation related to their own nurturing interactions. These comments were taken from either the weekly viewing of prior pictures that the mothers and I went over or comments that they made following their viewing of the final documentation. I focused on this former method of soliciting verbal descriptions and imagery with three of the six mothers. To do this, open-ended reflection was encouraged by asking these mothers to “view the slides and comment on any aspects that you find significant or compelling.” Any responses that the mothers made related to *performance appraisal* were therefore unsolicited.

Alexandra¹

In our opening interview, when asked about her image as a mother, Alexandra responded that it had been hard to see herself as a mother because of the early birth of her sons, her difficulty doing the things she expected to do for them, and her inability to protect them. She described her strengths as being a fighter, flexibility, her understanding of the health care system (due to her prior work within the system), and her relationship with her husband. As a mother of pre-term infants she felt that having patience was a challenge and not knowing what to expect day to day. Following this initial interview, Alexandra and I viewed the documentation weekly. Examples of the comments that she made related to her *performance appraisal* were as follows:

Diaper Change: *I'm changing his diaper and he looks a little bit mad. I wish I knew how to comfort them when changing their diaper, I just try and do it as quickly as possible.*

Nurse hanging a feed: *I must be comforting him a little, I think my hand is in there.*

Comforting: *Abh he looks happy there. He likes being on his tummy and he likes your hand on his bum....*

Kangaroo Cuddling: *I'm cuddling him. Whenever they do skin to skin cuddles its hard to see their face so that's why I'm looking down like that.*

After viewing the final documentation album, the mothers were asked specifically about their images of themselves and their perceived challenges. Alexandra gave the following examples related to her evolving image as a mother and her performance appraisal.

[The pedagogical documentation] did demonstrate to me how I was a fighter but more than that, how I was developing as a mother to Alistair and

Duncan. I definitely was able to develop my role as a mother in the Special Care Nursery (SCN) more and more as time went on and the pictures did help me to see how much I was developing along with the boys.

When prompted about an earlier comment she had made about the challenge of being patient, Alexandra commented, “I saw myself in the pictures as being more patient than I ever felt, and that did help.” After viewing the pedagogical documentation album, Alexandra described herself as “caring, nurturing, and very present and available to her sons.” She mentioned that the pictures that had the biggest impact on her were the ones where she was breastfeeding because “that was the one role that no one else could do at the SCN besides me and it reinforced my role as their mother. It also demonstrated how far the boys had come.”

Christina

During the initial interview Christina described her image as a mother as being:

...lethargic—I have no energy because now I am focusing on my baby and I don't have anything to think about I just want to focus on my baby. Usually I'm so active to bring my daughter to her activities—now I tell my sister to take her because the people that I know, the parents that I know, they ask me and I just cry. Yah, the people that I know they ask “how is your baby?” and I cry.

Christina mentioned that her strengths were her family support and the support of the health care professionals. The challenges of mothering a pre-term infant she mentioned were having patience and time as well as worrying about the baby's long-term prognosis. Some of the comments related to performance appraisal Christina made during our weekly viewing of the pedagogical documentation were as follows:

Kangaroo Cuddling: Skin to skin—its nice to feel his skin. It gets so hot—a disadvantage is that you can't see his face. You see I don't see his head if he turns blue or if the nasal prongs are in there because sometimes the monitor doesn't pick up all the clues and I want to fix his nasal prongs to make sure he gets enough oxygen. I'm trying to support his back there.

Comforting: He is awake there and I put my hand there to protect his head so he knows that I am protecting him all the time.

Communication: Look at him, he is so alert. There are times that he opens his eyes and looks around, “Hi, Kenji.” I observed him communicate very young he is so mature.

After viewing the final pedagogical documentation, when reminded that

she had described herself as lethargic, she commented, “I’m more impressed that I was as involved with his care as I was.” She described herself after viewing the documentation as a caring mother. Commenting further that “when I see the pictures of my son and his smiles, his eyes were so wide and looking at me it makes me want to have more interactions with him.”

Claire

In the initial interview, Claire described mothering Bradley and Vanessa as “daunting, but cool,” feeling extremely lucky to have twins. She saw her strengths as a mixture similar to the characteristics she used to describe her infants, feisty and peaceful. Claire stated that she was challenged by having the babies early, the difficulty of trying to establish a schedule, and her dismay about leaving them at night. In reviewing the first set of pictures, Claire commented that she looked awkward, but in the following weeks she re-assessed her image as follows:

Following the viewings: I can do more with Bradley and Vanessa now instead of just watching them or holding them. It’s good to see in these pictures I look confident. I feel confident but I didn’t know if I actually looked it or not. Good to see.

In general, after viewing the documentation, Claire’s image of the challenges of mothering pre-term infants and her image of herself did not change from her earlier descriptions, however, she did mention that,

the documentation brought more confidence. When you look back you see “oh, it’s not that bad.” Sometimes you think it’s all too tough and you don’t know what you’re doing then you look back and see “okay, it wasn’t that bad.”

After viewing the documentation, Claire described herself as:

New. Being new at everything. It’s a challenge knowing that it’s full time, not part time like when I was a nanny. I think my strength is my experience and being able to apply it—not being overly concerned about everything.

Denise

During weekly visits Denise had commented that she felt she was growing into her role as mom and didn’t anticipate any difficulty at home. She felt that this confidence could be attributed to the training that the nurses and Doctors provided on a daily basis, but she did feel that the documentation reinforced the challenges that she faced when she had to bath, feed and change her daughter. The image she had of herself as a mother after viewing the documentation was:

Strong, this was a very emotional experience, and I think my strength increased emotionally because of it. I found I have more patience than I did before. I found the pictures of her and I fascinating as I think I look natural with her and I would have expected to look a little awkward. I found this interesting.

Cheryl

Before viewing the final pedagogical documentation, Cheryl described herself as an advocate and a nurturer. After viewing the album she added that “I think I handled it all quite well despite all the tubes, machines and interventions which could be quite intimidating. I think I was quite loving, loyal but also nervous about it all.” In addition to the earlier comments that she made about being freaked out by everything Cheryl added that after viewing the documentation,

I should give myself more credit. It was all very intimidating but at the time you don't have the luxury of thinking about how intimidating it is. You just do what you have to do. What you must do. What you want to do for your child. There is no other option. Not in my books anyway. And after seeing the pictures again I feel quite proud of my strength. Even though I had many breakdowns I also feel I was quite strong through it all and I did that because I wanted him to feel my strength and faith that he would grow stronger himself.

Naomi

After viewing the final documentation, Naomi described herself as being very gentle with her infants, and her strengths as “having a lot of courage and a vast amount of patience, really celebrating milestones. There is no better feeling than being there for them.” She also mentioned that it was powerful “seeing my grandma (which is their great-grandma) and mom and aunts in the pictures.”

Can pedagogical documentation be used to support the development of an efficacious outlook toward mothering pre-term infants?

As noted previously, (MacDonald, *in press*) I found that pedagogical documentation was very useful in creating a joint focus of attention and eliciting responses from the mothers about their interactions with their infants. This process in itself has the potential to raise and examine challenges, and the difficult emotions associated with mothering pre-term infants. Overall the process of collaborating with mothers to examine the interactions that they had with their infant(s) was powerful and generated several key opportunities related to task performance that could be used to launch discussion surrounding techniques, strategies, perceived barriers and importantly progress. This seemed to be the case even among the three mothers who only reflected on

their images and changes to their images after viewing the final documentation rather than reflecting on their interactions weekly.

In general, the mothers and any other family members visiting were highly supportive of the documentation process. In the final responses all mothers expressed their gratitude for being part of the documentation study. Two of the unsolicited final comments were as follows: *"It was a really good experience. I felt there was another constant thing going on besides all the medical stuff.... Especially for us because we don't have family here so that was nice."* Another mother commented that *"I would truly recommend this experience to all the mom's going through difficult times at Children's. Having these memories is a great thing."* When asked if the documentation process was found to interfere with their routines in any way, none of the mothers felt that the study had interfered and two mothers commented that they would have liked more documentation, for example, one mother wanted more immediately following the birth of her son, and the other stated that she would like to have had more commentary captured because she found the dialogue very interesting.

Implications

Given the high attrition rate previously described, and the time and costs required to create and view pedagogical documentation, one might correctly assume that a high level of commitment is required on the part of anyone initiating the pedagogical documentation process. In addition, similar to any program that requires a great deal of human capacity it may be difficult to justify this type of investment when resources are scarce and case loads are high. That being said, the value of being able to discuss issues with mothers experiencing challenges through pedagogical documentation seems worthy of the time and other costs associated with this undertaking, particularly for mothers experiencing difficulty in adapting to their nurturing role or in cases when further skill development is needed. Based on the findings from this exploratory study, it would seem that the mothers' responses to both the process and product of pedagogical documentation were highly valued and created productive opportunities for discourse and reflection. By presenting pictures that focused on comforting, diapering, bathing and feeding routines, the mothers were able to reflect on their performance in the maternal role and see their growth as the interactions increased over time.

Limitations

It should be noted that findings from this exploratory study are limited to the sample of mothers involved in the study. This particular group of mothers was chosen because of their stability and the relative stability of their infants and is not therefore, wholly representative of mothers who experience pre-term birth. The mothers in the present study were not ethnically diverse. While this was not the intent of the researcher, and was a product of the selection process, it limits generalization of the results to other groups of parents. So often as

pointed out by Dolores Norton (1989), it is typical for developmental research not to investigate minority populations but to compare them to studies of middle-class, primarily white families (1-2). Another limitation that should be noted within the present study is the impossibility of isolating the contribution made by pedagogical documentation from other factors that contribute to maternal efficacy, such as the support received from nurses, neonatologists, and family members etc.

Conclusions

Despite the limitations outlined above, within this exploratory study, pedagogical documentation was found effective in isolating the mother's nurturing interactions during the pre-term infant(s) hospital stay. It also proved effective in helping the mothers explore and reflect on their evolving role within the hospital setting and the perceived challenges of mothering a pre-term infant or infants. Moreover, despite the anticipated criticism that the material and labour costs of pedagogical documentation could prove prohibitive, this method of isolating and discussing specific nurturing strategies might still be effective in cases where health or other professionals are looking for ways to enter into effective discussions with mothers who feel challenged or overwhelmed in their new roles or feel discouraged by their progress with their infant(s).

¹Pseudonyms have been used throughout.

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