

LEARNING PROJECTS OF MOTHERS OF PRETERM AND LOW BIRTH WEIGHT INFANTS

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Parenthood is a stage of adult development that involves extensive learning. In anticipation of impending parenthood, many adults deliberately prepare themselves by attending structured parent education classes and through books, films, friends, and relatives. After the arrival of the infant, parents learn to cope with new responsibilities, new developmental tasks, and new situations. When an infant is premature, there may be additional learning efforts that are related to the birth and subsequent care of the child.

This study was designed to examine the deliberate learning projects undertaken by adult mothers of preterm or low birth weight infants. The objectives were to identify and describe specific characteristics of each learning project that was related to the birth and care of these infants.

Definitions

Adult mother: one who has reached the age of 18 years at the time of her infant's birth.

Deliberate learning: major efforts to change oneself; efforts in which the desire to learn or change is stronger than all one's other motivation (Tough, 1979).

Learning episode: a period of time devoted to a cluster or sequence of related activities. Each episode has a definite beginning and ending in time, and a definite focus or intent (Tough, 1979).

Learning project: a series of related learning episodes adding up to at least seven hours; a sustained and highly deliberate effort to learn (Tough, 1979).

Low birth weight infant: one whose birth weight is less than 2500 grams (Crosse, 1975).

Preterm infant: one born before 37 completed weeks of gestation (Crosse, 1975).

Prematurity: gestation of less than 37 completed weeks and/or birth weight less than 2500 grams (Crosse, 1975).

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Literature Review

Adult education

Although it has long been recognized that adults do learn, there has been little research about adult learning until recent years. In the mid-1920s, Lindeman pioneered the concept of learning that results from adjustment to situations (1961). His key assumptions about adult learners have been supported by later research and have constituted "the foundation stones of modern adult learning theory" (Knowles, 1978, p. 31). Carl Rogers (1951) contributed to adult learning theory by developing five basic hypotheses that emphasized a learner-centered approach to education.

In 1961, Houle categorized learners as being either goal oriented, activity oriented, or learning oriented. In more recent years, Tough (1979), building on Houle's research, began to focus on the study of the "deliberate" learning in which adults engage.

Premature infants

Premature infants represent a significant concern for the health system and for parents for several reasons: the incidence of birth of such infants, survival rate, morbidity, short-term and long-term prognoses. In 1982, there were approximately 21,000 premature infants born in Canada (Statistics Canada, 1984). The increasing number of these infants who survive each year (Stewart, Reynolds, & Lipscomb, 1981) has implications for the health care system because premature infants are frequently the recipients of intensive levels of care, often in neonatal intensive care units. In the short term they are at greater risk for infection, hypoglycemia, hyperbilirubinemia, respiratory distress, central nervous system disorders, and gastrointestinal disturbances (Peacock & Hirata, 1981). The long-term prognosis may include anomalous physical, psychomotor, behavioral, and/or social development (Fitzhardinge, 1976). Disorders of parenting have also been postulated as risks for these children (Klaus & Kennell, 1970).

The birth of a premature baby is usually an unanticipated event for a parent. It has been described as a crisis (Caplan, 1960) and can be accompanied by acute emotional disorders (Kaplan & Mason, 1960). High levels of anxiety have been identified in parents of such children (Jeffcoate, Humphrey, & Lloyd, 1979). Coping behaviors and psychological tasks of adjustment of parents of premature infants have been investigated by Kaplan and Mason (1960) and Guess (1981).

Parental concerns regarding physical and behavioral development were studied by Brown (1981). Specific concerns identified by DuHamel, Lin,

Skelton, & Hantke (1974) included: the reason for premature birth, feelings of guilt about the birth, infant development, the equipment used in the hospital care of the baby, the possibility of cessation of breathing, and a feeling of incompetence in caring for the baby at home.

No research was found that studied learning or learning needs of parents of prematures, although some authors alluded to these needs.

Method

Subjects

Thirty-three English speaking women, aged 19 to 43, residents of an urban center in Saskatchewan, were interviewed by the researcher. These women had given birth to premature infants who were six to twelve months of age at the time of the interviews. Additional criteria included: the women were over the age of 18 at the time of birth of their infants; the infants were singlets with no major identifiable congenital anomalies; and the infants were living with their mothers and were assessed by their mothers as being in good health at the time of the interviews.

The records of an urban hospital and a community health unit were used to locate women for interviews. All women who met the above criteria were eligible for the sample. For several reasons the researcher was unable to interview all the eligible subjects: many of the potential subjects had moved without leaving forwarding addresses, and several telephone numbers had been disconnected; some women were on vacation during the months in which the interviews were scheduled; and three women did not wish to participate in the study.

Instrument

A semi-structured interview schedule and probe sheets were used during the interviews. This schedule, modeled after Tough's original (1968) design, has been extensively used in adult education research (Fair, 1973; McCatty, 1974; Wickett, 1977), although it has not undergone psychometric testing. To establish face validity of the instrument, a review was carried out by four professionals in the field of adult education. No changes were made on the basis of this review. The interview schedule was also pilot tested with two women who met the criteria for sample selection. As a result of this testing, minor changes were made in the wording of questions and probes for increased clarity. The interview schedule was found to elicit the desired responses from the subjects.

Data collection

Tape-recorded interviews were conducted, by appointment, in the mothers' homes. The average length of the interviews was two hours.

Each interview began with a general introduction to the purpose of the study and to aspects of deliberate learning. The mother was then asked to list verbally any learning she had engaged in since the birth of her infant. Learning that occurred prior to the birth of the baby was not included. Once this initial list was established, the mother was asked to identify those learning efforts that she assessed as being related to the birth, care, or understanding of her premature infant. The learning efforts thus identified were explored in detail in order to select those that qualified as learning projects, i.e., had a definite focus and consumed more than seven hours. Each learning project was then examined for the following characteristics:

1. Circumstances that stimulated the learning project,
2. Planner of the learning project,
3. Resources used for learning, including accessibility and value,
4. Hindrances or obstacles to learning,
5. Amount of skill, knowledge, or understanding gained (self-rated by mother),
6. Benefits to self as a result of the learning project,
7. Others who benefited from the learning project,
8. Estimate of the time spent in each learning project,
9. Selection of the most important project.

Demographic data included: name, age, educational background, marital status of mother; name, age, sex, birthweight and gestational age of infant; length of time infant was hospitalized, any rehospitalizations; general health of mother and infant; number of children in family; previous premature births; specific support person since infant's birth.

Data Analysis

The demographic data were analyzed using mean, median, and range measures. Substantive data were analyzed by grouping of responses into categories; these categories were developed by the researcher after the data had been collected. The learning projects were grouped according to commonalities in their themes or topics. For example, when a mother described a learning project in which she had learned about the normal milestones for a three month old infant, that was considered to be "learning about development."

An independent reviewer assessed all of the written data and a sample of two tapes from the interviews. There was a high degree (>95%) of inter-rater agreement with regard to the categories developed.

Data related to other aspects of the learning projects were analyzed by frequency of response.

Findings and Discussion

The mothers interviewed had formal educational backgrounds varying from grade eight to a master's degree. Thirty-one of the mothers were married, one was in a common-law relationship, and one was a single parent living alone with her infant. There were one to four children in their families, with a median of two. Eight mothers had previously given birth to a premature infant; for three mothers, this was the third such baby. Two mothers had previously experienced the death of an infant, and one mother had an older child (also preterm) with cerebral palsy.

The infants (16 girls and 17 boys) were six to twelve months of age. The period of gestation ranged from 26 to 41 weeks, with a mean of 35.2 weeks. Birth weights ranged from 770 to 2990 grams, with a mean of 2154 grams. Because of the definition of prematurity adopted for this study, there were some infants included whose gestational age was beyond 37 weeks but who weighed less than 2500 grams at birth. Similarly, some infants were included who weighed more than 2500 grams but were of less than 37 weeks gestation. The infants' initial hospital stay was from two days to three months. One infant had been rehospitalized three times, three were rehospitalized once, and seven had been taken to emergency departments for health problems or minor surgical procedures.

Learning projects identified

The deliberate learning engaged in by the mothers appeared to be extensive, with a mean of 5.8 learning projects related to the birth, care, and understanding of their infants. The topics of the 193 learning projects were grouped by the researcher into ten categories.

1. Infant development (26 projects). These projects included such concerns as normal developmental stages and milestones, developmental delays, catch-up time, behavioral and intellectual development, possibility of brain damage, eruption of teeth, and stimulation to improve development.

2. Changes in lifestyle (23 projects). These projects were related to rearranging lifestyles, adjusting time, combining work and motherhood, combining school and motherhood, and adjusting to staying at home.

3. Hospital care of infant (23 projects). Projects were related to jaundice and phototherapy, intravenous infusions, use of incubator and ventilator, diagnostic tests, gavage feeds, monitors, bradycardia and apnea, infections and antibiotics, separation from infant.

4. Learning about "self" (21 projects). This included projects related to developing patience, seeking reasons for the premature birth, coping with guilt feelings, seeking the meaning of motherhood, being on her own with the children, adjusting to the suddenness of the birth.

5. Coping with the premature infant at home (21 projects). This category included learning about the characteristics and habits of a premature infant (sleeping, breathing, appearance, personality), adjusting to the care of a small baby, treating the child as a "survivor" and not overprotecting.

6. Basic infant care (19 projects). These projects included either learning for the first time or "brushing up" on infant care.

7. Infant feeding (18 projects). This area of learning was given so much emphasis by the mothers that it appeared to have importance apart from the topic of basic infant care. Mothers described learning about breastfeeding, expressing and saving breast milk, infant's weight gain, allergies and food additives, addition of solids, feeding problems (sleepy baby, choking, inability to suck, regurgitation, frequent feedings).

8. Family relationships (18 projects). Projects were related to sibling rivalry, discipline, relationships with the husband, and birth control.

9. Infant's health (15 projects). Projects were related to concerns ranging from relatively minor problems such as colds, allergies, cradle cap, fevers, and immunization to more major problems such as pneumonia, meningitis, patent ductus arteriosus, and pulmonary stenosis. Other concerns included eye and ear problems, foot deformities, colic, diarrhea, circumcision, and asthma.

10. Cesarean birth (3 projects). Six mothers had experienced a cesarean delivery, but only three described this as a learning project.

Six projects did not fit into the above categories. These were projects related to the search for a new physician (2 projects), sudden infant death syndrome, preparation of a written account to share the cesarean birth experience, working with a single parents' group, and disturbances in a pet's health as a manifestation of jealousy of the baby.

Because this study was not designed to be a comparative one, it cannot be concluded that the topics of the learning projects were specific to mothers of premature infants. Some projects did appear to be closely related to the premature birth, for example: rearrangement of lifestyle to accommodate several months of visiting the baby in hospital; learning about specific medical and nursing procedures; coping with the stresses, anxieties, and guilt feelings associated with the birth; and the meaning of motherhood as related to the precariousness of this child's survival.

Characteristics of the learning projects

The topics of the learning projects as described by the mothers in this study were similar to parental concerns reported in other studies (Adams, 1963; DuHamel et al., 1974; Gruis, 1977; Jeffcoate et al., 1979; Kaplan & Mason, 1960; Lissenden & Ryan, 1982).

Circumstances or events which stimulated the learning projects varied according to the nature of the projects. For example, mothers who described projects related to infant development cited such circumstances as: the child was smaller or slower than the other children had been; or a previous premature child in the family had cerebral palsy. It appeared that the mothers most frequently undertook learning projects in direct response to life events and a need to cope with the situation.

In 80.8% of the learning projects the learner was the sole planner. When projects were included where the learner was co-planner, the percentage of learner-planned projects rose to 94.8%. This finding is compatible with results from other researchers in adult education (Fair, 1973; Tough, 1979).

Resources for learning were categorized as: professional (nurses, doctors, nutritionists, child care workers); non-professionals (husbands, friends, relatives); print (books, newspapers, pamphlets, magazines); internal (inner resources that learners availed themselves of by means of meditation, reflection, prayer); other (films, television, infant's hospital chart). Figure 1 depicts the utilization of resources by the mothers in their learning projects.

It would appear from this study that the mothers interviewed had access to a variety of learning resources. For some of the learning projects (such as infant development, hospital care of the infant, basic infant care, infant feeding, infant health, cesarean birth), most mothers indicated that resources were easily accessible and were valuable. Some mothers, however, did indicate that resources related to infant feeding and infant health were of limited value. In the areas of changes in lifestyle, learning about self, family relationships, and coping with the infant at home, resources were assessed as being difficult to find and use. Although professional and print resources

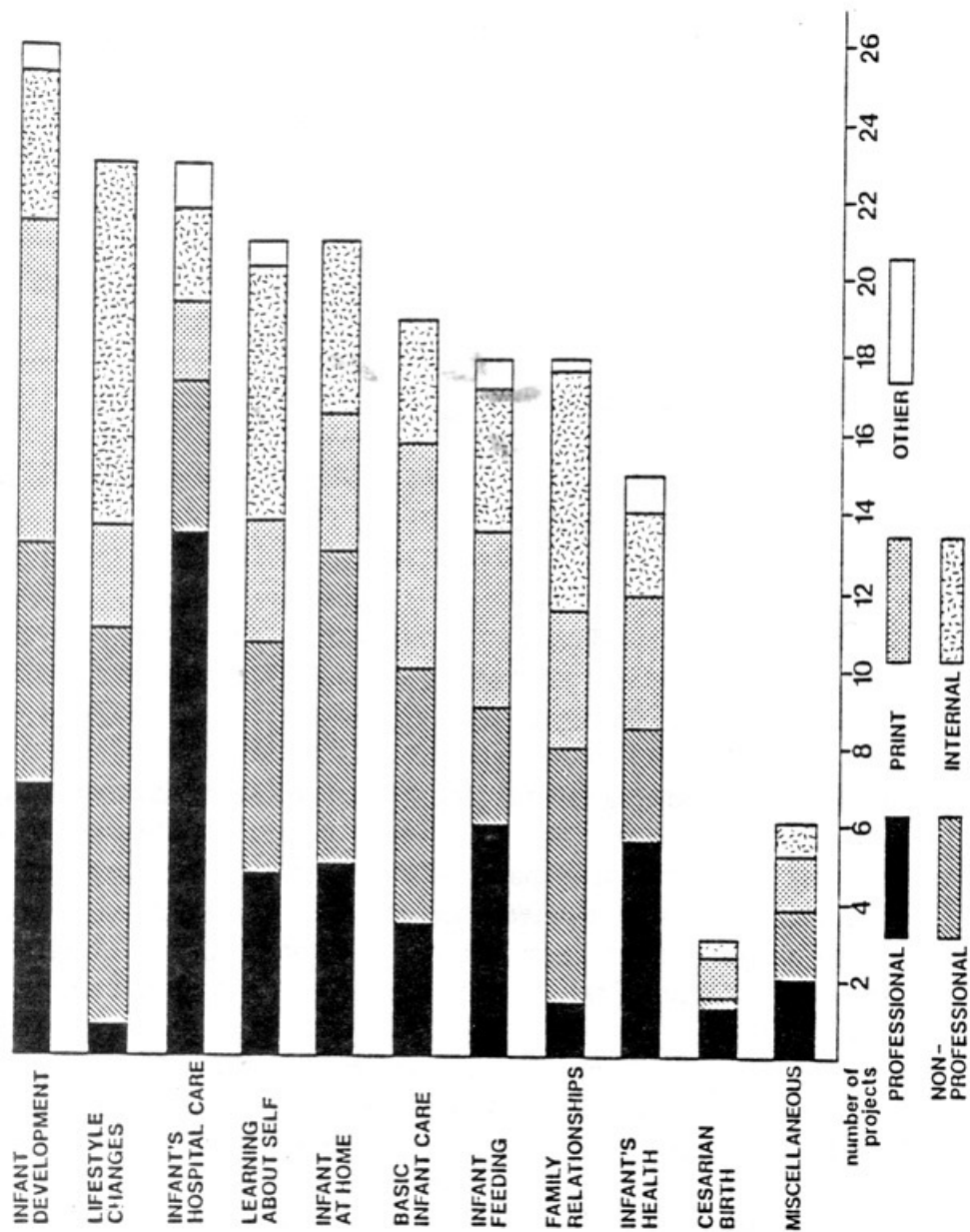


Figure 1: Learning resource utilization

were used by many mothers, there was a strong reliance on friends and relatives as resources for learning. It was of interest to note that, although the fathers were identified most frequently as major sources of support and assistance, they were not identified as major resources for learning.

Most mothers indicated that they had encountered some obstacles or hindrances to their learning. These were categorized by the researcher as being related to either internal or external factors. The most common internal obstacles were anxiety, fear, insecurity, anger, frustration, and guilt. External obstacles, although not numerous, included unsatisfactory responses from professionals; lack of someone to talk to about problems; inaccessibility of appropriate print resources related to development of the premature infant, to feeding and breastfeeding, and to allergies in infants. Other obstacles included inconsistent recommendations regarding infant feeding and sibling rivalry. Some mothers expressed difficulty in understanding medical terminology.

Most frequently identified benefits of the learning projects were an improved ability to cope with the situation and an ability to use the learning immediately or in future situations. Other benefits were reassurance, increased confidence and understanding, and internal satisfaction. Others who benefited from the learning projects were the husband, the baby, friends, extended family, and other mothers of premature babies. Mothers indicated that they had shared their learning with others and that their families were also better able to cope with the situation.

The responses to the questions regarding the amount of learning and change varied according to the nature of the learning projects. In the projects related to infant development, to lifestyle changes, to knowledge of self, and to family relations most of the mothers indicated that they had learned or changed a large amount. In projects involving infant care, coping with the infant at home, infant feeding and health, and cesarean birth half of the mothers indicated a large amount of learning or change. Many verbalized a need for more learning in the areas of infant health and care of the infant in hospital.

Estimation of time involvement in learning projects was difficult for the mothers. Although they could identify that they had spent more than seven hours in each project, most mothers could not provide an estimate of time spent in learning. Variations existed in the ability of mothers to recall past events and to identify learning related to these events.

When each mother identified her most important learning project, it was found that the majority of these (24) occurred in the following categories: knowledge of self (7), lifestyle changes (6), hospital care of infant (6), and

infant development (5). These projects were selected because the mothers perceived them as having resulted in large amounts of change or because they were very difficult learning experiences.

Implications for Practice and Research

The results of the study indicated that deliberate learning occurred as a response to crisis situations and that learning helped these mothers and families to cope with the situations. It is important that health care workers recognize the value of learning tasks and that they attempt to facilitate such learning. Since the majority of projects were planned by the learners themselves, health care professionals can be most effective as resource persons. Nurses, whether in hospital or community, should be aware of potential learning needs of mothers of premature infants and be sensitive to factors such as readiness to learn and possible hindrances to learning. In order to assist learning, nurses should be familiar with those topics that were cited as learning projects by the mothers in this study.

It was noted that mothers experienced difficulty in mobilizing their inner resources in the learning projects involving knowledge of self, lifestyle changes, and family relationships. If nurses anticipate this situation, they can assist mothers by being available to them for reassurance and by directing them toward appropriate counseling or learning resources.

Health professionals were frequently cited as resources in the areas of hospital care of the infant, infant health and infant nutrition. Nurses should continue to focus on these topics when teaching. Dissatisfaction expressed by mothers with regard to conflicting information, particularly in relation to nutrition and health problems of premature infants, may be decreased if health care professionals work toward greater consistency in recommendations and information.

Several mothers indicated the need for printed material relating specifically to premature infants and their care. This type of information should be available in the form of booklets which can be taken home from the hospital. Public access to current information regarding premature infants (developmental expectations, health, care and feeding, stresses of having a high risk newborn) should be improved. Many books and articles have been written for nurses and physicians, but very little exists for the lay public.

Although many of the mothers interviewed indicated a high degree of reliance on friends or neighbours for support and information, some mothers lacked these support systems. Early postnatal home visits by a community health nurse would be of value in assessing the mother's need for such

support. Where a parent-to-parent support network does not already exist for these mothers, it would be valuable to establish such a group. This network, in the form of meetings or telephone contact, would be helpful not only during the period of hospitalization, but also after return to the community.

Further research is needed to compare learning projects for different groups of mothers such as primigravidas/multiparas, mothers of full-term infants/mothers of premature infants, rural/urban mothers.

As a result of the concerns expressed by mothers regarding support systems, the researcher also recommends further exploration of the effectiveness of parent-to-parent support groups. In addition, because infant development was the most frequently cited topic for learning projects, continued research is needed in the area of development of and prognosis for premature infants.

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RÉSUMÉ

Projets d'apprentissage de mères d'enfants prématurés et d'enfants de faible poids à la naissance

Cette étude descriptive avait pour but d'étudier les caractéristiques spécifiques des projets d'apprentissage d'un groupe choisi de 33 mères d'enfants prématurés. Les mères, dont les enfants étaient âgés de six à douze mois, ont identifié 193 projets d'apprentissage. Le chercheur avait classifié les sujets en dix catégories. Les projets d'apprentissage étaient, pour la plupart, conçus par les mères, et les ressources d'apprentissage qu'elles ont utilisées variaient selon la nature du projet. Bien que les ressources furent, en général, jugées facilement accessibles et valables relativement à l'apprentissage, des obstacles ont été identifiés. Des recommandations basées sur les résultats de cette étude ont été faites. Ces recommandations sont importantes pour les professionnels de la santé qui oeuvrent dans le domaine de la maternité et des soins aux nouveau-nés.