

**Andrea Crossland**  
University of Ottawa

## Efficacy Beliefs and the Learning Experiences of Children with Cancer in the Hospital Setting

*The purpose of this study was to explore the influence of self-efficacy beliefs on the learning experiences of children with cancer while in the hospital setting. Analysis of five students' cases revealed that the efficacy-regulated processes of motivation, cognition, affect, and selection have a mediational role on the children's learning experiences and that, bidirectionally, through the development of strong academic efficacy beliefs, children with cancer may experience psychosocial adjustment and an improved sense of overall well-being. Findings support Bandura's (1995) assertion that the issue of control is central in human lives and is particularly important for those who have constraints imposed on them.*

*Le but de cette recherche était d'étudier l'influence qu'ont les croyances d'auto-efficacité sur les expériences d'apprentissage d'enfants atteints d'un cancer et séjournant dans un milieu hospitalier. L'analyse du cas de cinq étudiants a révélé que des processus réglementés par l'efficacité, notamment la motivation, la cognition, l'affect et la sélection, jouent un rôle médiationnel sur les expériences d'apprentissage des enfants et que, de façon bidirectionnelle et par le développement de fermes croyances soutenant l'efficacité académique, les enfants atteints d'un cancer peuvent connaître un ajustement psychosocial et un meilleur sens global de bien-être. Les résultats appuient l'assertion de Bandura (1995) selon laquelle la question de contrôle est centrale dans la vie humaine et revêt d'une importance toute particulière dans l'existence de ceux vivant avec des contraintes.*

The fear and perceived lack of control associated with a cancer diagnosis can have profoundly negative effects on a person's overall well-being (Cunningham, Lockwood, & Cunningham, 1991). For a child, a cancer diagnosis means coming to terms with an uncertain future, limited physical capabilities, social isolation, and the requirement for psychosocial adjustment. According to Mabe, Riley, and Treiber (1987), psychosocial adjustment requires promoting the continuation of normal growth and development including intellectual growth, social skills, and preparation for career and family. In this regard, school is highlighted because of its central role in a child's development and because it represents an area over which a health-impaired child can command some control.

The concept of control has been analyzed by various psychologists. However, Bandura (1997) has demonstrated the importance of self-referent thought in psychosocial functioning. Bandura (1995) argued that the issue of control is central in human lives and is especially important for those who feel powerless to exert influence over events in their lives. Among the control mechanisms people use, none is more critical than people's efficacy beliefs.

---

Andrea Crossland is a part-time professor in the Faculty of Education. Her specializations are educational psychology, special education, and self-efficacy beliefs.

Perceived self-efficacy “refers to beliefs in one’s capabilities to organize and execute the courses of action required to manage prospective situations” (Bandura, 1995, p. 2). These personal efficacy beliefs can significantly influence how people think, feel, motivate themselves, and act. Thus efficacy beliefs regulate human functioning through cognitive, motivational, affective, and selection processes. A description of these four processes follows.

First, self-efficacy has been shown to affect thought patterns. Because much human behavior is regulated by forethought, goal-setting is directly influenced by individuals’ self-appraisal of their capabilities. The stronger an individual’s perceived self-efficacy, the higher the goals that person will set and the firmer the commitment will be to those goals (Bandura, 1993). Because a course of action is initially shaped in thought, people’s self-efficacy beliefs will (a) influence the type of anticipatory scenario individuals construct, (b) allow individuals to remain task-oriented in the face of situational demands, and (c) enable individuals to solve problems and predict how they can control the events in their lives.

Second, self-efficacy beliefs play a key role in people’s self-regulation of motivation (Bandura, 1993). People motivate themselves cognitively by planning their actions anticipatorily through the exercise of forethought. They form beliefs about their conception of ability, what they can do, the perceived importance and appeal of the task at hand, and subsequently anticipate likely outcomes. Self-efficacy beliefs affect motivation through causal attribution, outcome expectancies, and cognized goals (Bandura, 1993).

Third, how individuals feel, including their likes or dislikes and coping capabilities, are influenced by self-efficacy beliefs. These beliefs will determine their level of motivation and how much stress and depression they will experience in a difficult situation. Individuals with strong efficacy beliefs will be able to control the stressors in their lives, cognitively transform threatening situations into benign ones, and exercise control over ruminating thoughts (Bandura, 1995).

Finally, environmental constraints are also considerations in the adjustment process. Although some constraints are outside of human control, people “are partly the product of their environment ... and beliefs or personal efficacy can shape the courses people’s lives take by influencing the types of activities and environments they choose to get into” (Bandura, 1995, p. 10). Bandura suggested that people avoid situations they deem to be too taxing for their abilities and readily undertake those activities they judge themselves to be capable of managing. By the choices people make they develop different competences and interests that determine life direction and influence their sense of self.

#### *Educational Development and Self-Regulation*

Zimmerman (1995) built on Bandura’s work and suggested that there is a mediational role of perceived self-efficacy on children’s educational development seen through processes of self-regulation. This conceptual focus is rooted in Bandura’s (1986) social cognitive theory, which describes human functioning in terms of reciprocal interactions among behaviors, environmental factors, cognitions, and personal variables. These aspects of human functioning have a bidirectional influence on each other (Grusec, 1992). Expectations, self-perceptions, and goals influence behavior, with the result of that behavior affecting

cognition and the individual's choice of environment. Similarly, the environment can cognitively and behaviorally affect the person, and the person in turn evokes different reactions from the environment.

Traditionally, student achievement has been assessed on the student's natural ability, the quality of teaching, schools, and home environment (Zimmerman, 1986). In contrast, a self-regulation approach focuses attention on how students' efficacy beliefs allow them personally to activate, alter, and sustain their learning practices and strategies in specific contexts. The degree to which students perceive themselves to be efficacious learners will contribute positively to their level of success. Perceived academic self-efficacy is "defined as personal judgments of one's capabilities to organize and execute courses of action to attain designated types of educational performances" (Zimmerman, 1995, p. 203). Zimmerman and Martinez-Pons (1990) stated, "students' selection and use of strategies depends directly on their perceptions of their academic efficacy and reciprocally on the feedback they receive" (p. 51). Therefore, the four efficacy-regulated processes (cognition, motivation, affect, and selection) contribute to students' perceptions of themselves as learners and are believed to have an effect on the school experience.

Self-efficacious learners should be able to select, structure, and alter their environments so that optimal learning may take place. Metacognitively, they should be able to plan, organize, self-instruct, self-monitor, and self-evaluate at various stages in the learning process. Motivationally, self-efficacious learners should perceive themselves as autonomous and competent, and behaviorally, they should be able to make their environment conducive to learning. Effective use of self-regulatory strategies is, therefore, theorized to enhance perceptions of control, autonomy, and competence, and these positive perceptions are believed to contribute to the motivational and affective basis for learning. In the present study, academic efficacy beliefs and self-regulatory practices may thus affect the students' motivation and persistence to learn and to succeed, how they feel about learning and their level of satisfaction with the hospital school experience, and their degree of personal adjustment through the achievement of positive developmental outcomes in the face of adversity. In a bidirectional manner, the influence of these efficacy beliefs on the learning experiences of children with cancer will contribute either positively or negatively to the children's overall perceptions of their school experience and to their more general self-efficacy beliefs.

Because no earlier research has investigated the influence of efficacy beliefs on the learning experiences of children with cancer in the hospital setting, it may be beneficial to explore further the concept of adjustment as it relates to social cognitive theory. Studies in the area of self-efficacy and childhood adversity have shown that many children surmount hardships and develop into efficacious, productive adults (Bandura, 1997). These studies also provide insight into the determinants of coping and adjustment. According to Bandura, elements of resilience that lead to effective adjustment are reflected in the attainment of positive developmental outcomes such as social competence, academic achievement, a favorable sense of self, absence of psychosocial pathology, and the eventual fulfillment of essential roles in adult life.

Sources of successful adjustment in children, as identified in the research literature, have primarily focused on social influences. And although these elements of childhood adjustment are similar to Bandura's (1997) conception of positive developmental outcomes, Bandura also suggested that a sense of personal control over one's life circumstances is another key factor in childhood coping. Childhood control beliefs and behaviors allow children to manage life situations, reduce the level of subsequent distress, and encourage a high enlistment of social supports resulting in successful adaptation. Bandura believed that intellectual competences and control beliefs are essential tools for managing everyday demands and are also uniformly strong predictors of successful adaptation and development.

Studies focusing on illness in adulthood as a source of adversity also conclude that perceived capability to exercise control, whether illusory or real, reduces emotional distress over aversive events. Thus belief in one's personal efficacy can activate processes that extend beyond the scope of coping strategies. For students with cancer, hospital schooling has the potential to provide them with personally controllable experiences that allow them to be developmentally successful. In a cyclic fashion, these successes may then positively contribute to their academic and more general self-efficacy beliefs and hence to their overall well-being.

An ill child has needs and concerns, many of which can be met through school or educational programs (Davis, 1989). Through the school experience, ill children have the opportunity to learn, to socialize, to experience success, and to develop increased independence and control over their environments. Depriving children of the chance to meet these needs may cause increased stress and anxiety. Therefore, it is not only important to continue schooling while the children are ill, but also to continue to explore how the learning experiences can be improved and enriched. This exploration must not be limited to an analysis of specific programs. It must focus on the psychology of learning that has widespread applicability. Consequently, the purposes of this study were to determine through a multiple-case study approach how self-efficacy beliefs influence motivation, cognition, affect, and adjustment in students with cancer in the hospital setting. The research questions that guided this study were as follows: (a) How do self-efficacy beliefs influence the students' motivation to learn in the hospital setting? (b) How do self-efficacy beliefs influence the students' ability to regulate their learning and master academic activities? (c) How do self-efficacy beliefs influence the students' level of satisfaction and affective responses to their hospital learning experiences? and (d) How can self-efficacy beliefs indicate or promote personal adjustment under adverse conditions? However, the discussion presented here focuses on three of the research questions, specifically, the influence of self-efficacy beliefs on student motivation, student affect, and student adjustment.

#### *Methodology*

To understand how perceived self-efficacy beliefs influence the educational development of students with cancer, a close relationship with the participants had to be established and an in-depth understanding of the hospital as a learning environment was required. Thus the cases of five hospitalized children were explored. Merriam (1988) stated that the "main concern of case

studies versus surveys or experimental research is ‘interpretation in context’” (p. 21). Case studies are also “particularistic in that they focus on a specific ... phenomenon; they are descriptive; and they are heuristic—that is, they offer insight into the phenomenon under study” (p. 21). The data for this research were collected using a descriptive multiple-case study approach and interpreted from a constructivist paradigm.

In the constructivist paradigm, reality is a result of an iterative interactive process. Ontologically, constructivism means that reality or knowledge is constructed or made and is not a series of objective facts to be discovered (Schwandt, 1994). Constructions change as the individual becomes more or less informed.

Epistemologically, the assumption is that the investigator and the inquiry are linked so that the findings are created as part of the investigation process. The investigator must actively engage in a transactional and subjective relationship with the participants so as to facilitate the development of a new construction. This new construction represents an attempt to make sense of the research experience based on the investigator’s construction as well as the constructions of the participants.

Given the personal nature of social constructions, the methodology used must allow for interaction between the investigator and participants (Guba & Lincoln, 1994). Constructions must be interpreted and developed using discursive practices stressing the role of the participants’ narratives. The cognitive endeavor, as a result of this inquiry process, is to formulate a new understanding that will facilitate further inquiry (Guba & Lincoln, 1994).

With all aspects of the constructivist paradigm in mind, the use of case study methodology for this research seemed appropriate. In case study research, multiple perspectives are solicited, holism is advocated, humanism is encouraged, and ambiguity is tolerated (Kenny & Grotelueschen, 1984). Case studies are also considered the preferred research strategy used to examine a phenomenon in its real-life context. A multiple descriptive case study, therefore, adequately directs this preliminary investigation of the influence of efficacy beliefs on the learning experiences of children with cancer in the hospital setting.

### *Participants*

This multiple-case study focused on the hospital school experiences of five children with cancer (2 girls and 3 boys) ranging in age from 9 to 13 years, receiving educational services in one large children’s hospital over a three-month period. The scope of the study was limited to an examination of the learning experiences of these five students and to those people directly involved with the children’s hospital education. As a result, in addition to the five children, the study included three hospital teachers, one home instruction teacher, and the mothers of the five students. A total of 14 participants were involved in this study (see Table 1).

Participant sampling was to be nonprobabilistic with an emphasis on identifying appropriate student participants and then including the students’ parent(s) and hospital teachers. The logic for this sampling was to select information-rich cases that were criterion-based (Patton, 1990). The initial sampling criteria for students to be considered for the research were that (a) they

Table 1  
Participants

<i>Participant Type</i>	<i>Pseudonyms</i>	<i>Sex M/F</i>	<i>Age in years</i>	<i>Grade</i>	<i>Diagnosis</i>	<i>Relationship</i>
Student	Steven Smith	M	9	4	Neuroblastoma	N/A
Student	Alex Walters	M	11	6	Neuroblastoma	N/A
Student	David Wilson	M	11	6	Osteo Sarcoma	N/A
Student	Amanda Johnston	F	9	3	Acute Lymphoblastic Leukemia	N/A
Student	Jill Perron	F	13	9	Osteo Sarcoma	N/A
Home Teacher	Evelyn Richards	F	N/A	N/A	N/A	Home teacher for Steven
Hospital Teacher	Julie Simms	F	N/A	N/A	N/A	Hospital teacher for Alex and Amanda
Hospital Teacher	Cathy Adams	F	N/A	N/A	N/A	Hospital teacher for Steven
Hospital Teacher	Cheryl Jones	F	N/A	N/A	N/A	Hospital teacher for Jill and David
Parent	Mrs. Smith	F	N/A	N/A	N/A	Mother of Steven
Parent	Mrs. Walters	F	N/A	N/A	N/A	Mother of Alex
Parent	Mrs. McDonald	F	N/A	N/A	N/A	Mother of David (married to David's stepfather)
Parent	Mrs. Johnston	F	N/A	N/A	N/A	Mother of Amanda
Parent	Mrs. Perron	F	N/A	N/A	N/A	Mother of Jill

not have a diagnosed cognitive impairment due to their health condition or treatment, (b) they all have a cancer diagnosis, (c) they are all in the hospital setting frequently, and (d) they are all receiving educational services in the hospital environment either as their sole source of education or as a supplement to a school or home program. It was also preferable that the children be 11 to 14 years of age, as these children would be old enough to provide detailed information, but still be at the elementary school level.

At the time of the study, five children, two girls and three boys, met the criteria and were either within or near the preferred age range. The students were all Caucasian, spoke English as a first language, and were from two-parent families. All participants were informed of their rights as participants, and written consent was obtained. The participants were also guaranteed confidentiality and were assigned pseudonyms.

### *Research Design*

The research design consisted of the following four data collection methods: (a) participant observations, (b) semistructured interviews, (c) document reviews, and (d) activity sessions. By combining these dissimilar methods, the flaws of one method were compensated for by the strengths of another method (Merriam, 1988). This type of triangulation is a major strength of case study research and provides a more holistic view of the research phenomenon (Morse, 1994). Following is a more detailed description of each data collection method.

*Observations.* Participant observations were collected to obtain in-depth and detailed qualitative data. These observations took place at least three times per child during the students' individualized classes with the hospital teachers. Observations were also collected once with one student and his home instruction teacher. To ensure the comfort level of both the teachers and children, the teachers were involved in scheduling the observation sessions. The observations focused on (a) the learning setting, (b) the participants involved in the teaching session, (c) the students' use of regulatory skills, (d) activities and interactions, (e) the frequency and duration of the learning activities, and (f) subtle factors such as nonverbal communication, and informal or unplanned activities (Merriam, 1998).

Although the ideal involvement of a researcher making qualitative observations is to "get inside the perspectives of the participants, full participation is not always possible" (Merriam, 1988, p. 93). Given the sensitive nature of working with health-impaired children in a hospital setting, my role as researcher changed throughout the data collection phase. It became clear early in the data collection process that to gain the children's trust and to become more familiar with the setting, I had to start by spending some time as a complete observer. The planned observation sessions proved to be an excellent way for me to become a part of the children's environment in a nonthreatening manner.

*Interviews.* Much of what a researcher cannot observe may be obtained through descriptions and interpretations of others (Stake, 1995). Thus one of the most important forms of data collection in these case studies was interviewing. Because language is one of the major tools used by individuals in a culture, interviewing not only the five children but also their mothers, hospital teachers, and one home instruction teacher was crucial.

The interview questions were prescribed and open-ended and varied only slightly depending on whether the interview was with a student, a mother, or a teacher. The goal of these open-ended questions was to encourage the participants to relay freely their perceptions in a type of guided conversation.

The interviews took place once with all of the participants at times and in locations that were most convenient for the participants. These interviews were audiotaped and later transcribed. Interview items focused on the children's self-regulatory skills, social interactions, and satisfaction with their school experience in both the hospital and community school settings. The interview questions also required the teachers and mothers to reflect on similar efficacy-related issues such as how the children's illnesses had affected their learning, the students' affective response to learning in the hospital setting, and the students' ability to adjust and cope. In addition, some information regarding the children's goals, their ability to socialize, and their degree of satisfaction

with schooling in the hospital environment was collected. All adult participants were given the opportunity to review and make changes to their own interview transcripts.

*Document review.* Personal documents such as learning journals may tell a researcher about how a participant makes meaning out of an everyday event. Because personal documents can be a reliable source of data concerning a person's attitudes and beliefs, the students were asked to answer a prepared set of questions at the end of the three hospital education sessions during which observations were taken. Specifically, the students were asked to indicate (a) how they were feeling that day, (b) what they learned in their session, (c) whether learning was easy that day and why, (d) whether they were satisfied with the learning experience, and (e) what could be done to make the learning experience better. These journal entries took approximately five minutes to complete.

A review of the children's report cards and their Ontario school records also took place. From these records, the children's academic histories could be traced and a more global picture of the students' school lives could be obtained. In all but one of the children's cases, no records existed for periods coinciding with academic terms during which the children received educational services either in the hospital alone or in combination with a board-supplied home instruction teacher.

*Activity sessions.* Because one-on-one interaction with the students was limited, each student was asked to complete individually an age- and grade-appropriate educational activity on at least three separate occasions. The purpose of engaging in these activities was to participate with the students in completing a naturalistic exercise and in so doing observe how the students activate and sustain cognitions, behaviors, and affects that allow them to complete an assignment or goal. Information garnered from these activity sessions was recorded as field notes immediately following the session completion.

#### *Data Analysis*

The process of data reduction into manageable pieces of analytic information is the end goal of qualitative research design. Huberman and Miles (1994) suggested that this reduction can begin at the outset of the research with a proposed study design and should continue throughout the research process. This research was guided by a theoretical framework and by a set of research questions that directed the study design. Broad analytical categories were established early from the research literature and emphasized how self-efficacy beliefs influence the following efficacy-regulated processes: (a) student motivation, (b) student cognition, (c) student affect, and (d) student adjustment in adverse conditions.

These broad categories were further subdivided into more specific units of analysis. In the category of student motivation, areas of particular interest included (a) the students' perceived importance of school, (b) the students' perceived and actual academic successes, (c) the students' perceptions of their learning abilities, (d) subject areas of particular interest, and (e) the influence of the teacher, family, and educational program with respect to student motivation. In the category of student cognition, particular attention was paid to the students' use of academic self-regulatory skills, specifically those skills involv-

ing organization and planning, goal-setting, environment structuring, seeking social assistance, task orientation, and study and work abilities. Student satisfaction with the hospital school experience as well as the affective influence of the teacher, family, and educational program were the primary focuses in the category of student affect. Finally, elements of student adjustment that were of particular interest were any indicators of student behavior that promoted positive developmental outcomes including social connectedness, academic success, presence of a stable familial bond, and positive and personal control beliefs.

#### *Research Trustworthiness*

Although there is no consensus among the research community as to the appropriate criteria for assessing trustworthiness in case studies, Merriam (1998) suggested a number of basic strategies that should enhance credibility. These include triangulation (using multiple sources of data or multiple methods), member checks, long-term observations, clarifying the researcher's biases, and developing an audit trail. These strategies were built into this study. Data were collected from multiple sources and using multiple strategies over a three-month period. The data were categorized and coded and entered into data recording charts for the purpose of developing an audit trail. In addition, field notes were kept documenting how the data were collected, how the decisions were made regarding the cases, as well as when and how many times the participants were contacted. Member checks were also conducted on an ongoing basis through regular involvement with the participants. Adult participants were given the opportunity to review and make alterations to their interview transcripts.

One aspect of research trustworthiness that has plagued qualitative researchers concerns the extent to which the findings of one study can be applied to another. Stake (1994) stated, "case researchers seek out both what is common and what is particular about the case, but the end result presents something unique" (p. 238). Case study can be seen as a small step toward obtaining further understanding in a particular area of interest. In this study, I provide a detailed report of the study and analysis with respect to how self-efficacy beliefs may influence the learning experiences of children with cancer in the hospital setting. It is the readers' responsibility to draw on their tacit knowledge, intuition, and personal experience to look for the patterns that explain their own experience as well as events in the world (Merriam, 1998).

#### *Results and Discussion*

A number of findings emerged from the data analysis. These findings are discussed in relation to the analytical categories of student motivation, student affect, and student adjustment.

#### *Influence of Efficacy Beliefs and Student Motivation*

According to Perry, Ott-VandeKamp, and Hopton (1999), students who believe their ability to be generative are also those most likely to adopt effective self-regulated approaches to learning and will value learning and understanding. This was not consistently the case with the children in this study. For these students, despite their ability perceptions, hospital education was valued most when the general and primary goal of returning to school was proximal and

thus the purpose of the instruction was clear. With no immediate expectation of returning to school, the hospital education experience was considered to be only moderately important and seemed to have only a marginal influence on the children's academic motivation. For Alex and Steven, who had no immediate expectation of returning to school, the motivational value of the hospital program was in the social interactions the children had with the hospital teachers.

Because repeated successes in a domain area usually promote strong efficacy beliefs, it was anticipated that those students who had experienced histories of school success would also feel academically efficacious in the hospital setting. However, it became apparent that academic efficacy beliefs are linked to how the students attribute their difficulties. For example, the academic efficacy beliefs of two students, Amanda and David, who had not experienced histories of academic success, were unaffected as they attributed their difficulties to a lack of effort as opposed to a lack of ability. Amanda commented in one of her journal entries that "It was easy to learn today because I am smart" and indicated that she could improve her learning through increased practice and effort because "practice makes perfect."

Indicators of academic frustration were most prevalent with those students who had experienced school success. For Jill and Steven, being a "good" student was a part of how they saw themselves. Jill's mother, Mrs. Perron, mentioned that Jill "is very hard on herself." When Jill was first diagnosed, she was unable to keep up with her schoolwork, and these months, according to Mrs. Perron, were particularly demoralizing for Jill. During difficult periods when the children were physically unable to maintain their high level of academic performance, the inability to achieve seemed to threaten their self-image and resulted in frustration.

In the absence of peer social comparative information, the children depended heavily on their hospital teachers and mothers as credible sources of learning information. The students seemed to consider teacher feedback, both in the form of praise and formal summative assessments, as being important motivational academic efficacy cues. Thus they responded favorably to hospital teachers' reinforcement and were disappointed by the absence of marks and report cards. Mrs. Smith expressed her disappointment with the current report card system and indicated that, in her opinion, the absence of a report card for her son was insulting. She stated,

the teacher sent things home and never made comments about the things we had given back and at the end of the year, the report card just said, "Work has been sent home." It didn't say that one scrap of paper ever made it back. Which is really pretty insulting for Steven.

Like all children, these students felt most academically efficacious when they understood the hospital education material and when the subject and material were appealing. Unfortunately, none of the participants believed the hospital to be an ideal instructional context. However, all the students benefited from the one-on-one teacher contact. In three of the cases, this contact and resulting rapport between the students and hospital teachers was identified as a motivating factor in the children's academic pursuits.

*Influence of Efficacy Beliefs and Hospitalized Students' Affective Responses*

According to Bandura (1993), people's beliefs in their abilities affect how much stress and depression they experience, particularly in difficult situations. For students, a low sense of efficacy can result in feelings of vulnerability and achievement anxiety. Again, depending on the student's perception of ability, past academic successes should encourage high efficacy beliefs, whereas failures may weaken a student's efficacy beliefs. Given the constraints imposed on children with cancer in the hospital setting, the fear from an educational perspective is that these students will experience achievement anxiety and will perceive this anxiety as an inability to manage school tasks. Ultimately, with a low sense of generalized efficacy beliefs, these students may also experience a state of depression.

For the children in this study, the greatest source of academic anxiety seemed to stem not from their beliefs in their inability to control their performance outcomes, but in their inability to control the effects of the illness on their physical and academic capabilities and the difficulties inherent in the instructional context. Mrs. Walters commented on the effect Alex's condition had on his learning. She stated, "Under the conditions Alex is in, I think he learns well. Of course, it's not ideal because he is not always feeling very well." Therefore, it is logical to expect that these students felt most academically efficacious and generally satisfied with their hospital learning experiences when they were feeling healthy.

Because one possible route to depression is through a low sense of social efficacy, the increased sense of peer social isolation that these students experienced while in the hospital setting was considered by the participants an important negative consequence of a cancer diagnosis. However, despite the children's isolation from their school peer group, they readily established relationships with caring adults such as their hospital teachers. Several of the students' mothers commented that they believed their children tried to excel academically while in the hospital setting because of their fondness for their hospital teachers. For example, Mrs. Walters stated, "I think [Alex] likes the teachers. He has gotten a lot of 'Way to go' and pats on the back: reinforcements that make him want to do better."

*Influence of Efficacy Beliefs and Personal Adjustment in Adverse Conditions*

The hospital education program provided the children with a vehicle through which they could attain positive developmental outcomes as defined by Bandura (1997) and thus develop the efficacy beliefs required for successful adjustment under adverse conditions. Unfortunately, although the children were isolated from their school peers while in hospital, four of the five children were slow to develop friendships with children in the hospital setting. Their reluctance to establish these bonds with other hospitalized children was primarily attributed to their feelings of personal self-consciousness, which could perhaps also be interpreted as low peer social efficacy beliefs. These feelings of inefficacy could also explain why for these students it was important that they receive report cards despite their absence from the community school. The report card and marks represented safe ways of obtaining social comparative information without the requirement for social interaction.

All the children had stable and supportive bonds with their families and seemed to have a natural ability to interact with adults. Although Moffitt (1985) suggested that children with a cancer diagnosis may experience an accelerated development and an elevated maturity level due to the stress of the disease, these students' abilities to bond with adults were recorded in their school records before their diagnosis. However, their feelings of social competence among adults were continually reinforced as a result of their constant involvement with hospital and education personnel.

The students benefited academically as a result of their strong relationships with their hospital teachers. Furthermore, with respect to their educational experiences, three of the five children indicated feeling academically efficacious and capable of exercising control on their learning situations. This also indicates an inclination for effective coping and overall adjustment.

### *Theoretical Contributions*

This research contributes to theory and extends our knowledge in several ways. However, it may be useful to discuss the research contributions while commenting on the adequacy of the study's theoretical framework.

As stated above, the theoretical perspectives used in this study were guided by Bandura's (1986) social cognitive theory and Zimmerman's (1986) approach to self-regulated learning. These perspectives were adopted to investigate the cyclic nature of self-efficacy beliefs: more specifically, how efficacy-regulated processes can have a mediational role on a health-impaired child's learning in a unique and naturalistic setting and under adverse conditions. Bidirectionally, through the development of academic self-efficacy beliefs, a child's feelings of personal self-efficacy are increased, and that child may experience a greater sense of overall well-being. Recognizing that people are social in nature, this study included some elements of the external social environment as potential contributors to a child's efficacy beliefs. This study is the first to investigate how the constructs of self-efficacy and self-regulation influence the educational development of health-impaired children under adverse conditions. It is also one of the few studies available in the education literature that discusses aspects of hospital teaching particularly from a Canadian perspective.

For the most part, this theoretical framework did effectively guide the study. The findings demonstrate that through education and the hospital school experience, children with cancer have the opportunity to exert influence and to feel self-efficacious. Thus the study supports Bandura's (1995) assertion that the issue of control is central in human lives and is particularly important for those who feel powerless to manage aspects of their lives or have constraints imposed on them.

However, one construct that was not originally considered and that emerged as important in the findings is the aspect of social isolation. Although some aspects of the social environment were recognized as contributing to the educational development of health-impaired children, the social nature of learning was not initially identified. Therefore, for children who receive schooling in an isolated and unique context, the requirement for both positive and negative social comparative information becomes crucial. Health-impaired children may require this information to gauge their educational development in relation to their peer group, and from this self-assessment form efficacy

beliefs. In the absence of peer social interaction, credible teacher feedback, both oral as well as written in the form of report cards and marks, becomes the primary vehicle for self-evaluation. Thus this study further supports the notion that children tend to judge their capabilities by comparing their performances with those of other children (Pajares, 1996; Schunk, Hanson, & Cox, 1987). Children, not necessarily siblings, therefore play a pivotal role in the development of other children's self-efficacy beliefs and educational development.

#### *Limitations of the Study*

Although case study methodology is considered a powerful way to gain insight, some limitations apply to this type of research and are specific to this study. For example, it is necessary to realize that the investigator and the inquiry are inextricably linked. The investigator must shape the narratives and information given by the participants, and shaping of a new construction is limited. Constructions are plastic and dependent on how the participants view reality at the time of the study. Believing that the mind is continually active means that the participants are continually creating new constructions regarding the research questions.

Although this study does not assume that self-efficacy beliefs operate uniformly and does make use of multiple measures, the results tend to provide a more general picture of how self-efficacy beliefs influence certain efficacy-regulated processes. Specific self-efficacy beliefs were not identified, nor was it outlined how the participants' efficacy beliefs might change across domains.

This study also represents an investigation into an area of educational psychology and is not medical research. As such, this study did not explore how cancer or cancer treatments affect learning and cognitive functioning.

With respect to participant sampling, investigating the influence of efficacy beliefs according to sex or developmental stages was not within the scope of this research. And the inclusion of adults in the study was limited to those adults directly involved in the students' hospital education experience.

Despite these limitations, however, it is hoped that this exploratory and multiple-case study offers insights into the role of efficacy beliefs and the educational development of hospitalized students with cancer. Identifying how schools and teachers can assist in minimizing the effects of health impairments on a child's educational development should be a priority for all educators involved in this area of education.

#### *Future Research*

Although Bandura's (1986) theory of social cognition has been investigated thoroughly, no earlier research has examined the role of efficacy beliefs and education with health-impaired children. In addition, the existence of educational services provided in the hospital milieu is not well known, and hospital teaching is a relatively unexplored area in the education literature (Reamy, 1988). Therefore, there are many implications for further studies.

For example, the influence of peers and the role of social comparative information should be explored. Because it is naive to assume that the absence of social interactions has little motivational or pedagogical influence on learning, the question becomes: How do children learn in isolation, and how does this isolation affect their efficacy beliefs (Agostino, 1993)? Knowing the effects

of learner isolation can not only contribute to the study of hospitalized children, but also contribute to the areas of distance education, computer education, home schooling, and special education.

Furthermore, socialization and teacher feedback are just two important sources of efficacy information. From these sources students can self-assess and can better determine whether they are meeting their educational objectives. However, further research is needed to explore how students weigh efficacy cues or information. More specifically, from which efficacy cues do students derive the most ability information, and which cues are most important to the development of academic efficacy beliefs (Schunk, 1985)?

Although Bandura (1997) has examined the ability of children to surmount childhood adversities, more research is required to investigate the role of efficacy beliefs and aspects of resilience as they relate to children with life-threatening illnesses. More specifically, the contribution of academic efficacy beliefs in the lives of health-impaired students should be further researched.

In addition, because children cannot cope with all aspects of a life-threatening condition and maintain normal growth and development on their own, the role of the family and school becomes important. For the students in this study, the influence of the mothers and hospital teachers was crucial. However, more research is required to investigate the role of the entire family, including fathers, mothers, siblings, and the extended family, in promoting educational development.

#### Conclusion

Managing a health impairment requires more than providing the patient with the necessary treatments; it means recognizing the need for total readjustment in the person's life (Lambert & Lambert, 1987). For a child with cancer, families, teachers, and medical personnel must work as a team in the total care of the child (Moffitt, 1987). This study explores how educators can assist with an ill student's psychosocial functioning through the development of strong academic efficacy beliefs. Education can be an effective vehicle through which children with cancer can not only experience control and autonomy, but can also achieve many necessary developmental outcomes for successful psychosocial adjustment.

#### Acknowledgment

I gratefully acknowledge that this research was supported by a fellowship from the Social Sciences and Humanities Research Council of Canada.

#### References

- Agostino, A. (1993). Distance education and learner isolation. *Canadian School Executive*, 13(6), 17-20.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, 28(2), 117-148.
- Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 1-45). New York: Cambridge University Press.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Cunningham, A., Lockwood, G., & Cunningham, J. (1991). A relationship between perceived self-efficacy and quality of life in cancer patients. *Patient Education and Counseling*, 17, 71-78.

- Davis, K. (1989). Educational needs of the terminally ill student. *Issues in Comprehensive Nursing, 12*, 235-245.
- Grusec, J. (1992). Social learning theory and developmental psychology: The legacies of Robert Sears and Albert Bandura. *Developmental Psychology, 28*, 776-786.
- Guba, E., & Lincoln, Y. (1994). Competing paradigms in qualitative research. In N.K. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105-116). Newbury Park, CA: Sage.
- Huberman, A., & Miles, M. (1994). Data management and analysis methods. In N.K. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (pp. 428-444). Newbury Park, CA: Sage.
- Kenny, R., & Grotelueschen, A. (1984). Making the case for case study. *Journal of Curriculum Studies, 16*(1), 37-51.
- Lambert, C., & Lambert, V. (1987). Psychosocial impacts created by chronic illness. *Nursing Clinics of North America, 22*(3), 527-533.
- Mabe, P., Riley, W., & Treiber, F. (1987). Cancer knowledge and acceptance of children with cancer. *Journal of School Health, 57*(2), 59-63.
- Merriam, S. (1988). *Case study research in education*. San Francisco, CA: Jossey-Bass.
- Merriam, S. (1998). *Qualitative research and case study applications in education*. San Francisco, CA: Jossey-Bass.
- Moffitt, K. (1985). *Childhood cancer: A medical, psychosocial and educational approach*. Paper presented at the meeting of the Council for Exceptional Children, Denver. (ERIC Document No. ED 266617)
- Moffitt, K. (1987). *Learning disabilities in children with malignancies*. Paper presented at the annual international conference of the Association for Children and Adults with Learning Disabilities, San Antonio.
- Morse, J. (1994). Designing funded qualitative research. In N. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (pp. 220-236). Newbury Park, CA: Sage.
- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*(4), 543-578.
- Patton, M. (1990). *Qualitative evaluation methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Perry, N., Ott-VandeKamp, K., & Hoption, C. (1999). *Young children's motivation for writing and factors associated with it*. Paper presented at the annual American Education Research Association conference, San Diego.
- Reamy, B. (1988). Traveling the side roads of education. *Phi Delta Kappan, 70*, 161-165.
- Schunk, D. (1985). Self-efficacy and classroom learning. *Psychology in the Schools, 22*, 208-223.
- Schunk, D., Hanson, A., & Cox, P. (1987). Peer-model attributes and children's achievement behaviors. *Journal of Educational Psychology, 79*(1), 54-61.
- Schwandt, T. (1994). Constructivist, interpretivist approaches to human inquiry. In N. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (pp. 118-138). Newbury Park, CA: Sage.
- Stake, R. (1994). Case studies. In N.K. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (pp. 236-247). Newbury Park, CA: Sage.
- Stake, R. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.
- Zimmerman, B. (1986). Becoming a self-regulated learner: Which are the key subprocesses? *Contemporary Educational Psychology, 11*, 307-313.
- Zimmerman, B. (1995). Self-efficacy and educational development. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 202-231). New York: Cambridge University Press.
- Zimmerman, B., & Martinez-Pons, M. (1990). Student differences in self-regulated learning: Relating grade, sex, and giftedness to self-efficacy and strategy use. *Journal of Educational Psychology, 82*(1), 51-59.