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Factors Influencing Performance Discrepancies
in Breast Self-examination Practices
of Adult Female Graduate Students

by

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ABSTRACT

A performance discrepancy exists when there is a difference between actual and desired performance. In the health care field, the term compliance is used to describe such discrepancies. The usual response in such instances is the development of an educational program. Such approaches are concerned with remedies not problem solving. This research project was an attempt at problem solving in the specific area of breast self-examination. A broad research question was used: What factors are related to end behaviour in breast self-examination practices?

Based on a literature review, a paradigm was developed which attempted to explain participation in the preventive health measure of breast self-examination. It was felt that this activity involved a complex emotional response to the threat of cancer and that any attempt to explain behaviour would require the examination of a wide range of variables.

A data collection instrument was created using a combination of previously and newly developed questions. The female students enrolled in the University of British Columbia, Adult Education Division classes were chosen as the research group because of their geographical proximity, their uniform educational level and their occupational backgrounds. This group of women provided an opportunity to compare women with

experience in the health care field to women with a non-health background.

Small sample size and homogeneity of subjects on the variables tested precluded extensive statistical analysis of results. Some interesting points do appear in the data, however, and several independent variables were significantly related to breast self-examination practices. Implications for future research and for teaching breast self-examination are given.

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CHAPTER I

INTRODUCTION

There are many situations where what people are doing is not what someone wants them to do. Mager and Pipe (1970) have termed this a performance discrepancy and defined it as a difference between actual and desired performance (p. 7). The concern of this study is a performance discrepancy involving preventive health behaviour. Health educators are frequently faced with women who do not perform breast self examination (BSE). While pre-adults are sometimes the focus of concern the most frequent target population is women across the adult lifespan. The usual means of attempting to eliminate such performance discrepancies is an educational program.

Mager and Pipe caution against using any such single solution. They suggest that teaching or training approaches can be pits into which a great deal of energy and money may be poured unproductively. Such approaches are concerned with remedies not problem-solving. They provide information or skill development when lack of information or skill may not be the problem. Mager and Pipe have coined the phrase "oughta wanna" to help in determining whether a performance discrepancy is due to a lack of skill or knowledge. They contend that when you hear this term or some variation of it, it is almost certain

that a skill deficiency does not exist. Some examples faced by health educators are: If people know they should not smoke--they oughta wanna stop. If people know safety precautions are for their own good--they oughta wanna follow them. If people know over-eating causes obesity--they oughta wanna cut down on their caloric intake. If women know about the benefits of BSE--they oughta wanna practice it regularly. Mager and Pipe contend that "you oughta wanna do it for your own good" is one of the weakest motivators for influencing a change in behaviour when people already know how to do something. Information and exhortation will not necessarily change an "oughta wanna" situation. Even when a genuine skill deficiency exists, training is only one of the remedies (Mager & Pipe, p. 21).

Mager and Pipe suggest that the first step toward eliminating a performance discrepancy is understanding it. If knowledge or skill is missing either the requirements can be changed or teaching can be used to provide the missing components. If knowledge or skill is present then the conditions under which the performance is expected should be changed. In either case, to follow their remedies a thorough knowledge of the expected performance and the conditions in which it occurs is needed. It is to this end that this study aims.

Identification per se of a discrepancy in actual versus desired behaviour is not sufficient reason for further study or action. The discrepancy must be important enough to justify such a response. Does lack of compliance with BSE

recommendations warrant further consideration?

The Significance of Performance Discrepancies in BSE

Certainly health research has produced some sobering statistics about breast cancer. It is the most common type of cancer in women, approximately one in fourteen will experience it, mortality rate has not decreased for several decades and survival is more likely if the lump is detected when it is small (which does not necessarily mean "early") (Alcoe & McDermot, 1979). There is no known method to prevent breast cancer (Bullough, 1980). Currently the ten-year survival rate for all women who have had diagnosed breast cancer is one third, with a smaller lump (less than 2 cm.) and no nodal involvement improving those figures to 80 to 90 percent (Alcoe & McDermot). Given our present knowledge of the disease the felt need, as expressed in the literature, seems to be the instigation of early diagnosis (Alcoe & McDermot, 1979; Bullough, 1980; Edwards, 1980; Flynn, 1980; Hall, Adams, Stein, Stephenson, Goldstein & Pennypacker, 1980; Stillman, 1977; Turnbull, 1978).

Is BSE the vehicle for providing such early diagnosis? Physician examination has long been an accepted approach to early diagnosis. Bullough (1980) reports, however, that breast examinations done by physicians are not done as frequently as they should be. She cites a 1973 Gallop poll in which 24 percent of the sample of 1300 women had not had a breast examination by a physician in the last five years. Frequent physician involvement in this area cannot be assumed. Despite

this pattern of examination by physicians, they are still one of the main sources of BSE information (Bullough, 1980; Hall, Golstein & Stein, 1977; Turnbull, 1978). However, there does not appear to be any research which has determined what physicians teach or when, how or how frequently they do it. It seems wise to know "what is" before proceeding to "what should be."

Another diagnostic approach is the use of the various screening techniques which have been employed to detect breast abnormalities. Safety, effectiveness and cost-benefit analysis are some of the issues involved in assessing this approach. Many of the screening programs have included physical examination, mammogram or xeromammogram and/or a thermogram. Often BSE teaching is also included. The safety issue for mammograms or xeromammograms is still contested. While their use to investigate questionable tissue change is generally accepted, controversy remains over their use for mass screening. There is some question about whether these x-ray procedures may, over time, increase risk of breast cancer (Alcoe & McDermot, 1979). They may also detect changes which are too small or borderline and unreliable diagnosis may cause unnecessary surgery (Alcoe & McDermot, 1979; Bullough, 1980; Stillman, 1977). The cost of screening the entire female population is also prohibitive as both sophisticated equipment and highly trained personnel are required (Alcoe & McDermot, 1979; Gastrin, 1980). Costs may vary, however, depending on the use of para-professional help and type of technique (Kirch & Klein,

1978). Regardless of the type of screening, there has still been a fairly large number of false positives, false negatives and interval cases (Alcoe & McDermot, 1979; Kirch & Klein, 1978). Interval cases are those which are detected between scheduled examinations.

How does BSE compare as a reliable, cost-effective health practice? Kirch and Klein (1978) suggest the use of BSE along with other screening approaches may decrease the number of interval cases. Its importance would increase as the inter-examination interval between other approaches increases.

Hall et al. (1977) report that 94 percent of cancerous lesions are potentially palpable. As size increases the detectability increases. Since the smaller the size the greater the survival rate, the user of BSE needs to have sufficient skill to detect these smaller lumps. They report that some studies have shown that BSE can result in detection of tumors in the size range that maximizes survival and minimizes axillary node involvement.

Hall et al. (1980) report more recent evidence that those who practice BSE had more favourably clinically staged disease, fewer involved lymph nodes and smaller tumors, than those who did not. They contend that not only is BSE the most cost-effective screening procedure available but since the majority of breast lumps are detected by women themselves, it has a central role to play in early detection and prolonged survival.

Gastrin (1980) reports on a massive study in Finland where BSE was taught to 56,000 women aged 20 to 80 and which resulted

in greatly reduced mortality in new breast cancer cases. He contends that since breast screening cannot be arranged frequently enough for all women, teaching BSE is an effective economic solution which can be used to reach large numbers of women.

Despite the seemingly obvious benefits of BSE, a performance discrepancy still exists. Stillman (1977) reports that four out of five women know of BSE but only 23 percent practice it monthly. This assessment of widespread knowledge but low compliance is reiterated in much of the literature (Alcoe & McDermot, 1979; Edwards, 1980; Flynn, 1981; Hall et al., 1977; Howe, 1981; Turnbull, 1978). Although a high percentage of lumps are found by women themselves the discovery is usually as a result of accident rather than planned examination. Motivation to employ this health practice is not well understood and remains a major challenge.

Purpose of the Study

Performance discrepancies occur in BSE practices despite its benefits. Providing BSE information using traditional teaching approaches may not be the only or the best solution. Mager and Pipe suggest problem-solving before rushing in with remedies. The aim of this study is to examine and determine the variables which influence participation in this preventive health practice. It is hoped that a better understanding of these variables will suggest methods, techniques and devices which may improve BSE teaching effectiveness and -which could

then be tested in actual BSE teaching programs.

In the chapters which follow BSE and the factors which may influence it will be explored. Chapter II provides a review of the literature which seems related to the research topic. Research on participation in educational activities, barriers to learning, health education and compliance, BSE education and compliance and locus of control will be examined. Chapter III describes the BSE Participation Paradigm developed for this project and the theory underlying its development. A single, broad research question will be presented. Chapter IV provides a specific description of methodology including instrument development, data collection and strategies for data analysis. A description and discussion of findings using the BSE paradigm will be given in Chapter V. Chapter VI examines BSE using the BSE paradigm and the relationships between variables which it suggests. Limitations of the research are outlined in the final chapter. A summary of the research and suggested implications for future research and for teaching BSE are also given in this concluding chapter.

CHAPTER II

REVIEW OF THE LITERATURE

Teaching BSE involves educating women across the adult lifespan. Since adults in general are a heterogenous group the health educator is faced with a complex educational situation. In addition, the process of any education can be defined as a deliberate and systematic attempt to change behaviour through learning (Cropley, 1977, p, 37) and learning is not a simple process. In its broadest sense learning is a dynamic "process of adaptation to the environment" (Cropley, p, 39). It is a creative process of selection and reorganization that involves reinforcement, presence or absence of appropriate patterns of motivation, attitudes to the persons and materials involved and a host of other affective and cognitive variables (Cropley, p. 38). Learning includes acquisition of scholarly, professional or vocational knowledge but it also involves "motivational, cognitive, affective, ethical, aesthetic and personal growth" (Cropley, p. 39).

As an acknowledgement of the complexity of the educational process in general, and the target group for BSE specifically, this literature review will attempt to examine the issue of learning from a broad perspective before focusing on the specific issue of learning about BSE. It is hoped that a better understanding of the variables which may be influencing BSE

behaviour patterns will result. The ultimate aim is to improve BSE educational programs.

With this in mind and in search of variables which may influence particularly the decision to participate in the preventive health behaviour of BSE, the broad category of participation research will be reviewed. Barriers to actual learning is another category of research which may reveal variables which influence the specific situation of learning in a health-related educational program. This is the second broad category which will be reviewed from the perspective of adult learning in general.

A specific issue related to health education is compliance. This is the term used by the health community to refer to the degree of desired behaviour change related to health advice received. This topic will be reviewed first from the perspective of health behaviour generally and then as it involves BSE behaviour specifically.

Perceptions or expectations are a reccurring variable in the research areas mentioned. This variable is examined by the locus of control literature. The literature review will conclude with an examination of this specific area of research. A summary of the research findings follows.

Participation Research

Rubenson's Expectancy-Valence Paradigm

In an effort to synthesize the knowledge available about adult education and adult motivation for learning Rubenson (1977) has developed the Expectancy-Valence Paradigm. It is his contention that the researcher must consider both the micro and the macro levels of structural conditions in which an individual is found, that individual's psychological conceptual apparatus and the link between these two elements. While his aim is to examine adult education participation and recruitment of adults into adult education programs, his analysis and conceptual framework can be used to look at the issue of adult learning in general as well as the specific recruitment dilemma. Participation in a learning activity is one aspect of the learning process. If the research concern is a performance discrepancy and education is seen as one remedy for changing the undesired behaviour then a knowledge of issues which inhibit initial participation in a learning activity is needed.

Underlying theory. As a basis for his model building, Rubenson examined various theories of motivation. He distinguished three schools. The scientific-physical school uses drive theories rooted in biology and physics. Behaviour is explained in terms of drives and instincts. The humanist school sees man as innately able to reach self-realization but he is hindered in this endeavour by the blocking factors in his

environment. The cognitive school explains behaviour in terms of acquired experiences and the psychological environment. Emotions, needs and motives play a major role. Rubenson opts for the cognitive approach and chooses the expectancy-valence concept as an underlying theory in his model. Valence refers to the affective attitude one has about the result that a certain course of action may have. It is connected to the perception of what an activity can lead to in the future. Desire for or aversion to the activity is based on the anticipated satisfaction or dissatisfaction related to the outcome. Expectancy is the belief about the likelihood of a particular outcome following a particular act. The strength of an expectancy is a function of the subjective certainty about the relationship of an act and an outcome.

A woman's belief about her ability to detect a breast lump could be expected to affect her expectancy of success with BSE. Her belief about the outcome of finding a breast lump (ie., early detection is related to increased chances of a cure), could be expected to influence her affective attitude about carrying out BSE. If finding a breast lump is related to negative feelings about surgery or the possibility of the feared diagnosis of cancer, one would anticipate that the valence related to BSE would be affected accordingly. Not only would one expect BSE behaviour patterns to be affected, one would expect avoidance of or participation in BSE teaching programs to be correlated to individual valence and expectancy related to BSE as a preventive health measure.

Rubenson relates his concept to adult education recruitment by suggesting that there will be a high probability of enrollment if a person sees such participation as a means of satisfying his needs (valence) and believes that his ability will make this participation lead to desirable outcomes (expectancy) (1977, p. 9). He contends that a person's values and expectations are closely related to the way he regards himself and to the attitudes in the groups around him. Self-evaluation and factors influencing it begin to play an important role.

Rubenson examines the expectancy-valence theory in light of adult education participation research. Since no studies exist which directly relate valence and expectancy factors to adult education participation, he supports his framework with research on motives for study, on recruitment obstacles and on participants.

One powerful motive for participation seems to be the desire to make practical use of the knowledge acquired. Non-vocational motives are more common among intermediate and higher social status people than among those with limited opportunities in this area. Requirement to study because of their situation was the most common reason for people to take courses for particular qualifications. As people pass through the life cycles, needs and social roles change. A person's expected tasks differ depending on his biological development, his personal ambitions and the social pressures and expectations he is under. Rubenson suggests that findings show a connection

between the situation people are in and their participation in education (Rubenson, 1977, pp. 10-12). Is there any connection between the situation a woman is in and her participation in education about BSE? Is participation in BSE learning opportunities related to social status, age, recent personal, family or friends' experience with cancer and related personal lack of knowledge or skill, social pressure to carry out BSE regularly or personal ambitions related to health status? The research on motives for study suggests there might be some connection between these factors.

Recruitment impediments have not had as much attention in research as have motives. External environmental obstacles have been emphasized. Psychological impediments or those "related to the self-confidence of the individual, his level of aspiration, and his attitude to adult education" (Rubenson, 1977, p. 12), have often been neglected. Among the points revealed by Rubenson's (1977) research review are: those interested in participating were less likely to plead psychological impediments than those who were not interested, both groups plead external obstacles to the same extent; lack of information was more likely to be named by non-participants; fear of studies was more common in older rather than younger persons; cost was a barrier to women more than men; one of the most powerful psychological impediments is the individual's belief that participation would not improve his living situation; a negative experience of school is a frequent cause of feeling education was not personally attractive; possibilities of studying during

working hours is a powerful recruitment factor; financial incentives did not have a material effect except for recruitment among housewives. Rubenson's conclusion is to suggest that both external environmental and internal psychological obstacles must be examined to understand the problems of recruitment.

The third area Rubenson reviewed was participation studies. In comparing participants and non-participants, some of the research findings are: formal education and adult education are connected; white collar workers tend to participate more in adult education than manual workers; those with stimulating and active leisure time tend to have a higher incidence of adult education participation; upper social classes follow forms of education which provide pay-offs in terms of income, status, occupation or political efficacy. Rubenson concludes that participation is dependent on whether an individual sees any value in education. He feels that incongruency between personal pressures and educational opportunities may be part of the reason under-educated people have fairly low participation rates. In addition, people may not be able to relate their needs to the opportunities available (Rubenson, 1977, p. 16). Given the relationship between expectancy concerning the value of studies and actual participation, Rubenson sees self-evaluation as a major contributing factor.

Self-evaluation is taken to mean "the general or global value which the individual ascribes to himself as an object" (Rubenson, 1977, p. 18). It is based on both an affective reaction and a cognitive evaluation. Rubenson states that

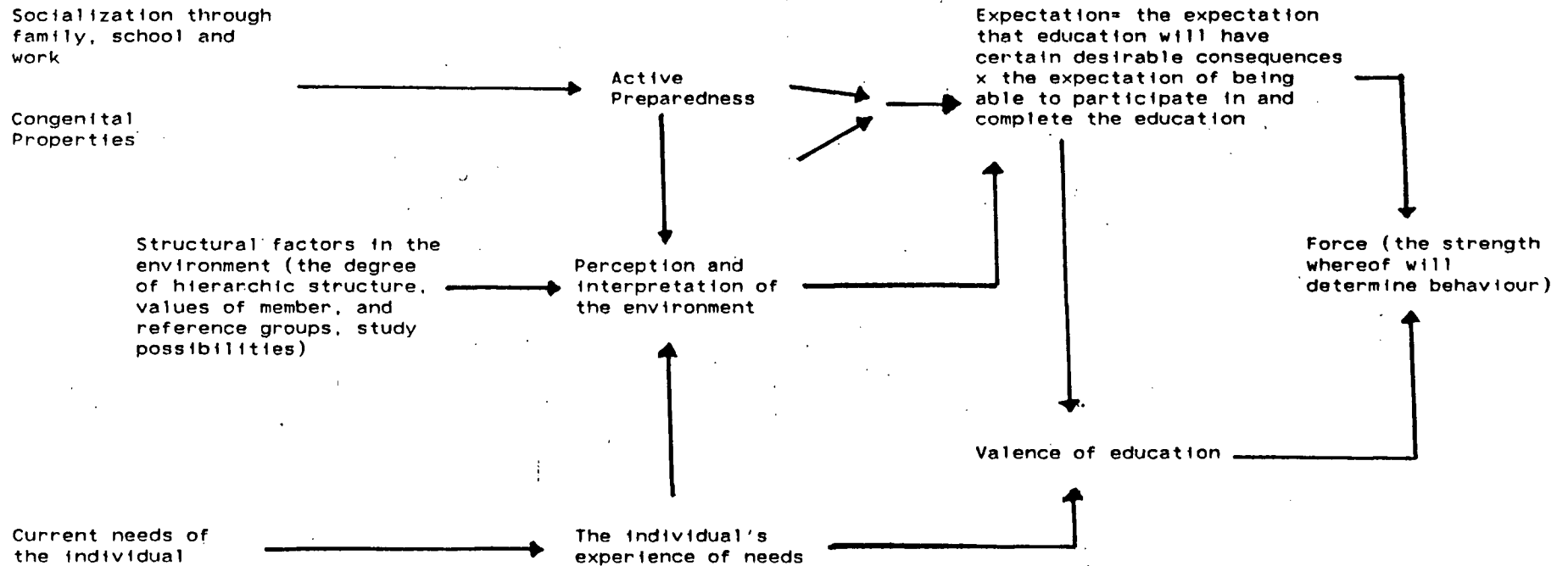
"people are motivated to seek to achieve states compatible with the views they have acquired concerning themselves, others and the world around them" (1977, p. 17). His review of the literature found support for a direct relationship between self-perception, adult education participation and achievement. People with a positive self-evaluation generally succeed better in achievement-oriented situations than those with a negative self-evaluation. While development of self-evaluation has not been clearly explained in the literature it seems to be related to social interaction. Valuations and attitudes elicited from others, especially those of importance to us, influence the way we see ourselves. In connection with this theory Rubenson examined the childhood environment, the school environment and the work environment. He found evidence to show that the degree of hierarchical structure in each of these situations is related to self-evaluation. In other words, self-evaluation seems to be connected to a childhood, school and work environment which permits and encourages individual initiatives (Rubenson, 1977, p. 23). Since self-evaluation is relatively stable over time and criteria by which one appraises oneself change over the life cycle, Rubenson concludes that when outward environmental changes occur, the individual has to "change his behaviour to prevent this leading to dissonance" (1977, p. 23).

Socialization does not stop with maturity and Rubenson examines the influences of groups on the individual. The values of member and reference groups influence an individual's values. Member groups are groups in which a person is an acknowledged

member and reference groups are ones whose norms are utilized to satisfy individual needs but in which membership is not overt. Member groups serve as reference groups in one way or another but not all reference groups are member groups. Based on Houle's finding that education programs based on individuals' interests recruited a smaller number of people than those based on group values, it seems that course selection is determined more by group values than individual interests (Rubenson, 1977, p. 24). Rubenson sees these findings as a useful tool for understanding differences between under-educated and well-educated people and differences within under-educated groups. Given their access to reference groups with a positive attitude to education, white collar workers are in an educationally favourable environment. Rubenson concludes that "it is not enough to try to inform and influence individual persons, one also has to work through the groups to which the individual belongs and identifies himself with" (1977, p. 25). While friends and family are an important reference group it is difficult to reach them and work organizations are available targets for educational enterprises. Rubenson sees the increased justification for talking about studying with colleagues and the increased exposure to the benefits of education may ease the decision to participate (1977, p. 26).

Description of the paradigm. Based on his literature review and using Lewin's field theory, Rubenson developed his paradigm (Figure 1). His premise is that behaviour is a function of both the environment and the individual. Past

Figure 1.
Paradigm of Recruitment in Adult Education



Source: Rubenson, 1977, p. 30.

experience is important in terms of the traces it has left in the person's psychological field. A study of the interaction between structural factors and the individual's conceptual apparatus leads to interpretation of behaviour. Active preparedness which arises out of socialization within the family, the school and occupational life influences expectancy and perceptions and interpretation of the environment. The latter, arising out of structural factors in the environment, three of which are the degree of hierarchic structure, values of member and reference groups and study possibilities, also influences expectancy directly and is influenced as well by the individual's experience of needs. These needs reflect his material situation and the developmental tasks with which he is confronted. In addition to influencing environmental perception and interpretation, needs give rise to the valence of education which, in turn, is also influenced by expectancy. The two results, expectancy and valence, combine to form a force which determines behaviour.

Use of the paradigm. Using this paradigm, Rubenson analysed a major study of young, undereducated men in Sweden (Rubenson, 1975). He found that as Tough (1969) suggests, adult education participation is more complex than is generally assumed. As in the Johnstone and Rivera study (1965) he found there were generally two kinds of obstacles: environmental and psychological. Environmental obstacles included factors beyond the individual's control and while no single obstacle was clearly dominant, examples cited were working hours, care of

children and availability of courses. Psychological obstacles referred to internal factors such as self-confidence, level of ambition and attitude toward adult education. Too little information about available opportunities was a strong deterrent with those who wanted to participate but did not. Rubenson drew several conclusions.

He felt that a distinction had to be drawn between those who are interested in adult education and do not participate and those who are not interested at all. Different recruitment measures are needed for each category. The former group need more information about available experiences and scheduled courses during work hours. Success with the latter group, Rubenson felt, can only occur if their attitudes are changed. The entire complex of problems and needs experienced by participants must be taken into account.

In terms of BSE one would want to examine information seeking patterns in light of both external and internal obstacles. Knowledge of sources of BSE information, beliefs about its value, positive or negative influences of previous learning experiences and availability of BSE information sources may be related to ultimate BSE learning patterns. Self-evaluation seems to be an important influence on educational activities and it seems to be influenced by the hierarchical structure especially in a person's work life. Are work situation and BSE educational or practice patterns connected? Reference groups may also exert an influence and their attitudes may play a part in individual BSE-related behaviour. Are there

any differences between those interested in increasing their knowledge of BSE and those who are not? All these factors may suggest implications related to planning and recruiting for a BSE teaching program.

Obstacles to Participation

Carp, Peterson and Roelf (1974) conducted research for the Commission on Non-Traditional Study. In their study they asked would-be learners to indicate, from a list of 24 items, the things they felt were important in keeping them from learning what they wanted to learn. They found the most widely reported potential obstacle was financial cost. Fifty-three percent cited this item, 46 percent cited not enough time, 35 percent did not want to go to school full-time, 32 percent cited home responsibilities, 28 percent chose job responsibilities as a barrier and 21 percent picked the amount of time required to complete the program. Each of these categories were indicated by at at least one-fifth of the group. Job responsibilities were mentioned by twice as many men as women. Women were ten times as concerned about lack of child care and felt generally more constrained by cost. Age caused a variance in barrier choice as well. Those under 35 saw cost as more of a deterrent. Younger people did not want to go to school full time and were tired of school and classrooms. Not enough time, home responsibilities and care of children were concerns of middle-age groups and feelings of being too old and not having enough energy increased with age and was seen especially among women. Whites mentioned not enough time and home responsibilities twice

as much as blacks and blacks mentioned low grades in the past, not meeting entrance requirements, cost, child care and lack of transportation and study facilities twice as often as whites. Researchers concluded that time and cost seemed to be the greatest barriers for their subjects (Carp, Peterson & Roelfs, 1974). Although cost is not usually an issue in health-related educational programs, time may be an important influence. In addition, planning health education in traditional "schooling" arrangements and atmosphere may influence attitudes in terms of personal ability or desirability of participating. Certain ethnic groups may be particularly sensitive to this issue.

Cross (1981) grouped learning obstacles cited in survey findings under three headings: situational, institutional and dispositional barriers. Situational barriers arise from one's situation in life at any given time. Institutional barriers are those practices and procedures that exclude or discourage adult participation in educational activities. Dispositional barriers are related to one's attitudes and self-perceptions about oneself as a learner.

Under situational barriers Cross found that cost and lack of time lead all other barriers. Cost is difficult to assess as a barrier. People mention it but Cross feels that many probably do not have an idea of the cost of various options. In addition, willingness to pay has not been found to be the same thing as ability to pay. Factors such as the purpose of the course (less is spent on pleasure versus job-oriented courses), sex (men are usually more willing to pay than women) and age

(older people are more willing to pay) are mentioned (Cross, 1981, p. 101). Cross also points out that using cost as an excuse is a more socially acceptable reason for not taking a course. In one study people who were less defensive mentioned cost as a barrier less often and Cross concludes that the context in which a question is asked about barriers to learning plays an important part in the answers given.

Institutional barriers ranked second in importance to situational barriers. They existed primarily in programs devised for full-time learners but affected between 10 and 25 percent of potential learners in most surveys. Cross points out that many institutions have attempted to eliminate many of these barriers by scheduling classes at more accessible places and times and by creating more flexible admissions procedures but many people still thought these barriers existed. She concludes that "if an individual thinks that courses would not be of interest or that they are scheduled only during the individual's working day, then the perception itself acts as a barrier whether it actually exists or not" (p. 104). She groups institutional barriers into five areas: scheduling; location and transportation; lack of courses that are interesting, practical or relevant; procedures; and time requirements. The ones most frequently mentioned are inconvenient locations and schedules and lack of interesting or relevant courses. The issue of the relevance or perceived value of BSE courses arises. It appears that this may be a vital link between BSE behaviour, information and information source.

Cross mentions social desirability as an issue in measuring dispositional barriers. Excuses that are most socially acceptable are more likely to be given. Uninterested respondents are frequently dropped from studies and thus an important disclosure source for dispositional barriers is lost. Under this heading Cross groups such things as being too old, lack of confidence in one's own ability and lack of energy or stamina.

In conclusion, Cross suggests that methodology changes results of research on barriers to learning. Surveys give broad results but tend to minimize dispositional factors. The experimental approach studies what people do as opposed to what they say they might do. Using theories to help examine barriers and explain various aspects of adult learning could provide a powerful tool but this approach has been under-utilized in Cross's estimation.

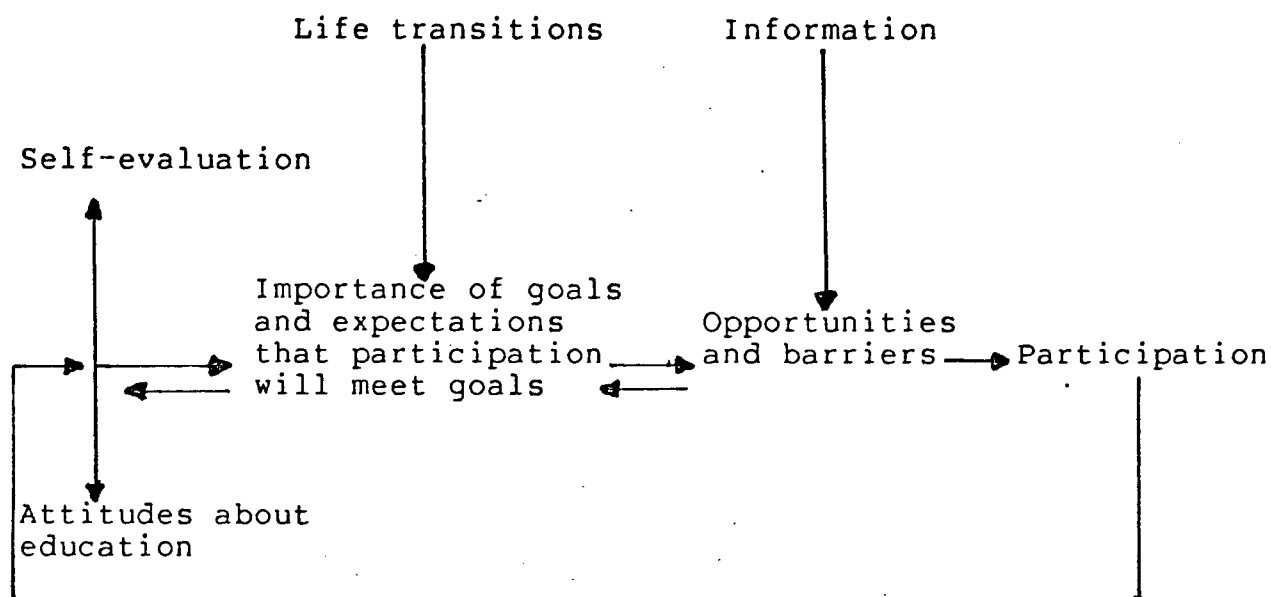
Cross's Chain of Response Model

After examining theories put forward by others, Cross puts forward her Chain of Responses (COR) Model (Figure 2).

The model assumes that "participation in a learning activity, whether in organized classes or self-directed, is not a single act but the result of a chain of responses, each based on an evaluation of the position of the individual in his or her environment" (p. 125). Behaviour is seen as a constantly flowing stream influenced by forces which start with the individual and move to increasingly external conditions but which also flow in the opposite direction since self-perceptions

Figure 2

Chain of Response (COR) Model for Understanding
Participation in Adult Learning Activities



Source: Cross, 1981, p. 124.

and attitudes are changed by participation in learning activities and interaction with external conditions.

Self-evaluation is the start of the chain of responses which make up the COR model. Cross uses motivation-for-achievement research to point out the influences of self-evaluation. If persons lack confidence in their own abilities, sometimes called "failure threatened" or "deficiency oriented", they avoid situations which threaten their self-esteem. Self-evaluation influences and is influenced by attitudes toward education. These attitudes arise out of personal experiences and attitudes of the past and the experiences and attitudes of friends and significant others. Thus unhappy childhood school experiences or reference group disapproval can lead to avoidance of adult education. Cross suggests a "relatively stable and characteristic stance toward learning" (1981, p. 126) exists

which can be either positive or negative. This characteristic stance responds to the importance of goals and the expectation that participation will meet goals. If a goal is important and is seen as achievable through education, motivation is strong and if not, motivation decreases. Self-esteem is related to expectations of success and in the COR model there is movement in both directions between the initial self-evaluation and educational attitudes, and expectancy. Life transitions, change periods which require making adjustments, influence attitudes towards goals and expectations about participation as well. Gradual transitions in life and dramatic changes can both trigger a desire for learning. Cross mentions Havighurst's "teachable moment" concept which implies that there are times of special sensitivity for learning certain things. An example is the interest new parents show in parenting classes. Are there such teachable moments related to BSE? There may be particular events which would trigger an increased interest or motivation to participate in a BSE education program and to develop new preventive health practices.

It is at this point that barriers and special opportunities for learning appear in Cross's chain of responses. Once the individual is motivated they will be encouraged to seek out the special opportunities and overcome modest barriers. Those who are weakly motivated may be encouraged by awareness of opportunities but modest barriers may forestall participation. Availability of accurate information is critical. Without it barriers may seem unsurmountable.

From this point in the COR model the individual steps on to participation. The cycle is complete when participation influences self-evaluation and attitudes about education, and motivation is influenced by the end result. Cross suggests that currently most efforts to attract adults to learning occurs at the opportunities and barriers stage. Reducing barriers or enhancing opportunities may not reach the person who has weak motivation before this point in the model. Cross suggests that while the influence may flow backward in the model, most people will need to be motivated to some extent before removal of external barriers will make a difference. More attention than has been previously given to such internal variables as self-evaluation and educational attitudes is needed.

Thus, as with Rubenson's model, there is emphasis on looking beyond the obvious external barriers. The adult educator may well wonder why removal of these obvious barriers has not resulted in a flood of learners eager to sample their offerings. Cross suggests that in the chain of responses which results in participation and learning, motivation is the key and self-evaluation is the starting point. With a positive self-concept and high expectations of success barriers seem surmountable. This group of students needs information about resources and situational and institutional arrangements that facilitate participation. As was mentioned earlier, a learning environment which fosters continued positive self-esteem will help keep motivation high and the influence of barriers to a minimum.

After deciding to participate in an actual learning situation other barriers exist which influence the outcome of such participation. Involvement in a learning activity does not guarantee desired behaviour change. Variables which influence behaviour during and after educational experiences are another factor in understanding the link between BSE behaviour and its influencing variables.

Barriers to Learning

The ISSTAL Model

Smith (1980) has developed a model to examine individual discretionary behaviour. He defines discretionary time as "the time available for activities not essential to making a living or sustaining life in a society" (Smith et al., 1980, p. 1). Specifically, he is aiming at social behaviour or that human behaviour which is "significantly shaped by culture, custom, and norms and by the presence (actual or imagined) of others" (p. 1). He feels that since discretionary time activity is the most variable and least predictable behaviour, a model which helps explain it will facilitate explanation of behaviour other than such leisure time activity. The factors which influence these decisions can help us understand the influences and barriers active in a learning situation.

One of Smith's foremost concerns was that the great fund of knowledge in the social and behavioural science field was not integrated. He felt that compartmentalized disciplinary

structures and specialization has led to specialists in one subfield being unaware of parallel or relevant advances in related subfields or disciplines. He suggests that in order to develop a broader theory of social behaviour "an interdisciplinary synthesis of our pooled knowledge about both formal and informal social participation" (p. 3) is essential.

Smith has developed a six-class scheme which he feels includes the broad range of independent variables which must be taken into account. He calls it the Interdisciplinary Sequential Specificity Time Allocation Lifespan (ISSTAL) Model. Sequential Specificity refers to a progression from the most general to the most specific variables in terms of breadth of relevance to the end behaviour. This includes long-range time-based sequenced effects as well as the short-range space and time effects. The proper order of the six classes in his scheme is: external contextual factors; social background and social role variables; personal traits and intellectual capacities; attitudinal dispositions (values, attitudes, expectations and intentions); retained information (images, beliefs, knowledge and plans); and situational variables (immediate awareness and definition of the situation).

These categories are a result of examination of the research across the social science disciplines. They are Smith's attempt to synthesize the findings thus far and to provide a conceptual framework for explaining discretionary time activities. A brief examination of each of the classes that make up the model will help to see what has been included.

External contextual factors. The first class of factors are the external contextual factors. They include "the whole range of determinants of a given person" (p. 35). Four types of factors are given. Biophysical environmental factors refer to all nonhuman aspects of the surrounding world which impinge upon the individual's life. It includes such things as climate, topography, pollution, animals and human-made objects. Biological and physical characteristics of human populations comprise the second sub-set of factors. A single population is defined as "all those living in a given nation, society, culture or territory" (p. 38). Average stature, general level of physical health, modal skin pigmentation and physiognomy, spatial distribution and population density are included. Cultural factors, the third sub-set, includes "all the socially created and transmitted general values, ideas, beliefs, and symbolizing systems that differentiate societies, ethnic groups, linguistic groups, or even different age-cohorts" (p. 38). These are the basic patterns of values and ideas which are relatively stable across time and within individuals which are ingrained during childhood socialization. Social-structural factors, on the other hand, vary from role to role or group to group within the society or subculture. They are the normative expectations for behaviour in specialized roles, specific social or institutional contexts and particular groups or organizations. They can be learned at any stage in life. They differ from cultural factors mainly in that they do not characterize all or even nearly all members of a society or

group. They refer to the detail of social life while culture refers to the broad social patterns. Smith suggests that research, in order to examine the effect of these factors, must sample not just individuals but sites and situations that differ in terms of the contextual factor of interest. Personal individual characteristics and contextual effects must be separated to control for the effect of one versus the other. Changes in the individual's social and historical context must also be measured. Contextual variables can also overlap with the next main category of factors, social background and social roles. Different physical or social influences may occur with different social role expectations and attempts should be made to distinguish the influence exerted by each separately.

Social background and social role variables. Social background and social role factors characterize individuals in terms of "past, present, and potential social positions, roles and relationships, personal experiential and activity history, and physical states past and present" (p. 40). The familiar demographic data fit in here. One sub-type in this class of factors is physical and physiological characteristics. When society assigns a social meaning to such things as height, weight, sex, age, etc., they become social factors. Ascribed social positions and roles, another sub-type of factors, are those roles which society ascribes according to various conditions. Physical characteristics such as age or physical handicaps may result in role expectations which may or may not be appropriate to the actual individual. Someone may not fit

into a stereotype of "elderly" or "handicapped" just because they have certain physical traits. Smith uses gender as another example where incorrect generalizations have been made. He contends it is a continuous variable referring to a broad range of sex-typed social behaviour, normative expectations, self-imagery and beliefs.

Voluntary or achieved social positions and roles, a third sub-type, refers to those positions and roles which may be entered and can be left voluntarily. Once again, Smith cautions about treating these social roles as nominal variables. Such scales as political membership ranks refer to a continuum of attitudes, perceptions etcetera. The reliability and validity of the results of studies which attempt to use such nominal labels to correlate data is questionable and discrepancies among studies become difficult to resolve. Smith's literature review suggests that the "degree of role consensus is a major determinant of the strength of relationships found between social role measures and behavior" (p. 43).

Experience and activity history, the fourth sub-type of factors in this category, refers to an individual's personal history. They are a compilation of what has happened in their lifetime thus far. Timing and frequency are the difficult data to collect since memories are often faulty and longitudinal studies are rare.

The last sub-set of factors under social background and social roles includes resources, possessions and access to resources. While Smith feels that resources are a strong

determinant of discretionary behaviour, he contends that the variables usually measured are only crude indicators. After a given income, funds may not be strongly related to particular behaviour. Direct measures of social class role or life-style role expectations would provide more accuracy and explanatory power according to Smith. Direct measurement of the context combined with self-report might be essential as what people's perspective of what is available may vary and the interaction of geographical situation and social factors may present quite different resources in different physical settings.

Personal traits and intellectual capacities. Following social background and social roles is the more personalized category of personality traits and intellectual capacities. There is tremendous variation in individual patterns under this heading. Smith defines personality traits as "relatively enduring (over time and situations) dispositions of individuals to think, feel, want, and act in certain ways and not in others, depending on the circumstances" (p. 47). People react not only to external influences but to internal influences of changing cognitions, physical states, emotions and intentions as well. Smith uses conation to describe will, wanting or intention. He contends that any personality trait involves overt as well as covert behaviour which occurs simultaneously. The capacity to respond cannot be observed until there is a willingness to respond. Limitations on the current individual capacities include contextual factors, temporary individual physical characteristics and the individual's intellect per se (p. 48).

Intellectual capacity is properly measured, Smith contends, in the absence of external contextual or temporary internal physiological limitations. This seems very difficult to achieve and may explain why only a small number of intellectual capacity variables are usually included in research on social behaviour.

Attitudinal dispositions. Attitudinal dispositions make up the next category in the ISSTAL model. They are internal motivators which are learned and involve cognitive integration and which implicitly involve covert behaviour (p. 52). They are similar to personality traits but are less enduring or more situationally linked. Smith lists four dispositions and suggests that they fall along a continuum of transsituational applicability. Values are more likely to apply across many situations, attitudes across fewer, expectations across still fewer and intentions are most likely to be situation bound. Each of these labels involve thoughts, feelings, desires and overt activity. Smith cautions that if one focuses on specific intentions without attention to values "one limits one's understanding of the factors that 'cause' that behaviour" (p. 57). His ordering of these constructs represent increasing predictive relevance and explanatory power for a given behaviour in a given situation. He sees them not only as components of personality but also as components of motivation. Current motivation could be thought of as "the net or combined resultant of all such motivational dispositions relevant to that situation" (p. 58). Combined with current capacities, current motivation is one of the most important elements in the

sequential specificity part of the ISSTAL model. They combine to largely determine the activities of any individual. Social behaviour ultimately tends to operate through these two elements.

Retained information. One step closer to the end discretionary behaviour is the category of retained information. Images, beliefs, knowledge and plans combine to make up this class of factors. Information can be perceived from the immediate surroundings or from memory as a result of learning. Retained information, as Smith defines it, refers to an individual's "continuing, enduring, and usually growing stock of information in the brain" (p. 59). Such information may be nonsymbolic, actual images, or symbolic, coded material such as beliefs and knowledge. Beliefs imply a relationship between various items of information. Smith uses knowledge to refer to beliefs people have that they feel have a high probability of being true. This is a personal belief and may not correspond to reality. Plans, another special kind of belief, are those bits of information used or intended for use as guides for overt action. Smith sees retained information playing a major role in individual definition of the situation, current capacities, and current motivation. Cognitive processing of past experiences, in the form of retained information, and current stimuli produce the possible individual choices. Smith cautions, however, that availability of information and expectancies based on them may not necessarily mean any particular ones will be used to create motivation in any given situation. Different items may be used

at different times in different situations for different purposes. Smith points out that this is a very complex area and much more research is needed to understand an individual's use of his memory bank.

Situational variables. The sixth set of determinants of social behaviour are the situational variables. They include definition of the situation or "the end result of the cognitive process by which an individual takes in sensations and perceptions or remembers stored information, puts it all together, and makes wholistic sense of what is currently happening" (p. 62). Inputs from the environment and stimuli from the mind are experienced by the individual. Smith terms this immediate awareness. Since an internal environment is part of any situation. Researchers must attempt to measure these variables as well. Smith suggests that self-report is needed to know what the conscious experience of an individual is. He emphasizes that behaviour involves "unique individual consciousness of feeling, wanting, knowing, acting, controlling and changing one's own behavior" (p. 63). He goes on to say that "at every point in an individual's life span, there exists both a current definition of the present situation and an ongoing cognitive syntheses through which the present situation is being continually redefined" (p. 63). This process of filtering the immediate present as it is perceived through past experiences, is the most proximal determinant of individual discretionary behaviour in the ISSTAL model. Synthesis of emotions, beliefs and other information or stimuli, past or

present, defines the present situation and results in current motivation which determines behaviour "within the limits set by current capacities, current context and current resources" (p. 64). The educator examining Smith's work can readily see that in order to accurately understand the barriers which exist for individuals at any given time a broad range of variables must be addressed.

Broad ranges of variables have been noted in the past but the depth of the examination needs to be increased. Broad categories have been taken to be indicative of certain factors when they are, in fact, a conglomerate of more finite characteristics. Increased understanding will not occur until more precision is made in adult education research data gathering and analysis. True relationships will continue to be overlooked and remedial actions will remain broad instead of specific in their targets. Increased efficiency and more effective approaches will only be the outcome of more accurate and detailed research. Smith's analysis and resulting model provide guidelines in beginning such research. Individuals need to be examined not only as a collection of experiences which still influence their attitudes and values but also as social animals which continue to be susceptible to ever-present socialization influences. While some broad factors influence a wide range of people, each individual has a personal mesh of experiences, attitudes, values, etc. through which such broad variables are filtered and interpreted. It is this uniquely individual perception which ultimately decides what is

desirable, what the barriers are to achieving it and whether the desire is great enough to initially and continually overcome these barriers.

Personality Factors

Hand and Puder (1967) examined personality factors which may interfere with the learning of adult basic education students. They contend that students bring much more than their physical presence to the learning experience. Their premise is that personal characteristics and emotional factors appear to inhibit learning as well as participation in educational activities. They see students as having "hierarchies of emotion and experience which can inhibit or materially affect in many ways the social interaction and climate for learning within the classroom milieu" (p. 1). From their review of the literature they see self-concept as being the hidden key to learning behaviour and internalization of what a person thinks of him, the basis of developing self-concept. Learning is internalized more rapidly if it is perceived positively in relation to the learner's view of Self and learning related to negative aspects of Self is avoided, rejected and only rarely internalized. (Could the rejection of BSE be because of a perception that finding a breast lump is related to the body's "failure" to stay healthy?)

Hand and Puder suggest that past negative experiences with learning can lead to a "closed self" which is fearful of anything new and a vicious cycle of avoidance of learning occurs. Calling attention to the emotionally loaded situation

in the classroom, teaching through the use of methods by which the student cannot learn and pointing out only student failure and not student success are cited as sources of a closed mind (p. 4). People's disposition to a closed system of thinking is "in proportion to the degree to which they are made to feel alone, isolated and helpless in the world in which they live, and thus anxious of what the future holds in store" (Hand & Puder, 1967, p. 6).

Other research shows more dogmatism in lower socio-economic status persons than in high-status persons (Hand & Puder, p. 10). Dogmatism interferes with learning through its production of the feeling of being manipulated or victimized by forces beyond one's control. People feel that their own efforts have little to do with what happens to them. Hand and Puder suggest that dogmatism may be an inhibiting factor to learning of the culturally disadvantaged and the illiterate (p. 13). Any psychological disturbance that decreases awareness or prevents acceptance of new knowledge decreases efficiency of performance and Hand and Puder see anxiety and related emotions and a closed belief system as two conditions that fall into this situation. The degree to which a student is able to control his anxiety is "directly related to his level of achievement, and the student's ability to conform to and accept authority demands will determine the amount of academic success" (p. 16). When individuals are afraid they tend to judge a stimulus person such as a teacher as fearful. In addition, instructions from such authority figures which are designed to inhibit their feelings

tend to enhance this effect (p. 17).

It seems clear that the learning atmosphere is of paramount importance. If self-concept is the key to learning and attitudes of others is the source of its development then the educator must cultivate a positive, encouraging attitude with students. The ideal learning situations seem to be ones which avoid emotionally-loaded, anxiety-producing confrontation, which at least initially use methods with which the learner can identify, which create and emphasize success rather than failure, which encourage and support critical thinking and which put at least some measure of control in the hands of the students. Gearing learning activities to the positive aspects of the learner is more likely to produce learning than a focus on the negative aspects. This requires, of course, some understanding of the student's perception of what aspects of himself are positive and which negative. The aim must be to foster a positive self-concept and minimize anxiety surrounding the learning experience.

Physiological and Psychological Changes of Adulthood

Adults must contend with many physiological and psychological changes that characteristically take place in adulthood and Norris (1977) examined their effect on learning. He observed that the many physiological changes occurred gradually and at different rates among individuals. Since the changes occurred over time and were generally gradual, most adults were unaware of them until a traumatic experience accentuated them. At this point the adult may underestimate his

power to learn or to perform tasks. Norris suggests that changes in interests and motivation may occur.

Norris found that although psychological ability peaked in the early twenties, adults can learn almost anything they want. The more experience they have with learning, the easier the learning task becomes. In addition, the greater the individual's intelligence and the greater the amount of education he has the slower his decline in learning ability will be. Norris contends that adult motivation to learn is seen best within a framework of needs, goals, habits, values and self-concept. Willingness to learn was related to perception of the value of learning, to the acceptance of what and how to learn, to the need for self-esteem or social affiliation and to expectations from life.

In reviewing the barriers-to-learning literature some common threads have emerged: Learners are highly complex. The decisions they make, the attitudes and values they have, their sources of motivation and in particular the barriers they perceive are highly individualized. They are a result of a life-long socialization process. Educators who wish to understand and reduce or deal with the learning barriers adults must overcome before successful learning occurs must approach their task from a broad research base. All aspects of social science research can help in understanding, anticipating and reducing the obstacles to adult learning.

Health Education and Compliance

Health educators have attempted to apply similar research to the problem they label "compliance." They have encountered many difficulties. An initial problem is defining or even using the term compliance.

The Meaning of Compliance

One encounters many suggestions in the literature for the meaning of compliance. Tagliacozzo and Ima (1970) refer to "motivation to utilize medical facilities and to adhere to medical advice" (p. 772). Linde and Janz (1979) in their study of the effect of a teaching program on cardiac patients defined compliance as "follow-through on recommendations and therapy prescribed by the appropriate health care provider" (p. 282). Windsor, Green and Roseman (1980) refer to "adherence to the recommended regimen" (p. 6). Sackett and Haynes (1976) speak of selecting "compliance" to symbolize "the extent to which the patient's behavior (in terms of taking medication, following diets or executing other life-style changes) coincides with the clinical prescription" (p. 1). All these definitions seem similar to Mager and Pipe's term: performance discrepancy. There is a difference between actual and desired performance. Compliance refers to the occurrence of this problem in a specifically health oriented situation.

Sackett and Haynes (1976) pointed out the hazards involved in using the term "compliance." They were concerned about the possible negative connotations which surrounded the word. The

World Book Dictionary (1973) gives as a synonym "submission" and includes in its definition "doing as another wishes" and "yielding to a request or command" (p. 437). Sackett and Haynes point out that the idea of a dictatorial clinical prescription which issues an edict to be obeyed would be distasteful to some as would the connotations of "sin and serfdom" (p. 1) which accompany the failure to yield in such a situation. However, a collection of academics and professionals in a workshop/symposium on compliance in 1974 felt that other terms would have similar difficulties and that compliance did fit the patient's "yield" to health instructions and advice. Whether the regimen was decided upon by an authoritarian clinician or developed by a consensual process between a health professional and a citizen did not change this subsequent action on the client's part. Haynes (1979) recommended that, since the term is now thoroughly rooted and any unhealthy connotations serve as a reminder of ethical and social issues in compliance research, it remain in use and be intended as nonjudgemental.

What difference does it make how the term is defined? The difficulties arise when an attempt is made to compare compliance research. Marston (1970) in her review of literature on compliance with medical regimens, pointed out that comparing compliance rates from different studies is usually misleading. She attributes this, in part, to wide variations in the operational definitions of compliance. This sentiment is voiced repeatedly as workers in the field attempt to explain the wide range of results often seen in compliance literature (Becker &

Maiman, 1975; Haynes et al., 1979; Linde & Janz, 1979; Marston, 1970; Windsor, Green & Roseman, 1980). The problem, as Sackett and Snow (1979) point out, is that when a variety of definitions have been employed in different ways the confidence with which one can use the resulting conclusions is limited.

Defining Non-compliance

In addition to the problem of defining compliance, there is a similar problem with defining noncompliance. Gordis (1979) addresses the issue of defining the population in compliance research and the subsequent effects on the results. Of the population at risk for any given health problem, some seek health assessment and some do not. Of those who seek health assessment, some require a treatment regimen and some do not. Of those who have been advised of a need for treatment, some come for help and some do not. Of those who come for help, some follow the therapeutic instructions and some do not. If the research concentrates only on the last group of people what happens to the meaning of the results in the overall picture when those who did not show up at all or those who failed to return after initial participation are not considered? Gordis suggests that inclusion in the research of the explicit definition employed for noncompliance is essential.

Sackett and Snow (1979) point out another issue of population bias in the research. They discuss the need for studies of inception cohorts. The problem is that cost and difficulty in following all members of an initial group beginning a therapeutic regimen often prohibit such a sampling

approach. Investigators more often study all the patients currently involved in a health program. Those who may be lost in such an approach are: patients who disliked the regimen and sought help elsewhere; patients who disliked the regimen and were switched to an alternative; patients who refused to comply and were so disruptive that they were asked to go elsewhere; patients who stopped complying and succumbed to the illness. A cross-sectional survey which fails to look at the entire initial population would "clearly produce a spuriously high estimate of compliance that obscured the effect of time" (p. 12).

Measurement of Compliance

In addition to the sampling design and the definition difficulties, the measurement of compliance presents a major challenge to the researcher. Becker and Maiman (1975), in discussing the multiplicity of findings, suggest that the cause has been the past predilection for examining easily identifiable and quantifiable dimensions of the patient, the regimen and the illness. Such characteristics as demographic and social data, the type, complexity, discomfort, and duration of the therapy and the "medically" defined seriousness, duration and disability of the illness have been collected and quantified for implications. Becker and Maiman question the usefulness of such data. Can much be done about many of these issues? What about those who, despite many adverse characteristics, continue to follow the recommended therapy? What about the attitudes and subjective perceptions that give meaning to the associations between these characteristics and compliant behaviour? Such

data, they assert, may sometimes predict compliance but it does not explain the phenomenon itself. They go on to say that "patient noncompliance has become the best documented, but least understood, health-related behavior" (p. 11).

Gordis (1979) categorizes methods of measuring compliance as direct or indirect. The direct methods are a reflection of many medication compliance studies. They involve blood and urine medication levels. The important issue here is the "pharmacokinetic variations" (p. 27). This refers to the differences among individuals in absorption, distribution, metabolism and excretion of drugs. These may arise from differences in the amount of drug absorbed according to the form (tablet, capsule, syrup, etc.) in which the drug is administered or from differences in how individuals metabolize the same drug.

The indirect ways of measuring compliance which Gordis listed are pill counts, patient self-reports, physician assessments of compliance and therapeutic or preventive outcome.

Pill counts are the comparison between the medication remaining and the amount that should remain given the quantity initially dispensed and the time elapsed. The validity of the results is hampered by several issues. Patients may not return medication for measurement of amount remaining (Webb, 1980). Failure to return medication does not necessarily mean that the patient has taken the drug (Marston, 1970). Medication measurement does not indicate whether it was taken in the desired pattern or manner (Feinstein, 1979).

What about the validity of patient self-report? Even

Hippocrates noted that "patients often lie when they state that they have taken certain medicines" (Gordis, 1979, p. 35). Recent investigation has supported this observation. When other measurements (eg. pill counts, urine tests, etc.) are compared to patient-report, wide discrepancies occur with self-report generally reflecting an overestimation of compliant behaviour (Gordis, 1979; Marston, 1970; Windsor et al., 1980). One interesting aspect of this is that those who admit to low compliance have been found to show the greatest response to compliance-improving strategies (Sackett, 1979). This is an encouraging finding for health educators if they are dealing with patients falling into this category.

How do physicians compare when they attempt to assess patient compliance? Unfortunately, their estimates are poor indicators. It has been found that physicians consistently overestimated patient compliance (Gordis, 1979; Marston, 1970; Windsor et al., 1980). Generally their predictions are "of very limited value" for research or day-to-day practical application (Gordis, 1979, p. 40).

Using the outcome of the treatment or preventive regimen seems, on the surface, to be a reasonable approach to measurement of compliance. Even here there are issues which the researcher and the reader of research needs to take into account before accepting results. Sometimes the link between regimen and goal is clear. When both are synonymous, as in having a tooth filled or a mole excised, the goal is obviously an indicator of compliance with the regimen prescribed. In other

cases the link is not so clear. The goal may be reached because of other factors. Sackett (1979) gives the example of the fat man who does not follow his diet but loses weight because of increased exercise or development of a disease process. In still other cases, those who have complied with suggestions have failed to meet the goal because they needed more or alternate treatment and those who have failed to comply adequately have met the goal anyway (Sackett, 1979). Sackett concludes that the regimen needs to be vigorous enough to do the job among compliant patients. Gordis (1979) points out that when a prescribed drug dosage substantially exceeds minimum effective dosage, low compliance may not reduce effectiveness of therapy at all. The level of therapy needed to reach the outcome must be determined to make use of outcome data as a measure of compliance. Because of the changing level of treatment needed for effectiveness, investigators frequently operationally define compliance as a certain degree of prescribed behaviour. Deviations are tolerated to this arbitrary cut-off point. The resulting compliance data would differ substantially from a study which tolerated no deviation from the regimen set out (Marston, 1970). The reader who attempted to compare only research conclusions would be hardpressed to make sense of such conflicting evidence.

Parson's Sick Role Theory

In the quest to understand and improve compliance in the health care field many factors have been studied for possible association with compliant behaviour. One theory which has

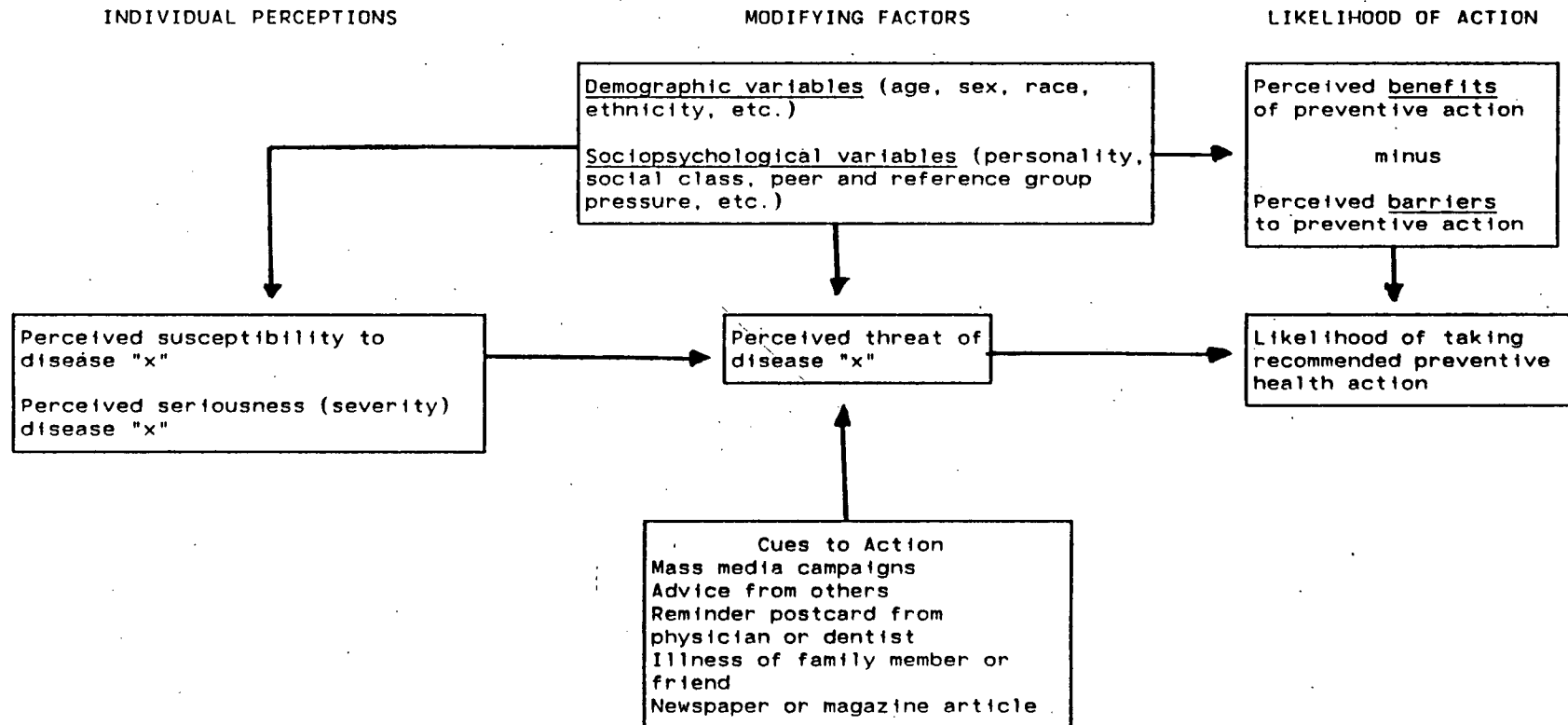
frequently been used to explain the health action of the adult is Parson's sick role theory. The basic premise is that a person's action frame of reference is related to the expectations of various objects in the situation. These objects include social (human), physical (means and conditions of his actions), and symbolic (cultural) elements (Vincent, 1971, pp. 509-510). For compliance to occur there must be a "complementarity of expectations" (Vincent, 1971, p. 510). Assumption of the sick role may be more legitimate for chronic illness than acute illness (Marston, 1970, p. 312). The theory suggests that regardless of the situation, there is an expectation that patients will follow physician recommendations. Health behaviour frequently fails to meet this criteria (Marston, 1970, p. 312).

The Health Belief Model

A person's beliefs about health were incorporated into a health belief model by several psychologists working at the United States Public Health Service in the 1950's (see Figure 3). The original aim was to explain the chances of an individual undertaking a recommended preventive health action. In the model, health action is dependent on the person's perceptions of susceptibility, of severity of the consequences, of potential benefits of the health action and of the barriers (physical, psychological, financial, etc.) related to the behaviour. A cue to action is needed to trigger the appropriate behaviour. While this model has been useful in approaching the issue of compliance, investigations have suggested that there

Figure 3.

Original Formulation of the Health Belief Model



Source: Becker, M. H., Maiman, L. A., Kirscht, J. P., Haefner, D. P., Drachman, R. H., & Taylor, D. W. Patient Perceptions and Compliance: Recent Studies of the Health Belief Model. In R. B. Haynes, D. W. Taylor, & D. L. Sackett (Eds.), Compliance in Health Care. Baltimore: Johns Hopkins University Press, 1979, p. 79.

may be a bidirectional relationship between health beliefs and compliance. Health beliefs change to correspond to actual compliance and vice versa (Becker et al., 1979, p. 81).

The Knowledge Component

As a teacher, the temptation is to make sure the patient has all the information and then, surely, he will comply with "what's best for him." A look at research of the knowledge component should quickly convince health educators that the situation is far more complex. Haynes et al. (1979), in their survey of compliance literature, list under knowledge of disease or therapy 18 articles finding a positive association with compliance and 22 articles finding no association with compliance. Under education they list 24 articles indicating positive association, 49 articles with no association and 3 finding negative association with compliance. Marston (1970), in her review of the literature, concluded that knowledge alone has not provided sufficient motivation for patients to follow their regimens (p. 321). Linde and Janz (1979) contend, however, that such studies do not negate the worth of health education or the ethical obligation to inform the patient. They point out that since patients cannot be expected to comply with regimens that they do not understand, since medical knowledge advances continually, and since understanding depends on knowledge that is made available, treatment becomes more and more an educational problem (p. 282). Lane and Evans (1979) report knowledge as an intervening variable. It creates potential for compliance but is not in itself a significant

outcome (p. 33).

The involvement of other motivations in combination with knowledge was examined by Tagliacozzo and Ima (1970). They found that where substantial experience with illness and social facilitation of medical care existed, patients with low knowledge were as likely to attend outpatient clinics as were patients with high knowledge. On the other hand, knowledge played a significant role in behaviour of patients with limited experience with illness and who saw illness as interfering with their daily affairs (p. 773). The researchers saw this as a suggestion that knowledge can add motivation not supplied by other motivations. They reinforce the idea that "teaching efforts must not only address themselves to communicating medically approved ways of conceptualizing illness but, simultaneously, must influence other definitions and conditions which motivate patients to give medical care more central importance" (p. 773).

Ethics and Compliance

An initial word about ethics seems in order before the educator zealously sets about producing compliance. Seltzer et al. (1980) point out that achievement of a treatment goal is dependent on three things: accurate diagnosis; appropriate therapy; and adequate compliance (p. 638). If the diagnosis is wrong the whole exercise is futile; if the therapy does more harm than good then compliance increases risk; if the patient is not informed and willing to participate his legal rights are jeopardized.

Given that these criteria are met, the educator is faced with the task of planning and executing health education that will take into account the complexities of the health consumer.

Improving Compliance

Haynes (1976) outlined three categories of strategies for improving compliance. Educational strategies focus on transmission of information with development of knowledge and attitudes being the objectives. Behaviour-oriented methods focus on behaviours involved in compliance. They try to reduce barriers, to cue or stimulate compliance and to reward or reinforce compliance. The third strategy combines these two approaches. His review of the literature indicated that behavioural and combined strategies were more effective. He cautioned, however, that frequently when the strategy was stopped, compliance dropped to original levels.

Morris and Halperin (1979) concluded that, especially with longer term therapy, interventions which provide social support and efficient feedback, and which are tailored to the patient's needs seem necessary in addition to information communication (p. 5).

Green (1979) agrees that a combination of learning opportunities is required in health education. The three types of determinants which educational strategies should influence are predisposing factors, the enabling factors and the reinforcing factors. He refers, as an example, to an experiment where attitudes toward the therapy represented the predisposing

factors, support of relatives and friends represented reinforcing factors and accessibility of services represented the enabling factors. Health behaviour, he asserts, is multicausal and more than one method is required to achieve lasting change (p. 160). He goes on to say that the methods employed in health education must be selected and combined "on the basis of clearly delineated objectives derived from a diagnosis of the particular behaviour in question" (p. 161). While health education is frequently part of other programs, he sees it as being very diverse.

He linked some specific methods and techniques to specific situations. Cues at appropriate intervals, for example, help when frequency of health action is the issue. Methods which reinforce social supports are useful if persistence is required. Mass media campaigns are useful techniques when recruiting individuals to engage in more prompt health actions. Specific situations need specific and multi-dimensional approaches. The health educator must assess each issue and approach it in a unique way. This multi-method approach is supported by several researchers (Lane & Evan, 1979; Marston, 1970; Windsor et al., 1980).

Another recurring theme in the literature is the value of involving the patient in his care. Clark (1980) asserts that "the patient who participated in identifying and prioritizing problems, defining objectives and evaluation methods and establishing time frames is more likely to comply" (p. 58). This sentiment is supported by many writers (Bowers, 1980;

Fiore, 1979; Geyman, 1980; Given et al., 1979; Hogue, 1979; Vincent, 1971; Windsor et al., 1980; Wise, 1979). Just one example of how the patient can be involved is the use of a written contract. Commitment to a self-designed program with rewards and punishments can provide incentive to work toward a self-established goal (Dunbar et al., 1979; Windsor et al., 1980; Wise, 1979).

BSE Education and Compliance

BSE as a useful preventive health behaviour has already been discussed but it seems pertinent at this time to examine it in terms of a specific area involving concerns about compliance. There are many factors which may influence the degree of compliance with BSE practices.

Factors Influencing BSE Practice

Turnbull (1978) examined some of the social and attitudinal factors involved. She points out that women's attitudes toward the breast and cancer are frequently emotional. A quick perusal of lay magazines and advertisements will give ample evidence of the role breasts play in our culture. The bosom "is a major sex symbol" (Turnbull, p. 98). Conflict between emotions and sound preventive health measures may result. In reviewing the literature she found that monthly breast examinations cause many women to worry, that physicians play the single most important role in motivating BSE though their role potential is limited, and that higher education levels are associated with increased

practice of preventive health measures. Her research found that factors which influenced both health and non-health oriented women were, in descending order, the media (TV, radio, newspapers, books), conversations with family then those with friends, conversations with doctors and finally with nurses. The role of nurses in influencing behaviour seems questionable but it is unclear whether Turnbull's figures suggest a decreased "ability" to influence or a presently-decreased activity by nurses in teaching women in this field and, therefore, decreased "opportunity" to influence BSE frequency. While nursing is frequently identified as an appropriate change agent (Bullough, 1980; Edwards, 1980; Flynn, 1981; Stillman, 1977; Turnbull, 1978; Williams, 1979), there are some issues which need to be considered. Turnbull found that nurses' understanding about health did not direct them to higher preventive health practices. She reminds us that recognition must be given to the need for instructing health professionals as well. Flynn (1981) suggests that nurses are not prepared to teach BSE just because they are nurses or females. These cautionary comments do not preclude the use of nurses as change agents. They serve as a reminder that teacher training may be needed even if the educator is a practicing health professional. Knowledge and skill cannot be taken for granted. Even physicians need to compare approaches and techniques to achieve consistency.

Alcoe and McDermot (1979) report that teaching clinics are well utilized but question whether attendance may reflect only a desire to be checked by a professional person rather than a

desire to learn BSE. Flynn (1981) suggests that BSE does not devalue or take the place of professional examination. Rather, BSE is an affirmation of the attitude that people are capable and must assume responsibility for their own health. She suggests that BSE is a routine health practice like brushing teeth or eating. In her teaching project, Williams (1979) stresses the fact that most breast problems are not cancer and feels that this is essential information to share in an attempt to lessen fear. Fear was listed frequently in her initial survey as a reason for not continuing to practice BSE. Fear can be a positive or a negative motivator. Some researchers have found that women who perceive themselves as being more susceptible to breast disease do tend to practice BSE to some degree (Stillman, 1977) but the percentage which follow the ideal of monthly BSE is still low.

Several possible motivators have been mentioned. Fear, religion, age and beliefs about perceived benefit or susceptibility have all been linked to rate of practice. Some other influential factors cited in the literature are forgetting, lack of understanding, degree of confidence in their ability to detect a lump and lack of basic knowledge on how to carry out BSE.

Techniques for Improving BSE Compliance

Edwards (1980) has suggested several approaches which might increase motivation to practice BSE. She suggests cues such as a calendar for self-monitoring and peer support such as talking with friends or family might help decrease forgetfulness.

Modelling the behaviour or providing guided practice has helped increase information retention. Her research has revealed that modeling alone is an effective method for changing BSE behaviour. She suggests that modelling be incorporated in instruction of BSE. She also encourages the inclusion of significant others in the teaching process.

Hall et al. (1980) suggest the use of a silastic breast model with graduated lumps and guided practice with feedback. Their work has shown that such training can improve the percentage of correct detections as well as increase a woman's confidence in her examination skill. Since confidence in her ability to perform BSE tends to increase a woman's rate of practice this can make a significant contribution to teaching effectiveness. It is also suggested that since this training is predictive of more accurate BSE the use of models may be used to develop a criterion level of performance to be reached before training terminates. This could be of great value in the evaluation process. The use of specific outcome criteria may be helpful in evaluating teaching effectiveness.

Hall et al, (1977) suggest that breast examination skills can be broken down into three components. Motor skills include the precise manual activity such as the systematic search over the breast area with an optimal amount of pressure. Sensory or psychophysical aspects or the relationship between changes in physical stimuli and responding changes in behaviour are also involved. They mention two types of thresholds: the minimum stimulus that will evoke a sensation and the minimum amount of

stimulus change which evokes a sensation of difference. The final component is the signal detection or the human vigilance level. This refers to the detection performance of the observer. How often do they correctly detect a change and how often do they give false alarms? Proficiency in signal detection is facilitated by feedback and practice. In all instances Hall et al. suggest that use of a silastic breast model can be used to improve performance. One difficulty is that when training ends, feedback decreases in the home setting. They suggest that a training model available in physician offices or in clinics could be used to identify specific behavioural objectives for evaluation.

The choice of a specific technique or combination of techniques calls for thoughtful and creative decisions. The Mama Program in Finland (Gastrin, 1980) is a good example of a highly effective program which combines many issues, factors and approaches. They use person-to-person instruction, follow-up inquiry, television education and provision of medical specialists for consultation. After two years, 70 percent of the women were persisting with regular BSE.

Teaching Approaches

Howe (1981) referred to innovation adoption theories to develop her approach to teaching BSE. Criteria which influence the perception of an innovation include simplicity or ease of understanding and use; relative advantage or the advantage over old approaches or ideas; compatibility or the fit with the receiver's present values, beliefs and needs; trialability or

the degree to which the innovation can be tried and rejected; and observability or the extent to which results can be seen. Howe incorporated these ideas in the development of a simple (the BSE procedure consisted of only four sentences) pamphlet and found that in comparison to a much longer more elaborate pamphlet it proved more successful. Since the media has become a major modality for teaching (Bullough, 1980) these criteria may be useful guides.

Stillman (1977) studied health beliefs about breast cancer and BSE. She found that a high belief in perceived benefits of BSE and perceived susceptibility did not necessarily increase practice of this preventive health measure. She hypothesizes that medical history, religious background and attitude toward body, health and longevity may also be important factors influencing end behaviour. Her comment on religion as an influencing factor arises from her findings that Jewish women did not tend to label themselves as being at higher risk although they were. In addition, Catholics in her study, while they scored lowest on both beliefs (perceived benefits and perceived susceptibility), tended to have a higher average rate of practice. She found that a large percentage of Catholic women felt BSE was embarrassing. Those who were embarrassed seemed to be strongly affected by it and in that subgroup there was a higher percentage of non-practicers. It seems that high risk target populations may not be aware of their increased susceptibility and risk cannot be assumed to act as a positive motivator. Religion may affect reactions to content and certain

health practices themselves. Alternatives may have to be determined and certainly presentation and organization for teaching may have to be adjusted accordingly. Discussion groups and group practice may not be the desired approach with those who find the topic embarrassing. One-to-one presentation may be preferable. Health beliefs and perceived susceptibility to health disorders may not influence behaviour exactly as anticipated but they are variables which act as motivators in health behaviour and must be dealt with in some suitable manner if health teaching is to be effective.

Several researchers have referred to the learner's perceptions or expectations (Cross, 1980; Howe, 1981; Norris, 1977; Rubenson, 1977; Smith, 1980; Stillman, 1977). There is a specific body of research which studies general expectations and which may help to increase our knowledge of the variables influencing behaviour in a performance discrepancy situation. That research involves the locus of control concept.

Locus of Control

An understanding of the influence feelings of control or powerlessness exert could help increase the ability to predict and change behaviour. Proponents of the locus of control concept strive to explain behaviour by examining perceptions or expectations that individuals have in given situations.

Perceptions of Control

Lefcourt (1973) contends that the perception of being free or controlled in our actions is not a given but a result of a constructive process. He speaks of freedom and control as illusions-- ideas man invents to "make sense of his experience" (Lefcourt, 1973, p. 417). A major facet of knowing something, Lefcourt states, is predictability. In his experiments he noted that noise caused a state of arousal when it was unanticipated or its significance was not understood. If, on the other hand, the origin, meaning and results of a noise were understood then the noise was "predictable" and its impact was minimized. The ordinary sounds of a furnace are used by Lefcourt to illustrate his ideas. If we know the noise we hear is a furnace and we know what must be done to it and when, this element of predictability about the meaning of the noise allows us some sense of confidence that we can act to create desirable effects. Along the same vein, if we can predict something is coming we can prepare ourselves for it and thereby minimize its impact. Lefcourt contends that it is through the "perception of this ability 'to do something' that we arrive at the concept of perceived control" (1973, p. 419).

The Locus of Control Concept

The effects of this perception of control are addressed by the locus of control concept. Rotter's initial comprehensive review of the subject will be used to outline the basic ideas put forward by this theory.

Rotter (1966) relates the role of perception of control to acquisition and performance of skills and knowledge. The role of reinforcement, reward or gratification is influenced, he says, by the individual's view of the event. The underlying idea in the locus of control concept is the generalized expectancies for internal versus external control of reinforcement. The perception of the causal relationship between reinforcements and behaviour is not necessarily all or nothing. It can vary in degree. The hypothesis is not a bimodal distribution of internality versus externality but rather a distribution approximating a normal curve with varying degrees of each (Rotter, 1966, p. 57). One of the causes of action or reaction in any situation is this perception of the relationship between rewards and their determinants. Rotter describes the concept of external versus internal control:

When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behaviour or his own relatively permanent characteristics, we have termed this a belief in

internal control. It is hypothesized that this variable is of major significance in understanding the nature of learning processes in different kinds of learning situations and also that consistent individual differences exist among individuals in the degree to which they are likely to attribute personal control to reward in the same situation. (p.1)

Following social learning theory, "a reinforcement acts to strengthen an 'expectancy' that a particular behaviour or event will be followed by that reinforcement in the future" (Rotter, 1966, p. 2). In this behaviour-reinforcement sequence, expectation will be affected by the degree to which the person sees the reinforcement as contingent upon his own behaviour. The expectancy will be strengthened or reduced by the occurrence of reinforcement or by its absence to the degree that a relationship is believed to exist. The less one believes a reinforcement is contingent on one's own behaviour the less its occurrence will increase one's expectancy of it. Thus personal experiences will result in an individual expectancy set regarding the relationship between reinforcements and actions. In addition, expectations will generalize from specific situations to situations perceived as similar. Rotter contends that "a generalized attitude, belief, or expectancy regarding the nature of the causal relationship between one's own behaviour and its consequences might affect a variety of behavioural choices in a broad band of life situations" (1966, p. 2).

Situation-specific Expectations

One caution must be made before implications for application of this theory are examined. Individual behaviour in any given specific situation is not theorized as solely contingent on these generalized expectancies. Specific expectancies and the value of potential reinforcements combine with generalized expectancies to determine final selection of behaviour in specific conditions. The more specific expectancies exist in the situation, the more the role played by generalized expectancies is decreased. In other words, "the more clearly and uniformly a situation is labelled as skill or luck determined, in a given culture, the lesser the role such a generalized expectancy would play in determining individual differences in behaviour" (Rotter, 1966, p. 2). Understanding the role of generalized expectancies and the premises under which the internal-external locus of control measure was developed seems vital to application of research in this area.

In his review of the misconceptions related to the locus of control construct Rotter (1975) reminds us that there are four classes of variables in social learning theory. They are behaviours, expectancies, reinforcements and psychological situations. The general formula for behaviour on which Rotter has based his work is that "the potential for a behaviour to occur in any specific psychological situation is a function of the expectancy that the behaviour will lead to a particular reinforcement in that situation and the value of that reinforcement" (1975, p.57).

Using LOC to Predict Behaviour

If we are interested in the prediction and change of behaviour in adults then control expectancies may provide us with useful information. Adults in our western culture are expected to accept responsibility for their own behaviour and many theorists in the area of counselling emphasize development of an acceptance of personal responsibility for behaviour as a significant objective in any helping relationship (Mink, 1975). Surely one's perception of personal control will influence acceptance of responsibility for behaviour in a particular situation. If the person believes "I am in control" then their choice of behaviour will demand responsible thought. If, on the other hand, one believes "someone or something else controls what happens here" then one might be lead to conclude that "It does not matter what I do, what happens, happens."

If Lefcourt's results are true and predictability creates a sense of confidence that we can act effectively, then providing predictability in educational situations could increase student confidence. Their choice of behaviour might be more thoughtful if they could influence the outcome.

One element affecting the acquisition of skills and knowledge might be individual viewpoints of reward. An educator's view of a particular event as "rewarding" might not be shared by all the students involved. Variation in student attempts to achieve that "reward" could be expected. Part of the information the educator might seek in any given educational situation is an understanding of these—individual student

perceptions and their sources. Cultural definitions and influences, individual previous experiences which are similar to the present situation, generalized as well as situation-specific attitudes, values and expectancies and individual perceptions of the specific situation are all kinds of information that would increase the educator's understanding of a particular educational situation and a particular group of students.

Adults accumulate many unique experiences. These experiences help them to develop unique expectations and perceptions about specific situations. If it is true that we have generalized and situation-specific expectations which guide our behaviour, then surely our propensity to increase our skill, knowledge or sensitiveness in any given situation is, in part, a result of the expectations that we have about it. If one's aim is to assist an individual to accomplish that task, then knowledge about the role which that individual's expectations can play could help one to manipulate the components of learning such that the outcome is enhanced.

LOC and BSE Education

In the case of teaching BSE procedures, knowledge of student perceptions of personal control and related feelings of responsibility for following preventive health practices related to BSE might have implications for planning and presentation of content as well as follow-up sessions. Is a feeling of lack of control over what affects personal health status related to preventive health practices? Are there any particular kinds of information or skills related to feelings of control and

subsequent preventive health behaviour? What kinds of results are perceived as "rewards?" Could finding a lump be perceived as a reward (ie., related to early treatment of cancer) by some and punishment (ie., related to mutilating surgery) by others? Does this different perspective influence BSE patterns or interest in developing BSE skills? Is the manipulation of the components of learning related to subsequent perceptions of control and BSE behaviour patterns? If locus of control and BSE behaviour patterns are correlated it seems useful to have such knowledge to enhance the ability to anticipate possible student needs and reactions and plan for them.

Victor Joe (1971) examined some of the possible antecedents of perception of control in his review of the internal-external control construct and the I-E scale which has been used to measure it. He found that past reinforcement experiences influence the tendency toward an internal or external perception. Several studies reported a warm, permissive, flexible, approving parent, consistent in discipline and encouraging of independence behaviours, is more likely to foster a belief in internal control. While more research is needed in this area as Joe suggests, perhaps some implications for adult educators can be inferred. Adults will bring to the learning situation certain kinds of behaviour on the part of the perceived authority figures. A teacher is frequently seen as the power holder in the teacher-student relationship. Certain kinds of behaviour on the part of the perceived authority may trigger certain generalized or specific perceptions. These

perceptions may then influence student behaviour and reactions. In addition, certain teacher behaviour may particularly foster the development of either internal or external perceptions. Examining the relationship between the methodology used to teach BSE information and subsequent BSE behaviour patterns and specific feelings of control related to breast disease might give some clue to planning more effective BSE teaching programs. If certain teacher attitudes or teaching methods are related to particular outcomes and one outcome is more desirable than another the implications are obvious. Is one locus of control perception generally better than the control other?

The Desirability of an Internal Versus an External LOC

Joe's review of the research found that in comparison with internals, externals were relatively anxious, aggressive and dogmatic. They were less trustful and more suspicious of others. They had lower needs for social approval. They had experienced more feelings of powerlessness and more frustration via external forces and were thus more prone to manifest aggression and hostility on the pen-and-paper I-E measure. They were more concerned with fear of failure than in achievement per se. There is some question of how locus of control and academic achievement interact and while internals tend to show greater interest and effort, their achievements are not always higher (Joe, 1971, p. 628). Even given that, it seems that externality would be a barrier to learning. Anxiety, aggression and suspicion interfere with learning as does lack of insight and inability to deal with frustration constructively. Can we

rightly assume that internality is always more desirable?

Rotter (1975) cautions against this "good-guy bad-guy" dichotomy (p. 60). He mentions several studies which have suggested that internals may repress failures or unpleasant experiences and may report less anxiety and better adjustment. This may be related to the fact that externals see the cause of such events as not arising from their own behaviour and, therefore, failures are more acceptable. Rotter questions whether taking responsibility for one's actions may increase feelings of guilt and may, therefore, not indicate better adjustment. In addition, he points out that there is a limit on personal control. Feelings of control which are unwarranted by reality may lead to trauma. Rotter reminds us of the hypothesis that locus of control has a curvilinear relationship to adjustment (1971. p. 61). Either extreme would be undesirable and some middle stance might be the most beneficial. In relation to breast cancer, a belief that there is no element of personal control may lead to avoidance of BSE. On the other hand, a belief that there is total personal control may lead to a tendency to ignore early signs and symptoms since it is believed that harmful effects can be willed away.

Situation-specific Measurement Tools

Predicting behaviour from a generalized expectancy may seem reasonable but it becomes less reasonable "the more structured, the more familiar, and the more unambiguous a particular situation is" (Rotter, 1975, p. 60). In these instances, situation-specific expectations and the value placed upon

reinforcements come into play. In addition, other competing reinforcements begin to influence behaviour. There has been some successful prediction of academic achievement using locus of control in younger children but by college entrance this is no longer apparent. Rotter suggests that the student's familiarity with the academic situation influences his ability to achieve within it. He knows what he has to do to succeed. Research in this area has concentrated on motor skills which are far less ambiguous than many other academic situations and perhaps the influence of the generalized expectancy of internal or external control in these more novel and ambiguous situations has just not been measured as yet. Rotter (1975) reminds us that our measurement tools for internal-external locus of control are limited. He suggests the need for more precise measurement instruments or instruments which are broken down to address the multidimensionality of locus of control. Perhaps a situation-specific locus of control instrument would be a better measurement and concomitant use of a scale to measure such related factors as values and trust would clarify findings.

Wallston, Wallston, Kaplan and Maides (1976) have developed a locus of control measurement tool specific to health behaviour, the Health Locus of Control (HLC) Scale. They based their work on the assumption that such a scale would provide more sensitive predictions. Their research examined expectancy and reinforcement value since Rotter (1954) purposed that behaviour is a joint function of these two concepts. They suggested that just as development of a specific HLC instrument

may provide more sensitive results, a belief scale relevant to specific conditions or behaviours may provide better prediction of behaviour in a particular situation.

In their review of locus of control literature related to health Wallston and Wallston (1978) found support for using this concept to analyse health related behaviour. Even with the more specific HLC scale, however, they caution against using only one measurement tool to predict health behaviour. They suggest that numerous factors are involved and list value of health, motivation, social supports, previous behaviour and perceived costs and benefits of special actions as some possible variables (p. 113). In the case of preventive health care, Wallston and Maides (1976) suggest that health-related information-seeking behaviour may be as much related to value of health as a belief in preventive health care.

Shifting Control Orientations Toward Internality

While there are difficulties with measurement tools and while perceptions of internal control must be based on reality, support remains for the desirability of internality. As has been mentioned, adults in our western culture are expected to accept responsibility for their own behaviour and many counsellors emphasize development of personal responsibility in a helping relationship. In the health care field there is a definite shift towards increased health consumer responsibility for personal health habits. If internality increases acceptance of personal responsibility for health and preventive health measures than some degree of internality may be desirable.

Dowell (1977) uses similar reasoning to support a contention that "control expectancy becomes a crucial variable in instructional efficacy" (p. 4). He examines adult education in the community college setting and suggests that particular strategies can be used to effect a shift from externality to internality. He feels that the ability to master one's own environment and succeed in academic settings is more closely related to a person's expectation regarding their ability to succeed than it is to motivation. "Motivation becomes a function of one's belief in one's ability to succeed" (Dowell, 1977. p. 3). Following Dowell's reasoning one might assume that adults may have many sources of motivation but one of the most important correlates to learning success is one's personal perception of one's ability to succeed. Previous experiences in the academic field may foster the development of perceptions that one is not in control of the outcome of any academic endeavour. This could certainly act as a barrier to any current learning. In addition, learning as an adult is frequently a new experience for many adult students. Since the situation is novel one could anticipate that generalized perceptions might play a larger part with students in this instance.

Similarly, in the context of preventive health behaviour, perceptions about the ability to succeed may affect educational outcomes. In the specific case of BSE a student may feel that the procedure is too difficult or that they could not detect breast changes early enough to make any difference. They may avoid learning experiences all together or participate in

learning about BSE in a half hearted way with poor results. In addition, previous negative experiences of their own or their family or their friends in the area of BSE or other preventive health measures may act as a barrier to any current learning. Previous successful experiences and a resulting feeling of personal control, on the other hand, may act as a motivation to learn and to subsequently carry out preventive health measures such as BSE.

Tseng (1970) found that with vocational rehabilitation clients, perceptions of personal control or internality did make a significant difference in job proficiency, employability and training satisfaction. Internals had increased ability to work with others; they were more cooperative and self-reliant; they had increased work tolerance and work knowledge; they had increased training satisfaction and increased need for achievement. It would seem that these adults did function in a more productive way when their perceptions of control were internal rather than external.

Roueché and Mink (1975), also working with adults in a community college setting, found that the "overwhelming majority of students reported a positive association between internality and achievement behaviour" (p. 7). They suggest that shifting student control orientation toward internality can improve the learning process.

Eckstein and Eckstein (1979) agree that an external locus of control could adversely affect a person's attitudes and interpersonal relationships. They found shifting from

externality to internality using an experimental seminar format led to increased congruence between real and ideal self-concepts.

It seems that adults behave more productively when they possess an internal locus of control. Tentatively, a more internal rather than external locus of control seems desirable. Conclusions about the desirability of internality could be validated by observing behavioural change and changes in level of achievement after a shift to internality has been accomplished.

Another variable which influences research findings is the phenomenon of the "defensive external." It was felt that externality would logically create passivity. Research soon found, however, that some externals behaved very competitively and achieved scores as high as internals (Rotter, 1975, p. 64). This apparent contradiction has been explained by the differentiation of defensive and passive externals. Since passivity is not valued in our society some externals learn to be competitive, striving and ambitious in certain situations. This may explain some of the research findings which have found predictability with children but not with college students. School age children tend to represent a broader range of abilities than college students do. College students represent a selected population, those who have proven academic achievement levels, and may contain more defensive externals. While relatively few studies have been done with older adults, it seems reasonable to assume that the population involved in

adult education activities represents a broader spectrum of people than the college population used in research to determine predictability of academic performance using the I-E scale. Use of locus of control for prediction of performance may be useful with this broader adult population.

Kivett et al. (1977) found that when job situations provided control over objects such as people or large machinery there was increased perception of control over the environment. Thus laborers or service workers tended to have more perception of control than clerical workers. The researchers postulated that feelings of powerlessness from the work situation may be generalized to other aspects of the environment. This may apply to the preventive health area as well.

The Age Factor

Age is a factor which has not been sufficiently separated from the factors influencing I-E perception development. Unfortunately, most of the research to date has been done with the college population. Kivett et al. suggest that since new experiences can modify expectations and behaviour, "modification in the meaningful environment (physical, psychological and social) can result in modification in perceived control which may be either directly or indirectly related to age" (p. 208). It may be that environmental and circumstantial changes are more apt to create perception of control changes than age per se.

Bielby and Siegler (1977) examined the developmental nature of internal-external locus of control in middle and old age. They tested adults from 46 to 49 years old over a period of

eight years. They found that locus of control was closer to affect balance than to verbal intelligence. Since the latter has been found to be stable across the life span and the former more influenced by change in circumstances, this seems to indicate that the generalized perceptions do change over the adult years as circumstances change. Should we be looking more closely at situations and previous experiences and perceptions than the specific age of students?

Lao (1976) directly addressed this issue of internal-external control and age. She compared college students with their parents and found the middle-aged parents significantly more internal than their sons. Lao suggests that increased mastery and competence in the middle adult years may account for increased perceptions of internality.

Since level of health is frequently perceived to be related to age it may be that age is related to feelings of personal control over one's health status. Increased age may result in feelings of increased susceptibility to health hazards and act as a motivator for increased preventive health behaviour for those who feel that they are in control. It may, on the other hand, be seen as an antecedent to decreased control over personal health status and act as a deterrent to preventive health behaviour.

Implications for Adult Educators

Many researchers contend that internality is more desirable than externality. While research findings are conflicting on some points such as the source of control preceptions and the

role generalized versus situation-specific perceptions play, generally internality does seem to be more functional. With the caution that it must be based on reality, internality would seem to be more favourable to productive involvement in a given situation than externality. The defensive external is productive in specific situations but in more general terms internality seems more productive in a broad spectrum of human activities. Two implications for the adult educator come to mind. When students display internality this perception should be fostered and reinforced. When students display externality some effort to help them move in the direction of increased perceptions of personal control seems worthwhile. Several researchers have made attempts in this area and have examined the effects of both educator behaviour and instructional methodology.

Kinder and Kilman (1976) found that leader structure influenced outcomes in group situations. With college participants ranging in age from 18 to 52 years, they found that an initial period of high leader structure with a movement toward less leader structure produced more positive results. They suggest that this sequence is optimum for both internal and external persons (1976, p. 861). The age range used in this experiment is particularly encouraging to adult education situations.

While their study was very small--only 23 subjects--Kilman and Sotile (1976) showed some interesting effects of leader structure that could be followed up. They found that internals

functioned better in an unstructured leader role situation and externals did better in a structured situation.

No single instructional process is optimal for all students and all educational goals and it has been suggested that methods should be matched to individual differences. Daniels and Stevens (1976) found that internals were more motivated with a contract format since marks were within the student's control. Externals were more motivated by the lecture method where the teacher was in control. They found that there was a strong interaction between locus of control and these two methods and that the contract approach was not the most desirable method for everyone.

Newsom and Foxworth (1979) supported the use of contract learning. They worked with adults in ABE GED classes. They found that teachers who were aware of the concepts of locus of control did not have as much impact on developing internality as did actual teaching methods. While externals were initially resistant to the use of the contract method the final results of their study indicate it is a useful method of producing shifts towards internality. This makes sense since externals would need time to get used to a method which forced them to take control of the learning situation. A gradual shift of more responsibility for the external student seems more likely to produce positive change.

Teachers have been studied to look at the effect of locus of control on them as well. Powel and Vega (1972) looked at kindergarden teachers and teacher aides. They found that

internality correlated with many variables which have been found to be related to teacher effectiveness. Internals had a less self-righteous or hypocritical attitude toward others, a greater teaching potentiality, a more positive work attitude and a more democratic approach to teaching. Zahn (1980) related teacher burnout to the many externality-producing factors which adult educators have to face in their jobs. Lack of control over conditions of work is one of the factors mentioned. It seems that the locus of control concept can be useful in helping understand the teacher as well as in planning the teaching experience.

There seems to be support for linking LOC and teaching methodology. If LOC, and specifically HLC, is related to BSE behaviour and teaching method is related to either HLC or BSE behaviour or both, then BSE teaching effectiveness may be enhanced by applying knowledge of these relationships. HLC is only one variable and not an infalable predictor of health behaviour but adding this information to the variety of other pertinent factors suggested by the research could provide a key component to BSE teaching programs.

Summary

The felt need in terms of breast cancer is early diagnosis. BSE as a vehicle for early diagnosis compares favourably with other screening approaches (Alcoe & McDermot, 1979; Bullough, 1980; Hall et al., 1977, 1980; Gastrin, 1981; Stillman, 1977). Despite the apparent benefits of BSE, performance discrepancies

continue to exist in a high percentage of women (Alcoe & McDermot, 1979; Edwards, 1980; Flynn, 1981; Hall et al., 1977; Howe, 1981; Turnbull, 1978). A better understanding of the relationships between BSE and variables which may influence it should provide some guidelines for planning more effective BSE teaching programs.

Participation research suggests some of the variables which influence initial interest and actual participation in a learning activity. Rubenson (1977) puts forth the expectancy-valence theory to explain the participation phenomenon. His work suggests that if the health educator is interested in understanding what influences women to engage in learning about BSE an understanding about the expectancies and affective attitudes related to the topic is needed. Rubenson suggests that self-evaluation, personal values, member and reference group attitudes socio-economic status, situational requirements for information, changing life-cycle needs, external environmental and internal psychological obstacles and the degree of congruency between personal pressures and educational opportunities are some possible influencing factors.

Carp, Peterson and Roelfs (1974) suggest that time may be a major obstacle to participation in educational endeavours. The arrangements and atmosphere of the program may also be factors which influence the appeal to potential clients.

Cross's (1981) Chain of Responses Model emphasized the interaction of forces and behaviour in a constantly flowing stream between personal and external forces. Life transitions

can play an important role and teachable moments may arise where special sensitivity for learning certain things occurs. The degree of motivation affects the ability to overcome barriers which exist. Accurate information plays a key role in dealing with opportunities and barriers. Cross emphasizes the need to deal with motivation as well as reducing barriers or enhancing opportunities since the latter will not help the person who lacks the former.

Once participation occurs the outcome of a learning activity is influenced by many factors. Smith (1980) examines what he terms discretionary behaviours and provides a detailed list of variables which he suggests influence end behaviour in a given situation in which an individual chooses to interact. His theory suggests a sequential progression from general to specific variables which are influenced by a time factor and whose impact on end behaviour increases as they approach the immediate time and space of the situation. At any given point an individual filters his current definition of the present situation through a cognitive synthesis of his past experiences. This synthesis of past and present results in current motivation and determines behaviour. Smith stresses the need for a broad but precise examination of specific variables and their relationships. Behaviour is a result of a uniquely individual process.

Hand and Puder (1967) looked at individual personality factors which affect learning. They single out self-concept as a hidden key. The educator's attitude and the learning

atmosphere can play an important role in influencing student response.

Norris (1977) points out that many physiological changes occur over the adult lifespan which may cause changes in interests and motivation. Psychological ability, however, remains. As educational experience increases ease of learning increases. Motivation to learn is best examined, Norris contends, through a framework of needs, goals, habits, values, self-concept and life expectations.

Learning in the health education field is frequently measured in terms of compliance with recommendations and therapy prescribed by health care providers. It is the performance discrepancy issue in the health context. Variations in the definition of the term compliance has inhibited comparison of compliance research and Gordis (1979) suggests that an explicit definition for both compliance and noncompliance be employed. Accurate measurement of compliance is difficult.

Psychologists with the United States Public Health Service developed a health belief model. This model explains health behaviour in terms of a person's perceptions of susceptibility, severity of consequences, potential benefits and barriers. Cues often trigger behaviour.

Examination of the knowledge component of compliance has indicated that acquisition of information does not guarantee desired behaviour, Lane and Evans (1979) describe knowledge as an intervening variable that creates potential for compliance.

Seltzer et al. (1980) caution that an ethical issue arises

when attempting to produce compliance since an accurate diagnosis and an appropriate therapy is also required before goals can be achieved. In an absence of the latter two items increased compliance may increase patient risk.

An examination of the strategies used to improve compliance indicates that particular approaches tend to be more useful than others. Haynes (1976) suggests that behavioural and combined educational and behavioural approaches seem most effective. Morris and Halperin (1979) support interventions tailored to patient needs and which provide social support, efficient feedback and adequate information. Green (1979) suggests a combination of learning opportunities which deal with predisposing factors, enabling factors and reinforcing factors. He suggests that specific methods and techniques should be linked to specific situations and that a multi-dimensional approach is best. Increased involvement of the patient in his care is supported by many writers (Bowers, 1980; Clark, 1980; Fiore, 1979; Geyman, 1980; Given et al., 1979; Hogue, 1979; Vincent, 1971; Windsor et al., 1980; Wise, 1979).

Study of compliance in the area of BSE indicates some specific concerns. Turnbull (1978) points out conflict between emotions and preventive health measures. She contends that women's attitudes toward the breast and cancer are frequently emotional and that health professionals are not immune to these inhibiting concerns. Williams (1979) found that fear was frequently an inhibiting factor but Stillman (1977) found that women who perceive themselves as being more susceptible to

breast cancer do tend to practice BSE to some degree. Other motivators linked to rate of practice are religion, age, forgetting, lack of understanding, degree of confidence in ability to detect a lump and degree of basic knowledge on how to carry out BSE.

Several approaches have been suggested for increasing motivation to practice BSE: use of cues and modelling behaviour or guided practice (Edwards, 1980); use of a silastic breast model (Hall et al., 1980); a combination of person-to-person instruction, follow-up inquiry, television education and provision of medical consultants (Gastrin, 1981). Stillman (1977) suggests that a high belief in perceived benefits of BSE or perceived susceptibility do not necessarily lead to increased BSE practice rates. She suggests the use of alternative teaching approaches depending on client attitudes and concerns. Plans to deal with health beliefs and perceived susceptibility should be included.

In terms of end behaviour, two variables have frequently reoccurred in the research--personal values and personal expectations. Expectations of control generally or specifically are examined by the locus of control research. The theory underlying this approach contends that feelings of control or powerlessness play a part in explaining individual behaviour in a given situation. While LOC measurement tools are limited in their accuracy for prediction, tools which are focused on more situation-specific expectations may increase success. The Health Locus of Control measurement tool seems to be more

accurate for measuring expectations in health-related situations (Wallston et al., 1976). Wallston et al. support the use of more than one measurement tool for prediction of health behaviour and suggest that information-seeking behaviour may be as related to value of health as a belief in preventive health care.

The question of desirability of internality versus externality in terms of LOC has been examined and generally some degree of internality seems most beneficial (Dowel, 1977; Eckstein & Eckstein, 1979; Roueche & Mink, 1975; Tseng, 1970). Studies have also shown that a shift from externality to more internal LOC is possible through educational approaches that take into account student control perceptions (Daniels & Stevens, 1976; Kinder & Kilman, 1976; Newsom & Foxworth, 1979). Since LOC may be a manipulable variable it seems worthwhile to investigate its effect on specific behaviour. In the case of BSE a link between BSE practices and HLC would suggest that particular educational approaches may be more beneficial than others.

In the following chapter a paradigm which attempts to explain participation in BSE is outlined. This paradigm is based on the literature review and is used as the theoretical framework for the study.

CHAPTER III

THEORETICAL FRAMEWORK FOR THE STUDY

The aim of this study was to examine performance discrepancies in BSE practices and relate them to teaching needs. Research from a variety of sources was used to develop a conceptual framework for the forces which determine BSE practices. Research questions arose from this conceptual framework. This chapter includes a description of the theoretical framework developed for this study and the broad research question which was subsequently investigated.

Theory Underlying the BSE Paradigm

In an attempt to examine performance discrepancies in BSE practices, a Breast Self-Examination Paradigm was developed. A variety of sources from the literature were used as underlying theory for this paradigm.

Participation in carrying out the preventive health measure of BSE was a major concern. Participation research was used in an effort to understand participation in BSE practices, to analyse previous participation in BSE teaching sessions and to anticipate the issues involved in participation in future BSE teaching programs. Rubenson's (1977) Expectancy-Valence Paradigm was a major underlying theory base in the theoretical

framework of this study. Rubenson contends that the micro and macro levels of structural conditions in which an individual is found, the individual's psychological conceptual apparatus and the link between these two elements must be considered when attempting to understand end behaviour. Emotions, needs, motives and values play a major role.

Expectancy is a function of the subjective certainty about the relationship between an act and an outcome (Rubenson, 1977). In analysing participation in the preventive health practice of BSE, it was anticipated that expectations about the consequences of carrying out BSE and expectations about personal ability to carry out such an activity would combine to create an overall expectancy in relation to BSE. Expectations would be influenced by a number of forces. Reference and member group attitudes and values influence individual attitudes and values. Personal expectations in relation to learning about a particular activity would influence expectations of success in carrying it out. Previous learning experiences in relation to BSE may play a major role. Motives for learning about BSE may change. Age, social pressure or increased feelings of susceptibility may combine to produce a desire to increase personal knowledge and skill in relation to BSE. An examination of changes in BSE habits could increase our understanding of the forces that play a part in influencing behaviour in this area. An understanding of the events and forces which have produced changes in behaviour in the past may provide information about variables which could be manipulated to produce changes with others in the

future.

There may be a connection between influences encountered specifically in the work situation and practice. The subjects were divided between health and non-health oriented groups in terms of occupational experience to examine this issue. It was anticipated that workers in a health-oriented situation would be exposed to reference and member groups who value health highly. Participating in health teaching may require a greater knowledge base and may act as a motivator to increase personal knowledge and skills. If this is true, does it necessarily follow that fewer performance discrepancies occur with those working in health-related jobs? Looking at a variety of factors which may be operating could help to us to understand any differences which may or may not occur between these sub-groups.

A person's current needs and that individual's experience of personal needs influence not only their perception and interpretation of their environment and ultimately related expectancy, but also the valence of a given activity. Valence refers to the affective attitude one has about the result that a certain course of action may have (Rubenson, 1977). In relation to participation in BSE, it is connected to the perception of what BSE can lead to in the future. Beliefs about the results of finding breast changes could affect the emotional attitudes about the value of BSE. If the individual acknowledges the need to control her own health status and sees BSE as one means of satisfying that need, this may influence her affective attitude toward participating in BSE. Lack of knowledge about health

needs or the role of BSE, or fear of breast disease may create a negative attitude toward BSE and thereby influence participation in this preventive health practice.

Many of the ideas put forward by Cross (1981) when she presented her Chain of Responses (COR) model overlap Rubenson's theory of participation. She discusses the structural, social and cultural factors which influence learning. She approaches them, however, from the viewpoint of barriers to learning. These barriers not only influence an individual's perception and interpretation of the environment and thereby the level of personal motivation but they also exist as obstacles which must be overcome before participation in an activity occurs. Many of her situational, institutional and dispositional barriers correspond to the structural, social and cultural factors in the socialization experiences in Rubenson's model. This is especially so in relation to previous learning experiences and resulting attitudes toward learning and personal ability.

Cross stresses the value of goals and expectations about participation. These ideas overlap the expectancy and valence factors in Rubenson's model. Cross suggests that life transitions influence behaviour. Life transitions involve change periods. In this study such change periods were seen to influence the current needs of the individual with the possible result of creating a teachable moment where that individual's perception of needs changes. Her affective attitude toward BSE or her perception and interpretation of the environment may change.

Cross suggests that before participation in an activity occurs that existing barriers must be overcome. In this study's framework barriers occur between expectancy and valence and end behaviour. They ultimately affect participation in BSE activities. Barriers to participation that have been suggested by various researchers are: time, conflicting responsibilities and energy level (Carp, Peterson & Roelf, 1974); the degree of accurate information (Cross, 1981); and level of skill (Hall et al., 1977).

Smith (1980) outlined a comprehensive list of factors which he suggests ultimately influence end behaviour in situations where the individual is allowed a degree of personal discretion. His ideas were used in this study's theoretical framework in an attempt to create a broad and comprehensive analysis of an individual's ultimate decision to participate in BSE. Many of his suggestions overlap with ideas already mentioned by Rubenson and Cross. Smith's ideas were used to add specificity in various categories in the theoretical framework: socialization includes social background and social role factors; congenital properties include biological and physical characteristics; active preparedness includes personality traits and intellectual capacities and is influenced by retained information; environmental factors include biophysical and social-structural factors; perception and interpretation of the environment involves immediate awareness and definition of the situation. The cautious and broad perspective presented by Smith should be helpful in increasing the accuracy with which data are analysed.

The Health Belief Model (Becker et al., 1979) suggests that before an individual undertakes a recommended preventive health action, a cue to such action is needed to trigger appropriate behaviour. Cues may involve reminders and advice from a variety of sources or they may involve related personal illness or illness involving significant others. This concept was included in the study's theoretical framework as one of the factors influencing the individual's perception of needs. Cues, in and of themselves, are not seen as automatically resulting in action. They are a factor which influences perception but is in turn susceptible to personal expectancy and valence involved in the situation and, therefore, may or may not stimulate end behaviour. Other ideas in the Health Belief Model which fit into the study's framework are: perceived susceptibility under perception of needs; demographic and socio-psychological variables under socialization, congenital properties and environmental factors; and perceived benefits and barriers under expectancy and valence.

The knowledge component has been described as a very complex issue in compliance. Lane and Evans (1979) identify it as an intervening variable. It creates potential for compliance. In this study's framework it appears as part of active preparedness in the form of retained information. Perception and interpretation of the environment is influenced by the opportunity to learn, the source of the information, the methodology used to present information and the accuracy of information. An individual's perception of her needs is

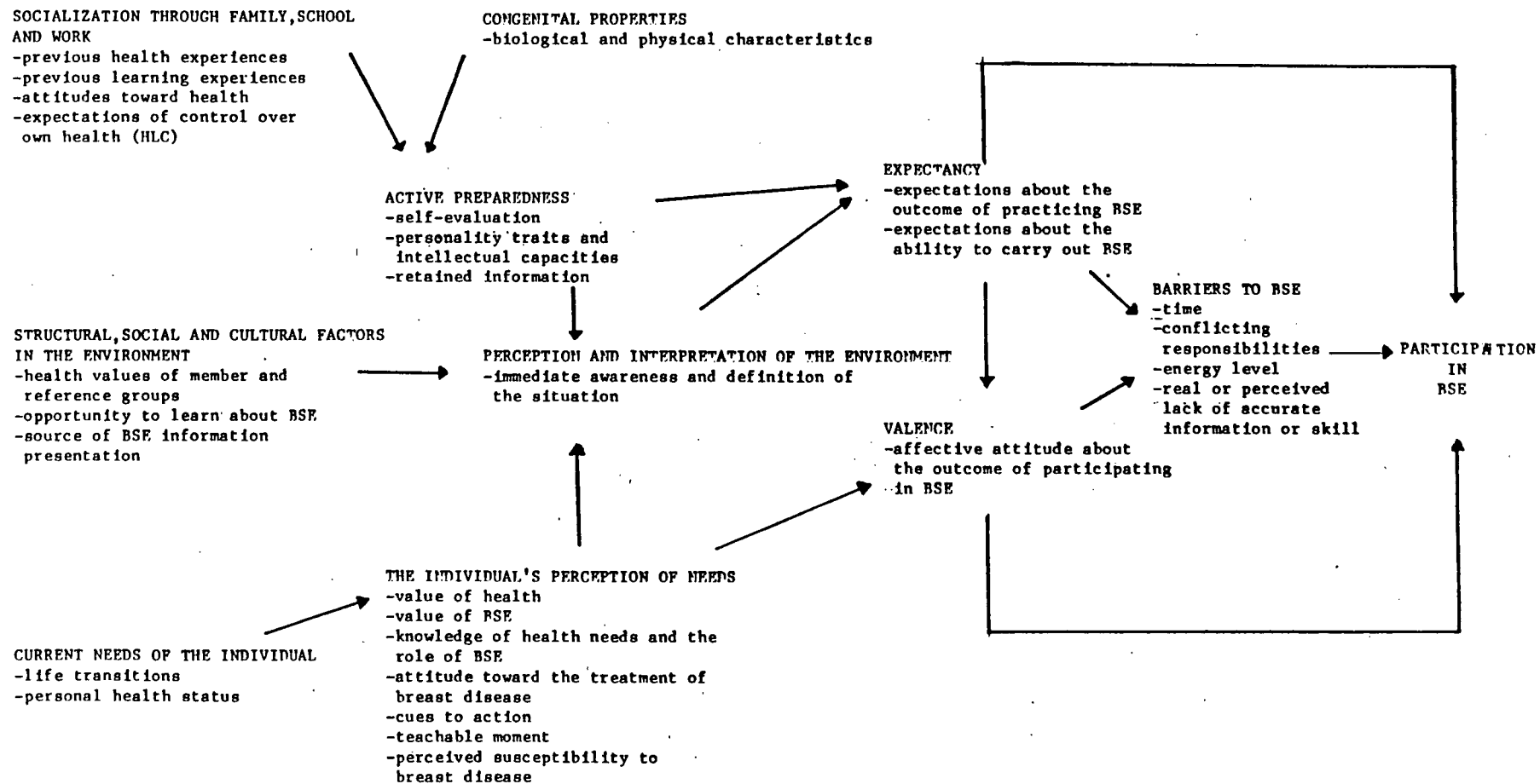
influenced by her knowledge of health needs and the role of BSE. A real or perceived lack of information may act as a barrier to eventual participation in BSE. While knowledge may play a significant role in end behaviour it is recognized that it is only one of many motivators of action.

The last large body of research which influenced this study's theoretical framework is the locus of control research. This literature suggests that feelings of personal control or powerlessness creates general expectations in a given situation and affects end behaviour accordingly. In this study locus of control in the specific area of health was seen as a part of the socialization process. It influences active preparedness through its effect on self-evaluation. It can influence expectations about BSE directly or through personal perceptions and interpretations of the environment. It was perceived as one of the manipulable variables which influence participation in BSE.

Breast Self-Examination Participation Paridigm

Based on the research which has been described, a Breast Self-Examination Participation Paradigm was developed. This paradigm was an attempt to organize theory into a framework. This framework was used to develop a data collection tool and as a basis for data analysis. While a variety of theoretical ideas was used in its development, the major underlying theory was Rubenson's (1977) Expectancy-Valence Paradigm. The BSE participation paradigm factors and their anticipated relationships are given in the following diagram (Figure 4).

FIGURE 4.
BREAST SELF-EXAMINATION PARADIGM



Participation in BSE as a preventive health practice is the end behaviour of concern for this study. Various forces are seen as important variables which determine individual actions.

Self-evaluation, personality traits and intellectual capacities and retained information combine to create a state of active preparedness in an individual. This state arises from socialization through family, school and work. Social background and social role factors are represented here. Previous health experiences, attitudes toward learning, and expectations of control over one's own health are some important factors specifically involved in BSE. Active preparedness may influence expectancy toward BSE directly or through its influence on a person's perception and interpretation of the environment.

Perception and interpretation of the environment is that individual's immediate awareness and definition of the situation. It is influenced not only by a person's active preparedness but by structural, social and cultural factors in the environment and by that individual's perception of her needs. Environmental factors which seem particularly important in examining BSE practices include: health values of member and reference groups; opportunity to learn about BSE; the source of BSE information; the methodology used to present BSE information.

The individual's perception of needs is influenced by her current needs which in turn are influenced by life transitions and personal health status and by various factors specific to

BSE. These factors include: value of health; value of BSE; knowledge of health needs and the role of BSE; attitudes toward the treatment of breast disease; cues to action which may exist; the presence or absence of a "teachable moment"; and perceived susceptibility to breast disease. Perception and interpretation of the environment in turn, influences expectancy. Expectancy includes expectations about the outcome of practicing BSE and expectations about personal ability to carry out BSE.

Valence, the other major determinant of end behaviour, involves the affective attitude about the outcome of participating in BSE. It is influenced by expectancy and the individual's perception of needs. Together with expectancy, valence helps determine the choice of participating in BSE or not. The degree of motivation created by expectancy and valence may, however, encounter barriers to actual participation in BSE practice. If such barriers exist, motivation must be sufficient to overcome their influence on the individual's choice of behaviour. Barriers which are anticipated include time restraints, conflicting responsibilities, energy level, real or perceived lack of accurate information and real or perceived lack of skill.

Based on this paradigm for BSE participation, a broad research question was formulated.

The Research Question

The two main concerns of this study were performance discrepancies in BSE practice and implications for teaching BSE. The end behaviour in question, participation in the preventive health practice of BSE, was viewed as resulting from a complex interaction of variables. The specific factors which influence BSE practices are unknown. Using the BSE participation paradigm as a theoretical framework, a broad research question was used for the study:

What factors are related to end behaviour in BSE practices?

It was anticipated that only a small portion of the suggested influencing factors could be isolated and measured. An attempt would therefore be made to analyse the interaction of a selected number of these variables and their effect on BSE practices. Implications for teaching BSE would be suggested based on these research findings.

CHAPTER IV

METHODOLOGY

Examination of performance discrepancies in BSE practices was based on the Breast Self-Examination Paradigm. A data collection instrument was developed then a pilot study was carried out to improve and refine the questionnaire. A plan for data collection and data analysis was formulated, a research group was selected and data collection was subsequently carried out. This chapter describes the instrument development, the pilot study, the selection of the research group, data collection and the plan for data analysis.

Instrument Development

Selection of Variables

Based on the review of the literature, the BSE participation paradigm outlined a wide variety of variables which may influence BSE practice. Although the topic was to be broadly examined, the data collection tool had to be of reasonable length. A wide range of responses was anticipated and yet data that were reasonably detailed and specific were required for useful analysis. While the sample population was very narrowly defined--female university students taking courses

offered by the University of British Columbia Adult Education Division--its experience with the research topic was expected to include a wide range of possibilities. Since the topic of the survey--practice of and attitudes toward BSE-- has the potential for being a very sensitive subject, special care in approach and question wording was necessary. These issues plus the researcher's inexperience with questionnaire development and survey research, necessitated a more focussed approach to the topic than the broad, all-encompassing approach of the BSE Participation Paradigm. All aspects of each variable could not be examined if the study was to be of a reasonable and workable length. The four major categories for data collection were: participation in BSE; expectancy in relation to BSE; valence in relation to BSE; and barriers to BSE.

BSE practice. Participation in BSE was labelled BSE practice and measured in terms of rate and completeness. The description of BSE in the widely used Canadian Cancer Society pamphlet "Breast Self-Examination: It Could Save Your Life" was used as the desired performance. There were four components to "complete" BSE:

- 1) The visual component- visually examining both breasts.
- 2) The systematic component- a systematic approach to examine all the tissue involved.
- 3) The axilla component- including an examination of both axilla as part of the BSE procedure.
- 4) The time component- carrying out BSE every month just after menses.

Discrepancies in BSE practice were rated according to the number of BSE components that were missing.

The time component of BSE included not only the frequency with which BSE was carried out but also the time of the month in which it was done. Subjects may carry out BSE correctly but fail to do it on a monthly basis. For this reason data on rate of BSE practice were collected separately and in addition to the general data on BSE practice.

Expectancy. Expectancy includes expectations about the outcome of practicing BSE and expectations about personal ability to carry out BSE. These expectations arise from: socialization through family, school and work; congenital properties; active preparedness; structural, social and cultural factors in the environment; and perception and interpretation of the environment. Data were collected on the following influences and indicators of expectancy:

1. Knowledge of BSE including the degree of confidence in their present BSE knowledge.
2. Experience with BSE including BSE information source, methods of presentation used to provide BSE information, BSE follow-up learning sessions and commencement of BSE.
3. Influence of member and reference groups through reminders from family, friends or physicians to carry out BSE.
4. Experience with breast disease, including outcomes, involving themselves, their family, their friends

or anyone they knew.

5. Perceptions of BSE including the relationship between breast lumps and cancer and the effect BSE has on the outcome of breast disease.
6. Self-evaluation including expectations of personal control over health (HLC) and perception of personal ability to detect breast disease.
7. Experience in the health care field.

Valence. Valence refers to the affective attitude about the outcome of participating in BSE. It is related to expectations about BSE since different emotional reactions are related to different expectations. A strong emotional reaction to cancer and an expectation that most breast lumps are cancerous would likely produce a strongly emotional attitude about practicing BSE. These emotional or affective attitudes are influenced by a person's current status and perception of her needs. Data were collected on the following topics:

1. Value of health
2. Value of BSE
3. Perception of personal needs in terms of BSE including satisfaction with current BSE habits and perceived responsibility for personal health.
4. Current life influences including age, student status and current occupation.
5. Perceived susceptibility to breast disease.
6. Cues to BSE practice.
7. Influences on BSE habits.

8. Attitude toward the outcome of participating in BSE including perceptions of the relationship between disfiguring surgery and breast disease, the influence BSE has on fear of breast disease and the degree to which BSE is an uncomfortable experience.

Barriers to BSE. Even given all the forces which may encourage BSE, factors may exist which interfere with its practice. These restricting forces must be overcome before participation in BSE occurs. Some of the forces which may act as barriers to action are time restraints, conflicting responsibilities, low energy level, fear and real or perceived lack of accurate information or skill.

Data were collected on the perceived influence of:

1. Simply forgetting.
2. Lack of time.
3. Lack of energy.
4. Not knowing how to examine your breasts.
5. Fear of what you will find.

Respondents were asked to indicate the degree to which the above factors influenced how often they examined their breasts.

Questionnaire Development

Despite its drawbacks, it was decided that a questionnaire was the only reasonable method of data collection given the scope of the topics to be covered and the limited time and resources available. A combination of previously and newly developed questions was used.

The previously developed tools included the Health Locus of Control Scale as it was developed by Wallston, Wallston, Kaplan and Maides and reported in the Handbook of Scales and Indices of Health Behaviour (1976). It was felt that no changes should be made to either the instructions or the wording of this scale. The purpose of the study was not to create a new locus of control scale but to use an existing scale to determine if locus of control might be a factor worth pursuing in the examination of BSE practices.

Part of the Value Scale developed by Rokeach (1973) was used to collect information about the value given to health. In part, this scale requests respondents to rank eighteen terminal values. "Health, optimal physical and mental functioning" was added to this list for the purpose of this study. Rokeach requests respondents to rank order all of the values given. Since this study was concerned about health in relation to other values and since the ranking of other values was not to be examined, study participants were not asked to rank all of the values. It would be too time consuming and would provide a great deal of data that would not be needed.

Questions designed to collect data on breast self-examination had to be developed specifically for this study. Several suggestions from the literature concerning development of questionnaires were used as guidelines.

In the overall sequencing of questions an effort was made to create the best psychological rather than logical sequence as is recommended by Selltitz, Wrightsman and Cook (1980). Berdie

and Anderson (1974) suggest that one should begin with a few interesting and non-threatening questions and avoid ending with important items. If the most important items are at the end of a long questionnaire when attention and interest may be flagging, the response to these more important questions may suffer in their accuracy. Oppenheim (1966) suggests that the questionnaire should start with factual rather than attitudinal questions. He describes a funnel approach. One begins with very broad questions and becomes more specific as the questionnaire proceeds. These were the general ideas behind the sequencing of the questions on the data collection tool. The questionnaire progressed from opening exercises which explored general values and beliefs through general experiences and knowledge about the specific topic at hand, to specific knowledge and behaviour and its influences and finally, to personal attitudes and views. After all the information about the research topic had been gathered, the demographic data were collected. The questionnaire ended with simple questions which were easy for respondents to answer.

In addition to creating a theoretically sound questionnaire, the University of British Columbia requirements concerning ethical issues in research had to be met. The questionnaire included an explanatory letter which explained the benefits to be derived, a description of the procedures to be carried out, a reminder that withdrawal or refusal to answer questions would not bring a prejudicial response, the time requirements for study participation and information concerning

anonymity and consent.

With these ideas and requirements in mind, the questionnaire was developed and then revised and refined using four different pilot study groups.

Pilot Study

In all, thirty-one women participated in the pilot study. Of this group, five women were nursing instructors currently teaching in a university nursing school program. Two of these instructors were actively involved in developing and teaching nursing course content on BSE. Of the total pilot project subjects, 18 had a nursing background and 13 had a teaching or other non-health background.

The forms which were developed in the pilot study included a letter of initial contact which was to be sent to all potential research subjects prior to actual data collection as well as the actual questionnaire. The questionnaire included an explanatory letter, a values section, a health beliefs section and a section on BSE itself.

The letter of initial contact was to be sent to each potential respondent in an attempt to arouse interest and create a desire to be a part of such a study. Berdie and Anderson (1974) suggest that university undergraduates respond more favourably to a personalized approach (p. 53) and a special effort was made to create a personalized tone. After piloting some of the technical jargon such as "performance discrepancies" and "survey approach" were omitted and some rewording took place

to increase clarity in both the letter of initial contact and the explanatory letter.

In the values section of the questionnaire respondents were initially asked to pick out ten values and then circle the five which were most important. Pilot testing indicated that respondents generally liked this section and few changes were made. The second set of instructions at the bottom of the page was placed in a box to separate and bring attention to them and spacing was rearranged so that there was more room between options. Initial responses indicated that the data did not give a very discriminating range of responses and respondents were subsequently asked to chose only five values and to rank the top three. This seemed to give a better spread of responses.

The health beliefs section of the questionnaire consisted of the Health Locus of Control Scale. The presentation of the scale underwent several changes to improve spacing and facilitate completion and processing of this section. Four respondents in the pilot study criticized question number five. They felt it was unclear. It was felt that the question could be interpreted in more than one way but it was not changed for this study because validity and reliability results for this scale would then be invalid.

The breast self-examination portion of the questionnaire underwent major changes during piloting. Much of the pilot testing effort went into the development of ever more clear and succinct questions and the arrangement of the most beneficent sequencing. In terms of format, the aim is to produce an

attractive and interesting questionnaire which can be efficiently completed in the minimum amount of time. Oppenheim (1966) reminds us that while open-ended questions are easy to ask, they are difficult to answer and even harder to analyse. He suggests a minimum of open-ended questions and the use of different type forms, headings, boxes and inserts to further decrease the effort that must be made by respondents. Several topics were initially examined using open-ended questions and then information arising from the literature and these personal responses were combined to create multiple choice questions or closed questions which required only a yes/no response. Liberal use was made of the "other" option and room for explanation of answers was given in order to allow for a wider range of responses while making response quicker and easier for what appeared to be the bulk of the respondents. Important parts of instructions were underlined and boxed where emphasis was needed. Specific examples were given for some options in order to clarify questions. Some questions such as the one concerning personal experience with breast disease, were left in a fairly open format since anything more would have created a very complicated and long series of questions which would not have been relevant for a large number of respondents. Some items were eliminated after they failed to provide discriminating data and most were revised and reworded several times. The final form of the questionnaire can be found in Appendix B.

Selection of the Research Group

Limitations of time and resources required the selection of a research group which could be reached within a reasonable length of time. Since personal contact between the researcher and the research subjects would probably encourage participation when the research topic was so sensitive, a group which was in close geographical proximity was also desirable. The size of the study would have to be limited and it was felt that a group which would have some recognizable unique characteristics would assist in data analysis. Educational level is an important aspect of the learning environment and it was decided that educational level would be held constant.

The selection of the female students enrolled in the UBC Adult Education Division classes met the above criteria. In addition, they provided an opportunity to compare the effect of experience in the health care field on the dependent variable. Students in these classes generally fall into two large groups, nurses and other health care workers, and educators involved in either various levels of the provincial school system or in adult education.

Data Collection

There were three basic aspects to the data collection process. The first involved the initial contact which alerted potential participants to the research project. The next step was actual contact and distribution of the data collection tool.

An ongoing and concluding aspect of the process involved those actions taken to encourage participation.

Initial contact involved the receipt of the letter specifically designed for that purpose (see Appendix A). The letter was to be sent through the regular mail service to all women enrolled in classes given by U.B.C.'s Adult Education Division. This proved to be a difficult task since there was not a current list of mailing addresses for this group of students. According to class lists, there were 156 female students registered in Adult Education classes. Addresses were found for 132 students. Approximately two weeks prior to the planned data collection schedule, letters of initial contact were sent to all those students for whom addresses had been found. Nine letters were returned because of wrong addresses. Given the questionable accuracy of the mailing list, one can only assume that approximately 79 percent of the potential research subjects received this initial contact letter.

A schedule for meeting with the potential research subjects was developed with the help of the professors teaching the current Adult Education classes (ie., second term classes of the U.B.C. 1982-83 Winter Session). This schedule ran from Wednesday to Wednesday and included day and evening classes. The time span involved was important to the last aspect of data collection--encouraging participation--and will be discussed later.

The researcher met with the students after the classes had commenced but either before the day's work had begun or just

before a break. She was introduced by the professor and before handing out the questionnaire she discussed various aspects of the project. Many of the points that were covered were in the letter of initial contact and again in the introductory letter of the questionnaire. It was felt, however, that some students would not have received the initial contact letter and many may not read the cover letter. A repetition of these aspects of the study would remind students of their rights and might also serve as an incentive to participate. Students were also given some processing information about the questionnaire itself. Most people in the pilot study took from 15 to 30 minutes to fill out the questionnaire so students were told that they could anticipate a similar time commitment if they chose to participate. They were told where copies could be obtained if original questionnaires were lost and the deadline for returning the forms was given. The method of returning completed forms was explained. The forms were to be returned through the campus mail or dropped into a marked box in the Adult Education building. Before distributing the forms the researcher asked if students had any questions and answered any that arose.

Some students were enrolled in more than one adult education class and they were, therefore, subjected to several appeals for participation. They were only given one copy of the questionnaire. Students were given a questionnaire for perusal and told that they could then decide whether they wanted to participate. Only one student refused to accept the form. Only those students who attended classes during the week of

questionnaire distribution were subjected to this personal appeal by the researcher. In total, 119 questionnaires were distributed.

The researcher, a fellow student, made a personal appeal as she handed out the data collection tools. It was hoped that this opportunity to meet and question the researcher would increase interest in the project. It was an attempt to make participation not just a matter of filling out yet another form, but an opportunity to join a fellow student in a sincere attempt to examine a worthwhile topic of concern. It also gave the researcher a chance to allay concerns and answer questions that might exist but that she has not anticipated and had, therefore, not addressed in her written material.

The endorsement of faculty members was also seen as a valuable asset in this attempt to encourage participation. The researcher was personally introduced to students by their professors. All faculty members were sent a request by the researcher to remind students in subsequent classes to return their completed forms. Such a reminder would support participation as well as serve as an encouragement to return completed forms.

A visual reminder was provided by brightly coloured posters which were placed at strategic spots around the Adult Education building. These posters announced the project in large red and black letters. They created discussion and seemed to increase awareness of the project especially in the initial stages of data collection.

The aim was to hand out data collection tools, raise awareness of the research project and gather completed questionnaires within a fairly short time span while awareness was still high and inclination to participate still fresh.

Due to unanticipated time requirements for preparing the questionnaire, data collection occurred late in the academic year. Students are often overwhelmed with end of term assignments and upcoming exams. The researcher, after being reminded by one group of students of the difficulties that they faced, thereafter brought this topic up as she presented the project to each class. This acknowledged her concern about their obligations and also provided an opportunity for students to vent their feelings on this matter. Subsequent groups did talk about their workload but did not voice strong feelings about the timing of the project.

Questionnaires were collected from individual students and from the well-marked box strategically placed in the foyer of the Adult Education building. While the majority of questionnaires were returned within the first two weeks, students were given a month in which to complete and return the data collection tool.

An examination of the response rate produced the following information. All research subjects were female students enrolled in second term classes given by U.B.C.'s Adult Education Division in the 1982-83 Winter Session. According to class lists, 156 female students were registered in these classes. During the week of data collection 120 potential

research subjects attended class. One student refused to accept a questionnaire which left a total of 119 questionnaires distributed. Of this group, 66 returned completed questionnaires. This represented a return rate of 55 percent. In general all respondents completed all the questions. There were a few exceptions and these will be discussed as those topics concerned are discussed.

It would be desirable to compare the respondents to the non-respondents to determine whether the research subjects were representative of the research group. Unfortunately, data were not available on the non-respondents. The research group was unique and no previous group characteristics had been collected. Anonymity was an important aspect of the current research since respondents would be sharing very personal experiences, feelings and attitudes. Non-respondents could not, therefore, be identified for examination and comparison.

Strategies for Data Analysis

Data analysis is limited by the form of measurement in which data have been collected. The majority of data collected in this research project fall into the category of nominal or ordinal measurement. Analysis is also limited by researcher control over the variables measured. In this ex post facto research, educational level was the only variable which was controlled. A third limitation of data analysis is the make-up of the research sample. The sample in this research consisted of volunteers from a highly educated select group of university

students. Limitations of the study are discussed at more length in the last chapter of this report.

It was decided that the first step of data analysis would be an examination of each of the variables in terms of frequency distributions. This would summarize the variables and help to indicate where logical groupings of scores were indicated.

The purpose of this investigation was not just to collect descriptive data but to explore possible relationships between variables. After data had been grouped and tallied, relationships between variables would be examined.

Since much of the data were collected as nominal or ordinal measurements, sets of data had to be compared as frequencies in two or more categories. The statistical test usually used for examining such data is the Chi-square statistic. While this statistic has three possible applications, the application of interest for this project was testing independence or determining whether variables are statistically independent. Possible relationships between the dependent variable, BSE practice, and a variety of independent variables were the main concern. In addition, relationships which may exist between some of the independent variables might be helpful in understanding BSE discrepancies and these were examined as well.

Data would also be examined as paired sets of scores. Examination of this type of data calls for correlation and regression analysis. The Pearson Product Moment Correlation Coefficient would usually be used to measure the strength of association between interval variables. In the strict sense

this statistical method cannot be used in this study since none of the data were in true interval form. However, it is frequently used with ordinal variables for three reasons. It is a more powerful statistical method, it provides more easily interpreted results and it is necessary for most of the multivariate statistics. Its use is generally preferred when possible (Borg & Gall, 1983, p. 586). The Spearman Rank correlation test was used to measure the strength of association between pairs of ranked data. All testing was done using the .05 significance level.

Data were coded and prepared for the computer by the researcher. Verification of the coding was accomplished by randomly selecting subject scores and comparing the coding data with the original data. Data were entered into the computer by the researcher and verified by the researcher and an assistant comparing computer data with original coded data. Data analysis was carried out using the UBC Statistical Package for the Social Sciences, Version 9.00 (Lai, 1983).

Research results will be presented and discussed in the following two chapters. A descriptive presentation of the variables will be presented in Chapter V. The relationships between independent variables will be explored in this chapter as well. An analysis of BSE using the BSE Paradigm and crosstabulation and correlation results will then be given in Chapter VI.

CHAPTER V

FINDINGS

The purpose of this chapter is to give a descriptive presentation of the variables chosen for study and to discuss those findings. The relationships between independent variables are also examined. The four components of the BSE Paradigm which were studied are: participation in BSE; expectancy; valence; and barriers to BSE. Participation in BSE was the end behaviour or dependent variable and will be discussed last. Expectancy, valence and barriers to BSE were the suggested independent variables. These variables are represented by a variety of influencing factors or indicators on which data were collected and analysed. Before these variables are discussed a brief description of the respondent characteristics will be given.

Respondent Characteristics

There were 66 respondents. None of the research subjects were under twenty or over sixty. Age was collected in categories which covered a ten year span. The modal category contained 46 percent of the subjects and covered the ages from thirty to thirty-nine years of age. The next largest group, or 27 percent, were twenty to twenty-nine years old. Twenty-one percent were forty to forty-nine and only four subjects, 6

percent, fell into the fifty to fifty-nine year old category. The bulk of the sample, 73 percent, were between the ages of twenty to thirty-nine.

Forty-one percent of research subjects attended school full-time. Thirty percent were part-time students. Current student status could not be calculated for 29 percent of the subjects.

A final demographic characteristic of interest was occupation. Of those who returned completed questionnaires, 59 percent were currently employed or had past experience in the health care field. The remaining 41 percent had non-health occupational experiences.

Expectancy

Data were gathered on seven aspects of expectancy. The research results will be given for each of these aspects and the crosstabulation between them and other independent variables will be discussed.

BSE Knowledge

Complete knowledge was deemed to be knowing the four components described in the Canadian Cancer Society pamphlet on BSE. One individual failed to fill out this portion of the questionnaire.

Although they were aware of certain components of BSE some subjects failed to carry them out. Fourteen people indicated that they did not carry out in their practice at least one

component of BSE that they knew they should do. Two of these subjects failed to carry out any BSE although they knew two components of it. The visual component was known but not carried out by four women, the systematic component was known but not carried out by nine women and the time component was known but not carried out by three women. Although the axilla component was not known by the highest number of subjects (47 percent), when it was known it was reported as being practiced.

When all possible combinations of knowledge components were examined, 24 percent of the research subjects indicated a complete knowledge of BSE. This contrasts sharply with the 5 percent of the research subjects who included all four components of BSE in their practice.

Each of the knowledge components was examined individually to determine the frequency with which it was missing as part of the described recommended BSE procedure.

Table 1.
Excluded BSE Knowledge Components
(n=66)

Excluded Components	% Missing	% Not Missing
No visual	45	55
No systematic	18	82
No axilla	48	52
No time	35	65

Note that the systematic component was excluded by 18 percent of the subjects. This is markedly below the number of subjects who excluded any of the other three components.

Another aspect of knowledge on which data were collected, was the individual's confidence with her present BSE knowledge. Subjects were asked to rate the degree to which they agreed or disagreed with the following statement: I feel confident with my present level of knowledge about carrying out breast self-examination. Data were available from all 66 research subjects. Frequency data revealed that 80 percent of the respondents "slightly, moderately or strongly agreed" with the statement. These data were crosstabulated with BSE knowledge and BSE practice, the relationships were not significant.

Crosstabulation with other independent variables. BSE knowledge was crosstabulated with the following variables: confidence with BSE knowledge; all of the BSE information sources and BSE information presentation methods; the total number of BSE information sources experienced; the total number of BSE information presentation methods experienced; the age of BSE commencement; BSE follow-up sessions; confidence with BSE ability; and experience in the health care field. None of these variables were significantly related using the .05 significance level.

Experience with BSE

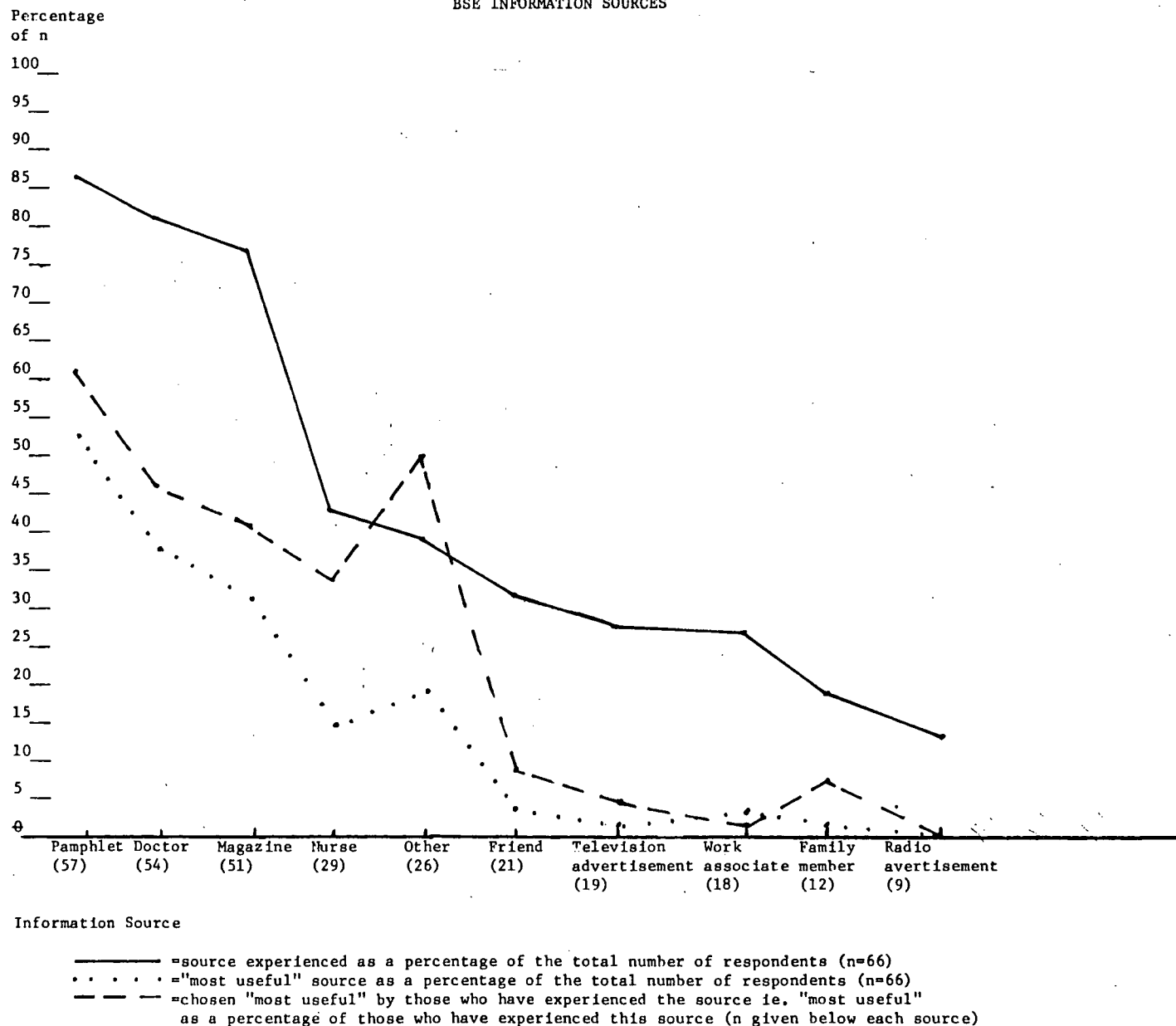
Data were collected on several aspects of experience with BSE as a preventive health activity. The source of BSE information was examined as were the types of teaching methods

experienced. Data were collected concerning the occurrence of BSE follow-up learning sessions and respondents were asked about the commencement of their personal BSE practices.

BSE information sources. Data were collected on two aspects of information sources. First, subjects were asked whether information was received from a particular source and then they were asked to indicate which source or sources were most useful. Figure 5 shows the data on information source ratings. The category "other" allowed respondents to list sources which were not already indicated. Of the 25 people who indicated another source of information, 14 mentioned nurses training; 5 mentioned textbooks; 2 mentioned nurses in special situations--public health nurse, prenatal class instructor. Each of the following was mentioned once: self-help group, TV show, a film, a workshop on BSE and a video in the doctor's office. These sources were underlined as most useful eleven times. Nursing education was underlined as most useful seven times, a film, the self-help group and the workshop on BSE were also underlined as most useful.

Note in Figure 5 that the pamphlet as a source of information was rated highest in each of the categories. It was most frequently experienced, it was the one chosen most often as being "most useful" and it had the highest percentage when those experiencing a particular source chose it as a "most useful" source (ie., choice of "most useful" as a percentage of those who had experienced that source). The second highest category in which the rating "most useful" as a percentage of those who

FIGURE 5.
BSE INFORMATION SOURCES

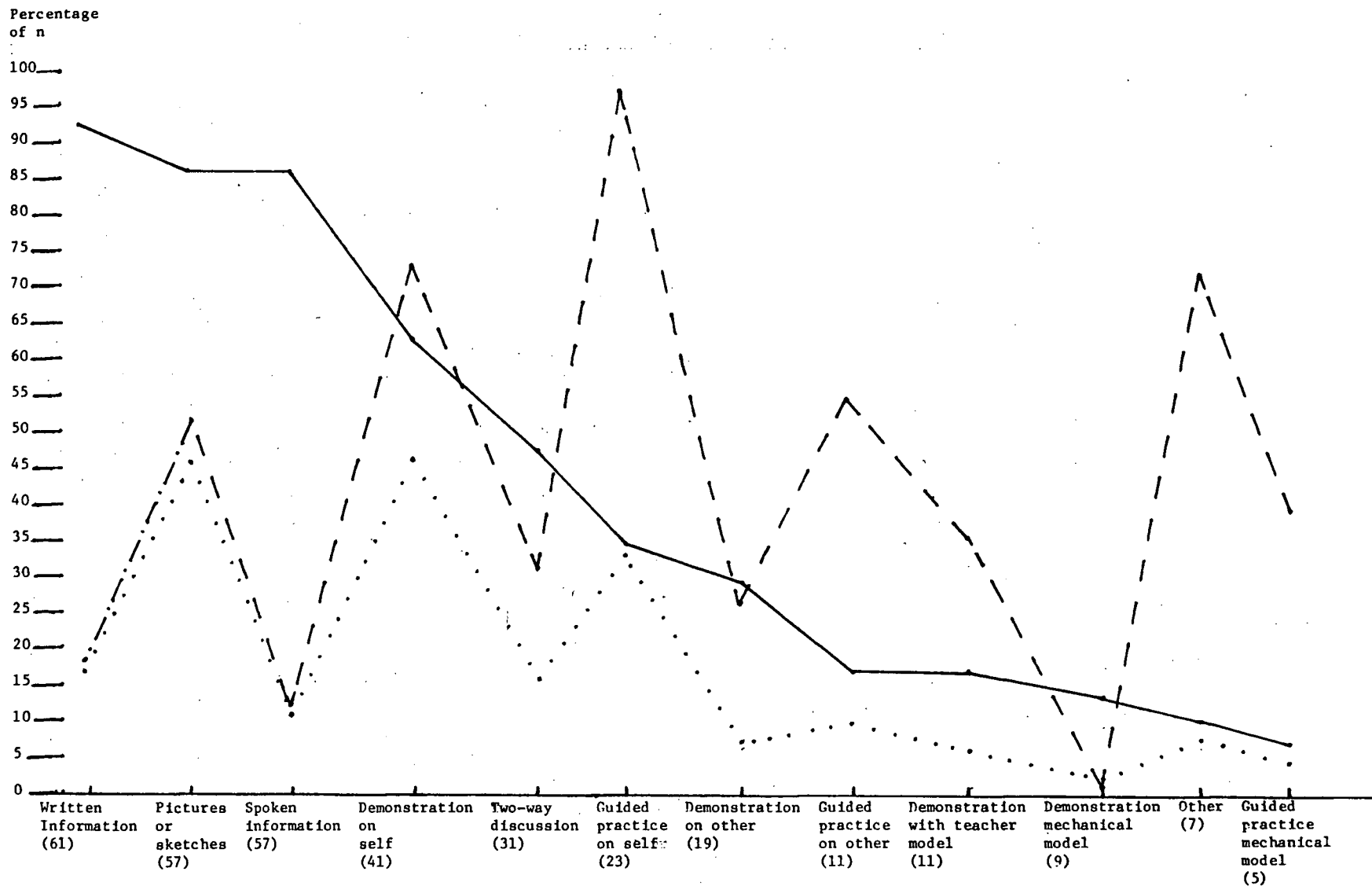


had experienced the category as compared to a percentage of the whole sample, was "other." There was a dramatic increase in this choice as "most useful" when it had been experienced. The greatest number of "most useful" sources in this category was nurses training and 79 percent of those who had experienced it chose nurses training as a "most useful" source. While the doctor as a source was second in both the number experiencing it and the "most useful" source, it fell behind "other" in the "most useful when the source has been experienced" category. Many of these categories were not even experienced by a significant portion of the sample population. Only pamphlets, doctors and magazines reached more than 50 percent of this group of women. A large percentage of this population consisted of nurses and yet nurses provided information on BSE for only 44 percent of the whole group.

BSE information presentation methods. Data on methods of BSE information presentation that had been experienced was collected in a manner similar to data collection on BSE information sources. Respondents were asked to indicate which presentation methods that they had experienced and which had been most useful. Figure 6 shows the data for the ratings of BSE presentation methods.

The category "other" drew six responses. Films were mentioned by 5 of these respondents and this method was chosen as "most useful" by 4 out of the 5. One person mentioned using "touchy feeleys", a teaching device consisting of sponges with nodules in them which are used to practice palpation of lumps.

FIGURE 6.
BSE INFORMATION PRESENTATION METHODS



Presentation Method

- presentation method experienced as a percentage of the total number of respondents (n=66)
- ... "most useful" presentation method as a percentage of the total number of respondents (n=66)
- - - chosen "most useful" by those who have experienced the method ie. "most useful" as a percentage of those who have experienced this method (n given below each method)

This individual found this method "most useful."

Only four methods were experienced by over 50 percent of the sample: written information; pictures or sketches; spoken information; and demonstration on the respondent. The presentation methods that were indicated as "most useful" by the greatest number of respondents were pictures or sketches and demonstration on the respondent. Each of these methods were indicated "most useful" by 45 percent of the sample. Guided practice with you examining yourself was the next most chosen category with one third of the sample choosing it as "most useful."

When one examines the "most useful" choices of categories by those who had experienced them, 5 methods were chosen by more than 50 percent of the sample: guided practice on oneself; demonstration on the respondent; other; guided practice on another person; and pictures and sketches. Of these five, two had very low frequencies. "Other" methods were experienced by only seven people and guided practice on another person by only eleven people. Although of the people in these categories 71 and 55 percent respectively chose it as "most useful", the small numbers of respondents involved lessens the power of these findings.

Two of the other three presentation methods were experienced by over 50 percent of the sample and were subsequently chosen as "most useful" by over 50 percent of those who experienced them. Demonstration on the respondent was experienced by 62 percent of the sample and was chosen as "most

useful" by 73 percent of those who experienced it. Pictures or sketches were experienced by 86 percent of the sample and was chosen "most useful" by 53 percent of those who experienced them. Guided practice on yourself was the most strongly endorsed of all the methods. Only 35 percent of the sample had experienced this method of teaching but of those 23 women, 96 percent chose it as a "most useful" method. Another respondent who had not experienced this teaching method commented that she felt it would have been most useful had it occurred.

Follow-up learning sessions. Experiences of learning BSE were also examined in terms of follow-up learning sessions. In the questionnaire respondents were asked if they had experienced follow-up sessions and were then asked to describe them. Only 18 people indicated follow-up sessions. Nine of these sessions involved physicians and 5 of them indicated that their doctor at least asked them about their BSE habits at each visit. Only two people said that their doctor asked them to demonstrate their BSE at each visit.

Commencement of BSE. It was thought that initial experiences with BSE may have some bearing on present habits. Those people who practice BSE were asked if they remembered when they started and what influenced them at that time. Data were collected on 62 subjects. Three women did not practice BSE and therefore this topic was not applicable and one person failed to answer the question. Of the 62 women on whom data are available, 83 percent remembered when they started BSE. The act of remembering the event was unrelated to present BSE knowledge

or practice. Age of commencement ranged from 14 to 40 years of age. The highest percentage, 46 percent, started in their twenties. Another 27 percent started when they were 19 or younger. Only 3 women (5 percent) started in their forties.

Forty-nine women described the influences surrounding their commencement of BSE. The influence mentioned most often was nurses training. Thirty-five percent started during nurses training. Twenty-two percent started after their doctor suggested it. Other influences mentioned were: fear of cancer following experiences of family or friends- 16 percent; development of breast cysts personally or in friends- 10 percent; reading about BSE in magazines or hearing about it through similar publicity-10 percent; related personal or family disease (positive pap smears, cervical polyps)- 4 percent; hearing it at a women's health clinic-2 percent.

Influence of Member and Reference Groups

An effort was made to collect some data on the influence of family, friends and physicians on BSE behaviour. Respondents were asked how often they felt their family, their friends and their doctors reminded them to carry out BSE.

Families gave the least number of BSE reminders. They accounted for the largest group of "never" giving reminders and only reminded "frequently" for 2 women. Friends were a close second in lack of reminders and failed to give consistent reminders to anyone. Although 11 percent of doctors for this sample of women "always" gave their patients a BSE reminder, 29 percent "never" gave reminders. While 30 percent of physicians

gave reminders fairly consistently, a much greater number, 68 percent only "occasionally, hardly ever or never" gave BSE reminders.

Experiences With Breast Disease

In an attempt to organize the wide range of responses to this question the data were categorized as experience of breast disease involving: the respondent; a close friend; the family; or anyone they knew. If breast disease had been experienced in any of these categories it was then further categorized as involving cancer, benign disease or cancer and benign disease. In addition, the outcome of the experiences with breast disease were tabulated. The outcome of those who had had personal experience with breast disease was rated as successful treatment, unknown outcome (insufficient time lapse to assess) and continuing treatment or symptoms. Some people could not be rated due to a lack of information. In terms of breast disease involving others a variety of outcomes was possible and categories had to be expanded to include death as an outcome. Again there were those for whom insufficient data existed for rating. Table 2 provides frequency data for the type of experience with breast disease.

Although a large percentage of the respondents had experience with breast disease the outcome of those experiences covered the whole range of possibilities and no obvious trends were seen in the data. The small numbers in each possible category prevented statistical analysis.

Table 2.
Experience with Breast Disease
(n=66)

Source of Experience	Type of Experience (percentages)					Total
	None	Cancer	Benign	Cancer and Benign	No Data	
Personal	82	1	15	0	1	100
Family	68	18	9	3	1	100
Close friend	71	18	9	1	0	100
Anyone you know	56	30	6	4	3	100

Perception of BSE

Two questions were related to perception of BSE. One dealt with the perceived influence of BSE on the outcome of breast disease and the other with perceptions about breast lumps and their relationship to cancer. The second question explored expectations about what finding breast lumps mean.

In this research project women were asked to indicate the frequency with which breast lumps are caused by cancer. Table 3 shows the frequency data.

When asked about the influence of BSE on the outcome of breast disease most respondents felt that BSE does indeed improve the outcome. The majority of respondents were definitely positive in their support of the benefit of BSE. Eighty percent felt BSE "almost always or always" greatly improves the outcome of breast disease.

Table 3.
Perceived Relationship Between
Breast Lumps and Cancer
(n=66)

Cancer as a cause of breast lumps	%
Never	3
Hardly ever	6
Occasionally	64
Frequently	26
Almost always	1
Always	0
Total	100

Perceptions of Personal Control

In any issue dealing with health, a general expectation about personal control over your health exists. This general expectation about health was measured using the Health Locus of Control Scale.

Health Locus of Control. HLC data were missing for three individuals. None these women answered question number five. This was the question which caused difficulties for some of the pilot test subjects. They objected to the wording of the question.

The computed HLC scores ranged from 14 to 52. The median score, the one used to determine internality or externality, was 31. This resulted in 30 individuals with an internal HLC and 28 individuals with an external HLC.

It was felt that the HLC score would relate to the general feeling of responsibility for your own health. This was not true, however, since 49 percent of those with an internal HLC and 51 percent of those with an external HLC agreed to some extent that they were personally responsible for maintaining their own health.

Confidence in BSE ability. A more specific measurement of expectations concerning BSE was attempted with the question about confidence in your ability to detect breast disease. Table 4 shows the frequency data for this question.

Table 4.
Confidence in Personal Ability
To Detect Breast Disease
(n=66)

Degree of agreement with statement of confidence in ability	%
Strongly disagree	9
Moderately disagree	11
Slightly disagree	4
Slightly agree	15
Moderately agree	47
Strongly agree	14
Total	100

Experience in the Health Care Field

The last aspect of expectancy that was examined was experience in the health care field. The research group contained 27 women with previous experience in the health care field: 33 nurses; 1 physio-therapist; and 5 other women who had some sort of health care experience. That meant that 41 percent had a non-health background and 59 percent had a health background. This categorization into health and non-health was used to crosstabulate this data with other variables. Women with a health background were not any more likely to feel that BSE will improve the outcome of breast disease. All of those with a health background felt that BSE would improve the outcome of breast disease either "frequently, almost always or always" but this was also true for 85 percent of the non-health group. Although a greater number of those with a health versus a non-health background chose health as the number one priority in their rating of the value of health (32 percent of health versus 18 percent of non-health respondents), 21 percent of those with a health background did not chose health at all. The largest single group of those with a health background chose health as a number one priority and the largest single group of those with a non-health background did not rate health in their top five values. However, when the the groups which chose health as the number one or number two priority were combined, 50 percent of the health group and 47 percent of the non-health group fell into this combined category. Health was a high priority for a large percentage of all the women in this research group. When

experience in the health care field was crosstabulated with the effect of BSE on fear of breast disease 89 percent of the non-health group and 87 percent of the health group felt BSE increased their fear only "occasionally, hardly ever or never." This relationship was not statistically significant.

Valence

Data were collected on eight aspects of valence. Data for each of these aspects will be given and when crosstabulation between them and other independent variables was carried out, those results will also be given.

Value of Health

Respondents were asked to chose their top five priorities out of a list of 19 values. Health, optimal physical and mental functioning, was one of the choices. Table 5 shows the frequency with which health was chosen as a priority.

There were no significant statistical relationships between priority ratings of health and experience in the health care field or value of BSE.

Value of BSE

The wording of the questions concerning the value of BSE was changed several times during pilot testing. The final version asked respondents to indicate the degree of their agreement or disagreement with the following statement about BSE: The most valuable preventive health practice for women is breast self-examination. The majority of the sample supported

Table 5.
Priority Ratings
For the Value of Health
(n=65)

Health Priority Rating	%
#1 Priority	26
#2 Priority	23
#3 Priority	14
In top five	11
Not chosen	26
Total	100

the value of BSE and 73 percent agreed to some extent that BSE was the most valuable health practice for women.

BSE and Perception of Personal Needs

One aspect of perception of personal health needs is the general feeling of responsibility for one's own health. Respondents were asked to agree or disagree with the following statement: I am personally responsible for maintaining my own health. Responses were heavily weighted on the positive end of the scale and 89 percent of the respondents moderately or strongly agreed. Only one respondent strongly disagreed. She still carried out BSE monthly and had only a completeness discrepancy in her BSE practice. Two of the three women who had no BSE practice discrepancies were rated as having an internal HLC and they all strongly supported the statement about personal responsibility.

It was thought that felt needs in terms of BSE would be

measured to some extent by asking about the degree of personal satisfaction with current BSE habits. The frequency data are given in Table 6.

Table 6.
Level of Agreement With
Satisfaction With BSE Habits Statement
(n=66)

Level of Agreement	%
Strongly disagree	15
Moderately disagree	21
Slightly disagree	11
Slightly agree	11
Moderately agree	24
Strongly agree	18
Total	100

Current Life Influences

General aspects of life on which data were collected for this sample included age, current student status and current occupation. These research population characteristics are given with the sample description at the beginning of this chapter.

Perceived Susceptibility to Breast Disease

Research subjects were asked about their perceived susceptibility to breast disease in two ways. They were asked to rate their susceptibility to breast disease using a scale that ranged from very high to very low. They were also asked to

rate the degree of influence feelings of personal susceptibility had over their BSE practice.

The sample spread over the entire range of breast disease susceptibility perception ratings. Twenty-one percent felt they had a "very low" rating and 5 percent felt their susceptibility was "very high." The dispersion for breast disease susceptibility perceptions follows.

Table 7.
Perceived Susceptibility
To Breast Disease
(n=65)

Susceptibility Rating	%
Low or very low	45
Average	35
High or very high	20
Total	100

One woman rated herself high in susceptibility but did not practice BSE and said she would not do anything if she discovered something on examination. Her mother had died of bone metastases after breast cancer treatment. When perceived susceptibility to breast disease was crosstabulated with age and the influence of feelings of personal susceptibility, results were not significant.

Cues to BSE Practice

Another influence on an individual's perception of needs is the presence of cues which act as reminders to action. There was some misunderstanding about the question which gathered this data. It suggested that sometimes particular things helped to remind women to carry out BSE and asked respondents if this was true for them. If it was, they were asked to complete the statement: I remember to examine my breasts when---. Some women described what could be termed cues in their answers to other questions rather than in response to this one.

Thirty-nine women indicated cues did remind them to examine their breasts. Some of the reminders mentioned were:

- menstrual cycle (31 percent)
- articles, displays or TV shows mentioning BSE (23 percent)
- hearing of breast lumps or cancer in others (13 percent)
- sore under arms or breasts (10 percent)
- relaxing in the tub or shower (8 percent)
- starting a new packet of birth control pills (8 percent)
- a visit to the doctor (5 percent)
- seeing myself nude (3 percent)
- personal breast disease (3 percent)

Influences on Initiating or Changing BSE Habits

Closely related to cues for BSE is the more general topic of influences on BSE habit change. This meant to cover those things which may have been an influence to initiate BSE or to change BSE habits rather than those which act as ongoing

reminders. A variety of responses were given as influences for initiating BSE (55 responses):

- nurses training (33 percent)
- doctor's advice (22 percent)
- development of fibrocystic breast disease (9 percent)
- a magazine article (9 percent)
- family experience with breast disease (7 percent)
- friends experience with breast disease (5 percent)
- recommendation by a nurse (4 percent)
- concern involving oral contraceptives (2 percent)
- positive pap smear (2 percent)
- fear of breast cancer (2 percent)
- reminders from husband to practice BSE (2 percent)
- birth of first child (2 percent)
- BSE training in a post-natal class (2 percent)

The following responses were given as reasons for changing BSE habits (13 responses):

- initial increase in BSE after breast surgery/ first learning the procedure/ first finding a lump/ hearing other people talk about it, but less consistency as time passed (77 percent)
- increased consistency after worrying with several friends who had breast biopsies (8 percent)
- temporary decrease in BSE habits after finding a breast lump and being so frequently examined as a result (8 percent)

-increased consistency after hearing about an aunt's breast cancer (8 percent)

The influences most frequently mentioned as a stimulus for more frequent examination was finding a new lump. Unfortunately the largest group of women reported only an initial increase in habits after a particular incident and after time passed and initial concern died down, habits decreased.

Attitudes Toward the Outcome of Breast Disease

Attitudes toward BSE can be influenced by the affective reaction to breast disease. Perceptions about breast surgery and the relationship between BSE and fear of breast disease are two aspects of this affective attitude. Research subjects were asked to indicate the frequency with which they felt BSE increased their fear of breast disease and the frequency with which they felt breast changes found during BSE lead to disfiguring surgery. A key word is "disfiguring." It was meant to tap the strong feelings associated with radical mastectomies. Of course, the majority of breast changes found during BSE do not require such drastic treatment. The purpose of the question was to determine the degree to which such an outcome or the fear of it influenced behaviour. The greatest percentage of the sample, 68 percent, felt that disfiguring surgery was only "occasionally" the outcome of change found during BSE. The next largest group, 17 percent, felt it "hardly ever" occurred. Only one person felt that "disfiguring" surgery was an outcome "almost always" and two women felt that it "never" resulted.

Another question concerned with feelings of fear in relation to breast disease was the one which asked how frequently breast self-examination increased their fear of breast disease. The majority of the women in the sample, 88 percent, felt BSE increased their fear of breast disease only "occasionally, hardly ever or never." A large group, 47 percent, felt that this "never" occurred. The degree to which BSE increased fear of breast disease was not related to BSE practice or experience in the health care field.

A final measure of attitude toward BSE involved the degree to which respondents found BSE to be an uncomfortable experience. The majority, 62 percent, felt that carrying out BSE was not an uncomfortable experience. While this left 38 percent of the group who felt some degree of discomfort was associated with BSE, the low number in each rating made comparison with other variables difficult. No significant relationship was found with experience in the health care field, the degree to which BSE increased fear of breast disease, age, confidence with present BSE knowledge, perceived susceptibility to breast disease, perceived degree that breast lumps are caused by cancer, experience with breast disease, or outcome of breast disease experiences.

Barriers to BSE

Data were collected on five areas which may be acting as barriers to BSE practice. Table 8 provides frequency data for these variables.

Table 8.
Perceived Effect of Barriers on BSE Frequency of Practice

Barrier	Frequency of influence (percentage)						
	1.	2.	3.	4.	5.	6.	Total
Simply forgetting (66)	14	8	17	12	21	29	100
Lack of time (65)	46	25	19	3	6	1	100
Lack of energy (64)	45	28	11	9	5	2	100
Not knowing how to examine your breasts (65)	68	14	9	1	1	6	100
Fear of what you will find (66)	58	17	14	3	3	6	100
<p>Frequency Ratings: 1= never influences 2= hardly ever influences 3= occasionally influences 4= frequently influences 5= almost always influences 6= always influences</p> <p>Note: The number of subjects for each barrier category is given in parentheses.</p>							

Simply Forgetting

Simply forgetting was perceived to be a factor by most of the respondents. It was indicated as an influence at least "occasionally" and frequently more often by 79 percent of the sample.

When comparing forgetting as an influence on practice with presence of cues to practice, there was no relationship. Of

those who mentioned cues, 46 percent "occasionally, hardly ever or never" simply forgot and 54 percent "frequently, almost always or always" simply forgot.

Full-time students were no more likely to simply forget BSE than part-time students. Nor were those of a non-health background any more likely to simply forget than those with a health background.

Lack of Time

Eighty-nine percent of the respondents felt that time was not a big influence on their BSE practice. It was thought that increasing job or school responsibilities might increase the influence of this factor but this was not indicated by the data. Full-time students did not find lack of time any bigger an influence than those who were part-time. The "occasional to never" categories were chosen by 93 percent of full-time students and 90 percent of part-time students.

Lack of energy

Lack of energy was not seen as a frequent influence on BSE practice rate. The majority, 73 percent, felt it "hardly ever or never" influenced them. Lack of energy was not related to BSE practice, present student status or current occupation.

Not Knowing How to Examine Your Breasts

Not knowing how to carry out BSE was also not perceived as an influence on their BSE habits by the majority of the sample. It was seen as "never" influencing 68 percent and another 23 percent felt it "hardly ever" or only "occasionally" influenced

them. This makes a total of 91 percent who rejected this as an important factor in their BSE habits.

Fear of What You Will Find

Only 12 percent of the sample felt this factor influenced them more than "occasionally." No relationship was apparent with the degree to which BSE was uncomfortable or with past experience in the health care field.

Other influences

Respondents were asked about influences on their BSE practice other than those which had been mentioned. Some described cues to action which have already been discussed. The following are the other influences subjects described:

- feeling "It can't happen to me" (3 women)
- realizing I would not take any action even if I did find something (1 woman)
- lack of concern about breast disease because I never get sick (1 woman)
- not having established the habit (1 woman)
- not being convinced that discovering a lump early will have more positive consequences than discovering it late (1 woman)
- not knowing what an abnormality would feel like (1 woman)
- negative attitude towards my female body after 3 or 4 days of menstrual cramps makes me forget (1 woman)
- feeling silly (1 woman)

- fearing I would not detect changes soon enough (1 woman)
- being aware that early detection is important (1 woman)
- increasing rate of cancer in Canadian women (1 woman)

Only the last three influences mentioned increased practice. The others all decreased practice.

Participation in BSE

Data on BSE practices were collected by two questions. The first, a closed question with options from which a choice was to be made, requested information about rate of practice. Data on how BSE examinations were carried out were collected with a combination of open-ended questions. First respondents described what they felt the recommended method of BSE was and then they indicated whether this is what they do. Using the data from the knowledge question (BSE question #5), the response from the personal BSE practice question (BSE question #7) and the response from the rate of practice question (BSE question #6), each subject was given a BSE practice rating. In total, a BSE practice rating was available for 92 percent of the research subjects.

Tables 9 and 10 provide the data that were collected for BSE practice.

Table 9 indicates that the mode was once or more every three months. This option received 17 percent more responses

Table 9.
Frequency of BSE Practice
(Percentages)
(n=65)

Frequency of Practice	Frequency	Cumulative Frequency
BSE monthly	25	25
BSE once or more every three months	20	66
BSE once per year	20	86
BSE less than once per year	9	95
No BSE	5	100

Table 10
BSE Practice Rating
(percentages)
(n=61)

BSE Practice Rating	Frequency
No discrepancies	5
Rate discrepancy only	15
Completeness discrepancy only	20
Rate and completeness discrepancy	61

than the closest category--monthly BSE--and considerably more than the other three categories. When the various categories of practice were combined, 95 percent of the research group indicated that they practiced BSE on either a regular or irregular basis. Only 3 respondents indicated that they never carried out BSE.

Of those who practiced BSE, only three were rated as having no discrepancies according to their reported behaviour. By far the largest group, 61 percent, indicated that they had both rate and completeness discrepancies in their BSE practices. Of those who had only one kind of discrepancy, 57 percent had a completeness discrepancy and 43 percent had a rate discrepancy.

Only 15 respondents indicated that they modified their BSE from what they had described as the recommended method. Three subjects noted that while they realized that they "should" do a visual inspection, they did not. Two said they did not always carry out BSE just after menstruation but one of these women still did BSE more than once a month. Two admitted that they did a quick, short-hand version. Three said they did their BSE in the shower or bathtub. Two admitted they were not very systematic. One subject had one sore breast and checked it but only gave her other breast a cursory check. One person stated that though she carried out a complete BSE consistently, she did not necessarily carry out all the steps at one time. She did them at her convenience. One woman admitted that she did BSE quickly hoping not to find anything. Since she had fibrocystic breast disease, however, she always found something. She felt this made it a very negative experience and while she was aware of the risk she was running in not doing a thorough BSE she concluded that "I hate the whole business!"

Details of discrepancies in BSE practice are found in Table 11.

— There does not seem to be any significant difference in the

Table 11.
Completeness Discrepancies in BSE Practice

<u>Type of Discrepancy**</u>	Only Completeness Discrepancies		Completeness and Rate Discrepancies	
	Frequency	% * n=12	Frequency	% n=37
Time	4	(33)	19	51
Systematic	3	(25)	14	38
Visual	7	(58)	23	62
Axilla	7	(58)	21	57
<u># of Missing Components</u>	Only Completeness Discrepancies		Completeness and Rate Discrepancies	
	Frequency	%* n=12	Frequency	% n=37
four	0	(0)	5	13
three	1	(8)	6	16
two	4	(33)	13	35
one	6	(50)	13	35
missing data	1	(8)	0	0
Total	100		100	

*Brackets have been used because of the low number of subjects and its resulting effect on percentages.

**Note that the columns do not total to 100 percent. This is because many subjects had more than one type of discrepancy and therefore appear in more than one category.

types of discrepancies indicated by those who had only a completeness discrepancy as compared to those who had both a rate and completeness discrepancy. Visual and axilla discrepancies were highest for both groups. Note, however, that of those who did not have a rate discrepancy (ie., completeness discrepancies only), none were missing all four completeness components. Of those who had both a rate and completeness discrepancy, 13 percent failed to mention any of the four

completeness components. Those who were carrying out BSE on a monthly basis reported doing at least one component of BSE correctly. In addition, of this group, 50 percent were missing only one BSE component. Another third were missing only two components. While only one of the 8 women with only a completeness discrepancy was missing three components, 30 percent of those with both a rate and completeness discrepancy were missing either three or four components of BSE.

Limitations of the Data

Data analysis was severely hampered by the small sample size and the lack of sufficient numbers in the various categories into which data were divided. Data tended to group around the mean and did not allow for examination of the total range of responses that such data might cover. As a result more advanced multivariate statistical analysis could not be done. The discussion that follows should be examined with these limitations in mind.

Discussion of Results

Results will be discussed in the groupings indicated by the BSE Paradigm. The independent variables--expectancy variables, valence variables and barrier variables--will be discussed first and then results for the dependent variable--BSE practice--will be examined.

Discussion of Results for Expectancy Variables

When the frequency with which each of the BSE knowledge components was missing is examined, the systemic component is excluded by a markedly lower number of subjects than any of the three other components. It may be that a systemic approach makes good common sense and is, therefore, easily remembered, While looking closely at your breasts makes sense as well, looking for specific details like nipple discharge, puckering of the skin or changes in size or shape requires more than common sense. It requires some further knowledge about what one should look for.

Data on the source of BSE information suggest that in terms of perceived usefulness, pamphlets, doctors, magazines, nurses training and nurses seem to merit most attention. Nurses teaching other nurses were highly rated. It is assumed that in most nurses training courses nurses were the instructors. Nurses only provided information to less than half the subjects, however, even though a large percentage of subjects were nurses.

Data on BSE presentation methods suggest that an educator planning a BSE teaching session would find the following methods most likely to appeal to the greatest number of respondents: pictures or sketches, films, demonstration on the learner, guided practice with the learner examining herself and guided practice on another person. A large percentage of this sample obviously felt that pictures or sketches were of more use than written or spoken information and demonstration on themselves was found more useful by an even higher percentage. These

preferences may be true only for women with a high level of education, however, since the sample from which the data were collected was made up of university students.

In retrospect, data on BSE follow-up learning sessions provide only part of the information needed. In their descriptions of follow-up sessions most respondents failed to provide many of the details one would want. Some of the data one would like is: the number of follow-up sessions; the frequency with which follow-up sessions occur; and the time lapse since the last follow-up session. A number of respondents indicated that they had had follow-up sessions but they failed to describe them. Part of the problem seems to have been the manner in which the question was asked.

The data concerning the influencing factors on BSE commencement support the contention that physicians are an important source of BSE information. In addition, nurses training may create a teachable moment such as Cross (1980) described. Personal anxiety about breast disease following experiences with breast or related disease in oneself or one's loved ones also appears to influence behaviour to some extent. The occurrence of such experiences may also act to increase susceptibility to teaching. The lack of significant relationships between commencement data and personal knowledge and practice may suggest a failure on the part of the education process rather than a lack of relationship between the influence of these situations and end behaviour. People are influenced by them but the degree to which their behaviour changes because of

them may be related to the existence and strength of other factors. The time span between these influencing experiences and the present may also be a factor.

In general these subjects received little in the way of regular encouragement to carry out BSE from their family, friends or physicians. Families may not always be on hand to give reminders. Societal taboos on discussing such a personal topic may influence both family and friends and discourage them from giving BSE reminders. Physicians, on the other hand, have little excuse for failing to at least ask about preventive health habits such as BSE. The present data do not explain the reason for the results.

Because of its complexity and potential for emotional upheaval, it is obvious that the data on personal experiences with breast disease were far too complex for a single question. Given the shortcomings of the present data it is not surprising that no significant statistical correlations were found with this variable. This area, which may provide important clues to end behaviour, was poorly examined.

A problem with data collection may explain the lack of a relationship between HLC and the general feeling of responsibility for your own health. It may be that the general health responsibility statement was too superficial and that it is difficult to deny such responsibility at a conscious level. The HLC Scale may be taping a deeper consciousness where people deal more with control than perceived responsibility. On the surface you can agree that you should not abuse your body but on

a deeper level you may feel that you can only do so much.

Part of the socialization process occurs in the work setting. Previous and ongoing experiences with health, our own and others, help to form our attitudes toward health, our health knowledge base and our perception and interpretation of situations involving health issues. In this group of highly educated university women, health was frequently a high priority in their lives regardless of their past experiences in the health field.

Discussion of Results for Valence Variables

Values and attitudes are difficult to measure with a simple question and answer format. The statement about BSE which was used compares it to other preventive health practices and thus may be influenced by strong feelings about some other preventive health practice. In retrospect this question is only a partial examination of the value placed on BSE. A strong statement was desirable to separate the degrees of value placed on BSE. A simple statement about its benefits would most likely receive support from everyone and such data would be of no value. A format such as that used for general value of health when it is obvious that the questionnaire is dealing with BSE would also likely produce a high rating of BSE as respondents would be tempted to give the researcher what she is perceived to want. A strongly worded statement was expected to produce personal rating for BSE. This did produce a wider range of responses in the pilot study but the difficulty of measuring values in terms of BSE was certainly not entirely overcome.

The fact that more women with a health background disagreed to some extent with the statement that BSE is the most valuable preventive health practice for women may indicate that a greater knowledge of other preventive health measures influenced their responses. It does not necessarily mean that they thought BSE had no value.

Discussion of Results for Barrier Variables

Simply forgetting was the most frequently indicated barrier variable. It may be the result of several factors. It might be due to as simple a thing as conflicting responsibilities or it may be due to such complex factors as a conscious or unconscious desire not to carry out BSE. The cause for simply forgetting was not explored. It was anticipated that most respondents would not have been able to explain "why" they forgot. It is reasonable to suspect that this reason for not doing BSE regularly is an easy way of explaining one's behaviour. It is more socially acceptable to say "I forgot" than to admit to fear, discomfort, embarrassment, apathy, or other more personal factors. On the other hand, it is easy to simply forget an action which should be done only once a month and preferably after menses. It is much easier to remember things that have to be done more frequently or that have built-in reminders to jog the memory. We remember to brush our teeth every day because it is a regular daily habit and your mouth feels so much cleaner and fresher afterwards. Many of the cues mentioned by research subjects did not occur on a regular basis. Such things as magazine articles on BSE, a trip to the doctor or breast disease

in your family or friends do not occur on a monthly basis. Simply forgetting obviously is perceived to be a frequent cause of BSE rate discrepancies. The cause or causes for this are not clear nor is the remedy. Unless other motivators are strong enough to overcome it, simply forgetting may be a formidable barrier. There are no specific reminders and examining one's breasts does not make them feel better. It may even increase anxiety.

The "other" influences described by the research subjects were mentioned by too few subjects to warrant further statistical analysis. However, knowing a learner has some of these feelings might help the educator.

Another aspect of this data that should be remembered is that it was provided on a volunteer basis. Subjects provided that data which they wished to share. In addition, they could only provide information that they had. They could not provide explanations that they did not know nor insight which they did not possess. Many of the influences explored may exist to a greater or lesser degree than is indicated by the data.

Discussion of Participation in BSE

The rating of discrepancies was partly based on what respondents described as the recommended method of BSE. This information was combined with their indication that they carried it out or modified it. Data collection on BSE knowledge and BSE practice was, therefore, very closely linked in this questionnaire. As a result it is very difficult to entirely

separate the two variables. The questions were adjusted during the pilot study to make it easier for respondents to respond with the least amount of effort and subtle and perhaps important data seem to have been lost in the process.

It is obvious that several subjects knew some aspects of the recommended BSE routine even though they did not include it in their BSE description. Some subjects indicated that their menstrual period was a reminder to carry out BSE (BSE question #9). Obviously they knew that this was the recommended time for BSE yet they failed to include the timing aspect in their description of the recommended BSE procedure. When such clues to further knowledge appeared, the knowledge rating for these subjects was changed. This serves to illustrate that perhaps others knew of some aspects of BSE but failed to include them in their BSE descriptions. They may have taken them for granted, felt that they were too obvious to be detailed or they may simply have temporarily forgotten them.

Although faults in the questionnaire definitely hampered data analysis the rates of practice for these research subjects did correspond to some degree with previously reported research. Stillman (1977) reported that only 23 percent of women practice BSE monthly. This rate is very close to the 24 percent of those in this study who indicated monthly BSE. A very high percentage, 95 percent, practiced some form of BSE. It is difficult to compare this figure with previous compliance research since the definition of compliance varies greatly. Although there may be rate or completeness discrepancies, does a

similarly high percentage of the general public carry out BSE in some form? The literature uniformly reports low compliance. Perhaps the problem is not that women fail to carry out BSE but that the majority do not do it correctly. The research group was not representative of the general population in at least one aspect. Educational level was the only variable which was held constant for this project. All respondents were university students. Different educational levels may produce different results.

In this research group those who carried out BSE monthly (ie., no rate discrepancy), were generally missing fewer completeness components than those who had both rate and completeness discrepancies. The data suggest that if an individual does not carry out BSE on a monthly basis, she is more likely to have more discrepancies in her practice than someone who does. Is this related to motivation? If you are motivated enough to carry out BSE monthly are you more likely to be motivated to carry it out correctly than someone who is not motivated to do a monthly BSE? Is this related to the value attached to BSE?

In the chapter which follows an attempt is made to explain BSE using the relationships suggested by the BSE Paradigm.

CHAPTER VI

ANALYSIS OF BSE

The BSE Participation Paradigm was based on the literature review and was intended to explain the influences on participation in the preventive health behaviour of BSE. BSE was crosstabulated with all of the independent variables. Those variables which were quasi-interval were treated as interval data and a Pearson's Product Moment Correlation Coefficient was calculated. As has been mentioned, it is the statistical test of choice where possible. It is the most stable bivariate correlation technique with the smallest standard error (Borg & Gall, 1983, p. 587). For those variables which were clearly nominal, a chi-square test for independence was done.

At this time a word should be said about the effect of sample size on attempts to study relationships between variables. One assumption of the Chi-square statistic to test independence is that the sample should be large enough so that every expected frequency is at least ten when there is one degree of freedom and at least five when there is more than one degree of freedom (Kirk, 1978, p. 341). The lack of sufficient subjects in each category was a problem with every variable studied. This throws into question the reliability of the statistics computed. The small sample size makes further statistical study impossible. In an attempt to increase the frequency for each category a smaller number of categories for

each variable was frequently created.

Pearson Product Moment Correlations Coefficients are affected by many factors. The magnitude of relationships are underestimated when the relationship between variables is nonlinear, when the range of either variable is truncated or when distributions are skewed and the magnitude of relationships are overestimated when the sample contains subgroups with means that differ for both variables or the sample is comprised of extreme groups (Kirk, 1978, p. 115).

The results of the statistical analysis will be presented and then discussed.

Statistical Analysis

Nominal Data

Chi-square statistics were carried out between BSE and the the following variables (the resulting chi-square and the degrees of freedom are given in parentheses):

Expectancy Variables

health locus of control (1.38, df=3)

BSE information sources

doctor (5.64, df=6)

nurse (2.98, df=6)

pamphlet (1.35, df=6)

magazine (4.86, df=6)

television advertisement (4.34, df=6)

radio advertisement (4.38, df=6)

family member (2.28, df=6)

friend (13.24, df=6)

work associate (5.62, df=6)

total number of information sources (9.65, df=9)

BSE information presentation sources

spoken information (5.91, df=6)

written information (15.23, df=6)

pictures or sketches (2.58, df=6)

two-way discussion with the respondent (10.50, df=6)

demonstration on the respondent (7.21, df=6)

demonstration with a mechanical model (2.66, df=6)

demonstration with another person (5.62, df=6)

demonstration with the teacher as model (9.80, df=6)

guided practice with a mechanical model (3.62, df=6)

guided practice with another person (10.30, df=6)

guided practice with the respondent (15.02, df=6)

total number of sources experienced (4.49, df=8)

follow-up learning sessions (1.56, df=3)

commencement of BSE (1.04, df=3)

personal experience with breast disease (14.77, df=6)

family experience with breast disease (4.34, df=6)

close friend with experience with breast disease (4.49, df=6)

anyone known with experience with breast disease (5.96, df=6)

personal outcome of breast disease (4.65, df=9)

outcome of breast disease in others (17.39, df=18)

experience in the health care field (7.27, df=3)

Valence Variables

cues to BSE (3.30, df=3)

influences on changes of BSE habits (3.59, df=3)

current occupation (9.43, df=6)

student status in school (0.90, df=3)

age at last birthday (4.76, df=3)

When the assumptions of the chi-square statistic were applied, none of the results were statistically significant. Many of the categories formed by crosstabulation had frequencies of less than five.

Interval Data

Pearson Product Moment Correlation Coefficients were calculated between the BSE practice ratings (calculated according to the number of discrepancies in practice) and frequency of BSE practice (BSE practice rate) and the following variables (an asterisk indicates a significant Pearson's r):

Expectancy Variables

*BSE knowledge ($r=0.264$, $n=60$)

*confidence with BSE knowledge ($r=-0.236$, $n=61$)

*confidence with BSE ability ($r=-0.282$, $n=61$)

*BSE improves outcome of breast disease ($r=-0.313$, $n=61$)

*BSE reminders from your doctor ($r=-0.209$, $n=60$)

BSE reminders from your family ($r=-0.057$, $n=61$)

BSE reminders from your friends ($r=-0.164$, $n=61$)

relationship between breast lumps and cancer ($r=0.143$, $n=61$)

Valence Variables

- *value of health ($r=0.135$, $n=60$)
- *perceived susceptibility to breast disease ($r=-0.286$, $n=60$)
- *satisfaction with BSE habits ($r=-0.434$, $n=61$)
- *BSE as an uncomfortable experience ($r=0.240$, $n=61$)
- *value of BSE ($r=-0.285$, $n=61$)
- BSE effect on fear of breast disease ($r=-0.106$, $n=61$)
- personal responsibility for personal health ($r=-0.154$, $n=61$)
- BSE leads to disfiguring surgery ($r=-0.043$, $n=60$)

Barrier Variables

- *lack of BSE ability ($r=0.146$, $n=60$)
- *simply forgetting ($r=0.475$, $n=61$)
- lack of time ($r=0.008$, $n=60$)
- lack of energy ($r=0.184$, $n=59$)
- fear of what you will find ($r=0.114$, $n=61$)
- feeling personally susceptible ($r=-0.097$, $n=61$)

Table 12 provides the significant Pearson Product Moment correlations.

The following relationships are found between variables. The number of missing knowledge components, the perception that BSE increases fear of breast disease and the perception that simply forgetting influences BSE are positively related to the BSE practice rating. The perception of susceptibility to breast disease, the degree of confidence with present BSE knowledge, the degree of confidence with present BSE ability, the degree of

Table 12.
Variables with a Significant ($p \leq .05$)
Pearson Product Moment
Correlation with BSE Practice or BSE Practice Rate

Variables	BSE Practice	BSE Practice Rate
	r	r
BSE knowledge	0.264	0.231
Perceived susceptibility to breast disease	-0.286	---
Confidence with BSE knowledge	-0.236	-0.407 .000
Confidence with BSE ability	-0.282	-0.281
Satisfaction with BSE habits	-0.434	-0.500)
Value of BSE	-0.285	-0.352
BSE influence on the outcome of breast disease	-0.313	-0.460
BSE as an uncomfortable experience	0.240	0.223
Simply forgetting as an influence on BSE practice	0.475	0.543
Lack of BSE ability as an influence on BSE practice	---	0.328
BSE reminders by doctors	---	-0.274
Value of health	---	0.268

satisfaction with present BSE habits, the value given to BSE as a preventive health practice and the belief that BSE improves the outcome of breast disease were negatively related to BSE practice rating. When only the rate of BSE was used for correlation, the same relationships are apparent (rate of practice was related to the variables in the same way as the BSE

practice rating), except that perceived susceptibility to breast disease was not related to BSE rate alone. In addition, three other variables were significantly related to the rate of BSE practice but not to the overall level of discrepancies in BSE practice. The perception that lack of BSE ability influences BSE practice and the value given to health were positively related to the rate of BSE practice and the frequency of BSE reminders given by doctors was negatively related to the rate of practice.

Discussion of Results

As has been discussed, results must be viewed in light of the limitations of the data.

Chi-square statistical analysis did not produce significant results. Although this precludes the development of specific and definite conclusions, individual responses do raise questions about the relationships between variables and further investigation with a more detailed focus and a larger and more varied research group might serve to clarify the influences on BSE practice and the validity of the BSE Participation Paradigm.

The statistical analysis using Pearson Product Moment Correlation Coefficients provides some significant results. When there was a low number of missing BSE knowledge components, there was more likely to be a high BSE rating (a low number of BSE discrepancies). A high perception that BSE increases fear of breast disease was also more likely to occur when BSE

discrepancies were low. When simply forgetting was seen as an infrequent influence of BSE practice, discrepancies were also more likely to be low. When confidence with personal BSE knowledge or BSE ability was low, BSE discrepancies were likely to be high. A high number of BSE practice discrepancies were also more likely to correspond to a high perception of susceptibility to breast disease and greater disagreement that the subject was satisfied with her present BSE habits, that BSE was the most valuable preventive health practice for women or that BSE improved the outcome of breast disease. A high perception that lack of BSE ability influences BSE practice and BSE reminders given very infrequently by doctors were more likely to occur with a low rate of BSE practice.

How can these significant results be interpreted? Kirk (1978) points out that there is no single rating for the size of r which is applicable to all situations (p. 108). An appreciable proportion of variance between variables is not explained by their relationship as measured by a Pearson r until the r is over .7 (explanation of 50 percent of variance requires an r of .71).

Variables related to BSE practice with a Pearson's r equal to or greater than .30 (9 percent of variance explained by the linear relationship between the variables), include satisfaction with BSE habits, perception of the influence of BSE on the outcome of breast disease and the perception that simply forgetting influenced frequency of BSE practice. In addition, confidence with BSE knowledge, value of BSE and a perception

that lack of BSE ability influences frequency of BSE practice were related to rate of BSE practice with a Pearson's r of over .30 as well.

Confidence with BSE knowledge was related to rate of practice and although a low number of missing knowledge components was likely to be present when there were a low number of discrepancies in BSE practice, knowledge of BSE did not guarantee appropriate action. Many women did not use the knowledge that they had. In addition, some subjects may not carry out all of the components that they know about on a consistent basis. They may do some things all of the time and some only part of the time. This detail of data was not elicited by the questionnaire used. In any event, it is obvious that at least some of the people, though they know what they should do, do not follow through in their practice. The reasons for this behaviour have not been specifically investigated in this research.

Data seem to indicate that when more of the crucial aspects of knowledge are retained, more appropriate action is more likely to follow. However, there is no indication of which comes first. Does greater knowledge motivate fewer discrepancies in practice or does a desire to practice BSE correctly motivate the retention of greater knowledge? Health educators who strive only to provide knowledge in the hope that the desired level of compliance will follow will undoubtedly be disappointed.

The degree of satisfaction with BSE habits may not in fact

be a measure of felt need. It may indicate that, because of their knowledge of BSE, these women were aware of the discrepancies between what health authorities suggested that they do and what they were actually doing. A high discrepancy in BSE may then produce a low rate of satisfaction rather than the degree of dissatisfaction affecting actual BSE practice.

Cancer is still a very serious and threatening disease. Presumably expectations about BSE and its influence on the outcome of breast disease and perceptions of personal susceptibility would differ if expectations about breast disease differed. In reality many breast problems are due to fibrocystic disease, not cancer. Fear of cancer may result in reluctance to monitor breasts regularly. On the other hand, fear of cancer might act as a stimulus to be very meticulous in BSE. Although perceptions about BSE and BSE practice were related in this data, the finer points of the situation have not been clarified.

Simply forgetting as an easy explanation for behaviour has already been discussed. The relationship between perceptions of the influence of simply forgetting on the rate of practice and actual practice may be more of an indication of personal perceptions and self-rationalization rather than poor memory. However, memory helpers may help improve rate of practice and this could be examined experimentally.

Personal values are related to behaviour but they may not cause behaviour. It may be that a general value of health is too non-specific to explain a single specific health behaviour

such as BSE. Rokeach (1973) suggests that, through experience in a particular context, we integrate absolute values we have been taught into a hierarchically organized system where each value is ordered in priority or importance relative to other values. In a given situation, the behavioural outcome will be a result of the relative importance of all the competing values that have been activated (p. 6). Obviously the practice of BSE must have some value in order to encourage voluntary practice of it but even if it is valued, other forces may combine to influence the rate at which it is carried out.

Although the BSE Participation Paradigm has not been solidly supported in its entirety, some variables did produce significant results and their inclusion in the paradigm was supported. The limited sample does not, however, justify the exclusion of all the variables which produced non-significant results.

The following chapter summarizes this research project and outlines implications for further BSE research and for planning BSE teaching.

CHAPTER VII

SUMMARY AND IMPLICATIONS

Breast cancer is the most common type of cancer in women. One in fourteen women will experience it and their chances of survival have not decreased for several decades. The current ten-year survival rate is 33 percent. If the lump is less than 2 cm. and there is no nodal involvement, survival rates increase to 80 percent. Most cancerous lesions are palpable in a size range that maximizes survival. Breast self-examination has been found to be a reliable, safe and cost-effective approach which can result in reduced mortality from cancer. Many studies show that there is widespread knowledge of BSE but that many women do not practice it correctly. Although a high percentage of lumps are found by women themselves, such discoveries are usually accidental. A frequent attempted remedy for such performance discrepancies (differences between actual and desired performance) is a teaching program. Before such a remedy can be effective, however, one must understand the underlying issues. Knowledge or skill may not be the only or the major components of the problem. The purpose of this research project was to examine BSE as a preventive health activity and to determine the forces which are related to its practice.

Limitations of the Study

This project was an example of ex post facto research. This type of research is limited in that the dependent variable has already occurred and independent variables are studied in retrospect. There is no control over independent variables or the effect of time. Correlations between variables indicate the presence of a relationship but they do not explain the reason for the relationship. There are a wide range of possible causes when variables are not controlled. Subjects cannot be randomly assigned to groups but rather they assign themselves through self-report. Kerlinger (1967) points out that this self-selection may be done on the basis of characteristics other than those in which the investigator may be interested (p. 362). As a result extraneous variables which may be related to the variables of the research problem but which are not taken into account by the investigator may influence research findings.

The small sample size did not provide a very large spread in responses and analysis of specific aspects of the data was limited. Data were grouped in an attempt to increase the frequency for each category and improve reliability of the chi-square test. Unfortunately, grouping data has its own disadvantages. Data are invariably lost. In addition, non-unique frequency distributions are formed and the grouping scheme which is chosen affects the values of the descriptive statistics (Kirk, 1978, p. 27).

Data collection relied on subject self-report. Selltitz, Wrightsman and Cook (1980) point out several limitations to

self-report. Only that material that the subject is willing and able to report can be collected. Subjects may be unaware of unconscious drives and self-diagnosis is limited by individual ability and self-awareness. Confidence in verbal reports decreases when subject matter might be embarrassing, when the truth might be unfavourable or when subjects might attempt to amuse, astonish or create a certain social effect (p. 147). These limitations of self-report may have had a serious effect on data collected for this project. Health issues can produce very strong reactions. The idea of taking responsibility for maintaining one's own health has gained increasing support in Canadian culture and actions and beliefs contrary to this idea might be admitted only reluctantly. Issues involving women's breasts might produce embarrassment and other strong emotional responses. Cancer is still a very frightening disease and is capable of arousing strong emotions. Research subjects were no doubt affected to some extent by some or all of these issues and the data that they provided would, therefore, also be affected in various, unpredictable ways.

Subjects were not obligated to provide data. Their participation was voluntary. Samples which rely on volunteer co-operation may no longer be representative of the research group. Research on the subject of volunteers versus non-volunteers has shown that they do differ (Borg & Gall, 1979). Generalizability of research results is limited since data are not available on those who did not participate. Comparing research subjects with those who did not volunteer helps to

determine differences which might affect results. The only data available for the entire research group is that all subjects were at the university level of education. Other sample population characteristics are unavailable for comparison.

Since educational level was the variable used to create the research group, the effect of education on the dependent variable cannot be determined. Further research using samples of varying educational levels are needed to assess the effect of this variable.

Research subjects were all currently attending university. At the time of the data collection, the university year was coming to a close and there were many end of term demands on students. Some potential participants admitted that they would not be participating because of the time pressures that they were under. Rate of response was undoubtedly affected. Those who responded would be under similar pressures and their responses may have been affected by those other demands on their time and energy.

Most of the statistical results of this research were nonsignificant. This does not necessarily mean that all variables tested were not related to BSE practice. Negative findings in research can result from any of a number of research faults. Kerlinger (1967) suggests that negative or inconclusive results may be due to incorrect theory and hypotheses, inappropriate or incorrect methodology, faulty analysis or poor measurement (p. 620).

Collecting valid and reliable data using a questionnaire

requires the development of a well constructed data collection tool. Using a questionnaire as the data collection tool has both advantages and disadvantages. A questionnaire provides anonymity and an opportunity to answer questions freely without being confronted. Sensitive or embarrassing questions might receive more spontaneous and accurate answers when only an anonymous written response is requested. A large number of respondents can be canvassed in a relatively short time period and with a minimum of research personnel. However, the questionnaire format, with its aim for simplicity and reasonable length, makes it difficult to account for every possible answer. In addition, there are times when the researcher wants to force the respondent to make a choice and an opportunity for an open-ended response in every question is not always desirable. The wording of each question is of utmost importance and though pilot testing can assist in improving question clarity, errors and omissions are difficult to eliminate entirely. Topics cannot be explored on an individual basis when more data are needed for clarification. Although the anonymity of a questionnaire may encourage some respondents to provide more information on topics which are particularly embarrassing or emotional, the questionnaire format is seriously lacking when collecting data on many of the more complex issues of BSE. On a number of occasions the data provided were insufficient to rate subjects and data were lost. Although considerable effort was made in the development of the questionnaire, this was the first time it was used and validity and reliability is questionable.

Selltiz, Wrightsman and Cook (1980) suggest that internal and external validity of research is more readily assessed when there is a larger research program rather than the results of only a single instance of survey research (p. 81).

Research Findings

Given its limitations, the research findings neither confirm nor negate the initial theoretical framework for the study. Some of the findings may be of use in planning future research or organizing BSE teaching sessions.

Findings on BSE practices were consistent with previous research which indicated a high percentage of BSE practice discrepancies. For this sample, when BSE was carried out monthly there were likely to be fewer completeness discrepancies. This may mean that the greater the motivation to carry out BSE the greater the likelihood of a more complete breast examination. This tends to support the theoretical framework which suggests a variety of factors combine and interact to influence end behaviour. Specific sources or combinations of sources that influence participation in BSE have not been established with this research.

While all of the research subjects knew of BSE and 24 percent indicated a complete knowledge, only 3 individuals practiced BSE correctly. This is in keeping with much of the compliance research which indicates that knowledge does not necessarily result in appropriate action. The various components of BSE were remembered in varying degrees. The

systematic component was remembered most frequently. The axilla component was least frequently remembered. The visual inspection and the correct time were forgotten almost as frequently as palpation of the axilla. The latter three components require some understanding of breast disease while the systematic component is easy to guess using only common sense. A simplified reminder which helps women to remember all four components might improve knowledge levels. Although complete knowledge does not ensure correct end behaviour, knowledge is a prerequisite for correct and complete practice.

While knowledge and BSE practice were statistically related, the flaws of data collection makes the meaning of this relationship questionable. Data were not collected independently for each of these variables. A closer look at the complex relationship between them might provide a better understanding of their interaction.

The pamphlet was reported most frequently as a source and most frequently chosen as "most useful." It seems to be an important and useful tool. Nurses, once they contacted the learner, were perceived to be effective teachers. This is especially true when they are teaching other nurses.

The methods of BSE information presentation which were most frequently perceived as "most useful" were pictures and sketches, demonstration on the respondent, and guided practice with you examining yourself. When they had been experienced, films and guided practice on another person were also frequently chosen as "most useful." Guided practice on yourself was the

most strongly endorsed of all the presentation methods when it had been experienced. BSE practice seemed related to films and guided practice on yourself but the small numbers in the sample make this relationship tenuous.

When follow-up learning sessions went beyond just a question about habits and included return demonstration on a regular basis, a higher degree of compliance was shown. Since this only applied to two individuals, however, this relationship requires further investigation. The greater majority of the sample did not receive any regular reminders to carry out BSE from their family, their friends or their doctor.

Experiences with breast disease can be very complex and were poorly investigated in this project. Because of its complexity, it seems likely that this possible influence on BSE would be better studied in a research project concerned solely with this variable.

Having experience in the health care field does not result in greater compliance with BSE. Women with a health background will quite likely have BSE discrepancies even if they have a high level of BSE knowledge. One cannot assume knowledge or compliance when a health background is present.

Although the BSE value concept was poorly measured, data suggest that there may be a relationship between the value placed on BSE and BSE practice.

BSE practice and the degree of personal satisfaction with current BSE habits were related in this sample. It appeared that the greater the amount of BSE discrepancy the greater the

dissatisfaction with BSE habits. These women seemed to be aware of the status of their BSE practice but dissatisfaction did not produce behaviour change. Levels of dissatisfaction were not measured but in most cases it did not appear to be strong enough to affect behaviour.

None of the current life influences measured--age, current occupation, current student status--were related to BSE practice for this sample. The influence of perceived susceptibility to breast disease was unclear. There may be a point beyond which perceived susceptibility begins to act as a negative influence. A certain amount of anxiety about personal susceptibility may act as a barrier to BSE.

Although there was some misunderstanding about what was meant by cues to BSE, a variety of influences were mentioned. A high percentage of those with one or less discrepancy in their BSE practice did mention the influence of cues. The most frequently mentioned sources of cues are the menstrual cycle, media coverage and hearing about breast disease in others. While the presence of cues was not statistically related to practice, the methodology of data collection was faulty and more precise data might provide different results. In addition, many of the cues mentioned were not regular monthly cues and the use of a regular cue to action might prove beneficial.

There did seem to be particular experiences which stimulated the practice of BSE. The forces most frequently mentioned as having instigated change were doctors' advice, nurses training, magazine articles and family or personal breast

disease. Doctors have the potential to be powerful forces for change and, although many do not regularly involve themselves with their patients' BSE habits, there are indications that such involvement could produce a significant change in BSE practice. Particular experiences do seem to create a "teachable moment."

Attitudes toward BSE and anxiety surrounding BSE were poorly measured. The wording and format of the questions appeared to measure only superficial responses. Many women are anxious about cancer and, in particular, breast cancer. The way such anxiety affects behaviour is not clear. There is some indication that low levels of anxiety in the presence of other motivating factors may stimulate BSE. High levels of anxiety, on the other hand, can act as a barrier to BSE practice. Some women with a high susceptibility and tragic personal or family experiences are adamant about not practicing BSE. The level of anxiety may be a key to explaining end behaviour. What degree of anxiety acts as a positive force and when does it begin to act as a barrier? Could the development of strongly positive motivators overcome high anxiety? Could high-risk women with a high anxiety level benefit from more intense personal teaching programs which aim to decrease anxiety and increase motivation through the development of more positive attitudes and expectations?

Examination of the barriers to BSE as perceived by the respondents was limited by the insight of the individuals and by their willingness to share negative aspects of themselves. The only suggested barrier which did solicit significant response

was "simply forgetting." This excuse for explaining a lack of compliance is an easy one. It is, in general, a socially acceptable excuse. It is a superficial answer and one which does not reflect particularly poorly on self-image. Only a few respondents provided more personal reasons for either doing or not doing BSE. Several of them indicated a personal denial of the incidence of breast disease by saying it was not going to happen to them. Such powerful emotional reactions are not easily dealt with. Simple presentation of BSE information and incidence of breast cancer will not overcome such strongly held beliefs. Even when many positive motivators exist something often interferes with appropriate action.

Implications for Research

Many of the non-significant results may have been due to a flawed research design or data collection instrument. Some of the results suggest that further research is needed to clarify relationships between variables.

The sample size was small and the research group was homogeneous on many factors. A larger research group with different levels of education and a variety of occupational backgrounds might provide more discriminating data and allow for a more specific analysis of a greater variety of data categories.

A study designed specifically to collect interval data might provide stronger support for the relationships suggested in this data.

The use of interviews where more probing questions can be asked as necessary or where subjects can demonstrate their personal habits might increase accuracy and depth of data collection. Questions could be explained and more data requested as necessary.

It may be beneficial to make a definite separation between collecting data on knowledge as opposed to practice. Would it produce more independent data if subjects are asked to describe what they do when they carry out BSE and then later in the questionnaire asked about BSE knowledge? The first question could be open-ended with respondents describing their behaviour in their own words. The second could be a list of behaviours from which subjects chose those things which "should" be part of BSE. Another format would be to provide descriptions of several individuals carrying out BSE and then have respondents pick out the one which is most correct.

Nurses in this study did not have any greater knowledge or compliance than those with a non-health background. It would be interesting to know if this trend was true for other health professionals especially female doctors and those who currently teach BSE. The same question applies to the attitudes of male physicians. Since doctors can be a positive influence on BSE habits, their personal attitudes and practices would affect their interactions with others on this topic. Is there uniform support for BSE in the medical profession? Since health professionals are to a great extent the major source of BSE information and encouragement, further research in the area of

health professionals and their attitudes toward BSE might reveal a major flaw in the BSE teaching hierarchy.

Experimental research which examined the effect of frequent use of cues to actions might clarify the potential for stimulating regular BSE using cues. The effect of a variety of memory helpers should be studied in an effort to decrease the influence of "simply forgetting."

Personal experiences with breast disease cover a wide range of possibilities. More comprehensive data might result from interviews. Separation of the topic into malignant and benign disease might clarify results when the questionnaire format is used. Separate research which focusses on this subject may be needed.

The effect of locus of control may require the development of a specific BSE scale. The relationship between locus of control and BSE practices might also be clarified if subjects with different education levels and BSE knowledge levels were compared.

In addition, more specific and precise collection of data on the following topics is needed before their influence on BSE can be understood: follow-up teaching sessions; the time span between perceived influencing factors on BSE practice and present BSE habits; strongly emotional responses to breast cancer; level of anxiety surrounding breast cancer and BSE; the degree of perceived susceptibility to breast cancer; and attitudes and values surrounding BSE.

Implications for Teaching BSE

Breast self-examination is a potentially emotional activity. The complex interaction of influences on participation in BSE remains poorly understood. It is clear, however, that a simple presentation of the facts along with a demonstration of what should be done is not enough to produce appropriate action. Many women know about BSE and even carry it out to some extent. The goal, however, is correct and regular BSE. Although the reason for noncompliance is not clear, some specific teaching approaches may improve the situation. Although this research project does not provide answers, one can project beyond the confines and limitations of the data to suggest teaching approaches which could then be evaluated to determine if they have merit. The following suggestions are such projections and require verification in practice.

Since many women already know about BSE but fail to carry it out correctly, teaching programs should not focus solely on providing initial information. An attempt should be made to reach those women who already know about BSE.

Teaching programs, while providing information and practical skills, must address attitudes, expectations, fears and other barriers related to breast disease and breast self-examination. Providing motivation for carrying out BSE should be as important a part of the teaching program as is providing information. Assumptions should not be made about the motivational power of fear or knowledge. Women with a high risk of breast cancer and those who have strong emotional reactions

to BSE and breast cancer may benefit from more individual attention.

Particular experiences may increase interest and motivation to learn about and practice BSE. Educators should be aware of and make special efforts to reach these women. Women involved in nurses training may be particularly open to improving their own health habits. Since this would not only benefit them but has the potential for creating future change agents in the health care system, it seems worthwhile to make a concentrated effort during nurses training to stimulate belief in and active participation in BSE practice. Another group of women who appear to be open to learning and practicing BSE are those who have recently developed breast disease or who have had family or friends with breast disease. This could be a special target group for BSE teaching programs. Using the media, especially magazines, could be an effective way to inform those who are unaware of BSE and to stimulate BSE in those who are informed. Having such a stimulus on a regular basis may act as a cue to practice BSE regularly. More research is needed to verify this desired effect.

Specific approaches which have been given support by past learners should be kept in mind when selecting teaching methods and tools. Demonstrations on the learner and guided practice with the learner examining herself have received particularly positive responses. The provision of privacy for these activities would be essential in order to allay embarrassment. Pamphlets could be used as a method of reaching a wide range of

learners, as a way of reinforcing past learning and as a take-home reminder and reference following formal teaching. Presenting BSE in simple, easy to learn steps could improve knowledge levels and decrease "forgetting" as an excuse for poor practice. Using a reminder crutch such as the LAST system which will be described, might help individuals remember the four components of BSE.

Howe (1981) believed that a simplified approach to teaching BSE is beneficial. She developed a four step plan for BSE. Perhaps a similar approach would be beneficial to aiding women to remember the components of BSE. Many people use catchy verses or words to help remember things (ie., 30 days has September, April, June and November etc.). A catch phrase for BSE might be LAST. The teacher would set the stage by reminding the learner that their body must LAST a lifetime and that they can help by paying attention to the signals that their body gives them. One way to help make your body LAST is regular BSE. The LAST approach to BSE would be as follows:

L- stands for looking, a visual inspection

A- stands for axilla or armpit, remember to examine under your arms

S- stands for systematic, not just a random but a systematic examination which will not miss any part of the breast or lymph system

T- stands for timing, a regular examination on a monthly basis with a recommendation that the breasts are easiest to examine just after menses when any engorgement is decreased

This is just an example of a memory helper which might assist learners to remember all of the components of BSE. One must keep in mind, of course, that complete knowledge does not necessarily translate into completely correct practice. However, one does have to have the knowledge before one can carry out all the steps of the procedure.

Simply forgetting is seen as a barrier for many women. Educators should encourage the use of cues to act as reminders. Use of the menstrual cycle as a regular cue for BSE and marks on the calendar are personal cues that can be used. Friends, families and physicians have not been widely used as sources for encouragement or reminders. Educators should not assume physicians are actively involved. Special efforts to increase involvement of this potentially powerful source of BSE information and encouragement seems in order. Family members should be included in teaching efforts and encouraged to get involved and provide support. Holding classes for groups of friends or in work settings where associates could attend together would make BSE a topic for discussion and women could be encouraged to remind and support one another.

Awareness of the status of personal BSE habits may be a good starting place for the educator wishing to improve those habits. An exploration of personal attitudes and values might heighten awareness of the factors behind personal habits. Increased personal awareness might lead to a more honest appraisal of the issues surrounding BSE and both teacher and student could then confront those factors which seemed to

prevent appropriate BSE practice. Such personal discussions would, of course, require the development of trust between teacher and learner and such an approach would require one-to-one or small group interaction. This would be inappropriate for general BSE teaching but it might be useful for high risk women who have BSE practice discrepancies.

Nurse educators, if they wish to play an important role in teaching BSE, must contact a greater population. They can take heart in the fact that when they have been a source of information they have been rated highly.

Educators should examine their own attitudes and behaviour in terms of BSE. It is difficult to cover-up personal biases. In order to help others to examine themselves and make changes in their behaviour, the teacher must first go through the process of self-examination. Egan (1975) suggests that a skilled helper must model the behaviour that he hopes to help others achieve and that he must first explore and understand his own behaviour before he can assist others in their self-examination (pp. 22-24).

Our understanding of BSE and the factors which influence participation in this preventive health measure is poorly understood. Educators should be actively involved in increasing our knowledge. They should not only be educators but active researchers. The outcome of their teaching efforts should be monitored and experimental approaches to teaching BSE closely controlled and recorded. The effective teacher must also be a scientific observer and respond to the results of each teaching

effort.

BSE can be an effective tool in combating breast cancer. There is some evidence that a greater number of women are beginning to appreciate this fact. Mahoney (1983) reports that between 1981 and 1982 there was a significant increase in the number of women reporting to his clinic who were performing satisfactory breast examinations. Between 1978 and 1982 there was also a significant increase in the proportion of breast cancers detected as a result of BSE and a decrease in those found accidentally or through a routine physician's examination. While this is encouraging, many women are still not carrying out this simple but effective procedure. Efforts must be made to understand the influences on BSE behaviour and to use this knowledge to help women improve their chances of combating one of the major causes of mortality for women--breast cancer.

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Appendix A:
Letter of Initial Contact

THE UNIVERSITY OF BRITISH COLUMBIA
ADULT EDUCATION DIVISION
DEPARTMENT OF ADMINISTRATIVE, ADULT AND HIGHER EDUCATION
5769 TORONTO ROAD

Dear

You are a female student in an Adult Education class. This makes you of vital interest to a study I am currently carrying out as part of my Masters Thesis under the supervision of Dr. Kjell Rubenson and Dr. Thomas Sork. Your cooperation in joining the project will provide useful information to help me in my study of breast self-examination practices. This is a topic of interest to me not only in terms of completing a degree requirement but also in terms of improving my effectiveness as a nurse-educator teaching about preventive health measures. My aim is to use individual opinions and experiences to help improve program planning. Your personal experiences and attitudes would be invaluable in such a search. Don't feel that you have to be an expert on the topic of the study, breast self-examination, to participate. The concern of the study is personal experiences, attitudes and values and you are the expert on these issues as they concern you.

You can expect to see me speaking about my project after one of your regular Adult Education classes sometime in the near future. I will be handing out my data collection forms at that time. I hope to use the results to suggest better ways of setting up health teaching programs concerned with breast self-examination. If you are interested in a summary of the results they will be available on request.

You are not required to join in this project and your participation will be on a strictly volunteer basis. When you fill out the data collection form, however, you will be providing valuable help in my research efforts and, in addition, you will be taking an opportunity to explore your own feelings and attitudes toward this important area of preventive health. The issue involves not only women of all ages, it involves all women. I hope that you will participate and share your unique experiences.

Sincerely yours,

Ingrid Armstrong, R.N., B.S.N.

Appendix B:
Questionnaire

PERFORMANCE DISCREPANCIES
IN BREAST SELF-EXAMINATION PRACTICES
OF FEMALE UNIVERSITY STUDENTS

FEMALE UNIVERSITY STUDENT QUESTIONNAIRE

ADULT EDUCATION MASTERS THESIS

Prepared By
INGRID ARMSTRONG

Thesis Advisors:
Dr. Kjell Rubenson
Dr. Thomas Sork

THE UNIVERSITY OF BRITISH COLUMBIA
ADULT EDUCATION DIVISION
DEPARTMENT OF ADMINISTRATIVE, ADULT AND HIGHER EDUCATION
5760 TORONTO ROAD

Hi!

This form is a data collection tool designed to explore your stance on health and, in particular, your stance on breast self-examination. The aim of this study is to suggest more effective planning strategies for breast self-examination teaching programs. Do not feel that you must be an "expert" to answer the questions. It is your unique experiences and thoughts on the subject in which we are most interested.

You will notice that your name is not requested anywhere on the form. Your answers will be anonymous and reported only as part of a sample. The numbers on each page do not identify you in any way but are only there to help keep together forms when pages become separated. Any information that you provide is strictly voluntary but an effort has been made to ask for only the information that is relevant to the topic and whose link with our concerns is supported by the literature. Details asked about your job experiences are aimed at assisting in separating people into health and non-health oriented job classifications. No separate consent form is included so that anonymity can be protected. A completed questionnaire will be assumed to indicate consent to participate in this project as a volunteer.

This form usually takes less than half an hour to complete. If you misplace it you can get another copy from the adult education secretary. When you have completed your form please return it in the envelope provided to the adult education building on Toronto Road. Please complete and return the form AS SOON AS POSSIBLE. If you want a copy of the results you may contact Ingrid Armstrong through the Adult Education Division.

Thank you for your help in this project.

VALUES

Listed below in alphabetical order are 19 values. Your task is to pick out the five (5) values which are most important to YOU as guiding principles in YOUR life. Feel free to make any marks or checks that you wish on the paper as you study the list and begin to choose only five of the items. Underline your final choices. Do not be concerned by the order in which the items which you underline appear. They are listed alphabetically and are not intended to give any greater importance to any particular value.

A COMFORTABLE LIFE (a prosperous life)	INNER HARMONY (freedom from inner conflict)
AN EXCITING LIFE (a stimulating, active life)	MATURE LOVE (sexual and spiritual intimacy)
A SENSE OF ACCOMPLISHMENT (lasting contribution)	NATIONAL SECURITY (protection from attack)
A WORLD AT PEACE (free of war and conflict)	PLEASURE (an enjoyable, leisurely life)
A WORLD OF BEAUTY (beauty of nature and the arts)	SALVATION (saved, eternal life)
EQUALITY (brotherhood, equal opportunity for all)	SELF-RESPECT (self-esteem)
FAMILY SECURITY (taking care of loved ones)	SOCIAL RECOGNITION (respect, admiration)
FREEDOM (independence, free choice)	TRUE FRIENDSHIP (close companionship)
HAPPINESS (contentedness)	WISDOM (a mature understanding of life)
HEALTH (optimal physical and mental functioning)	

WAIT! Have you underlined only five (5) items? Go over this personal list of five and put a number one (1) beside the value which is the MOST important to you. Put a number two (2) beside the value which is SECOND MOST important to you. Put a number three (3) beside the value which is THIRD MOST important to you.

HEALTH BELIEFS

The following items try to determine the way in which different people view certain important health-related issues. Each item is a belief statement with which you may agree or disagree. Below each statement is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item you are to circle the number that represents the extent to which you disagree or agree with the statement. The more strongly you agree with a statement, the higher will be the number you circle. The more strongly you disagree with a statement, the lower will be the number you circle. Please circle only one number. This is a measure of your personal beliefs; obviously there are no right or wrong answers.

Please answer these items carefully but do not spend too much time on any one item. Be sure to answer every item. Also, try to respond to each item independently when making your choice; do not be influenced by your previous choices. It is important that you respond according to your actual beliefs and not according to how you feel you should believe.

HEALTH BELIEFS QUESTIONNAIRE

Strongly Disagree
Moderately Disagree
Slightly Disagree
Slightly Agree
Moderately Agree
Strongly Agree

1 2 3 4 5 6

1. IF I TAKE CARE OF MYSELF, I CAN AVOID ILLNESS..... 1 2 3 4 5 6
2. WHENEVER I GET SICK IT IS BECAUSE OF SOMETHING I'VE DONE OR NOT DONE..... 1 2 3 4 5 6
3. GOOD HEALTH IS LARGELY A MATTER OF FORTUNE..... 1 2 3 4 5 6
4. NO MATTER WHAT I DO, IF I AM GOING TO GET SICK I WILL GET SICK..... 1 2 3 4 5 6
5. MOST PEOPLE DO NOT REALIZE THE EXTENT TO WHICH THEIR ILLNESSES ARE CONTROLLED BY ACCIDENTAL HAPPENINGS..... 1 2 3 4 5 6
6. I CAN ONLY DO WHAT MY DOCTOR TELLS ME TO DO..... 1 2 3 4 5 6
7. THERE ARE SO MANY STRANGE DISEASES AROUND THAT YOU CAN NEVER KNOW HOW OR WHEN YOU MIGHT PICK ONE UP..... 1 2 3 4 5 6
8. WHEN I FEEL ILL, I KNOW IT IS BECAUSE I HAVE NOT BEEN GETTING THE PROPER EXERCISE OR EATING RIGHT..... 1 2 3 4 5 6
9. PEOPLE WHO NEVER GET SICK ARE JUST PLAIN LUCKY..... 1 2 3 4 5 6
10. PEOPLE'S ILL HEALTH RESULTS FROM THEIR OWN CARELESSNESS..... 1 2 3 4 5 6
11. I AM DIRECTLY RESPONSIBLE FOR MY OWN HEALTH..... 1 2 3 4 5 6

PLEASE TURN OVER

BREAST SELF-EXAMINATION

Breast self-examination is an activity recommended for women by health professionals whereby they examine their own breasts to detect changes in breast tissue. The questions which follow are concerned with your personal experiences, attitudes and understanding. Please read each question carefully and choose the answer(s) which BEST APPLY TO YOU.

1. Have you ever heard of the need to regularly examine your own breasts to detect changes in breast tissue?

☐ No
☐ Yes

If you answered No, you have never heard of this preventive health measure, only three more questions on this questionnaire will apply to you. Please go on to questions #17, #18 and #19. If you have heard of this preventive health practice, please go on to question #2.

2. People often hear about breast self-examination from a variety of sources. Please check () all of the sources that have given you information about breast self-examination. Underline the one(s) that you feel were most useful.

- ☐ a doctor
☐ a nurse
☐ a pamphlet

☐ a magazine article
☐ a TV advertisement
☐ a radio advertisement

☐ a family member
☐ a friend
☐ a work associate
☐ other (please list any other information sources that you have encountered.)

WAIT! In question #2, have you underlined the sources that you feel were most useful?

3. Information can be presented in a number of ways. Which of the following have you experienced when learning about breast self-examination? Please check () all of the different approaches that you can remember experiencing. Underline the one(s) that you feel were most useful.

- ☐ spoken information
- ☐ written information
- ☐ pictures or sketches

- ☐ two-way discussion with you
- ☐ demonstration with a mechanical model
- ☐ demonstration with another person

- ☐ demonstration with the teacher using themselves as a model
- ☐ demonstration on you
- ☐ guided practice with you examining a mechanical model

- ☐ guided practice with you examining another person
- ☐ guided practice with you examining yourself
- ☐ other (Please list any other presentation methods that you have encountered)

WAIT! In question #3, have you underlined the approaches that you feel were most useful?

4. Did any of the breast self-examination information sources with which you have had contact provide a follow-up learning session (ie. was there an opportunity at a later date for discussion, questions, supervised practice, return demonstration, etc.)?

- ☐ No
- ☐ Yes

Please describe your follow-up experience or the circumstances or issues which may have interfered with your participation in such an activity.

5. The recommended method of breast self-examination includes a variety of activities. Please list all of the things a person should do to carry out a complete breast self-examination. Do not be concerned about your level of expertise in answering this question. Answer it at WHATEVER level of understanding that you have. Try to give all of the details that you can remember were recommended to you including when the examination should be done.

6. Which of the following categories most accurately describes YOUR breast self-examination habits?

- ☐ No breast self-examination
- ☐ Breast self-examination less than once a year (ie. once a year or less)
- ☐ Breast self-examination at least once a year (ie. 1 to 3 times a year)
- ☐ Breast self-examination at least once every three months (ie. 4 to 11 times per year)
- ☐ Monthly breast self-examination (ie. 12 or more times per year and at least once every month)

IF YOU DO NOT CARRY OUT BREAST SELF-EXAMINATION SKIP ITEMS #7 TO #9.

7. For a variety of reasons, women frequently do not carry out breast self-examination exactly as it has been recommended to them. When you examine your breasts do you follow the procedure exactly as you have described it in question #5?

☐ No
☐ Yes

If you modify your examination in any way please describe what you do.

8. Do you remember when and under what circumstances you first started examining your breasts?

☐ No
☐ Yes. If you answered Yes:

- a) At what age did you start examining your breasts? _____
 b) What influenced you to start examining your breasts? _____

9. Sometimes particular things help remind women to carry out their breast self-examination. Is this true for you?

☐ No
☐ Yes, I remember to examine my breasts when _____

10. Sometimes breast self-examination habits change. Have your habits ever varied or changed?

☐ No
☐ Yes

Being as specific as you can and including any influences that you feel are or were involved, explain how your habits are or were different.

11. Many factors can influence how often women examine their breasts. Circle the number which reflects the degree of influence each of these factors have on how often you examine your breasts.

	Never influences me	Hardly ever influences me	Occasionally influences me	Frequently influences me	Almost always influences me	Always influences me
	1	2	3	4	5	6
a. LACK OF TIME.....	1	2	3	4	5	6
b. LACK OF ENERGY.....	1	2	3	4	5	6
c. FEAR OF WHAT I'LL FIND.....	1	2	3	4	5	6
d. NOT KNOWING EXACTLY HOW TO EXAMINE MY BREASTS.....	1	2	3	4	5	6
e. FEELING PERSONALLY SUSCEPTIBLE TO BREAST DISEASE.....	1	2	3	4	5	6
f. SIMPLY FORGETTING.....	1	2	3	4	5	6

12. Can you think of any other factors besides the ones mentioned in question eleven (above) that influence how often you examine your breasts?

☐ No

☐ Yes, they are:

13. Have any of the following people experienced breast disease?

- ☐ you personally
☐ a member of your biological family
☐ a close friend of yours
☐ anyone you know
☐ none of the above

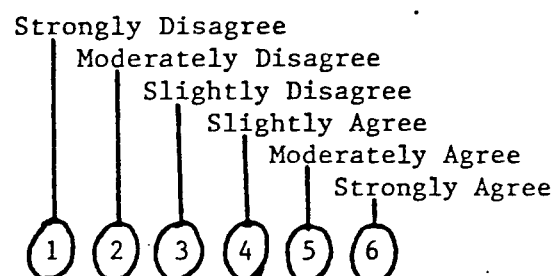
Please explain the experience(s) briefly. When did it happen? What was the outcome? If the person involved was a member of your biological family or just someone you know please include your specific relationship.

14. How would you rate your susceptibility to breast disease?

- ☐ very low
☐ low

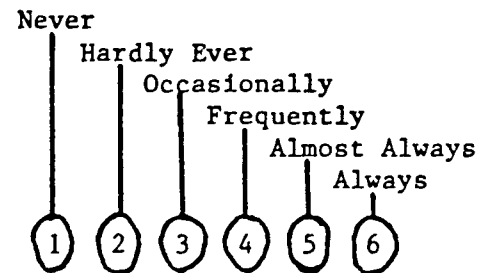
☐ average
☐ high
☐ very high

15. Beside each of the statements that follow is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item circle the number that represents the extent to which you agree or disagree with the statement. The more strongly you disagree the lower will be the number that you circle. Please circle ONLY ONE NUMBER.



- a. I FEEL CONFIDENT WITH MY PRESENT
LEVEL OF KNOWLEDGE ABOUT CARRYING
OUT BREAST SELF-EXAMINATION..... 1 2 3 4 5 6
- b. I FEEL CONFIDENT THAT I COULD DETECT
CHANGES IN MY BREAST TISSUE..... 1 2 3 4 5 6
- c. I FEEL SATISFIED WITH MY PRESENT
BREAST SELF-EXAMINATION HABITS..... 1 2 3 4 5 6
- d. I FIND BREAST SELF-EXAMINATION TO
BE AN UNCOMFORTABLE EXPERIENCE..... 1 2 3 4 5 6
- e. THE MOST VALUABLE PREVENTIVE HEALTH
PRACTICE FOR WOMEN IS BREAST
SELF-EXAMINATION..... 1 2 3 4 5 6
- f. I AM PERSONALLY RESPONSIBLE FOR
MAINTAINING MY OWN HEALTH..... 1 2 3 4 5 6

16. Beside each of the following statements is a scale which ranges from never (1) to always (6). For each item circle the number which reflects how often you feel the situation described in the statement occurs.



- a. MY FAMILY REMINDS ME TO CARRY OUT
BREAST SELF-EXAMINATION..... 1 2 3 4 5 6
- b. MY DOCTOR REMINDS ME TO CARRY OUT
BREAST SELF-EXAMINATION..... 1 2 3 4 5 6
- c. MY FRIENDS REMIND ME TO CARRY OUT
BREAST SELF-EXAMINATION..... 1 2 3 4 5 6
- d. I USE THE PADS OF MY FINGERS WHEN
EXAMINING MY BREASTS..... 1 2 3 4 5 6
- e. BREAST CHANGES FOUND DURING BREAST
SELF-EXAMINATION LEAD TO DISFIGURING
SURGURY..... 1 2 3 4 5 6
- f. BREAST SELF-EXAMINATION INCREASES MY
FEAR OF BREAST DISEASE..... 1 2 3 4 5 6
- g. BECAUSE IT RESULTS IN EARLIER DETECTION
OF BREAST CHANGES, REGULAR BREAST SELF-
EXAMINATION GREATLY IMPROVES THE OUTCOME
OF BREAST DISEASE..... 1 2 3 4 5 6
- h. BREAST LUMPS ARE CAUSED BY CANCER..... 1 2 3 4 5 6

Now that the topic of breast self-examination has been explored could you provide some personal data to help in the statistical analysis of this study.

17. What is (are) your current occupation(s)? eg. teacher, nurse, homemaker, full or part time student.

18. Do you now or have you ever worked in the health care field?

☐ No

☐ Yes. What is (was) the name of your job? eg. nurse, physio-therapist, etc.

19. How old were you at your last birthday?

☐ 19 or younger

☐ 20-29

☐ 30-39

☐ 40-49

☐ 50-59

☐ 60 or older

THANK YOU! Your help in filling out this form is invaluable.

Please return your completed form c/o Ingrid Armstrong to the Adult Education building at 5760 Toronto Road in the envelope provided AS SOON AS POSSIBLE. All forms should be returned by MARCH 18, 1983.