The use of generic teaching materials versus brand specific teaching materials with home economics food and nutrition students

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THE USE OF GENERIC TEACHING MATERIALS VERSUS BRAND SPECIFIC TEACHING MATERIALS WITH HOME ECONOMICS FOOD AND NUTRITION STUDENTS

BY

Lyn Blackwell B.A. (Ed)

A Thesis Submitted in Partial Fulfilment of the Requirements for the Award of Bachelor of Education with Honours at the Faculty of Education, Edith Cowan University

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USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.
ABSTRACT

Studies have found that between 80 and 90 percent of home economics teachers use commercially sponsored teaching materials in their classrooms. The literature suggests that in some cases teachers do not have the skills for evaluating these materials and may be unsuspectingly endorsing the products used in their classrooms.

The purpose of this study was to investigate whether or not the use of brand specific teaching materials had the potential to influence the development of brand awareness in Year 8 Food for Fitness students exposed to these materials. Test instruments which reflect Fishbein's theory of reasoned action were developed to measure any changes in student responses. Four types of items were used in the questionnaire; Sentence Completion, True/False, Word Association and Ranking Items.

Two classes of students (N=39) at a large metropolitan Senior High School in Western Australia were pretested on the instrument and both were posttested after a teaching topic involving dairy foods. During the teaching programme one class was exposed to commercially identifiable teaching materials and products while the other class used only generic materials and products without any brand identifying labels.

The results of this study showed that students who were exposed to brand identifiable products and teaching materials were influenced to respond favourably towards the brands that had been used in class and that this influence was maintained, at least over a short period of time.
DECLARATION

I certify that this thesis does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any institution of higher education and that, to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where due reference is made in the text.
ACKNOWLEDGEMENTS

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CHAPTER 1

Introduction

Home economics teachers traditionally have used a wide variety of business sponsored materials in their classrooms. Posters adorn the walls, videos assist with instruction and brand specific recipe books, worksheets, pamphlets and information packages are used by students for projects. Some of these materials are produced by industry specifically for use in schools whilst others are intended for use by commercial outlets. Some are distributed directly to schools while others are acquired serendipitously from a variety of sources. Whatever their origin, these colourful, low cost or free materials are welcomed by many overworked and under-resourced teachers as valued teaching aids.

Background to the Problem

The present trend towards increased devolution of financial responsibility to schools, has prompted some schools to accept or even seek sponsorship. Some in the corporate sector already have responded to this shift towards school based decision making. The 'Apples for Students' promotion by a national supermarket chain is an example of one role adopted by business in education. This promotion provides 'free' computers to schools in exchange for sales dockets and the public recognition associated with having their name linked favourably to education. The Western Australian government seems to be encouraging this type of corporate sponsorship in education and recognizes it as an opportunity to boost "a financially strapped education budget." (Blanksby, 1993).
The Australian Education Council (AEC) has acknowledged this apparent increased trend by schools for obtaining additional resources and has formulated *A National Code of Practice for Sponsorship and Promotion in School Education* (AEC, 1993). This document, which was released in March 1993 and will be reviewed after an eighteen month trial period, relates to but contains no guidelines for the classroom use of commercially developed teaching materials.

Such an omission from the guidelines has important ramifications for teachers in the light of American and Scandinavian studies, which found that between 80 and 90 percent of home economics teachers use commercially sponsored teaching materials in their classrooms (Adams, 1990). This is somewhat disconcerting given the results of a study by Rudd and Buttolph (1987) which found that business sponsored materials contain substantial amounts of commercial content and advertising.

The literature suggests that by using promotional materials in the classroom, teachers may be "unsuspectingly" endorsing the product (Manassen, 1989, p.4). If this is so, teachers need to be aware of this aspect of the hidden curriculum and attempt to address the issue by selecting material on criteria other than simple availability.
**Purpose of the Study.**

This study was a pilot project designed to investigate whether or not the use of brand specific teaching materials and consumable products in the home economics classroom, had the potential to influence the development of purchasing habits and brand awareness in students, given the teachers' apparent endorsement of the product.

**The Research Questions**

More specifically the research questions are:

1. Is there any significant change in the extent to which students indicate a preference towards the brand specific names of dairy products after exposure to those products and associated commercially sponsored teaching materials in the context of learning a unit of work?

2. Is there any significant difference between those students who have used brand identifiable products and teaching materials in class and those who have used generic products and materials, as measured by the frequency with which the brand specific names are used?

3. Do students who are exposed to brand specific teaching materials and consumable products attribute positive characteristics to those products more often than those students who have been exposed only to generic products and materials?
Definition of Terms

In this study commercially sponsored teaching materials are defined as teaching aids used by the teacher, such as posters, videos, information sheets and recipes, which bear a company name and/or logo. This definition does not include those materials which refer to the industry as a whole, such as those produced by The Dairy Corporation, but refer to no specific brand and/or manufacturer. The terms commercially sponsored, industry sponsored, business sponsored and corporate sponsored are used interchangeably.

Products are defined as consumable items, such as cheese and milk, that were used by the student in the completion of their practical work in a secondary school food and nutrition class.

The decision to use dairy products in the research project was made after an examination of the Food for Fitness syllabus. One section of the unit focused on the function of food in the body and involved the use of dairy products in both the theoretical and practical components of the topic.
CHAPTER 2

Literature Review

The use of commercially sponsored teaching materials in schools is a well established practice in many parts of the world. Studies over the past half century have estimated that in some American schools, up to 97% of all teachers used free industry sponsored materials (Harty 1979, p. 102). An inquiry conducted by the Scandanavian government in 1979 to investigate this issue found that 80 to 90 percent of home economics teachers used commercial materials in their classrooms. The promotional materials used encompassed a wide range of topics although they predominantly related to food and nutrition, energy and the environment and consumer issues (Hellman-Tuiter, cited by Adams, 1990). The absence of any surveys documenting the volume and type of business sponsored curriculum material being used in Australian schools makes it difficult to assess the situation in this country however, anecdotal evidence gathered by one writer would seem to suggest that the practice is fairly widespread (Isles, 1989).

Corporate Sponsored Materials in the Classroom

Some large corporations produce educational materials specifically for schools. A quantitative analysis of consumer curriculum materials by the American researchers Rudd and Buttolph (1987,) concluded that "business sponsored materials . . . contain 50% more illustrations and nearly twice as many advertising statements as non-business materials [and that] the large number of advertising statements is indicative of the extent to which these materials are commercial in nature." (p.117). In the Netherlands a similar
survey supported the American findings and suggested that "at least 40% of the advertising material used in schools [was] intended primarily to emphatically call the pupils' attention to the name of a particular company or product." (Manassen, 1989, p. 4).

The literature suggests that industry sponsored educational material used in schools is often biased and contains advertising messages. Bowers' (1986) claim "that the use of business supplied materials can distort emphasis" is particularly disturbing for teachers (p. 80). Close examination of corporate sponsored materials often reveals "sins of omission rather than commission" as companies seek to display their product or service in a positive light. Hinton (1984) illustrates this argument with the example of an educational presentation by a potato crisp company which extols the virtues of "the humble potato" while failing to mention the high fat and salt content of their product (p. 9).

Responsible members of the corporate sector have responded to the concerns of consumer organisations. Under the auspices of the United States based professional organisation, Society of Consumer Affairs Professionals in Business (SOCAP), a series of guidelines have been developed for the preparation of education materials. These are voluntary guidelines specifying that sponsors' brand names and corporate identification should not appear in the text of the material. Additionally, the guidelines identify minimum standards with regard to accuracy, objectivity and completeness of information (SOCAP, n.d.). While SOCAP has developed these guidelines in an attempt to ensure that materials provided to schools is unbiased and not promotional, the code is voluntary and companies can choose to partly or totally ignore it.
Many teachers do not restrict their source of teaching aids to those produced specifically for schools. Enterprising teachers seek to brighten their classrooms and add variety to their teaching with promotional posters and materials. Such a practice can lead to the use of materials which fall outside the scope of the voluntary code. This is of even greater concern given that adherence to guidelines for teaching materials by responsible members of the corporate sector will not apply to these other promotional materials.

Teachers of food and nutrition subjects tend to use resource materials of all types. In the foods area there is a wide range of glossy point-of-sale posters and recipes produced by companies for use in retail outlets. These materials have been designed to market the products to a broader community but are picked up and used in an educational context. To appreciate the impact that these materials may have in the classroom, it is useful to examine the intent of marketing.

**The Role of Marketing**

According to Drucker, (1973, p. 64-65) "the main aim of marketing is to make selling superfluous. The aim is to know and understand the customer so well that the product or service fits him or her and sells itself.” To do this companies appeal to the consumers’ needs and/or wants in such a way as to build a desire for their products in preference to those of a competitor. This can be done in many ways as evidenced by the variety of advertisements with which each person is bombarded every day (Kotler, Chandler, Gibbs & McColl, 1989, p. 4-5).
In recent times companies have had to examine their marketing strategies in order to receive the best return for their limited advertising dollar. McNeal (1992) proposes that "the marketer's basic rule is simple: Sell to the decision maker." (p. 85). This necessitates the identification and targeting of the decision maker which has led to a strategy known as market segmentation. Market segmentation is defined by Schiffman and Kanuk (1991, p. 24) as, "the process of dividing a potential market into distinct subsets of consumers with common needs or characteristics and selecting one or more segments to target with a distinct marketing mix." By using this strategy, marketers are able to direct their promotional activities to that group of people most likely to purchase, or influence the purchase of, their product. Due to demographic and societal changes in the post war period, this increasingly means marketing to children.

**Marketing to Children**

Since the 1960s, marketers have begun to acknowledge children not just as a single market segment but as three markets in one - primary, influence and future markets. McNeal estimates that as a primary market, American children aged 4-12 years, "have around $9 billion in income to spend as they wish" while as a market of influencers they "give direction to at least $130 billion of parental purchases." As a future market it is recognised that one day "they will eventually buy all the food for their own families ... as well as everything else." (p. ix-x) This suggests that marketing to children has both immediate and long term implications for corporations. It may also help to explain their willingness to invest time and money for the provision of resources suitable for use in schools.
Schiffman and Kanuk (1991) estimate American teenagers' discretionary income at over "$30 billion, as well as having responsibility for spending $40 billion of family funds on family food and related items." They contend that about "twenty-five percent of parents with children under eighteen years of age report that their teenagers help with at least some of the family shopping [and that] their children have considerable discretion in selecting brands." (p.346). Thus children are not only important when marketing products which are for children, they also help determine the brands of everyday household products used by the family. In many instances, these are the same type of products that are used in home economics classes.

To ensure selection of their particular brand of product it is in the marketers best interest to target children and develop in them brand loyalty. Brand loyalty is defined as "the consistent preference and/or purchase of one brand in a specific product or service category." (Schiffman & Kanuk, 1991, p. 656). Research evidence suggests that a great deal of brand loyalty develops quite early in life and is lasting. A 1989 study to determine what shopping means to children, aged 4 to 12 years, found that children were very conscious of brands and that they value certain brand names. When asked to draw a picture of "going shopping", 38% of children in the study depicted products labelled with brands even though they had not been cued or requested to do so (McNeal, 1992, p.47-55).

Understanding this information about brand loyalty is of particular interest to marketers given that it has been estimated that "it costs five times as much to gain a new customer as it does to maintain a loyal consumer." (de Charnatony, 1992, p.3). Although with some products this means a long
nurturing period before the child reaches 'market age' the ultimate result of a "theoretically faithful consumer" is considered a sound investment (McNeal, 1992, p.91).

The corporate sector has developed various approaches to tap into the growing children's market. The most successful strategies focus upon heightening children's awareness of a specific product. In an American report prepared by the American Consumers Union, a spokesperson for a market research company is reported as having said, "Kids don't so much want what they prefer as they want what they notice . The purpose of advertising . . . is to get children to focus, to attend to a product and its symbols." Another advertising executive added, "You've got to reach kids throughout their day - in school, as they're shopping . . . You've got to become part of the fabric of their lives." (Selling America's Kids, 1990, p. 6).

With this in mind it is pertinent to examine the literature with respect to marketing and schools.

**Marketing to children through schools.**

In her 1979 study of what she called "propaganda" in United States schools, Harty (1979, p. 106) stated, "Advertising directed at school children is of particular concern because it takes advantage of the school with its implicit sanction of authority." A decade later, Manassen (1989) voiced similar concerns and proposed that perhaps "many teachers use advertising educational materials unsuspectingly." [italics added] (p. 4). This assertion is supported by Bowers (1986) who alleged that "in some cases teachers do not have the skills for evaluating these materials" (p. 80). An American study by
Dlabay (1986), which investigated the value of business sponsored instructional materials in consumer education classes, disagreed with these assumptions. She concluded, "Most teachers appear to be aware of potential bias in business sponsored consumer materials [and] believe students are sophisticated enough to realize the promotional intent of many materials from business organisations." (Dlabay, 1986, p. 67). However, the teachers used in the research were all actively involved in consumer education beyond the classroom. As this could be considered to be a biased sample, caution should be exercised before accepting a generalization of her results.

A review of the literature has found little independent research related to the extent of the effect of the use of corporate sponsored materials on the formation of students' attitudes. Nonetheless many companies continue to promote their products in this way, no doubt encouraged by the results of a survey by the Commonwealth Bank of Australia which found that 50% of its current customers started saving with the bank at school (Adams, 1990, p.15). More recently, the press reported that a letter to prospective advertisers of a magazine to be distributed free to West Australian high schools, promotes itself thus, "Your organisation [has] an opportunity to penetrate into the youth market and capitalise on a captive audience." [italics added] (Martin, 1993). It would seem that young people in schools are viewed as a lucrative market for the commercial sector.

With increasing budgetary constraints being forced on schools, corporate sponsorship is being accepted and oft times sought to supplement schools' limited resources. In New South Wales for example, a three year contract has been signed between the Education Department and a national fast-food
chain for the sponsorship of sport in government schools. This agreement has met with opposition from some teachers and parents who claim schools are being turned into "marketing tools for hamburgers" ("Big Mac", 1993).

At their 1992 Annual Conference, the Australian Teachers' Union (ATU) recognized that business and industry can assist schools to achieve certain educational objectives. They warn however that, "public schools should be as free as possible from the commercialism and crass materialism which characterises parts of the outside world. Accordingly, public schooling is not a commodity to be bought and sold." (ATU, 1992, p. 2). Their statement on industry links with education, outlines their policy on sponsorship, work and schools' curricula. The document's guidelines for the use of business sponsored materials by teachers emphasize the need to ensure that there is a counterbalancing of business sponsored materials within the classroom.

The concerns of the ATU and other interested consumer organizations were addressed by the Australian Education Council (AEC) resulting in the formulation of A National Code of Practice for Sponsorship and Promotion in School Education (AEC, 1993). The main focus of the document, which was released in March 1993, is to provide guidelines for sponsoring organizations and schools based on the following fundamental principle: "Sponsorship and promotions must be consistent with the generally accepted values, purposes and goals of school education in Australia as exemplified in the AEC Common and Agreed National Goals for Schooling in Australia." However, the code contains no specific guidelines for the classroom use of commercially developed teaching materials.
The benefits of having their products associated with the inherent respectability of the school system has been recognized by those in the field of marketing. McNeal (1992) puts it succinctly when he says, "Publicity in the school and home environments . . . lends credibility to a firm and its mission." (p. 104). He promotes the idea that through good public relations programmes and the funding of teacher development, teaching equipment and teaching aids, companies can reach large numbers of children who act as current, influence and future consumers. He warns however, that "the advertising must be more subtle and should always have an important educational goal if it is to be acceptable to the school community." (p. 105). Nevertheless, he seems to recognise corporate involvement in the schools as advertising and product promotion.

In 1990 a report was published by the United States Consumers' Union concerning commercial elements in school teaching materials and their school learning programmes. The report, entitled Selling America's Kids examined the various methods that are used to convey commercial messages into the classroom. These include business sponsored teaching and learning kits, school magazines carrying direct advertising and indirect advertorials, commercially sponsored educational television programmes and incentive schemes for schools seeking to raise funds for the purchase of equipment and learning materials.

The report alleges that schools are not immune to the commercial pressures of advertisers seeking to target the child and concludes that:
These pressures influence children's development as citizens, as well as consumers. The barrage of advertising encourages continuous consumption and acquisition at the expense of reasoned decision-making, thrift and environmental sensitivity. At a time when kids need to learn how to consume thoughtfully numerous promotional messages are teaching the opposite.

(*Selling America's Kids, 1990, p. 5*).

Although the report describes the situation in American schools, similar concerns have been expressed in this country. In Western Australia, Reid (1991) questioned the cost to society of corporate sponsorship in light of the following statement from a major computer company executive. "Sponsorship is part of [our] role as a good corporate citizen . . . . People grow up with [our] machines. When they come out of school or university they are *meaningfully* (italics added) trained." To this Reid asks, "What [educational] freedoms are in danger of being given up in return for the corporate dollar?"

**Conclusion**

From a review of the literature it would seem that for both marketers and schools there are advantages to be had through corporate sponsorship in education. But at what cost? It may be that teachers are "unwittingly" (Manassen, 1989, p. 4) acting as marketing agents for the corporate sector with the potential to affect children's brand loyalty. More importantly, is it possible that by their use of commercial teaching materials, they may be guilty of compromising the quality of the education they provide for children? The way in which this could be possible is examined in the theoretical framework that follows.
Theoretical Framework

Materials generated by companies for use in schools are developed primarily by people with a marketing background. No matter how honourable the intentions of the company may be the philosophy that guides their involvement remains the same, build an enduring relationship which will in time return a profit. There are a number of theoretical models which attempt to describe the development of purchasing behaviours in consumers.

One of the simplest models is that of McNeal (1992) who has developed the following model in an attempt to explain how potential consumers become actual customers.

AWARENESS  INTEREST  BELIEF  ACTION

McNeal (1992, p. 95) states:

This model suggests that in order for there to be patronage action in the future, children must be made aware of a firm, its products, and mission; their interest in the firm must be generated and maintained; and their belief in the company as a provider of satisfactions must result.

In the context of this study for example, it might be suggested that a home economics teacher can create the awareness of a product by displaying charts in the classroom, can arouse interest by taking the class on a visit to the factory and through favourable comments can generate a belief in the company's products. It is this apparent potential to influence the lead up to action which poses a dilemma for teachers.

McNeal's model can be compared in many ways with the educational
taxonomy developed by Krathwohl (Krathwohl, Bloom & Mathia, 1964) which describes the levels of the affective domain. In this taxonomy there are five levels which express the degree to which an attitude is internalised by an individual. These levels are receiving, responding, valuing, organization and characterization by a value or value complex. Each of the levels is further subdivided but for the purposes of this comparison it is only necessary to examine the major levels in the hierarchy.

Krathwohl argued that for attitudes to be developed in an individual to the point of being part of their value complex, they must first go through each of the prior levels described in the taxonomy (Krathwohl, Bloom & Masia, 1964; Eiss & Harbeck, 1972; Hopkins & Antes, 1978; Woolfolk, 1987).

McNeal's marketing model parallels that of Krathwohl. Both models suggest that one must first make the consumer aware (Krathwohl's receiving) before they will show any interest (responding). McNeal suggests that the next level of belief (valuing) is relatively easy to achieve, but in a school setting this may be more difficult given the limited contact that each teacher has with students.

The term action in the marketing model refers to future action. That is, a commitment to the product and/or purchase or patronage on a regular basis. There are distinct similarities with Krathwohl's valuing which uses descriptors such as "forms a desire for good literature" which in his terms would lead to the student selecting appropriate reading materials. (Hopkins & Antes, 1978, p.435),
Both the taxonomies proposed by Krathwohl and McNeal attempt to describe the development of attitudes. However, Krathwohl's taxonomy was set in an educational context and McNeal's in marketing. McNeal's is however, rather simplistic in that it ignores several factors which impinge on customer behaviour. An alternative which appears to encompass both education and marketing as well as explain the link between attitude and behaviour, is Fishbein's theory of reasoned action (Fishbein & Ajzen, 1975), an outline of which is shown in Figure 1.

Introduced in 1967, the theory has been used to account for behaviours in such diverse areas as weight reduction, brand choice, family planning, voting in elections and vocational choices (Ajzen & Fishbein, 1980). Other studies that have tested the theory are cited by Ajzen and Fishbein (1980, p. 244) and include those conducted by Thomas, 1976; Thomas, Bull & Clark, 1978; Hom, Katerberg & Hulin, 1978; Keenan, 1976; King, 1975; Pomazal & Brown, 1977; Pomazal & Jaccard, 1976.

Several of these studies indicate that Fishbein's theory of reasoned action is an appropriate model to apply to consumer behaviour and is applicable to the present study. Of particular interest is the widespread use of the theory in the study of consumer behaviour (Engel, Blackwell & Miniard, 1990; Peter & Olsen, 1990; Schiffman & Kanuk, 1991). A clearer understanding of the relevance of the model to this project can be gained by considering the major components of the theory.
Figure 1
Fishbein's theory of reasoned action (adapted from Ajzen & Fishbein, 1980, p. 34)
Fishbein defines attitudes as being "a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object." (Fishbein & Ajzen, 1975, p. 10). Although philosophically there is widespread agreement throughout the literature with this description of attitudes, the definition proffered by Gage is more comprehensive. He stated, "Attitude is a feeling for or against something having both cognitive and affective aspects and being more or less long-lasting." (Gage & Berliner, 1991, p. 62).

According to the theory of reasoned action (Figure 1) attitudes are a function of beliefs with intention being the immediate precursor of behaviour. The theory proposes that with regard to any reasonably complex voluntary behaviour, intention is the best single predictor of a person's actual behaviour. In turn, intention is seen as a function of two factors: a person's attitude toward the behaviour and their subjective norm.

According to Fishbein's theory, "The personal factor is the individual's positive or negative evaluation of performing the behaviour; this factor is termed attitude towards the behaviour." (Ajzen & Fishbein, 1980, p.6), and as can be seen from Figure 1, is an outcome of the "beliefs that the behaviour leads to certain outcomes [and the] evaluation of the outcomes" (Ajzen & Fishbein, 1980, p. 84). As this research involves both marketing and education, it is appropriate to consider examples from both fields to illustrate the concept as it applies to this study.
To demonstrate this principle within the field of marketing, consider a teenager's decision to purchase a video game. Some young people would view such a purchase favourably, others unfavourably. Similarly, in an educational setting such as a home economics practical foods class, students may be permitted to choose from a selection of milks. Diet conscious students may choose to use a fat-reduced milk in the belief that such a choice has a favourable outcome for them. In this example, the students' judgement that performing the behaviour (choice of product) is seen as being positive (good health) and reflects a favourable attitude towards that behaviour.

The second component of intention is described as "The person's perceptions of the social pressures put on him to perform or not perform the behaviour in question . . . [and] is termed the subjective norm." (Ajzen & Fishbein, 1980, p. 6). From an examination of Figure 1, this can be seen to be determined by both the "beliefs that specific referents think I should or should not perform the behaviour [and the] motivation to comply with the specific referents" (Ajzen & Fishbein, 1980, p. 84).

To return to the commercial and educational examples given previously, teenagers would consider the opinions of those people important to them (peers, siblings) before deciding to purchase the video game. Likewise, if the home economics students felt that the behaviour (choosing a fat reduced milk) would be approved by their significant others (peers, parents, teacher) they would be more likely to make such a choice.
According to Ajzen and Fishbein (1980, p. 58) "for some behaviours, normative considerations (the perceived prescriptions of important others) are more important in determining behavioural intentions than are attitudinal considerations (the person's favourable or unfavourable evaluation of his performing the behaviour)" and vice versa. This is reflected in the importance which teenagers place on peer pressure and peer perception of their behaviour, lifestyle and choice of material goods. Additionally one cannot ignore the external variables such as the situational context in which the behaviour takes place and which may serve to influence the relative weightings assigned by the individual to each component.

In applying this principle to the prior example, and using the terminology displayed in Figure 1, it is possible that students in the classroom may be influenced to choose the milk (behaviour) that they consider to be more acceptable by the teacher (normative) rather than choose the milk they prefer to drink (attitudinal) at home.

In sum, the theory of reasoned action proposes that people tend to perform behaviours they personally evaluate favourably and that are also popular with other people. Conversely, they tend to refrain from behaviours they regard unfavourably and that are unpopular with their significant others. It is not intended to imply however that prior to every action a person will consciously examine the determinants of their behaviour, as most of the processes in many behaviours are essentially automatic.
With regard to the development of students' attitudes, it would appear there is much that could be learned by teachers from the study of marketing techniques. In this project however, the converse is of interest. That is, by acting as a role model, an accepted practice for developing attitudes, home economics teachers may be seen to be supporting a specific brand of a product. Such conduct could be construed as having the potential to move students, in McNeal's terms, from awareness to interest. This potential to develop attitudes is particularly significant for this study given that in Krathwohl's terms, "the levels of receiving, responding and valuing can be obtained through experiences provided in class." (Hopkins & Antes 1978, p. 435).

According to Fishbein's theory of reasoned action, the teacher may influence the choices which students make if they are perceived by the student as supporting certain products and if the teacher is regarded as an important part of the students' subjective norms.

In the context of this study, all three models (Krathwohl, McNeal and Fishbein) suggest that if home economics teachers and students use specific brands of a particular product, then it is possible that they will contribute to favourable attitudes towards the brand amongst the students with the possibility of producing customers.
Methodology for Research.

As this study investigated aspects of education and marketing, it was considered appropriate to review literature relevant to the methodology used by both areas.

Schiffman and Kanuk (1991, p. 54) identified three broad areas of research design used in marketing to collect primary data. These are observational research, experimentation, and research by survey methods.

Observational research in marketing is concerned with observing people's behaviour with regard to the selection and use of a particular product or service. This type of design was deemed inappropriate for this study as students in a classroom take no part in the initial selection process and purchase of products used by home economics teachers in the lessons. It is also impractical to try to observe their purchases after exposure to lessons using brand specific materials due to time, situational factors, and lack of control.

The experimental design when applied to the field of marketing is most often used to test for one aspect of the sales appeal of a particular product. In the application of this approach, one variable (for example, package colour) is manipulated while all other elements (for example, price) are held constant. The effect on the dependent variable (for example, number of items sold) is then recorded in order to determine future marketing strategies.
This method of investigation is described by Gay as the experimental method. He states, "The experimental method is the only method of research that can truly test hypotheses concerning cause-and-effect relationships. It represents the most valid approach to the solution of educational problems, both practical and theoretical." (Gay, 1991, p. 298). He identifies two problems often encountered in this type of research as being limited exposure to the treatment received and/or insufficient difference in that treatment in order that any change is able to be detected by the researcher.

Although Gay identifies these as the two most common problems there are others that can occur within typical education experiments. These problems include the occurrence of events between tests which may affect the experiment, maturation of the subjects, pre-test sensitization, unreliability of the measuring instrument/s, statistical regression of test scores towards the mean, differential selection of subjects and attrition (Gay, 1991, p.303-307).

Whilst acknowledging that researchers have little or no control over many of these factors, they can select a design which controls for them as much as possible. Having taken into account these possible difficulties, the experimental design was considered to be appropriate to yield data which would answer the research questions posed in this study.

Survey methods of research as outlined by Schiffman and Kanuk (1991, p. 55) detail the various data collection techniques used in the field of marketing. These parallel survey methods used in education as explained by Gay (1991). Of those described the questionnaire and the personal interview were considered to be suitable to complement the data obtained from the experimental design used in this study.
The use of the personally administered questionnaire has advantages in the classroom in that it is time efficient and can be conducted by the teacher and/or researcher with minimum disruption to the teaching programme. Any items which may be unclear can be easily clarified as well as enabling data to be collected from a large number of respondents. Problems associated with questionnaires can occur as a result of poorly constructed items and/or the possibility that subjects do not have the opportunity to explain their answers. However, these problems can be addressed in an interview which allows the subjects to expand upon their responses.

Interview techniques have been adopted in educational research and have the advantage that they can produce in-depth data not possible with a questionnaire but suffer several disadvantages in that they are time consuming, often expensive to conduct and usually involve smaller samples (Gay, 1991; Gorden, 1975). A detailed description of the instruments used in this research project, the reasons for their selection and procedures adopted in their development are outlined in Chapter 3.

**Conclusion**

This study has utilised a quantitative quasi-experimental design to examine the research questions and has employed qualitative techniques to assist in interpreting the data. The advantages of a combination of aspects of both types of methodologies has been recognised by some members of the research community. Jicks (1979, p. 608) states, "The process of compiling research material based on multi methods is useful whether there is convergence or
not.". His view of an eclectic approach is supported by Miles and Huberman (1984, p. 20) who note that "if one looks carefully at the research actually conducted in the name of one or another epistemology, it seems that few working researchers are not blending the two perspectives."
CHAPTER 3

Methodology

Design

The general design of this study was a two group pretest-posttest quasi experimental design. The study was conducted as part of the regular Year 8 Food for Fitness programme and was of a three week (six period - 360 minutes) duration. Although this was a short period of exposure, it was in keeping with the normal time allocation available for the teaching of this topic within the school programme. Students were involved in both theory and practical work during the period of exposure.

Sample

The subjects used in this study were from two Year 8 "Food for Fitness" classes at a large metropolitan Senior High School in Western Australian. The Year 8 students had already been assigned randomly by the school to their classes. The experimental group consisted of 20 students and the control group, 19 students.

Random assignment had increased the probability that the sample was representative of the Year 8 population of this school and that the experimental and control groups were comparable in their backgrounds and academic ability. Both of these assumptions were tested by comparing pretest data of the two groups with that gained from all Year 8 Food for Fitness students (n=45) on the same test.
Ethical Considerations

The main ethical consideration in the study was the collection of data from minors. The researcher obtained oral permission to conduct the project from the School Principal and the Head of the Home Economics Department. Permission to interview students was sought from parents via a letter posted to the students' home addresses (Appendix A).

Instrumentation

An examination of the literature failed to find any studies approximating that which was proposed. Likewise, a review of educational tests did not reveal an appropriate instrument whilst those used in marketing appeared to be designed for specific purposes inappropriate to this study. Since no existing instruments were appropriate, a paper/pen test instrument was developed to measure the extent to which students use brand specific responses in nutrition tests. (Appendix B).

The limited content of the teaching materials, that is dairy products, restricted the range and the number of questions which could be asked. To establish a test of sufficient length, a mixture of item types was used. This mixed format has some advantages in that it may avoid the 'mind-set' which can occur when respondents are faced with many items of one type and it provides an opportunity to test for validity of the items through cross referencing of responses.
The final version of the instrument consisted of four different types of items. These are as follows.

1. Sentence completion items. An example is:
   
   If I was making a dip for a party the cheese I would use would be 

2. True/False items. An example is:
   
   Brownes natural yoghurt is better for you than other brands. T F

3. Word association items. An example is:
   
   Write down the first word which is immediately triggered in your mind 
   Yoghurt 

4. Ranking item. An example is:
   
   Rank the following cheeses 1 to 7 in order of their tastiness. 
   Cottage 
   Kraft Cheddar ...

Fishbein's theory of reasoned action was used as a guide in the development of the instrument. Items for the questionnaire were constructed to reflect the two major components of his theory. For instance, the sentence completion type item given above reflects Fishbein's subjective norm component. This item relates to the student's important referent group, (the party participants) whereas the true/false example above refers to the attitudinal component of the theory (a belief that Brownes yoghurt is better).
There is an inherent ambiguity in the sentence completion items used and this is deliberate. Students may arbitrarily choose to respond in one way on one occasion, for example with a brand name, and differently on another occasion with a type of milk product. This is a problem for measurement of knowledge outcomes in educational research but for this study it is consistent with approaches used in marketing to measure brand loyalty.

The sequencing of the different types of items was considered carefully so that brand names which appear in the true/false items would not trigger responses to the word association and the sentence completion items. The final sequencing was as shown in Appendix B.

Items relating to the study were included in a general pretest of the topic. This was done in an attempt to obscure the purpose of the items designed for the research question. The inclusion of knowledge type items also served to interrupt the 'mind-set' that could have occurred given the similarity of many of the items. This was particularly pertinent for the true/false items which, by their nature, tended to be mainly false.

**Validity and Reliability**

The instrument was examined by University lecturers with expertise in test design and a senior practising home economics teacher in an attempt to ensure content and face validity. Comments from these experts were used to modify the wording of several items.
To further improve the questions and to gauge the degree of reliability of the instrument, two pilot test projects were conducted. The importance of pretesting questionnaires as a way of identifying fundamental problems is stressed in the literature. According to Reynolds, Diamantopoulas and Schlegelmilch, (1993, p. 172) "Pretesting of an instrument is necessary because no amount of intellectual exercise can substitute for actually testing an instrument." The first of the pretests was administered to a convenience sample (N=12) from another school. As a result of this test, a number of minor alterations were made to the wording of some items and the instructions in an effort to improve clarity. The second pilot test was conducted with Year 8 students of clothing and textiles (N=45) from the school participating in the research project. These students were not involved in the final research project. The results of this test indicated the need for the test to be distributed in two parts so that answers for the sentence completion items were not influenced by statements in the true/false section.

The Spearman-Brown correction for a split-half estimate of reliability for the instrument was calculated using the statistics package *Statistical Package for the Social Sciences (SPSS)*. Although the generally acceptable standard for a reliability coefficient in educational measurement is 0.7, (Gay, 1991, p. 181) the 0.65 value obtained was considered reasonable for a test of this length and type. A further estimate of the reliability of the instrument was derived by a test-retest technique using data from the two separate posttests of the control group and two separate posttests for the experimental group. This is discussed in Chapter 4.
Scoring the test.

Knowledge items relevant to the school curriculum and items relating to the research questions were separated before being scored. Only items related to the study were scored using the following strategies.

Sentence completion and word association items.
Each response which included reference to the name of a manufacturer or brand of a product was scored as a one. If there was no reference to a brand or manufacturer's name, the response was scored as a zero.

True/false items.
Answers that did not favour the brand or manufacturer were scored as a zero, while brand favourable answers were scored as a one. For example, if the statement, *Kraft Singles make the best cheese sandwiches.* was marked TRUE, the answer scored a one, since the respondents attributed positive characteristics to the product. If the item was marked FALSE, it scored a zero.

Ranking items.
Each brand ranked in the top three was scored as a one (possible total of 3 per student). This information was intended to support data obtained from the other sections by comparing the frequency with which respondents chose the brand products with the results of the previous data.
Procedure

The pretest was administered to all Year 8 Food for Fitness students at the beginning of their first class. Classes for the control and experimental groups started one week later. In an attempt to minimise the possibility of the "Hawthorne Effect" (Gay, 1992, p. 313) that could have occurred, all Year 8 nutrition students completed the pretest. It was anticipated that, had the test been given only to those classes involved in the research, the students would become aware that they were involved in an experiment, and this awareness could have influenced the results. In addition, testing all students enabled the researcher to determine how typical the two groups were of the population of Year 8 nutrition students as well as to establish the comparability of the two groups before any teaching occurred. Although pretesting of student knowledge was not the usual procedure in home economics classes at this school, it is an accepted teaching practice and was presented to the classes as such.

Due to the school's timetable, each class was taught by a different teacher. Having the usual classroom teachers teach the classes had some advantages in that it maintained the usual procedure and allowed the experimenter to observe the lessons to identify any variations in teaching styles. This included the frequency with which the teacher referred to the products by their brand names. Both teachers were instructed to refer to the products by their generic names wherever possible. For example, cheese slices were not referred to as Kraft Singles but simply as slices of processed cheddar cheese.
When teaching the experimental group the teacher used brand specific teaching aids such as illustrations, recipe sheets and posters which clearly showed the brand and/or manufacturer's name. In practical classes the brand specific products were presented to the students in their brand identifying wrappers/containers. For example, Brownes Hi-Lo milk was presented in the carton in which it had been purchased. The control group was exposed to generic teaching materials. They used the same consumable products but without the brand identifying labels. For example, Hi-Lo milk was presented in a jug labelled fat reduced milk. The same brand of edible products was used in both the control and experimental groups to ensure that each experienced the same qualities of taste and texture.

The posttest was administered to the control and experimental groups two weeks after the treatment was completed rather than immediately in a bid to detect shifts of perception. This strategy was used in an attempt to control for short term retention of the material. Ten days after the first posttest, both groups were posttested a second time to enable the researcher to explore whether or not any further changes had occurred.

Two days after the second posttest a small number of selected students (n=4) from the experimental group were interviewed. The students who were selected were those who had shown the largest change in their responses to items on the written tests. The intent of choosing these students was to try to identify the factors which influenced their change. Of particular interest was whether student responses had been influenced by the products used at school and/or home. These interviews took approximately ten minutes each to complete. They were conducted by the researcher during lunch time and
during the home economics class that followed. Procedures for the interviews were adapted from those used by Bell and Osborne (1981). The interviews were semi-structured with the researcher asking several prepared open ended questions in a bid to gather further qualitative information from the students (Appendix C). Items for the interview were designed to complement the information collected in the questionnaires. These interviews were audio taped for later analysis.

**Limitations of the study**

It is recognised that there are several limitations to the research project which affect the generalizability of the results. Some of these are identified below, others are discussed in Chapter 6.

**Sample**

This study was a pilot project and as such the size of the sample was small. While ideally, several classes from a number of different schools would have been used to enable a broader generalization of results, the purpose of the research was to make a preliminary investigation of the topic.

Although it would have been preferable to have had the control and experimental groups taught by the same teacher, both teachers involved in the study have had many years teaching experience.
Testing

The novel nature of the pretest may have sensitised students to the treatment thereby affecting students' performance on the posttest. Steps to minimise the testing effect included a six week interval between the pretest and posttest, inclusion of some knowledge type items in the test and the administration of the pretest to all Year 8 students of food and nutrition.

External Factors

In designing the study it was recognised that it would not be possible to control for any advertising campaign that may have been conducted by the companies whose products were used in the project. Random assignment of students increased the probability that had such a campaign occurred, all students would be similarly influenced.
CHAPTER 4

Results

The results of the study are presented and described in this chapter. The first section presents results which answer the major research questions. The second section considers complementary analyses that were obtained from the word association and ranking items, the interviews and the second posttest data.

Analyses of Data

Comparability of Groups

To establish the comparability of the experimental and the control groups prior to the treatment and to determine whether or not the experimental group was typical of the rest of the Year 8 Food for Fitness students, a simple, or one-way, analysis of variance (ANOVA) test was used to determine whether the students differed in the number of positive responses to brand names. The results of these tests and the analysis are shown in Table 1. These results indicate that prior to the treatment phase there was no significant difference amongst the three groups as measured by their responses on the pretest to the True/False and Sentence Completion items. That is students who participated in the control and experimental groups were typical of the rest of the Year 8 Food for Fitness students as measured by these tests.
It should be noted that the mean scores displayed in Table 1 are the mean summated scores from the sentence completion and the true/false items only. Data from the pilot testing of the instrument suggested that scores from the ranking item and the word association items should not be included due to the low number of positive responses and the difficulty of obtaining an accurate estimate of the reliability. Despite the indication from pretesting that these items would have limited value, they were retained since it was believed that they had the potential to provide qualitative data which it was hoped would assist in the interpretation of the quantitative data.

Table 1

Comparison of Pretest Mean Scores and Standard Deviations of the Control, Experimental and Remainder of Year Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>19</td>
<td>4.68</td>
<td>2.75</td>
</tr>
<tr>
<td>Experimental</td>
<td>20</td>
<td>4.95</td>
<td>3.32</td>
</tr>
<tr>
<td>Remainder</td>
<td>45</td>
<td>4.47</td>
<td>2.23</td>
</tr>
</tbody>
</table>

Note. Maximum score = 21
ANOVA test.  
N = 84  
F = .12  
df = 2/81  
p > .01

It should be noted that the control group was reduced to 17 when two students left the school.
Sentence Completion and True/False Items

The major purpose of this study was to answer the following research question:

Is there any significant change in the extent to which students indicate a preference towards the brand specific names of dairy products after exposure to those products and associated commercially sponsored teaching materials in the context of learning a unit of work?

This section of the chapter describes the analysis of test data associated with changes in student preferences as measured by the questionnaire. There are a number of ways in which these changes can be described and tested for significance of differences.

In this study it was considered appropriate to use a $t$ test to test for the significance of any differences between the change in scores gained by the control group as compared with the change in scores gained by the experimental group. The change score measured was the differences in scores between the pretest and the first posttest. Each individual's score was taken as the sum of the scores on the true/false items plus their score on the completion items since both these item types indicated student preferences for specific brands.

The $t$ test was chosen as the statistical technique because it was believed that the necessary criteria for the use of this parametric test, such as random assignment of students to classes, had been met. The data for this test are presented in Table 2. (See Appendix D.1 for complete results)
Table 2

Means and Standard Deviations for Pretest, Posttest 1 and Change Scores for Experimental and Control Groups

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th></th>
<th>Posttest 1</th>
<th></th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Control</td>
<td>17</td>
<td>4.94</td>
<td>2.75</td>
<td>3.76</td>
<td>2.12</td>
</tr>
<tr>
<td>Expt.</td>
<td>20</td>
<td>4.75</td>
<td>3.32</td>
<td>7.35</td>
<td>3.11</td>
</tr>
</tbody>
</table>

Note. Maximum Score = 21 = Maximum number of brand specific responses possible.

t test on change scores

df = 35

t = 3.70

p < .01

To generalize these results to a broader population it was necessary to test whether the differences observed were significant or not. A \( t \) test for independent samples was conducted on the data. The result of \( t = 3.70 \) indicates that statistically there was a significant difference between the two groups (\( p < .01 \)). That is, students who were exposed to the commercially identifiable teaching materials and associated products indicated a preference for the brands more frequently than those who had not been exposed.
The first of the subsidiary research questions was as follows:

Is there any significant difference between those students who have used brand identifiable products and teaching materials and those who have used generic products and materials as measured by the frequency with which the brand specific names are used?

This question was answered by analysing data obtained from both the control and experimental groups on the sentence completion items in the test. The responses on true/false items were excluded from this analysis since most of these items included brand names and so did not measure use of the brand name by the respondent. The sentence completion items allowed the student to use or not use brand names in their responses. Hence only the latter items were relevant to this question. The results are shown in Table 3. (See Appendix D.2 for complete results)
Table 3
Means and Standard Deviations for Change Scores on Sentence Completion Items, Control versus Experimental Groups

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th></th>
<th>Posttest 1</th>
<th></th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Control</td>
<td>17</td>
<td>1.82</td>
<td>1.74</td>
<td>1.88</td>
<td>1.41</td>
</tr>
<tr>
<td>Expt.</td>
<td>20</td>
<td>2.2</td>
<td>1.93</td>
<td>3.85</td>
<td>2.68</td>
</tr>
</tbody>
</table>

Note. Maximum Score = 13

A one tailed paired $t$ test for significant differences resulted in $t = 3.7$. This indicated that statistically the treatment group's score changed significantly more than that of the control group ($p < .01$). That is, students who were exposed to commercially identifiable teaching materials and products, used the manufacturers' names and/or brand names more often when answering items in the sentence completion section of the test, than their counterparts who had not been similarly exposed.

The second of the subsidiary questions was as follows:

Do students who are exposed to brand specific teaching materials and consumable products attribute positive characteristics to those products more often than those students who have been exposed only to generic products and materials?
This question was answered from responses given to items in the true/false section of the test since these items were constructed in a way which implied that the brand named was "better" in some way. Analysis of the data followed the procedure outlined for the previous question. The results are shown in Table 4. (See Appendix D.3 for complete results)

Table 4
Means and Standard Deviations for True/False Items. Control versus Experimental Groups.

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th>Posttest 1</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Control</td>
<td>17</td>
<td>3.24</td>
<td>2.1</td>
</tr>
<tr>
<td>Expt.</td>
<td>20</td>
<td>2.55</td>
<td>1.95</td>
</tr>
</tbody>
</table>

Note. Maximum Score = 8

A one tailed paired t test for significant differences resulted in $t = 2.2$. This indicated that statistically there was a significant difference between the two groups ($p < .05$). That is, students in the experimental group who were exposed to the commercially identifiable materials attributed positive characteristics to those products more often than those who had not been exposed.
Results from posttest 2.

Two posttests were conducted to test for the stability of attitudes towards the brands. The scores from the true/false and sentence completion items were used to provide data for the second test. The data were analysed by testing for significant differences between the scores on the first posttest compared with scores on the second posttest for each of the control and experimental groups. A two tailed $t$ test for nonindependent samples was used in each case. These data are presented in Table 5.

Table 5
Means and Standard Deviations for Scores on Posttest 1 and Posttest 2. Control and Experimental Groups

<table>
<thead>
<tr>
<th></th>
<th>Posttest 1</th>
<th></th>
<th>Posttest 2</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>$t$</td>
<td>$p$</td>
<td>$df$</td>
</tr>
<tr>
<td>Control</td>
<td>17</td>
<td>3.76</td>
<td>2.12</td>
<td>6.0</td>
<td>3.10</td>
<td>3.83</td>
<td>&lt;.01</td>
<td>16</td>
</tr>
<tr>
<td>Expt.</td>
<td>20</td>
<td>7.35</td>
<td>3.11</td>
<td>6.9</td>
<td>3.82</td>
<td>.30</td>
<td>&gt;.1</td>
<td>.19</td>
</tr>
</tbody>
</table>

Note. Maximum Score = 21

The $t$ test for the experimental group resulted in $t = 0.3$. This indicated that statistically there was no significant difference between the scores on the first posttest and the second posttest ($p > .10$). That is, the students who had been exposed to the commercially sponsored materials appeared to have stabilized in their attitudes towards the brands. The $t$ test for the control group however, resulted in $t = 3.83$. This indicates that statistically there was a significant difference between the results of the first posttest and the second posttest ($p < .01$). That is, students who had not been exposed to the
commercially sponsored materials used the manufacturers' names and/or brands more often in the second posttest than they had in the first. The possible implications of these findings will be discussed in Chapter 5.

It is interesting to note that some authorities suggest that the only meaningful estimate of reliability for tests of a heterogeneous nature is from test-retest data (Guildford, 1965, p. 450). If this technique of estimating the reliability coefficient is applied to the data from the two posttests, it yields Spearman Brown correlations for the instrument of 0.93 for the experimental group and 0.64 for the control group.

**Word Association Items**

The data obtained from the word association items in the questionnaire were difficult to analyse due to the low frequency of responses. The pilot project had indicated that this could occur, however some answers given by students suggested that these items had the potential to yield useful data. For example, several students responded to the stimulus word, *Creamy* with the response *Praise*, a brand of mayonnaise. Additionally, Lucas (1982) proposes that "word associations may be used to measure very early stages of learning which conventional achievement tests do not detect." (p. 89). As the word association technique is an accepted form of measurement in both marketing and education, the decision was taken to include these items. Actual raw scores are given in Table 6.
### Table 6

**Total Frequency of Positive Responses to Word Association Items for Control and Experimental Groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Pretest (Frequency of responses)</th>
<th>Posttest (Frequency of responses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>17</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Experimental</td>
<td>20</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

**Note.** Maximum number of positive responses possible = 233

Chi square Test

Chi square = 1.2

\[ df = 2 \]

\[ p > .05 \]

A simple chi square test clearly indicated there was no significant difference. (\( p > .05 \)) between those students who had been exposed to the brand specific materials and those who had not. Statistically these results are suspect due to the low frequency of positive responses when compared with the maximum possible number of responses.

**Ranking Items**

The ranking item failed to provide data which could be interpreted satisfactorily. The reasons associated with the difficulty will be discussed in Chapter 5. The results are displayed in Table 7.
Table 7

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Pretest (Frequency in top 3)</th>
<th>Posttest (Frequency in top 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>17</td>
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<td>21</td>
</tr>
<tr>
<td>Experimental</td>
<td>20</td>
<td>31</td>
<td>28</td>
</tr>
</tbody>
</table>

Note. Maximum number of positive responses possible = 111

Chi square Test

Chi square =1.1

\[ df = 2 \]

\[ p > .05 \]

A simple chi square test clearly indicated there was no significant difference. (p>.05) between those students who had been exposed to the brand specific materials and those who had not. The low frequency of response would suggest that this test result should be interpreted cautiously.

Interview Details

It was anticipated that the interviews would provide supplementary qualitative data that would assist in the interpretation of the quantitative data that had been obtained from the written tests. Although only four students were interviewed, this represented 20% of the experimental group. It was believed that the selected sample, that is, those students who had shown the
greatest amount of change in the written test, would provide the most valuable feedback. Several interesting and consistent responses to the interview questions were received, some of which are described below.

The first set of questions in the interview sought to determine whether students remembered brand names in preference to generic names and to discover who or what caused them to answer in this way. In response to the first question *How many sorts of cheese can you name?* only one student gave brand names. This is consistent with the low mean score gained in the sentence completion and word association items in the written test.

The next series of interview questions were directed towards the second of the subsidiary research questions which investigates students' attitudes towards the products and materials that had been used in class. Responses to the question concerning Calcium Plus milk were most interesting, not to the question as such, but to the supplementary prompt, *How do you know that?* Typical of the responses was, "I don't know - just do I suppose". These responses suggest that the impact of advertising is subtle and that recipients of the marketing message may be unaware of its origin.

The next set of interview questions attempted to explore the normative component of Fishbein's theory of reasoned action (See Figure 1). That is, the questions related to whether or not the students viewed the teacher as a 'significant other'. Even though they appeared reluctant to acknowledge that
the teacher would make a difference to the way they thought, all four
students responded that they thought she was 'right' about the information
that she gave. This assumption was in part supported by responses to the
question, *Do you think that teachers only use really good quality products in
prac classes?* Representative of responses was "Umm, yes - most of the time I
think they do."

The answers to the final group of interview questions indicated that students
appeared to be unaware of the real purpose of the questionnaire. A typical
response to the question *What did you think was the purpose of the written
test?* was, "To see if we've learnt anything new and to see if our knowledge
had built up on the types of milk and cheeses and food".
CHAPTER 5

Discussion

This chapter discusses the results detailed in the previous chapter and uses the data to address the research questions. The implications for the major research question are considered first, followed by the suggestions which arose from analysis of the subsidiary questions.

Research Question 1

Table 2 summarises the results necessary to answer the major research question:

Is there any significant change in the extent to which students indicate a preference towards the brand specific names of dairy products after exposure to those products and associated commercially sponsored teaching materials in the context of learning a unit of work?

A clearer understanding of these interpretations can be gained from the actual raw scores as displayed in Appendix D.1. A t test applied to the change scores of the experimental and control groups was shown to be significant at the $p<.01$ level. This result implied that the use of commercially identifiable teaching materials and products in Year 8 home economics food and nutrition classes has the potential to influence students' attitudes in favour of the brands that have been used.

Whilst these results are statistically significant ($p<.01$) they should be evaluated in context with regard to the mean number of responses. From
Table 2 it can be seen that there was a maximum possible score of 21. That is, it was possible for students to provide a brand name in response to 21 of the items and yet the mean number of responses from the experimental group changed from just 4.75 to 7.35; a change of only 2.6 which is small in comparison to the potential for change. In terms of "practical significance" such a change could be considered to be relatively small in an educational setting (Gay 1992, p. 493). In the field of marketing such a change, should it be long lasting, offers the promise of "a theoretically faithful consumer" (McNeal, 1992, p. 91).

The quantitative analysis appeared to be supported by the information obtained through the interviews. For example, when asked if having used Kraft cheeses at school made them think that Kraft was a better brand than others, all students replied "the same" (as other brands) except one who replied, "The same really - maybe better in cheeses than others". That is, it appeared that the students were only willing to support the products they had been exposed to directly. They were not willing to generalise and attribute positive qualities to all Kraft products.

It is possible that the relatively short period of time during which students were exposed to the commercially identifiable material, was insufficient to bring about any major changes in students' attitudes towards the brands used in class. This would seem to be supported by the description of the development of attitudes by Gage and Fishbein who maintain that attitudes are learned and therefore can be changed but in the main, they are more or less long-lasting (Gage & Berliner, 1991, Fishbein & Ajzen, 1975).
Research Question 2

The first of the subsidiary questions was as follows:

Is there any significant difference between those students who have used brand identifiable products and teaching materials and those who have used generic products and materials as measured by the frequency with which the brand specific names are used?

Data concerning the frequency with which students responded to the sentence completion items with the brand names of the products and materials to which they had been exposed, showed an average increase of 1.65 responses in favour of the brands used (See Appendix D.2 for actual scores). When this result was compared with the mean change of .05 by the class who had used only generic materials, there was a statistically significant difference at the $p < .01$ level. That is, students who had been exposed to the commercially identifiable materials and products were more inclined to use brand names when completing the questionnaire in the posttest than their counterparts who had used the generic materials. In practical terms however, the mean change of 1.65 could be considered somewhat minor since the mean scores on the first posttest were 1.88 and 3.85 for the control and experimental groups respectively. These values are small when compared with the maximum possible score for the sentence completion items which was 13.

An examination of students' responses on individual items of the sentence completion section of the test, revealed interesting results. The item with the greatest degree of change was Completion Item 9. The best milk for pregnant women to drink is _______. The pretest showed only one response favoured
the brand while the posttest results recorded eleven brand favourable answers. Of these, nine students named Calcium Plus and two named Brownes HiLo. The item with the second largest amount of change was Item 3, *The best low fat cheese to eat is _____*, which showed an increase from two in the pretest to eight in the posttest. When answering this item students gave Low Fat Coon and Kraft Lites as examples of the best low fat cheeses to eat. Neither of these two brands were mentioned in responses to the pretest. As part of the research design however, promotional posters of both these cheeses were displayed in the classroom. The two topics above were treated in no greater detail than any others tested. Complementary data from the interviews indicated that all four students remembered having seen the product (Low Fat Coon) advertised in the supermarket but only one student, when prompted, recalled having noticed it in on the classroom’s pin up board.

The degree of change in their use of the brand names between the pretest and the posttest would suggest that in spite of these comments, the students had been influenced by the posters and instructional strategies used by the teacher in the classroom. Another possible explanation for the large discrepancy between the pretest and posttest scores in the responses to these two items, is that these items link marketing strategies with knowledge concepts. In this case for example, it involved the needs of the body for calcium in one instance and a reduced fat intake on the other. Either way, the results would seem to support the marketing notion that "the purpose of advertising . . . is to get children to focus, to attend to a product and its symbols." (*Selling America’s Kids*, 1990, p.6). Results from the class that used generic materials showed no change on either of these items.
In terms of Fishbein's theory of reasoned action (Figure 1) it would seem that the formation of students' attitudes to the brands involved both the subjective and attitudinal components. That is the teacher was seen as a person of importance in the classroom (subjective) and as such she was able to influence the way the students themselves thought about nutritional issues (attitudinal).

**Research Question 3**

The second of the subsidiary questions was as follows:

Do students who are exposed to brand specific teaching materials and consumable products attribute positive characteristics to those products more often than those students who have been exposed only to generic products and materials?

The intent of this research question was to try and determine whether exposure to brand identifiable teaching materials and associated products had the potential to influence the students to attribute positive qualities to the brands. The overall results (see Appendix D.3) indicate a significant difference \((p<.05)\) between the two groups as measured by the change scores for the true/false items. However, the increase in the mean score from 2.55 to 3.45 for those students who had experienced exposure to the commercial materials and the change from 3.24 to 1.88 for the control group, shows that this small change may have little practical significance from either a marketing or educational point of view.
It should be noted that the true/false section of the questionnaire from which this analysis was made, contained a total of only eight items. This number of items could be considered to be too small to be able to state unequivocally that exposure to commercially identifiable materials was the reason for students' apparent increased favourable disposition towards the brands. The statistically significant result could be attributed to the relatively small number of positive responses gained in the pretest.

It had been anticipated that data collected from the Ranking item (Table 7) would provide supplementary information which would have helped clarify the results. Ranking items are an accepted form of measurement in both education and marketing. However, as neither group tasted all the different types of cheeses listed in the item, the results from this were unable to be interpreted with any degree of confidence.

Posttest 2 Results

The second posttest, administered to both the control and experimental groups, was conducted to test for stability of attitudes over an extended period of time; in this case, ten days. The results displayed in the previous chapter (Table 5) indicate that stabilisation appeared to have happened in the case of those students who had been exposed to the commercially identifiable materials since the mean scores changed from 7.35 to 6.9 which is not significant (p > .1). It is interesting to note however, the increase in the mean number of brand favourable responses given by the control group which went from 3.76 to 6.0, which was significant (p < .01).
One possible explanation for this latter increase is that of the testing effect. That is, since the same items were used in all three exposures of the test, students in the control group remembered the high incidence of brand names contained in the ranking and true/false sections. It is possible that they used these to answer the test in the belief that this was the way in which the teacher wanted them to respond. It is possible that the experimental group, as a result of exposure during classes, had already incorporated the use of brand names into their schemata and were less influenced by the testing effect on the second posttest.

Summary

In summary, this study has shown that students who were exposed to brand identifiable products and teaching materials were influenced to respond favourably towards the brands that had been used. It would appear that this awareness was maintained, at least over a short period of time. The amount of change was statistically significant but in educational terms, may not have practical significance given the low mean number of brand favourable responses. Test results for those students who had not been similarly exposed showed no significant change.

These results would seem to support the concerns expressed by some writers and interested consumer groups that the use of commercially sponsored materials in the classroom has the potential to influence children's development as consumers. (Bowers, 1986; Harty, 1979; Isles, 1989; Selling America's Kids, 1990). The implications that these findings may have for educators are discussed in the next chapter.
CHAPTER 6

Conclusions and Recommendations

This chapter summarizes the main findings of the study and makes recommendations for teachers with regard to the use of commercially identifiable products and teaching materials within the classroom. Some suggestions are made for further research on the topic.

Study Findings and Conclusions

The impact on students who have been exposed to commercially identifiable products and materials within the classroom as determined by the scores on the questionnaire and student interviews, has been presented in Chapter 5. These outcomes are summarized here as a sequence of points:

Students who were exposed to the commercially identifiable teaching materials and associated products indicated a greater preference for those brands more frequently than those students who had not been exposed.

Students who had been exposed to commercially identifiable materials and associated products attributed positive characteristics to the brands more often than those students who had not been similarly exposed.

The results of t tests conducted on the change in scores before and after the three weeks of teaching, indicated a statistically significant
difference between the two groups following the treatment phase. In educational terms, the low number of brand favourable responses given by students on the test, would seem to indicate little practical significance. However, the degree of change could be seen as encouraging for those in the field of marketing.

Limitations of the Study

Several limitations of this study should be noted. First, the results can only be generalized with confidence to the rest of the Year 8 population at the school involved with the research project. Tests for comparability established that the subjects involved in the treatment were typical of the rest of the year group (See Table 1). The small number of students, all of whom attended the same school, precludes the researcher from generalizing the findings of the study to students from other populations.

Ideally the project should have been conducted over a more extended period of time in order to better assess the longer term effects of the experimental treatment. However, this was not feasible without changing the normal teaching routine at the school and given the time constraints on the researcher.

Recommendations for Teachers

Based upon the findings of the study, the following recommendations are offered:
1. Teachers should use a variety of instructional materials but should exercise caution when using commercially identifiable materials which serve no purpose other than to promote a particular brand and/or manufacturer. This is particularly true of point-of-sale promotional materials developed for the retail sector. However, a varied selection of materials from different manufacturers can be utilised to teach students about different nutritional issues; for example, how to read a product label in order to make wise nutritional choices.

2. Teachers should utilize the potential value of industry developed materials providing they meet the educational objectives as determined by the teacher and not those intended by the marketer. To do this teachers need to be able to critically evaluate the materials that they use in the classroom given that they may be seen by students as a significant other.

3. Teachers need to maintain a high degree of awareness of the potential for commercially identifiable materials to influence students in the classroom and take the necessary steps to minimise the impact of such materials whilst still capitalising on the available resources.

**Recommendations for Further Research**

The findings in this pilot project indicate that there is much to be gained from further investigations into the topic. There are at least four areas which are suggested by the outcomes and the limitations of this study.

The first would be to extend the sample size to include a larger number of
schools and students. This would ensure a wider spread of socioeconomic backgrounds of the students concerned. Clearly the effect would be to involve a larger number of teachers with varying teaching styles, a factor which would need to be taken into account with the larger study.

A second area of related research would be to determine whether longer exposure to the commercially identifiable teaching materials and products, produced a greater change in students use of brand names. Would longer exposure produce not only statistically significant differences but also changes which could be regarded as of practical significance? The present study was limited to a three week exposure of the students to the specific products. Although this is a typical unit length for a particular food product such as the dairy products explored in this study, there are other products to which students are exposed for a greater period of teaching time.

This suggests the third line of research which could be explored. In the study reported in this paper, students were exposed to only those products associated with the dairy industry. For many students these products would not be amongst the purchases of greatest interest to them. It would therefore be interesting to determine the impact of using commercially identifiable materials associated with products which are more important to the lifestyle of teenage students. Teaching materials in clothing units may have more influence in changing students' awareness of brand names if commercial materials are used given that teenagers could be more interested in clothing than in dairy foods.

A possible fourth area of research would require a longitudinal study to determine whether students later purchase home appliances which are
identified with those used in home economics classes. Electrical appliances such as sewing machines, overlockers, beaters and ovens are all identified by the manufacturers' names and students become familiar with their operation. Do these students later purchase appliances of the same brand or are they more influenced by the family when making these decisions? Similar questions could be asked about sporting equipment used in physical education classes, electrical tools used in industrial arts and computers used in business education.

**Conclusion**

The findings of this study do not resolve the dilemma faced by teachers with regard to the use of commercially sponsored materials in home economics classrooms. If teachers are concerned about influencing students' attitudes towards specific brands then they should ensure a generic approach only. However questions should be asked as to whether the approach is harmful to the learning of students. Perhaps the only harm is to the competitors not mentioned or used in which case the implication is to broaden the use to as many brands as possible, perhaps capitalising on the resources available without jeopardising the learning which can occur.
REFERENCES


Dear Parent/Guardian,

I am conducting a research project at Senior High School entitled "The use of generic teaching materials versus brand specific teaching materials with Home Economics food and nutrition students". The study has been approved by the School Principal, the Senior Home Economics teacher and Edith Cowan University.

During Home Economics classes the students have used a variety of products. I am trying to determine whether the children are aware which products have been used and what they think about those products. Part of my procedure will be to interview some students to determine just how much they did notice. I am hoping you will allow me to interview your child.

The interview itself should take no more than 15 minutes per student and will probably be completed during the lunch break. The results of these interviews will not affect school grades. Specific information about students will be kept confidential. If you choose not to allow your child to participate in these interviews, in no way will this affect the treatment or future care of the student.

Please complete the attached consent form and have your child return it to the Home Economics department at SHS. Any questions you may have concerning the project can be directed to Mrs Lyn Blackwell of Edith Cowan University on 647 6287.

LYN BLACKWELL
20th September, 1993

I (the participant) have read the above information and any questions I may have had have been answered to my satisfaction. I agree to participate in this project realising that I may withdraw at any time. I agree that the research data gathered for this study may be published provided the participant is not identifiable.

Participant ____________________________ Date ______

Parent/Guardian ____________________________ Date ______
APPENDIX B
COMPLETE THE FOLLOWING SENTENCES WITH THE FIRST WORD OR PHRASE THAT COMES TO MIND.

1. If I was allowed to choose the cheese for our house I would choose

2. The milk to buy if you want to be trim is

3. The best low fat cheese to eat is

4. Milk which does not come from an animal is called

5. The best cheese for a sandwich is

6. If I was making a dip for a party the cheese I would use would be

7. The yoghurt I would like to have in our house is

8. The type of cheese which you would advise a weight conscious teenager to eat is

9. The best milk for pregnant women to drink is

10. If you wanted to make grilled cheese on toast the best cheese to buy would be

11. The smoothest cheese to eat is

12. If your friend is on a diet then the yoghurt to eat is

13. If I was asked which milk I would prefer to have in our house then the one I would like to have is
WHEN YOU HEAR OR SEE A WORD IT OFTEN MAKES YOU THINK OF OTHER WORDS.

FOR EACH OF THE FOLLOWING WORDS, SAY THE WORD TO YOURSELF AND THEN WRITE DOWN THE FIRST WORD OR PHRASE WHICH IS IMMEDIATELY TRIGGERED IN YOUR MIND.

FOR EXAMPLE: Fish  chips

NOW TRY THESE.

Salt
Milk
Creamy
Scones
Cheese
Smooth
Reduced Fat
Bread
Yoghurt
SECTION C

RANK THE FOLLOWING LIST OF CHEESES 1 TO 7 IN ORDER OF THEIR TASTINESS.
NUMBER 1 IS WHAT YOU THINK IS THE TASTIEST
NUMBER 7 IS THE LEAST TASTIEST

Cottage

Kraft Cheddar

Semi matured

Coon

Philadelphia Cream Cheese

Edam

Camembert
SECTION D

ANSWER THE FOLLOWING QUESTIONS TO THE BEST OF YOUR ABILITY.
CIRCLE (T) FOR TRUE (F) FOR FALSE.

1. Brownes milk has more nutritional value than other brands. T F
2. Whole milk has more calcium than fat reduced milk. T F
3. Fitness milk is the best milk for pregnant women. T F
4. Kraft cheeses are better quality than other varieties. T F
5. Brownes fruit yoghurt contains more fruit than yoghurt made by other companies. T F
6. Skim milk has less kilojoules than whole milk. T F
7. Kraft Singles make the best cheese sandwiches. T F
8. Brownes natural yoghurt is better for you than other brands. T F
9. Dairy products contain saturated fats. T F
10. Philadelphia cheese makes the best cheesecakes. T F
11. Coon cheese has more flavour than other brands of cheddar cheese. T F
APPENDIX C
I guess you're wondering why I've singled you out to come and talk to me. Well let me try to explain. I'm working on a project which looks at what happens in home economics classrooms - what products the class uses - what the students think about them - that sort of thing.

I want to ask you a few questions and I'm hoping you will answer them as best you can. This isn't a test and there are no right or wrong answers - what I really want, is your opinion. O.K.

Now unfortunately I won't be able to remember everything that you say so I would like to use the tape recorder. If you say anything you are unhappy about then I'll wipe it from the tape before you leave. O.K?

I want to concentrate mainly on what you have been doing in the first part in your Food for Fitness class. Perhaps it would help if we went back over what you have been learning about. (Ask students to talk about what they have been doing in their classes. Lead up to a discussion on the role of food in the body and the part played by dairy products.)

Do you remember learning about different types of cheeses? And you tasted some of the different types?

How many sorts of cheeses can you name?

Is that a brand or a type of cheese do you think?
In the questionnaire you said that Kraft Singles make the best cheese sandwiches was True/False. What makes you say that?

PROMPT: Is that what you have at home?

What about when you are with your friends - do they have it at their place/in their sandwiches?

Have you seen Kraft Singles advertised? Where? Can you describe the ad?

When you answered the questionnaire the first time you said that full cream milk was the best milk for pregnant women and the last time you answered it you said you thought Calcium Plus was the best. What was it that made you change your mind?

PROMPT: How do you know that?

Was there some information about it in your classroom somewhere?
Did Mrs Byfield tell you that Calcium Plus was the best milk for pregnant women?
Do you think she is right?
Did what she say make a difference to the way you think about it?
In what way?

Have you seen this logo before? Show student Kraft Low-fat Coon label.
Yes - Where did you last notice it?

Have you noticed it in classes? Where? When?

No - You didn't notice it in class then?
Did the fact that you used Kraft cheeses at school make you think that Kraft was a good brand? Same/Better than other brands?

Do you think that teachers only use really good quality products in prac classes?

Prompt: Always, most of the time, some of the time?

Has using Kraft Products in home economics made you think any differently about them?

Yes - In what way? No - Not at all?

What did you think was the purpose of the written test? What did you think I was trying to find out?

When did you think that - after the first test, the last test or just now?
APPENDIX D
Appendix D.1
Change Scores from Pretest to Posttest for Experimental and Control Groups.
Sentence Completion plus True/False Items

<table>
<thead>
<tr>
<th>Student</th>
<th>Pre-test</th>
<th>Post-test 1</th>
<th>Change</th>
<th>Post-test 2</th>
<th>Pre-test</th>
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</tr>
</tbody>
</table>

Mean: 4.94 3.76 -1.18 6.0 4.75 7.35 2.75 6.9
SD: 2.75 2.12 2.19 3.10 3.32 3.11 3.1 3.82

Note: Maximum score = 21

$t$ test on change scores

$df = 35$

$t = 3.7$

$p < .01$
## Appendix D.2

**Means and Standard Deviation of Results for Sentence Completion Items for Both Groups**

<table>
<thead>
<tr>
<th>Student</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Change</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Change</th>
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**Mean**

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<th>1.82</th>
<th>1.88</th>
<th>.05</th>
<th>2.2</th>
<th>3.85</th>
<th>1.65</th>
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<tbody>
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<td>1.41</td>
<td>.82</td>
<td>1.93</td>
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</tbody>
</table>

**Note.** Maximum score = 13

*t* test on change scores

*df* = 35

\[ t = 3.4 \]

* p < .01
Appendix D.3
Means and Standard Deviation of Results for True/False Items for Control and Experimental Groups

<table>
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<th>Student</th>
<th>Control Pretest</th>
<th>Posttest</th>
<th>Change</th>
<th>Experimental Pretest</th>
<th>Posttest</th>
<th>Change</th>
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</tbody>
</table>

Mean: Control 3.24, SD 2.1
Experimental 2.55, SD 2.05

Note. Maximum score = 8

*t* test on change scores

\[ df = 35 \]

\[ t = 2.2 \]

\[ p < .05 \]