ETHNIC CUSTOMER ATTITUDES AND BELIEFS TOWARD CONSUMING NEW ZEALAND DAIRY PRODUCTS

-- An Exploratory Study of New Zealand Chinese Community in the Manawatu

A thesis present in partial fulfilment of the requirements for the degree of
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Abstract

The objectives of this research are to identify the genuine attitudes and beliefs of New Zealand ethnic Chinese people toward consuming New Zealand dairy products. The purpose of this research is to provide some indicators to assist the achievement of further competitiveness in the whole process of developing marketing strategies in the Chinese market. The research examines the determinants of the overall attitudes toward the behaviour of consuming dairy products. The analysis shows the impact of cultural values and selected demographics on Chinese consumers' attitudes and beliefs.

This research was conducted in Palmerston North, New Zealand. In this research, the Fishbein and Ajzen expectancy-value model was applied to examine the attitudes and beliefs of New Zealand-settled Chinese people toward consuming dairy products. Validity of this theory was tested before it was employed to the Chinese consumers. Results from this study suggest validity when it is employed to the Chinese consumers.

This study reports on an exploratory survey of 75 Chinese respondents throughout Palmerston North during September 2001. In this research, the Fishbein and Ajzen expectancy-value model (F/A model) was used to examine attitudes of Chinese people toward consuming four different New Zealand dairy products: fluid milk, yoghurt, ice cream and cheese.

The findings show that the respondents have positive attitudes toward consuming different New Zealand dairy products. Attributes relevant to these products such as quality, nutrition, product sensory (mouth-feel) and wide product availability, are the attributes that most contribute to their overall attitudes. Analysis of Variance shows a positive relationship between the F/A model attitudes and respondents' age for fluid milk. That is, old Chinese people have more positive attitudes toward

consuming fluid milk. Furthermore, it also proved that the New Zealand-settled Chinese people have similar dairy preferences to Chinese who live in Mainland China, their preferences are not changed due to different lengths of residency. That is, fluid milk is the most consumed dairy product and cheese is the least favourite dairy food for most Chinese.

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I wish to dedicate this thesis to my wife Rong and my parents; I thank them for their support and encouragement throughout my university study.

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CHAPTER ONE

Background

1.1 Introduction

This chapter is divided into three general sections. The first section conducts an overview of New Zealand dairy products and marketing, the Chinese dairy market and the impact of China's WTO entry. The second section is a justification of this research. The objectives and the outline of this research can be found in the third section.

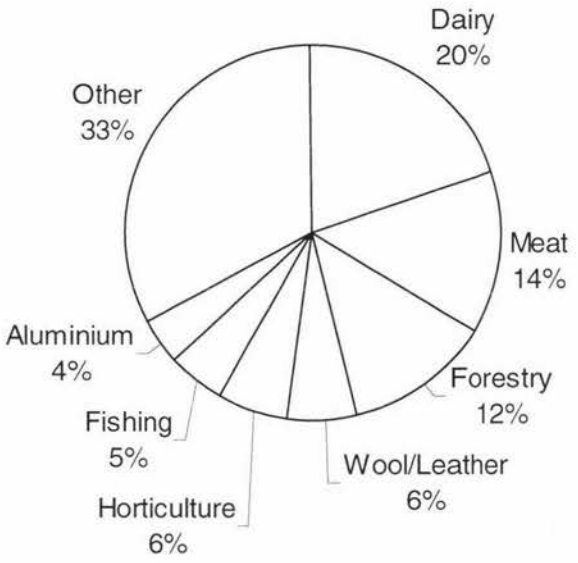
1.2 New Zealand Dairy Product Industries and Marketing

The New Zealand dairy industry has a long history. Successful innovation and technology are two main factors that have played important roles in all products. According to the Ministry of Agriculture and Forestry (MAF, 1999), New Zealand had a total of 14 400 dairy farms in year 1999, which were owned and operated by farming families. A sharemilking system that has been established aims to bring trained, progressive young people into the industry and allow them to build equity and proceed to farm ownership. Three companies are responsible for 94 percent of production of the total seven dairy companies, which are owned by the dairy farmers.

The dairy industry is one of New Zealand's very few truly competitive sectors and plays a key role in the New Zealand economy. A submission to the Royal Commission on Genetic Modification (RCGM) by the New Zealand Dairy Board (NZDB) stated that NZDB as the sole exporter of New Zealand dairy products, in

the 1999/00 season, exported 1.4 million tonnes of dairy products with total annual sales of 7.7 billion in the year ended 31 May 2000. A wide range of consumer products sold under well-known international brands, such as Anchor, Chesdale, Mainland, Fern, Fernleaf and Anlene (RCGM, 2000). The importance of the dairy industry to the New Zealand economy can be seen in Figure 1.1 by comparing the percentage of export revenue earned from Dairy product, with other major export goods.

Figure 1.1: New Zealand Export Revenues 1999/00



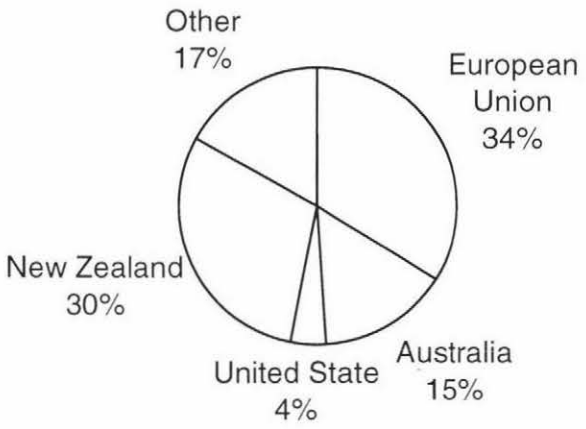
Source:

NZDB submission to Royal Commission on Genetic Modification – 30/10/00

Dairy products are New Zealand's top export by volume and value. According to the New Zealand Dairy Board, although only a small producer in terms of world total milk production, New Zealand exports more than 90% percent of its dairy production. As a result of its export-orientated dairy industry, New Zealand supplies an estimated 30% of market share to the international market trade. Figure 1.2 shows export share of international dairy trade.

China is becoming an important market to New Zealand's export industry. The New Zealand Ministry of Foreign Affairs and Trade (MAF) reported, in 2000, China ranked New Zealand's fourth biggest trading partner, and growing exports to China increased by 44%, the largest percentage increase in any market. According to the Dominion (20 April, 2001), New Zealand is the third biggest dairy product supplier of the Chinese market.

Figure 1.2: Export Share of International Dairy Trade



Source: New Zealand Dairy Board

1.3 The Chinese Dairy Market: Production and Outlook

China holds one-fifth of the world's population and its economy has grown at an average 10 percent since 1980 and is expected to grow 7 percent until 2010. China's demand for dairy products has increased greatly in recent years. Demand grew most for fluid milk, yoghurt, ice cream and flavoured dairy drinks. According to Song Kungang, chairman of China dairy product association, China's dairy processing industry achieved significant development during the 9th national Five-Year Plan period. In 1995, dairy product output in China was 526,000 tons; in 2000 it reached

829,000 tons, an increase of 57% in five years. In 1996, 519,000 tons of liquid dairy products were sold; in 2000, this figure was up to 1.5 million tons, or an increase of 189% in 4 years (Foodchina.com, 2001). The following table (Table1. 1) shows the rise of Chinese dairy consumption during the 1992-1999 periods in both China's urban and rural areas.

Table 1.1: Per Capital Consumption of Selected Dairy Products

1992 - 1999 (Kilograms)				
	Urban Area			Rural
Year	Fresh Milk	Powdered Milk	Yogurt	Fresh Milk
1992	5.52	0.43	0.37	1.46
1993	5.38	0.42	0.32	0.85
1994	5.25	0.42	1.04	0.67
1995	4.62	0.35	0.26	0.64
1996	4.83	0.41	0.32	0.8
1997	5.07	0.41	0.44	0.95**
1998	6.18	0.43	0.64	n/a
1999	7.88	0.44	0.87	n/a
** Refers to milk and other dairy products.				

Source: USDA online report

However, even with recent strong growth, China's per capita milk consumption is approximately 6.3 kg per year, among the lowest in the world. With the increase of average annual incomes, greater ownership of fridges and freezers, increased exposure to western and international cuisines and greater awareness concerning the health benefits of dairy products, the consumption of dairy products is becoming more and more popular in China.

Since the Chinese dairy industry is still underdeveloped, there are a number of constraints affecting dairy product consumption. China's dairy production is still technologically unsophisticated. Most cows are raised by family households. The

dairy farmers lack knowledge of advanced technologies of feeding, genetic breeding and disease control. They also lack marketing information. It is difficult for small units to meet the milk quality requested by large modern dairy corporations. Also, the pace of technology adoption varies greatly by region. In the long run, the constraint on land is also a concern. Add to this the transportation problems, humid southern climate, and dairy products were not the easiest things to produce and sell either for local or international companies.

Access Asia, one of the UK's important Asian market consultancies, reported that foreign dairy products sold well in spite of high prices while producers of indigenous products suffered from overstocking despite lower prices (Accessasia, 2001). Although prices of foreign products like Nestle are higher than local made products, they are characterized by fine quality and continue to expand in the China market. Solely foreign-owned and joint dairy enterprises have increased from a few to 42 in several coastal cities and two provinces- Guangdong and Heilongjiang. In 2000, the quantity of imported dairy products has reached to 110,000 tons, up 50% compared to 10 years ago.

The Chinese government's awareness of the nutritious values of dairy products is an important factor in developing a healthy younger generation. The Ministry of Agriculture, supported by other 7 government organizations, initiated the State School Milk Programme at November, 2001, a programme similar to the Japanese School Lunch Programme launched in the 1960s (Castle and McDougall, 1969). Beijing, Shanghai, Tianjin and Shenyang were selected as trail cities in 1999. According to statistics, there are 32 million students in urban areas, which will initially be the focus of this programme. Fluid milk production could increase greatly if the State School Milk Programme can be implemented smoothly.

1.4 China's WTO Entry and Dairy Consumption

China's successful entry into the World Trade Organization (WTO) will dramatically cut import barriers currently imposed on foreign agricultural products. The multilateral accession agreements China signed with the WTO members in lower tariffs allow foreign companies to more freely market and distribute products.

Tariff rates remained unchanged from 1998. Most tariff rates range from 25-50 percent, although whey is an exception with 6 percent tariff rate. All dairy imports are subject to a 17 percent value added tax. For most dairy products, China has to lower their tariffs to meet the commitment to all the WTO members.

Table 1.2: China's Tariff Rates for Dairy Products, 1999-2000

%	1999		2000	
PRODUCTS	MFN*	General	MFN	General
Fluid milk	25	40	25	40
Powdered milk	25	40	25	40
Milk and Cream not in solid form	90	50	90	50
Yogurt	90	50	90	50
Butter milk	90	50	90	50
Whey and modified whey	30	6	30	6
Other whey products	90	50	90	50
Butter and dairy spreads	90	50	90	50
Cheese and curd	90	50	90	50

Source: USDA on line report

- MFN: Most Favoured Nation

Many dairy products will benefit from lower tariffs except whey and non-fat dry milk. The tariff for cheese products is likely to drop from the current 50 percent to 12 percent; the number of fast food and pizza restaurants is growing rapidly in China, creating new markets for cheese. Although ice cream consumption is growing rapidly in large cities, it is marginal in rural areas. Expanding markets are expected to create demand for both ice cream and ice cream ingredients. As a result of China's WTO accession, the tariff for ice cream will drop from 45% to 19%, and the tariff for yoghurt will drop from 45% to 10%. Therefore, with China's liberalization as its implements its WTO commitments, in particular the end to strong regulation of distribution services, the high quality, competitively priced foreign dairy products will fill in market niche in the Chinese dairy market.

1.5 Justification

Asia's developing countries are merging as economic powers. Greater China (The People Republic of China, Taiwan and Hong Kong), with its phenomenal economic growth and its 1.2 billion plus population, has become more and more important to international marketers. Dairy food sector has become one of the fastest growing food sectors in China recently. The rising average incomes, the arrival of the fast-food chains, western-style supermarkets, and greater awareness concerning the health benefits are all combining to increase Chinese consumption of dairy products.

New Zealand dairy product has a well-recognized reputation and the dairy industry plays a key role in the New Zealand economy. New Zealand's dairy companies are important competitors in the Chinese dairy market. With the entry to the World Trade Organization (WTO), the Chinese dairy market will become one of the important markets to the international dairy industry. However, Chinese consumers are sophisticated; the degree of sophistication is even increasing as new products are introduced into the market place. Attitudinal research is prevalent within the marketing discipline. Attitudes are precursors to behaviour and the understanding of attitudes will enable the prediction and manipulation of behaviour. Therefore, understanding the attitudes and beliefs of Chinese consumers and key attributes which form their attitudes will assist marketers to formulate adequate marketing strategies in maintaining current market shares and developing further competitiveness in the Chinese market.

The purpose of this thesis is to identify the beliefs and attitudes of Chinese consumers who live in New Zealand and those product attributes which determine Chinese consumers overall attitudes, and to understand the impact of traditional Chinese culture's values, and key demographics on the formation of Chinese consumer attitudes toward dairy products.

It is widely accepted that consumers' attitudes and beliefs can produce change in action directly; one way to improve marketing competitiveness is to change

consumers' beliefs and evaluative attitudes. If present consumer attitudes and their determinants can be understood, marketing strategies can be formulated properly in order to improve attitudes and increase competitiveness on the Chinese market.

1.6 Objectives of this Research

1. To determine ethnic Chinese consumer attitudes toward consuming New Zealand dairy products using the Fishbein/Ajzen expectancy-value attitudinal model.

2. To identify the key attributes those determine the attitudes of ethnic Chinese customers toward consuming different New Zealand dairy products.

3. To investigate the relationship between attitudes and respondent demographics including sex, age, educational level and length of residency in New Zealand.

1.7 Outline of the Thesis

This thesis consists of six chapters. Chapter One discusses the background of New Zealand dairy industry and marketing, the presence and the future of Chinese dairy consumption. Chapter Two reviews the literature in the field of attitudes, the Fishbein/Ajzen attitudinal theories and prior studies related to consumer attitudes and beliefs, with a brief introduction of traditional Chinese culture and its implications on consumer behaviour. Chapter Three presents the methodology employed in the study, including data measurement, collection, and the procedures of analysing data. Chapter Four describes the results and analysis the data obtained with the statistical techniques. A complete discussion of the results obtained can also be found in this chapter. The results and the implications lead to possible further research are mentioned in the end of this chapter. Finally, the conclusions are summarised at Chapter Five.

CHAPTER TWO

Literature Review

2.1 Introduction

The first section of this chapter begins with the definitions of attitudes and the description of the Fishbein/Ajzen expectancy-value attitudinal theories, previous research based on this theory are also presented in this section. Culture concept and its impact on food choice are discussed in the second section. A brief introduction of traditional Chinese culture and its implication to consumer attitudes can be found in third section of this chapter.

2.2 Attitudinal Research in Marketing

2.2.1 Attitude Definitions

The study of attitudes is widespread in marketing research; many marketing academics and practitioners consider the construct to be of great importance. Like most hypothetical constructs, attitude has been subject to various definitions and interpretations. Triandis (1971) defined attitude as "an idea charged with emotion which predisposes a class of actions to a particular class of social situations" (p.2). A general definition of Attitude is easily to be found in East's studies (East, 1990) as "what we feel about a *concept* which may be a brand, a category, a person, an ideology or any other entity about which we can think and to which we can attach feeling" (p. 62.). A widely accepted definition of attitude by Fishbein and Ajzen (1975) is "Attitude is a learned predisposition to respond in a consistently

favourable and unfavourable manner with respect to a given object" (Raczynski, p. 32).

2.2.2 Attitude and Behaviour

Attitude research and behaviour prediction has applications well beyond the field of marketing. A number of examples illustrating the attitude-behaviour have made the argument between the behaviourist and the cognitivist become history. A range of evidence has supported *Cognitivism* and it has been widely accepted (East, 1990). That is, in its strongest form, attitudes control behaviour, and reinforcement only acts by changing attitudes. Behaviour may also be affected when communication directly modifies attitudes. Nowadays, Attitude measurement plays an important part in determining a product's standing among consumers. Attitudes are compromised of three major components – knowledge, evaluation and a predisposition to act. Altering any of these components can change them. Therefore, some important strategies employed to influence and promote attitude change include: adding product benefit; changing the product or package; changing the criteria for evaluation, and linking products to existing favourable attitudes. (Wells and Prensky, 1996)

2.2.3 Fishbein/Ajzen Attitude Theories and Related Research

A person's attitude toward performing certain behaviours is related to their belief that performing the behaviour will lead to certain consequences and their evaluation of those consequences. Thus attitude is viewed as one major determinant of the person's intention to perform the behaviour in question (Fishbein and Ajzen, 1975).

In this approach, aggregate scores for each subject are calculated by multiplying the belief strength and the evaluative attitudes of the products, i.e.

$$\sum b_i e_i$$

Fishbein and Ajzen (1975) have applied this reasoning to empirical research by defining an attitude variable in a mathematical model. The scores for attitudes and beliefs related to an object's characteristics are multiplied together and summed over the characteristics to give the attitude variable. In an attitudinal study of an ethnic group, Fishbein measured the overall attitude to the ethnic group (Ao) using the semantic differential. In this way, the attitude theory could be tested by correlating the aggregated score with the overall attitude measure. A high correlation was found (r=0.8) which gave support to the idea that overall attitudes are based on the sum of the expectancy-value of the attributes. The theory can be expressed by:

$$Ao \propto \sum b_i e_i$$

Fishbein and Ajzen noted that attitudes should be measured on a bipolar evaluative or affective scale on a given object (Fishbein and Ajzen 1975). Figure 2.1 portrays an example of a bipolar scale on which to measure attitude to a particular object of behaviour.

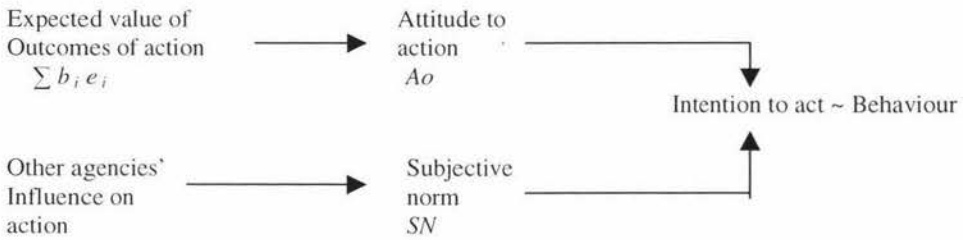
Figure 2.1 Attitude Measures on a Bi-Polar Affective Scale

Strongly Negative	Negative	Indifferent	Positive	Strongly Positive
Dislike Strongly	Dislike		Like	Like Very Much

The theory of reasoned action (TRA) was proposed by Fishbein and Ajzen (1980) to explain the reasons why individuals engage in certain types of behaviours. Fishbein and Ajzen's theory of reasoned action holds that intention is the strongest predictor of behaviour. There are two main determinants of an intention to perform a particular behaviour. This intention is viewed as the immediate determinant of the corresponding behaviour (Fishbein and Ajzen 1975).

These determinants are attitudes toward the particular behaviour and the subjective norm. Figure 2.2 depicts the conceptual model of the relationships between belief, attitude, intention and behaviour developed by Fishbein and Ajzen (1975), and the normative considerations that people have when making a decision to perform or not perform a specific behaviour (Fishbein and Ajzen 1980).

Figure 2.2 The Theory of Reasoned Action



An extension of the theory, the theory of planed behaviour (TPB) (Ajzen, 1991), included all the dimensions of the theory of reasoned action plus perceived behavioural control which is thought to have motivational implications for intention and have a direct effect on behaviour.

Although various forms and extensions of this model have been used in different research precondition, the Fishbein/Ajzen expectancy-value model as the root of these theories has been used in many food studies (e.g. see Shepherd, 1989; Shepherd and Sparks, 1994; Stafleu *et al.*, 1991/92, Aaron et al, 1994, Tuorila et al 1997). This model is the most widely known consumer behavioural model and has been found to be highly effective in predicting the behaviour of European consumers across a wide range of products and choice situations. However, it has been argued that, in the Asian context, the Fishbein model falls short because the social component simply assesses the subjective perception of other's opinions (Schűtte and Ciarlante, 1998). In Asian culture and specifically in those cultures influenced by Confucianism, a person's behavioural intentions are greatly influenced by the social influence. Thus the social component appears to require modification to Fishbein's model when applied to Confucian consumers. Social influence will affect personal attitudes. Social influence can be complex when

modifying the Fishbein model and little research could be found in this area. Therefore, it is necessary to test the validity of the model before applying this theoretical model to the Chinese consumers. The following two hypotheses concerned with the validity of this model when it is applied to Chinese consumers. The third hypothesis was about the relationship between the F/A model attitude and reported behaviour (in this research, it refers to the fact of Chinese dairy consumption).

One important conclusion in this model is that in Fishbein and Ajzen expectancy-value model, the attitude theory could be tested by correlating the aggregated score with the independent overall attitude measure. A high correlation can usually be found between the overall attitude score and the sum of the expectancy-values of attributes. This research is concerned with the attitudes of Chinese consumers, the correlation between the two attitudinal measurements should be tested to show if the Chinese consumers overall attitudes are based on the sum of the expectancy-values of their attribute scores. Therefore, hypothesis one emerged:

Hypothesis1: *There is a significant relationship between the F/A model attitudes and the overall attitudes. That is, the higher the F/A attitude scores, the higher the overall attitude scores.*

The consumption of milk of different fat contents was studied by Tuorila (1987). Eleven belief items were studied, including sensory, nutritional/health, suitability and price items; all but price were found to be highly correlated with the attitude score. A modified version of the questionnaire used by Tuorila (1987) was used by Shepherd (1988) and concentrated on the belief-evaluations and the attitude component of the theory of reasoned action. Thirteen beliefs were assessed, including sensory, nutritional, functional and price items. The sensory and functional items were related and separated from the nutritional beliefs; the price items did not relate clearly to any other items. Tuorila (1987) found sensory belief-evaluation products to outweigh nutritional concerns in the selection of milks of different fat levels, whilst Shepherd (1988) found nutritional belief-evaluation

products to outweigh sensory and functional concerns in the selection of low-fat milks.

In a study in which 257 British consumers completed a postal questionnaire about the consumption of three milk types (whole, semi-skimmed and skimmed), designed according to the theory of reasoned action (Raats, 1992), the relative importance of the individual belief-evaluation products in predicting attitudes was investigated. For each of the milks, the beliefs about 'is healthy' and 'tastes good' were most associated with attitude but the pattern varied between the different milks, with 'is healthy' being more important for whole milk and 'taste good' being more important for semi-skimmed milks. Part of the reason for this difference may lie in the different structure of beliefs concerning the types of milks. For the whole milk, principal components analysis of the belief-evaluation products revealed two components, the first related to the taste and use and the second to health and fat. For semi-skimmed and skimmed milk the solution was similar except that the healthy-related items separated from the fat-related items. It would appear that there are similarities in the way in which people think about the two types of low-fat milks, which differ from the way in which they think about whole milk. Different types of concern may come to the fore in making decisions to consume (or not to consume) any particular type of milk.

In the above reviewed studies, consistent relationships between attitudes and food choice have been identified. In general, the attitude has usually been found to be a good predictor of individual intention to choose a certain food item rather than subject norm. In terms of the expectancy-value model, attitude is a more useful indicator of likely behaviour than beliefs. Hence, the second hypothesis emerged:

Hypothesis 2: There is a significant relationship between F/A model attitude and the sum of subjective belief. That is, a change situation of the subjective beliefs in which the product is encountered will induce higher or lower level of overall attitudes of the product in that situation.

Many studies using the Fishbein/Ajzen model include reported purchase or consumption in additions to intentions to purchase or consume. The stronger relationship between attitudes and reported behaviour than between attitudes and intended behaviour (e.g. Turila et al, 1997; Aaron et al, 1994) is to be expected. It has been argued that for low-involvement choices or behaviours, such as some food choices, people may not have well formed attitudes (Wilson and Dunn, 1986). People may also be more inclined to respond to attitude and belief questions in a manner consistent with their past behaviours. Therefore, in this research, the third hypothesis is raised:

Hypothesis 3: There is a significant relationship between F/A model attitudes and frequency of different dairy products consumption. That is, the higher the F/A attitude scores, the more frequent the consumption of dairy products.

Verbeke and Viaene (1998) conducted a cross-national case study of consumer behaviour towards yoghurt, which aimed to discover significant differences between Polish and Belgian consumers. The survey was based on a formally structured questionnaire, built up of four parts: beliefs and attitude, preference, behaviour and socio-demographic issues. Exploratory qualitative research under the form of five focus group discussions in each country provided the necessary input for the questionnaire design and variable choice. The qualitative research revealed that consumers mainly use eight product attributes during their yoghurt purchase decision-making process. The relative importance of these product attributes as quality cues for judging yoghurt quality was quantified on an ordinal measurement scale. The qualitative research further indicated differences in the beliefs and attitudes of Belgians and Polish related to yoghurt consumption. These beliefs and attitudes were quantified on a Likert scale with five response categories, indicating a degree of agreement or disagreement with a series of statements. All questions were structured in format and present a set of response alternatives.

The results showed the number of consumers of yoghurt in the sample differs significantly between Poland and Belgium. Yoghurt consumers in Belgium were more regular users than consumers in Poland. About a quarter of the Belgian

yoghurt consumers can be identified as heavy users, having a daily consumption frequency. Monthly consumption was the case for almost a third of the Polish yoghurt consumers.

A further significant relationship was found between nationality and the role of brands as the most determining factor in the purchase decision-making process of consumers. Brands were significantly more important in determining the choice of the Polish yoghurt consumer as compared to his or her Belgian counterpart. Brand was the most choice-determining factor for three-quarters of the Polish, compared with only half of the Belgian yoghurt consumers. A further issue deals with the importance of product attributes as determinants of quality. The taste of the product, its nutritional value and its naturalness were perceived as the three most important quality cues by the overall sample. The two other organoleptic attributes, smell and appearance, were ranked between the least determining quality cues.

The average attitude scores differed significantly between Poland and Belgium. The largest gap in score was perceived for the statement related to the price of yoghurt. On average, Polish consumers agreed, while Belgians disagreed, with the statement that yoghurt is an expensive product. The Polish respondents also developed a more favourable attitude towards health related topics: healthy, nutritional and dietetic value.

Another study of nutrition label usage conducted by Siu and Tsoi (1998) attempted to appreciate the use of nutrition information labels by Chinese consumers in Hong Kong. Factor analysis was adopted to analyse the psychographic items. Fourteen factors, which accounted for 64.9 per cent of the total variance, were identified. Thus, 14 surrogate variables were identified. They were bargain-hunter, nutrition prone, label-oriented, advertising lover, time saver, tinned food user, brand loyalty, dieter, social entertainer, weight watcher, home-oriented, home avoider and health conscious. The Stepwise Multiple Discriminant Analysis was used to investigate the differences between "Frequent users" or "Non-frequent users" by 14 surrogate psycho graphic items and nine demographic variables. The research results revealed that the frequent label users are label-oriented, nutrition-prone, advertising lovers, in the age group 35-50, and they read both English and Chinese, whereas the non-frequent label users are home-oriented and can read only Chinese.

2.3 Cultures and Food Choice

Culture, a concept crucial to the understanding of consumer behaviour, may be thought of as a society's personality (Solomon, 1996). Wells and Prensky (1996), define culture as the unique pattern of shared meanings that characterize a society and distinguish it from other societies. Other sources of culture include language, political system, education, profession, group (ethnicity), religion, family, gender, social class and corporate or organisational culture (Usunier, 1996). Bareham (1995) concludes that culture encompasses the attitudes knowledge, belief and behaviour of a particular group of people.

There is wide agreement among consumer behaviour scholars that culture creates behaviour norms and that therefore a very significant link exists between culture and consumer behaviour. Consumers depend on knowledge form from culture (one component of attitudes) to guide their behaviour. Without cultural understanding, marketing managers cannot correctly anticipate consumers' reactions to decisions regarding every element of the marketing mix, including, for example, advertising, positioning and product features.

Concerned about food consumption, Schaffner et al. (1998) stated that various cultures have different attitudes towards foods and different eating habits and food symbols. A meal pattern, the way food is bought and prepared, varies with the culture, and food preference is often related to culture. Schutte and Ciarlante (1998) also pointed out in their studies that:

> *Cultural bonds run deep where consumer goods are concerned. Particularly in the case of non-durable consumer goods such as food and clothing, the different tastes, habits and customs imparted by their culture prevent consumers from universally preferring the same product attributes, advertising messages, packaging and presentation. (Schutte and Ciarlante, p.195)*

2.4 Cultural Values of the Chinese

Over 20 centuries, China's spiritual world was nearly solely under the monopoly of Confucianism. As an ethical system, it emphasizes the harmony of society, which can only be achieved with the state orthodoxy and the respect for family and kinship. According to Confucianism, the most important virtue include: loyalty to the state or emperor, respect for elders, filial piety, faith in friendship, reciprocity in human relations, and education and cultivation. Confucius summarized the society structure with Five Relationships:

> *(1) ruler and subject, (2) father and son (3) older brother and younger brother (4) husband and wife (5) old and new friends (Schutte & Ciarlante, 1998, p. 12)*

In Confucian philosophy, exemplary behaviour is best stated as the highest value in China is to live properly, which particularly concerns being polite and obeying the rules. Confucianism also emphasizes the "middle way" in all things. It is believed that the peace and harmony of society can be achieved only when peoples and behaviours are all in the middle way instead of to the extremes. This virtue bestows Chinese culture with high uncertainty avoidance. They prefer security when making any decision and choice. Hence, the Chinese people lean toward a more collectivist and conservative worldview than the Western people do. They tend to blend with the crowed. They are modest and their culture is of high-context communication and collectivism.

Chinese cultural values form a clear and consistent system throughout generations. Yau (1994) discussed the Chinese cultural values in detail and also presented possible marketing implications and deduced some important implications in marketing to Chinese consumers following the doctrines mentioned, such as low expectation of the product, great tendency to attribute failure of products/services, to shop in a free environment without interference, more likely to be influenced in their purchasing by advertisements or opinion leaders, great brand loyalty.

Xing (1995) conducted another comparison of common traits of the Chinese and Americans, which is taken as a typical example of the Western ones, and is summed as the following table:

Table 2.1 Comparisons between Chinese and American Culture

Chinese	**American**
Intuitive	Rational
Aesthetic	Scientific
Introverted	Extroverted
Self-restrained	Aggressive
Dependent	Independent
Procrastinating	Active
Implicit	Explicit
Patient	Impatient
Group-oriented	Individualistic
Desire to eternity (continuity)	Eager to change

Source: The Chinese Cultural System: Implications for Cross-cultural Management, by Xing, F.

According to his opinions, Chinese are intuitive, aesthetic, and group oriented with a desire for eternity. They may be more likely to be influenced by certain factors such as country of origin, brand and product services in making their purchase decisions.

Country of Origin

Studies have found that consumers develop country stereotypes on the basis of their social and personal experience (e.g., Samiee 1994; Tse and Gorn 1993), and that they prefer to buy their products from some countries over others. Consumers' evaluations of products made in different countries have been found to be consistent with this stereotyping explanation (Cordell, 1992; Nagashima 1970). Thus, Country

of Origin (COO) information should have a significant impact on consumers' evaluations of products from different countries. Therefore, it is logical that Chinese consumers have positive attitudes toward New Zealand dairy products since the reputation they have gained.

Branding

Successful branding requires trust and loyalty from consumers. Due to Chinese people's high uncertainty avoidance, security becomes a strong motivator for consumption. This means that the Chinese are generally brand loyal. Unless the product or brand being used proves very unsatisfactory, they are not likely to switch to purchase other brands. On the other hand, if the brand suffers from a trustworthiness crisis, then the loss is huge since trust from the consumers is hard to regain. Also, since Chinese people are likely to conform to group norms, they have a tendency to purchase the same brand of product or service that their group members recommend.

Product service

The Chinese place great emphasis on tradition and are not likely to take risks, particularly for new or innovative products/services. The Chinese will not change only for the sake of change. Once again, the idea of collectivism plays a key role here. Studies indicate that the Chinese way of thinking tends to be synthetic, concrete and contextual; whereas the western style is more analytical, abstract and imaginative. Hence, there is a tendency to reject the unknown and to stay carefully with the known. Ironically, this concern for collective opinion also leads to the phenomenon that as soon as a new product or idea is accepted in a group, then it immediately becomes a trend everyone follows.

This knowledge of Chinese consumer behaviour and its cultural roots contributes to the understanding of Chinese consumers' attitudes towards marketing appeals and their shopping behaviours.

CHAPTER THREE

Methodology

3.1 Introduction

The theoretical model for this research is described in the Literature Review. This chapter begins with a description of identification of salient attributes of dairy consumption, and then basic stages in the research design are outlined, followed by an explanation of the data collection procedures. Finally, methods of statistical analysis are presented.

3.2 Data Measurement

3.2.1 Identifying Salient Attributes of Dairy Product Consumption

Fishbein/Ajzen theories of attitude are about how individuals think and feel. East (1990), in one of his studies about consumer behaviour, pointed out that there is a substantial agreement on the factors that are important on many issues, even though the value which different individuals attach to these factors may differ. Schaffner et al. (1998) define a food product from the buyer's viewpoint:

A complex of tangible and intangible attributes, including packaging, colour, price, manufacturer's prestige, retailer's prestige, and manufacturer's and retailer's services, which they buyer may accept as offering satisfaction of wants and needs (Schaffner et al, 1998, p.342)

To establish the commonly held beliefs about a concept, it is necessary to perform an elicitation, a series of questions about the positive and negative associations of the concept. The beliefs that come easily to mind are called *salient*. Fishbein and Ajzen (1975) argue that non-salient beliefs are unlikely to have much effect on behaviour. In this case, it is necessary to investigate what the likely salient attributes are that determine an individual's attitude towards the behaviour (consuming New Zealand dairy products) prior to designing the questionnaires.

The procedure for eliciting individual salient beliefs are summarised into three steps:

- Define clearly the action
- Define clearly the sub-group
- Elicit salient beliefs.

In this research, a focus group was employed by the researcher. Focused interviews with individuals and groups were developed in the 1940s by Merton and his colleagues (Merton et al, 1956) and were widely employed in social science studies. In the focus group, group interaction is used to generate data as a source of data for analysis. Group forces or dynamics become an integral part of the procedure with participants engaged in discussion with each other rather than directing their comments solely to the researcher. It is assumed that group interaction will be productive in widening the range of responses, activating forgotten details of experience, and releasing inhibitions that may otherwise discourage participants from disclosing information (Merton et. al., 1956). A small meeting was organised by the researcher following the above-mentioned procedure. A group of six well-educated Chinese were invited to make opinions about the action (consuming New Zealand dairy products). The meeting started with an explanation of the purpose of the research. Subsequently, they were asked to identify the main attributes that come to their mind when considering consuming New Zealand dairy products. The items listing at Table 3.1 are used as a list to help lead to thorough reply. As a result, fifteen modal salient attributes were identified.

Table 3.1 Summarized the Characteristics of Food Products

Product	Package	Service
Physical	Aesthetic	Consistency of quality
Chemical composition	Brand	Consistency of safety
Nutritional	Price	Product availability
Sensory	Value for money	Product replacement
Use and convenience	Ease of use	Cooking information
Safety	Protection of product	Storage information
Storage life	Ease of use and storage	
Psychological	Information	

Source: *Food Marketing: An International Perspective*

These attributes are listed below based on three aspects: product, package and service.

1. Appearance
2. Nutritional value
3. Mouth-feel
4. Aroma
5. Value for money
6. Ease of use and storage
7. Package design
8. Informative content
9. Different packaging sizes
10. Brand
11. Price
12. Product availability
13. Overall quality
14. Product variety
15. Storage life

3.1.2 Questionnaire Design

The questionnaires were structured as simply as possible in order to provide precise answers. In general, the questionnaire employed in the study consisted of closed-

ended and open-ended questions. Closed-ended questions are used so that respondent answers would cover a given range of values. Employing open-ended questions can lead to a large number of categories to incorporate the variety of responses. Yet, constraining respondents to choose among researcher-specified categories may mean a loss of information if the categories do not include sufficient alternatives to cover the respondents' choices.

The first part of the survey questionnaire was "Section One" (refer to Appendix 1). This section described the respondents' personal data, as well as the educational background. In section two, respondents were asked to evaluate the importance about consuming dairy products. For each of the 15 attributes, the consumers evaluated the strength of their beliefs using unipolar scales (Figure 3.1).

Figure3. 1 Measurement of The Evaluative Components Associated to Attribute "appearance"

A scale used to measure one evaluative component: **Appearance**

5	4	3	2	1
Very Important	Important	Indifferent	Unimportant	Very Unimportant

Evaluative attitudes were measured in a similar method in section three, respondents were asked to answer to what extent they agree or disagree with specific statements regarding each attribute when considering consuming different New Zealand dairy products. In section three, respondents were offered four different dairy products – fluid milk, yogurt, ice cream and cheese (Figure 3.2).

Figure3. 2 Measurement of the Beliefs Associated to "high nutrition"

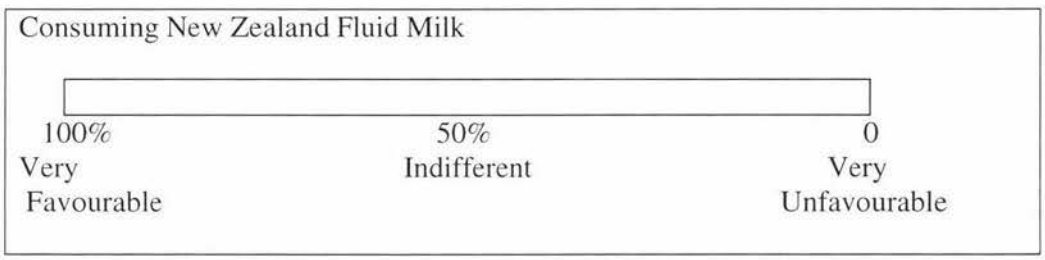
A scale used to measure beliefs about one of attributes:

New Zealand fluid milk has high nutrition value

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
A	B	C	D	E

The fourth section in the questionnaire asked respondents to state their overall attitude towards consuming four kinds of New Zealand dairy products. The purpose of this question is to have an independent measure of their overall attitude in order to validate the estimate of attitude based on the evaluative attributes. The question was formulated to obtain a score of the respondents' overall feeling of favourableness or unfavourableness toward consuming New Zealand dairy products which include fluid milk, yogurt, ice cream and cheese (Figure 3.3).

Figure 3.3 An Independent Measure of Overall Attitudes toward Consuming New Zealand Fluid Milk.



The final section of the questionnaire included specific questions regarding information about the respondents that could help the outcomes of attitude measurement, such as the length of residence, the frequency of consuming different dairy products. Several open-ended questions were included in the final section of this survey to find out the full range of respondents' opinion on consuming New Zealand dairy products (Figure 3.4).

The last question in this section was designed to let respondents add any brief comments regarding the consumption of New Zealand dairy products. This was thought necessary in case any important aspect had been overlooked.

Figure3.4 Some Open-ended Questions in the Survey

Did you consume dairy products before you came to New Zealand?

YES NO

If yes, please rank the top three dairy products you consumed, beginning with the product most consumed.

Do you now consume more dairy products than you did before you came to New Zealand?

YES NO

If yes, please indicate the main reasons that caused you to do so.

3.2 Data Collection

3.2.1 Sample

The target population for the study consisted of all Chinese people who were living in Palmerston North during September 2001. It is assumed that Chinese consumers have similar attitudes at different locations throughout New Zealand due to the high availability of dairy products. In this thesis, the word Chinese refers to people who have similar cultural background, originally coming from Mainland China, Taiwan and Hong Kong.

3.2.2 Survey Procedures

A mail survey was chosen for this study, as it was a cost-effective and timesaving method. Another reason for choosing a mail survey is because Chinese people do not like to give their personal information such as home telephone numbers and addresses to another person in their first meeting. Other advantages include allowing the respondent to complete the survey at his or her convenience and the elimination of interviewer bias (Erdos, 1983).

To obtain the sample, the New Zealand Chinese Association (Manawatu Branch) and the Manawatu Chinese Christian Church were contacted. The survey for this research was *posted* by the president of this association with a covering letter (appendix 1) to its 50 members. The father of the church helped send another 50 survey questionnaires to the Chinese followers. Several important points were mentioned in the covering letter in order to help improve response rates as recommended by Erdos (1983).

- It was explained who was taking the research and its purpose.
- Respondents were told beforehand that the survey was short and simple.
- A postage paid envelope was enclosed.

- Respondents were assured that all responses given would be treated with absolute confidentiality and no names required.
- The possibility was given for the respondents to contact the researcher in case of inquiry.
- An additional incentive was given by offering the respondent a mini table calendar of 2002.

Both the sending and return envelopes had the Massey University logo and the contact details of the Institute of Food, Nutrition and Human Health. The postage paid envelope with a computer-generated address was placed for the sender.

Finally, all covering letters were copied on the original "Massey University, Institute of Food, Nutrition and Human Health" letterhead paper and were signed by both the researcher and the supervising professor.

The questionnaire was first designed in English, and it was modified until reaching the final format. The next step was the translation to Chinese. The covering letter and the questionnaire were printed in both English and Chinese. The Chinese version was printed on the backside of the English version. Therefore, Chinese respondents can either answer the English version or the Chinese. The questionnaire was pre-tested with my supervisor, and one professional who is working for the Dairy Research Institute of New Zealand. The pre-testing was performed to check the adequacy of the terms used and the clearness of the questions.

3.3 Descriptive Results and Data Analysis

The data collected through the survey questionnaire was coded into SPSS data editor, and all further statistical was performed by using SPSS 10.0 software. Six procedures were used in analysing the collected data:

(1). Describe the key characteristics of the survey sample by producing appropriate summary statistics, the description focused on the demographic items in Section One of the questionnaire.

(2). Correlation Analysis to determine the relationship between overall theory attitudes and the overall attitudes and explain the validity of this theory when it applied to Chinese consumers; to identify relationship between the overall attitudes and its two components: the overall evaluative aspects and the subjective beliefs; to determine the relationship between overall attitudes and the frequency of dairy consumption.

(3). Descriptive Results and Cognitive Maps to show the distribution of these attributes and describe the importance of individual attributes.

(4). Crosstabulation Procedures to analyse the relationships among different variables including sex, age, educational level and length of residence.

(5). Conduct UNIANVOA to determine if there are any statistically significant relationships on consumer attitudes by examining the following variables: sex, age, origin, educational level and length of residence in New Zealand.

CHAPTER FOUR

Results and Discussion

In this chapter, the first part describes the survey responses, which include response analysis and the characteristics of the respondents, the second part shows validity of F/A model when it is employed to Chinese consumers using correlation analysis; descriptive results of assessment of two components generated from F/A model, the overall attitudes and a series of questions about dairy consumption are presented in the third part. The fourth part provides the results of the cross tabulation procedures and analysis of variance to different demographic characteristics. The final part presents a discussion about the results.

4.1 Respondents Profile

Out of the 100 surveys that constituted the sample, 75 responded questionnaires were returned, yielding a high response rate of 75%. Characteristics of the sample of completed questionnaires are in terms of gender, age range, ethnic origin, educational level and length of residency. Table 4.1 shows these key characteristics.

Among respondents involved in this survey, 28 were men and 47 were women. The female to male ratio (1.68:1) may reflect the fact that women play a more important role in food purchasing decision-making. The age distribution of the sample was dispersed, with a greater number of people in the younger and older categories than that of the general population. The result of origins indicated the great majority (87%) of respondents originally came from Mainland China. Only six respondents were from Taiwan and two came from Hong Kong. The 'Others' category included two respondents, one was from Malaysia and another was from Indonesia. In the education category, the result of more than 50 per cent of respondents completed

their tertiary education indicated that the survey respondents are better educated than the general population. The majority of respondents (87%) settled in New Zealand less than 5 years, only 6 respondents (8%) have resided in New Zealand more than 10 years. The results, in the format set out in the survey, are presented in the following tables.

Table 4.1 Profiles of Survey Respondents

Characteristics	Categories	Total	Sample percentage
Sex	Male	28	37.3
	Female	47	62.7
Age	Under 20	6	8
	20-29	18	24
	30-39	25	33.3
	40-49	6	8
	50-59	4	5.3
	Over 60	16	21.3
Origin	Mainland China	65	86.7
	Taiwan	6	8
	Hong Kong	2	6.7
	Others	2	6.7
Education	High school (3 years)	5	6.7
	High school (6 years)	17	22.7
	Some tertiary	12	16
	Tertiary graduates	40	53.3
Length of	Less than 6 months	17	22.7
	6 month – 1 year	12	16
	1 – 2 years	12	16
	2 – 5 years	24	32
	5 – 10 years	4	5.3
	More than 10 years	6	8

Missing case: educational level: 1

4.2 Validity Test

4.2.1 Compute New Variables

In this research, the sum scores of evaluate aspects can be obtained by adding each evaluative aspect to the 15 items comprising the scale for each individual case. Similarly, the sum of subjective beliefs can be obtained.

Table 4.2 shows the computing result of overall attitudes scores obtained by the whole sample on the fifteen products attributes. According to F/A model, the Chinese consumers' attitudes can be calculated by multiplying the belief scores and the evaluative aspects scores for each observation. The results show that milk achieved the highest scores with the most responses (71); the cheese had the lowest attitude scores with the least response numbers (45).

Table 4.2 Computing Results of Overall Attitude Scores

ID	Milk	Yoghurt	Ice cream	Cheese
11	71	74	95	91
8	56	37	41	32
9	47	31	28	-1
7	51	30	45	22
3	71	73	97	21
6	28	46	46	46
18	57	86	80	.
12	36	65	46	32
17	47	70	50	50
30	28	32	7	9
67	57	0	62	53
100	42	60	52	22
29	40	48	97	45
52	37	9	40	.
91	41	68	50	.
84	50	16	23	.
93	67	67	70	75
58	82	82	64	64
97	86	77	110	91
82	39	.	.	.
73	76	54	53	48
4	51	48	52	35
16	53	37	41	.
14	51	45	.	.

46	56	56	64	.
88	62	54	3	1
39	128	128	132	.
71	110	110	120	.
92	80	80	78	70
80	61	118	61	.
75	47	47	62	62
28	23	4	0	-5
49	49	.	90	47
76	67	67	96	.
22	150	.	.	.
50	123	128	105	118
59	56	56	56	.
60	19	61	48	52
1		.	.	.
68	.	.	.	.
31	44	41	84	70
54	73	86	61	.
83	39	28	43	.
47	45	45	55	27
27	36	43	50	.
32	36	32	31	46
20	49	7	67	.
85	37	24	33	36
42	58	58	69	57
99	85	85	96	96
95	79	.	80	56
86	102	101	115	102
79	74	74	.	.
19	43	27	.	.
33	90	91	93	76
70	122	117	.	125
69	32	32	22	25
26	-5	-5	0	5
53	37	.	66	28
36	76	80	72	46
57	.	.	.	.
23	37	46	33	37
55	45	40	76	31
24	52	65	30	66
15	84	88	101	79
13	57	37	63	.
94	81	37	74	.
87	82	82	83	83
78	63	126	63	.
48	76	50	75	82
40	54	58	55	64
81	61	61	61	61
77	61	61	86	.
90	.	37	.	.
89	39	.	45	.

4.2.2 Correlation Analysis

As mentioned in the literature, in order to study individual attributes, the validity of F/A attitude model needed to be tested. The following hypotheses had to be tested before conducting any further research procedure.

Hypothesis 1: There is a significant relationship between the F/A attitude model and the overall attitude. That is, in this research, the higher the F/A scores, the higher the overall feeling scores.

For ***Hypothesis 1***, Table 4.3 shows the correlation between overall feeling and their F/A model attitudes. The coefficients for the three correlations shown in the scatter diagrams are, milk = .437 yoghurt r = .602, ice cream r = 0.448 and cheese r = 0.495. These correlation coefficients are in a range from 0.4 to 0.7, which is considered to be large at the sample size of about 60. Also, the value for Sig is less than .01 ($p<.01$), it indicates that there is a significant difference between the overall feeling scores and the F/A model attitudes. As a result, this hypothesis is supported.

Table 4.3 Correlations between Overall Feeling and the F/A model Attitudes

	Number of Response	Correlation with attitudes	Sig.
Overall feel of NZ milk	71	.437	.000
Overall feel of NZ yoghurt	64	.602	.000
Overall feel of NZ ice cream	65	.448	.000
Overall feel of NZ cheese	45	.495	.000

**Correlation is significant at the 0.01 level.*

Hypothesis 2: There is a significant relationship between F/A attitude and the sum of subjective beliefs (SSB). That is, a change situation of the subjective beliefs in which the product is encountered will induce higher or lower level of overall attitudes of the product in that situation.

Hypothesis 2A: There is a significant relationship between F/A model attitudes (OA) and the sum of evaluative aspects (SEA).

For ***Hypothesis 2***, it is easily observed from the following scatterplot that there is a strong linear relationship between overall attitudes (OA) and the sum of subjective beliefs (SSB) scores. The assumption of homoscedasticity has not been violated because the scores uniformly surround the regression line.

Figure 4.1 Regression Line Representing the Relationship between the F/A model Attitude and the Sum of subjective Beliefs

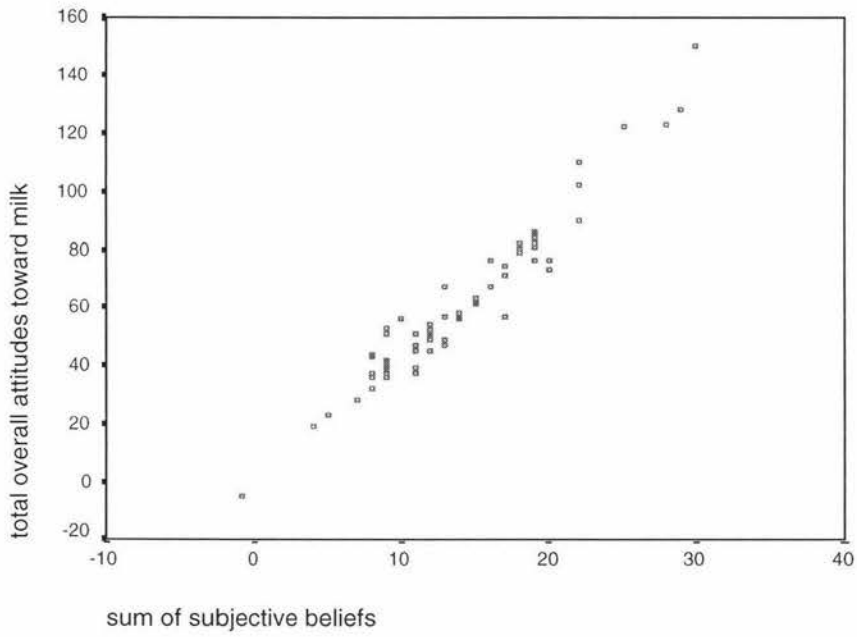


Table 4.4 depicts hypothesis 2. The relationship is supported strongly by all the four dairy products. The output indicated that the relationship between overall attitudes and belief evaluation scores is significant for all the selected dairy products. It confirms that a very high relationship exists between the overall attitude and one of its components – subjective beliefs (milk: r = .97, yoghurt: r = .985, ice cream r = .98 and cheese: r = .989), the value for Sig is less than .01 ($p<.01$), it indicated that there is a significant difference between F/A model attitudes (OA) and the sum of evaluative aspects (SEA). Hence, this hypothesis is strongly supported.

Table 4.4 Correlations between The Overall Attitudes and The Sum of Subjective Beliefs

New Zealand dairy products	Correlation With attitudes	Sig.
Belief evaluation scores of milk	.970	.000
Belief evaluation scores of yoghurt	.985	.000
Belief evaluation scores of ice cream	.980	.000
Belief evaluation scores of cheese	.989	.000

**Correlation is significant at the 0.01 level.*

For hypothesis 2A, it can be observed from table 4.5 that a significant relationship between the overall attitudes and the sum of evaluative aspects. However, correlation coefficient r in this hypothesis is much lower than that of in hypothesis 2. Thus the belief evaluation component has been found to have greater predictive power rather than the evaluative aspects component.

Table 4.5 Correlations between Overall Attitudes and the Sum of Evaluative Aspects

	Correlation with overall attitudes	Sig.
Milk evaluative aspects	.543	.000
Yoghurt evaluative aspects	.578	.000
Ice cream evaluative aspects	.467	.000
Cheese evaluative aspects	.585	.000

**Correlation is significant at the 0.01 level.*

Hypothesis 3: There is a significant relationship between F/A model attitudes and frequency of different dairy products consumption. That is, the higher attitude scores, the more frequent the consumption of dairy products.

Table 4.6 depicts this ***hypothesis 3***. The relationship is supported strongly for all the dairy products except cheese. The output indicated that the relationship between

overall attitudes and the frequency of dairy consumptions is significant for milk, yoghurt and ice cream. It confirms that a very high relationship exists between the overall attitude and one of its components – subjective beliefs (milk: r = .206, p<. 05 yoghurt: r = .544, p< .01 ice cream r = .359, p<. 01). There is no significant relationship can be found between frequency of cheese consumption and overall attitudes towards cheese. Hence, this hypothesis is strongly supported for three dairy products.

Table 4.6 Correlations between the F/A model Attitude and the Frequencies of Different Dairy Consumption

	Mean	N	Correlation	Sig.
Milk frequency	3.49	74	.206	.043**
Overall attitudes	59.70	71		
Yoghurt frequency	2.45	74	.544	.000*
Overall attitudes	57.85	66		
Ice cream frequency	2.49	74	.359	.002*
Overall attitudes	62.25	65		
Cheese frequency	1.88	74	.141	.178
Overall attitudes	51.70	46		

**Correlation is significant at the 0.01 level.*

***Correlation is significant at the 0.05 level.*

From the above hypotheses testing, it can be concluded that all the three hypotheses are supported. That is, in this research, the Fisbein and Ajzen attitudinal model performed well when it was employed to Chinese consumers. It shows that Chinese consumers' attitudes can be aggregated by multiplying the evaluative aspects and subjective beliefs; the subjective beliefs have greater predictive power rather than evaluative aspects component. Also, there is a significant relationship between F/A attitude and reported behaviour for all the selected dairy products except cheese.

4.3 Descriptive Results

Section 2 of the questionnaire was concerned with the respondents' assessment of their evaluative aspects in relation to each of the 15 attributes which consumers took into consideration while purchasing dairy products. This section was designed from three aspects that can be divided into product, package and service. The first 4 attributes focused on the importance of physical attributes of dairy products including appearance, nutritional value, mouth-feel and aroma. The attributes dealt with package were listed from attribute 5 to attribute 11, which covered information of value for money, ease of use and storage, product design, product content, packaging size, price setting and brand concern. The last aspect was concerned with customer service related to dairy products, product availability, overall quality, product variety and storage life, which compromised an important part of dairy consumption.

The respondents were asked to rank products on an ordered scale of 5 to 1. A response of 5 denoted that the attribute is very important in making dairy product purchasing decisions while a response of 1 indicated that the attribute is not at all important in making purchasing decisions. A score of 3 was chosen if the attribute was moderately important. The average scores for the evaluate aspects associated to each attribute can be observed in table 4.7.

All of the fifteen attributes on average were decidedly more than moderately important. That is, they were ranked on average above a score of 3. All average scores are positive, indicating the consumers perceived these attributes to be important when considering consuming dairy products. When moving down the ranking from the most important to least important attributes of consumer choice, the standard deviation of the response tends to increase. This would indicate fewer consensuses among respondents regarding the importance of the lower ranking attributes and a greater level of agreement on the importance of the higher-ranking attributes.

Table 4.7 Summaries of Evaluate Aspect Scores of Attributes

Descriptive Statistics

	N	Min	Max	Mean	S.D
appearance	75	1	5	3.87	.759
nutrition value	75	3	5	4.57	.619
mouthfeel	75	2	5	4.39	.676
aroma	75	2	5	3.57	.825
value for money	74	2	5	4.20	.776
ease of use and storage	75	2	5	4.11	.781
packaging design	75	1	5	3.31	1.039
informative content	73	1	5	3.99	.920
packaging differentiation	74	1	5	3.81	.788
brand name	75	1	5	4.24	.768
low price	74	2	5	4.22	.896
product availability	75	2	5	4.07	.777
overall quality	75	3	5	4.67	.553
wide product variety	75	2	5	3.67	.935
long storage life	75	1	5	3.72	1.134
Valid N (listwise)	70				

The highest ranking obtained by the overall quality attribute of dairy products, and this also obtained the lowest standard deviations, indicating that Chinese consumers agreed on the importance of this attributes.

Among these 15 attributes, nutrition and mouthfeel as two product physical attributes are ranked much higher than another two physical-oriented attributes - product appearance and aroma. Nutrition and mouthfeel concerns ranked as the second and the third important attributes followed the quality concern while the product appearance and aroma ranked at the tenth and fourteenth on this list.

In relation to package-oriented attributes, consumers ranked brand name the most important attribute, followed by price concern. Another two attributes concerned with product value (Value for money) and convenience (Ease of use and storage) were ranked lower than the brand and price concern. These are also important to the Chinese consumers to take consideration in dairy product decision-making. Informative content attributes and product size differentiation attributes were

ranked higher than product design attribute, which is listed on the bottom of this table.

In relation to service-oriented attributes, consumers considered that product availability is the most important attribute except overall quality. This attribute ranked at eighth on this list. The product variety attribute, which was ranked at the thirteenth, less important than other service attributes, including quality, product availability and storage life. Storage life attribute obtained the highest standard deviation indicating that consumers varied highly in relation to their levels of agreement with this attribute.

In ***section 3*** of the questionnaire, the respondents were asked to assess their subjective beliefs towards four types of New Zealand dairy products associated to these attributes list on section two. If the consumers never consume a certain product, they could leave the column blank under this product title. Four typical dairy products were chosen to help the researcher to generate overall comments from Chinese consumers.

According to the Fishbein and Ajzen model, the consumer's overall attitude toward that product is the aggregation of his or her beliefs about each of its attributes as well as an evaluation of the importance or relevance of that attribute in providing the needed benefits when evaluating it. The subject beliefs toward a product can be measured on bi-polar (-2 to +2) scales. This means that something which is likely (+ve) gives a positive belief and also that something which is unlikely (-ve) and unpleasant (-ve) gives a negative belief. For four New Zealand dairy products, table 4.8 shows the average beliefs scores about the 15 attributes which their importance has been evaluated in section two. The average belief scores about all attributes for all the four dairy products were above 0, which mean Chinese consumers' beliefs toward New Zealand four types of dairy products are positive. The mean about 'creative design' attribute ranked the lowest (.36) with the highest standard deviation, which indicated that consumers were least concerned about this attribute when buying dairy products.

Table 4.8 Summaries of Subjective Belief Items for Four Dairy Products

	Fluid milk		Yoghurt		Ice cream		Cheese	
	N	Mean	N	Mean	N	Mean	N	Mean
Attractive appearance	74	.65	67	.84	68	.88	49	.61
High nutri value	75	1.47	68	1.38	69	.91	49	1.06
Favourite mouth-feel	75	1.23	68	1.15	69	1.29	49	.71
Pleasant aroma	75	.75	68	.65	69	1.06	49	.67
Value for money	74	1.08	67	.88	68	1.09	48	.81
Ease of use and storage	75	.91	68	1.01	69	1.01	49	.86
Creative design	75	.13	68	.35	69	.48	49	.47
Informative content	74	.93	68	.75	69	.94	49	.88
Different packaging sizes	75	.77	68	.62	69	.61	49	.61
Trustworthy brand names	75	1.07	68	.97	69	1.14	49	.92
Low price	74	.65	67	.49	68	.96	49	.43
High product availability	75	1.23	68	1.12	69	1.20	49	1.12
Dependable quality	75	1.44	68	1.35	69	1.35	48	1.06
Wide product variety	75	1.01	68	1.00	69	1.00	49	.92
Long storage life	75	.65	68	.81	69	1.04	49	.73

According to the Fishbein/Ajzen model, the Chinese consumers' overall attitudes can be calculated by multiplying the belief scores and the evaluative aspects scores for each observation. Furthermore, if the belief scores and evaluative aspect scores

are averaged over each attribute, it is logical to obtain the average contribution towards the overall attitude. Table 4.9 shows the summary of overall attitudes toward each attribute of the entire four dairy products measured by F/A model.

Table 4.9 Summary of Attitude toward Attributes Measured by the F/A Model

Attribute	Fluid milk		Yoghurt		Ice cream		Cheese	
	AVG	Rank	AVG	Rank	AVG	Rank	AVG	Rank
Overall quality	6.72	1	6.30	2	6.30	1	4.95	1
Nutrition value	6.72	1	6.31	1	4.16	6	4.84	2
Mouth feel	5.40	2	5.05	3	5.66	2	3.12	9
Brand name	4.54	4	4.11	6	4.83	4	3.90	4
Low price	2.74	8	2.07	14	4.05	8	1.81	14
Value for money	4.54	4	3.70	7	4.58	5	3.40	7
Ease of use & storage	3.74	5	4.15	5	4.15	7	3.53	5
Product availability	5.01	3	4.56	4	4.88	3	4.56	3
Informative content	3.71	6	2.99	11	3.75	11	3.51	6
Appearance	2.52	10	3.25	9	3.41	13	2.36	12
Pack differentiation	2.93	7	2.36	12	2.32	14	2.32	13
Long storage life	2.42	11	3.01	10	3.87	9	2.72	10
Wide product variety	3.71	6	3.67	8	3.67	12	3.38	8
Aroma	2.68	9	2.32	13	3.78	10	2.39	11
Packing design	0.43	12	1.16	15	1.59	15	1.56	15

On average, for New Zealand fluid milk, yoghurt and cheese, Chinese consumers had positive attitudes, but the pattern varied between the three different dairy products, with both quality and nutrition obtaining the same positive attitudes toward fluid milk, nutritional value being more positive for yoghurt, and overall quality being more positive for cheese. For ice cream, overall quality achieved the most important attribute in the formation of the overall attitude and mouthfeel obtained the second positive view instead of nutritional value, which was ranked at sixth on the attitude list. For milk, yoghurt and ice cream, mouthfeel was the next positive attitude after the quality and nutrition concern. However, for cheese

products, this attribute dropped to ninth, which means acceptance and choice of New Zealand cheese are affected by Chinese consumer sensory preference. From this table, it can be observed without difficulty that Chinese consumers also had quite positive attitudes toward the brand attribute of New Zealand dairy products, which ranked fourth for milk, ice cream and cheese except the slight difference for yoghurt (6th). Although on average no attribute made a negative contribution, the attribute concerned with product design had the lowest contribution toward a positive attitude.

In section *Four* of the questionnaire, respondents were asked to state their overall likelihood towards consuming different New Zealand dairy products on a scale of 100 (very favourable) to 0 (very unfavourable). Respondents were confronted with four different New Zealand dairy products - milk, yoghurt, ice cream and cheese.

Table 4.10 shows the number of respondents for each type of dairy products, the range of favourable attitudes, the averages and standard deviations for each question. New Zealand fluid milk achieved the highest average score as well as the lowest standard deviation. This product also obtained a more positive range, 50% - 100%. The highest average scores indicated that Chinese consumers have the most positive attitudes towards purchasing fluid milk and the greatest agreement on consuming this product. The second favourable dairy product for Chinese consumers was ice cream followed by yoghurt. The lowest mean scores and the highest standard deviation for cheese products indicated that the overall attitude of respondents toward consuming New Zealand cheese was on average the lowest and there was the least agreement by consumers on this matter.

Table 4.10 Overall Attitudes toward Consuming New Zealand Dairy Products

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
overall feeling of NZ milk	75	.50	1.00	.8893	.11546
overall feeling of NZ yoghurt	69	.00	1.00	.7310	.27587
overall feeling of NZ ice cream	68	.20	1.00	.8301	.19203
overall feeling of NZ cheese	57	.00	1.00	.5579	.31236
Valid N (listwise)	54				

4.4 Dairy Product Consumption Experiences

The final section (Section 5) was concerned with Consumer preference on purchasing different New Zealand dairy products, including fluid milk, yogurt, ice cream and cheese. Four questions were contained in this section; they included the frequency of consuming different dairy products, whether they consumed dairy products before they came to New Zealand, and listing of three most consumed dairy products if they offer a definite answer.

The frequency related to consumption of four dairy products is shown in Table 4.11. The dependent variable is the ordered frequency of use for any kind of fluid milk, yoghurt, ice cream and cheese. For these four types of dairy products, the categories are 1= more than 7 times a week, 2 = more than once but less than 7 times a week, 3 = occasionally but less than once a week, 4 = never consume. In this case, the lower the means, the higher the frequency of consumption. In order to show a more comprehensive view of this question, the original categories were recoded from 4 (more than 7 times a week) to 1 (never consume). Thus, the table 4.11 shows that the highest mean (3.49) of these items was fluid milk with the lowest standard deviation (.602). That is, fluid milk is the most frequently consumed dairy product among these items, and most consumers agreed on the importance of consuming fluid milk. New Zealand ice cream obtained the second highest mean scores (2.49) followed by yogurt product (2.45), with only a slight difference of the consumption frequency between the two products. This means that both of two products are popular to Chinese consumers. The cheese item obtained the lowest mean score (1.88), showing that it is the least consumed dairy product among Chinese consumers.

Table 4.11 Descriptive Statistics of Four Dairy Products Consumption

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
MFREQU2	74	2	4	3.49	.602
YFREQU2	74	1	4	2.45	.724
IFREQU2	74	1	4	2.49	.707
CFREQU2	74	1	4	1.88	.721
Valid N (listwise)	74				

Table 4.12 shows that 40 out of 74 people (one missing value) consumed fluid milk more than 7 times a week and 30 people consumed fluid milk more than once but less than 7 times a week, which covered 93 percent of this sample. The biggest group of people for yoghurt and ice cream consumption were almost evenly distributed in the second and third categories. For yoghurt, 31 people chose more than once but less than 7 times of their consumption while 33 people believed that they consumed this product occasionally but less than once a week. For ice cream, 33 people said that they consume this product more than once but less than 7 times a week, and 32 people said they consume it occasionally but less than once a week. Cheese products were concerned with occasional dairy consumption, which is far less important than fluid milk consumption. It shows that 22 people never consumed cheese in their life, which covered almost 30 percent of the respondents.

Table 4.12 Consumption Frequencies of Four Dairy Products

	Fluid milk		Yoghurt		Ice cream		Cheese	
	F	%	F	%	F	%	F	%
More than 7 times a week	40	53.3	4	5.3	4	5.3	2	2.7
More than once But less than 7 times a week	30	40	31	41.3	33	44	9	12.2
Occasionally but less than Once a week	4	5.3	33	44	32	42.7	41	55.4
Never consume	0	0	6	8	5	6.7	22	29.7
Total	74	98.7	74	98.7	74	98.7	74	98.7

Missing value 1

Question 3 of this section was concerned with the respondents consuming dairy products in their original country. Table 4.13 shows the fact of their dairy

consumption before the respondents came to New Zealand. Except for two missing cases, 62 of them had a positive answer while 11 people answered they had no experience in consuming any dairy product. Therefore, most of respondents (83%) had experiences in consuming dairy products.

Table 4.13 Chinese Dairy Consumption before the Arrival to New Zealand

dairy consumption before arrival

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	62	82.7	84.9	84.9
	no	11	14.7	15.1	100.0
	Total	73	97.3	100.0	
Missing	System	2	2.7		
Total		75	100.0		

Missing value: 2

As part of this question, respondents who have a positive answer were asked to select the sequence of three most consumed dairy products they consumed before they came to New Zealand (Table4.14). Twenty-one people chose category one while 14 people ticked the category two. That is, most of the respondents (59%) believed that milk, yoghurt and ice cream are the three most consumed dairy products they consumed before they came to New Zealand. The majority (40 out of 45) of the respondents ranked milk as number one consumed dairy products and cheese products the least consumed dairy products. The table 4.11 also shows the New Zealand-settled Chinese consumers' preferences toward consuming different dairy products. The highest mean of these items was fluid milk with the lowest standard deviation. The results were similar with the Chinese consumers' preference before the arrival to the New Zealand. Fluid milk was the most frequently consumed dairy product among these items, and most consumers agreed on the importance of consuming fluid milk. The cheese products were the least consumed dairy product among Chinese consumers. Therefore, the result shows that the New Zealand-settled Chinese preferences of dairy products are similar with the dairy preferences of Chinese people who live in Mainland China. Furthermore, it inferred that Chinese consumer preferences toward different dairy products would

not be changed due to different length of residency in New Zealand. Tables 4.12 shows the frequency of the dairy consumption, more than 90 per cent of the respondents consumed fluid milk frequently, while only 5 percent of the respondents said they consume occasionally. On the contrary, only 14 percent of the respondents consumed cheese products frequently, and the majority of the respondents (51%) said they consume cheese products occasionally. Moreover, more than thirty percent Chinese consumers never tried cheese products. The above fact indicated fluid milk is the most important dairy products for the Chinese consumers, yoghurt and ice cream are getting more and more popular, and cheese product will take time to be adapted.

Table 4.14 Sequence of Three Most Consumed Dairy Products

sequence of dairy consumption

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	milk, yoghurt, ice cream	21	28.0	46.7	46.7
	milk, ice cream, yoghur	14	18.7	31.1	77.8
	ice cream, milk, yoghur	1	1.3	2.2	80.0
	milk, yoghurt, cheese	5	6.7	11.1	91.1
	ice cream, yoghurt, milk	1	1.3	2.2	93.3
	yoghurt, ice cream, milk	2	2.7	4.4	97.8
	ice cream, milk, cheese	1	1.3	2.2	100.0
	Total	45	60.0	100.0	
Missing	System	30	40.0		
Total		75	100.0		

In question four, respondents were also asked whether they experienced consuming more dairy products than they did before their arrival in New Zealand. Among 73 respondents of this question, 61 had a yes answer while 12 answered no, which means most of the Chinese people (81.3%) consumed more dairy products in New Zealand (Table 4.15). Furthermore, a question formed why they consume more dairy products than they did in their home country. The answers are directly linked to some of the attributes, which are listed in the second section of this questionnaire except one factor - lack of food choice.

Table 4.15 Chinese Dairy Consumption after the Arrival

consume more dairy products

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	61	81.3	83.6	83.6
	no	12	16.0	16.4	100.0
	Total	73	97.3	100.0	
Missing	System	2	2.7		
Total		75	100.0		

Finally, the last question of this section asked respondents about their comments and suggestions regarding New Zealand dairy products. 31 people summarized some comments in different views. The majority (12 people, 39%) stated that the prices of milk were expensive and unstable. Thirteen per cent respondents thought that the packaging of ice cream was monotonous and needed to have different sizes with valid dates. The comments also included health concerns of cheese products, sugar content of yoghurt and fat concern of dairy consumption.

4.5 Cognitive Maps

Cognitive maps can be used to plot for the measurement of each of the attributes associated with the behaviour of consuming New Zealand dairy products. The maps consist of points that represent each attribute as a result of the combination of evaluative aspects and subjective beliefs that each respondent has answered for these attributes. Each attribute makes a certain contribution to the overall attitude respondents have. Normally, it is much easier to change beliefs rather than evaluative aspects. The cognitive maps can be used to identify target groups of individuals with the objective of trying to change the overall attitude of the selected population.

The common characteristics in the following figures (Figure 4.2, Figure 4.3, Figure 4.4, and Figure 4.5) are the attributes two, three, seven and thirteen. For milk, yoghurt and cheese, it is clearly shown that attributes thirteen, two and three (overall quality, nutrition values and mouthfeel) are the attributes that contribute most to the overall positive attitudes, due to their location in the upper right hand corner. The distribution is slightly different for ice cream, which shows in figure 5.4 that overall quality is still the most important attribute followed by sensory property (mouthfeel). Thus, favourite mouthfeel is most important when buying ice cream. In contrast, attribute seven (package design) which is isolated in all the four figures and is located in the lower left hand corner, shows, on average, the lowest contributions towards overall attitude on average.

It also can be observed that the distributions in these of the rest of the attributes are similar. Value for money, brand name, high product availability, ease of use and storage, informative content, all these attributes are groups located in the centre of the maps. Attribute 11 (low price) is separated from the others, which indicated that Chinese consumers rank this attribute as fairly important. However, they also agreed with the price of New Zealand dairy products were not low.

Figure 4.2 Cognitive Maps Showing the Attribute Distributions of Milk

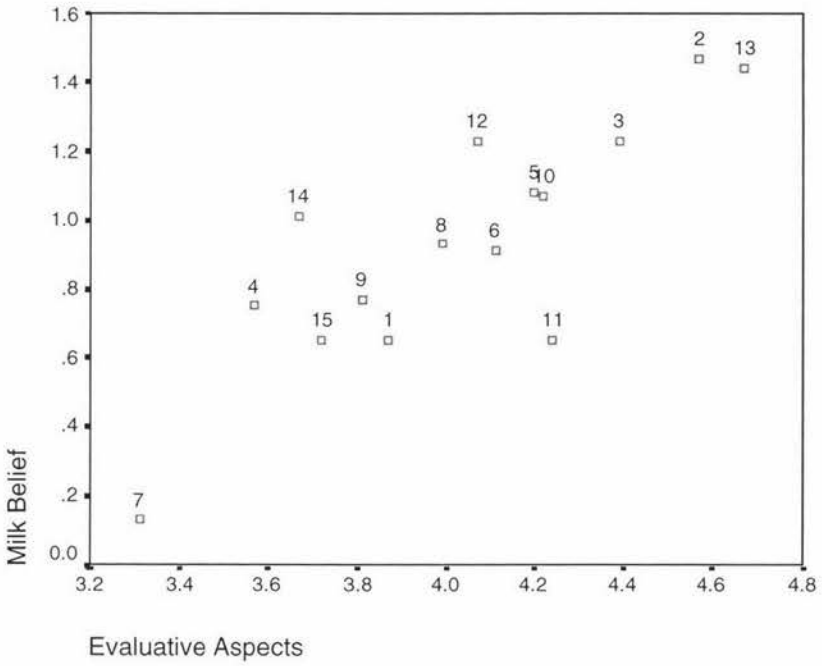


Figure 4.3 Cognitive Maps Showing the Attribute Distributions of Yoghurt

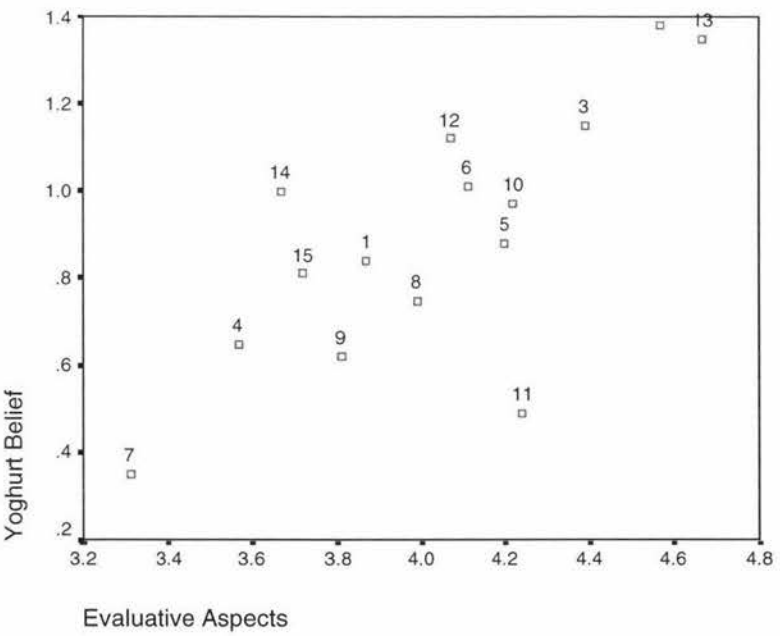


Figure 4.4 Cognitive Maps Showing the Attribute Distributions of Ice Cream

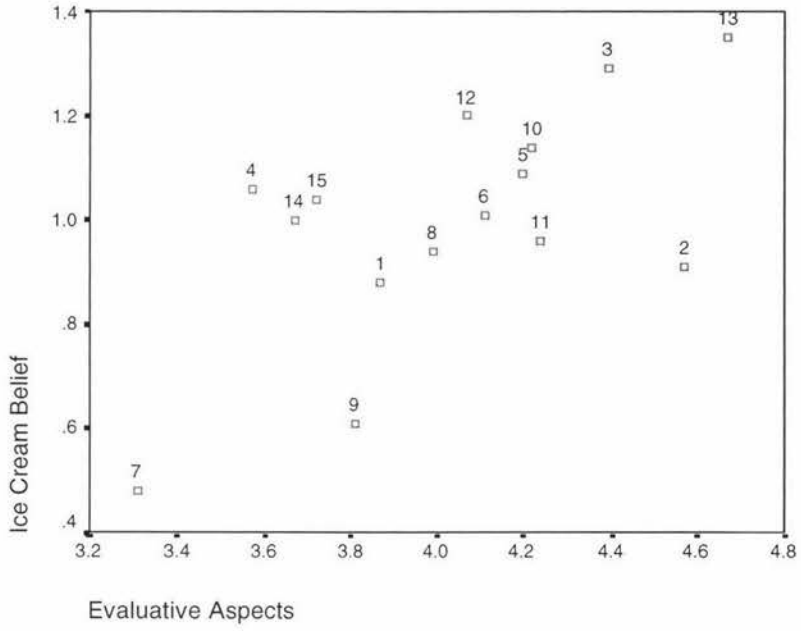
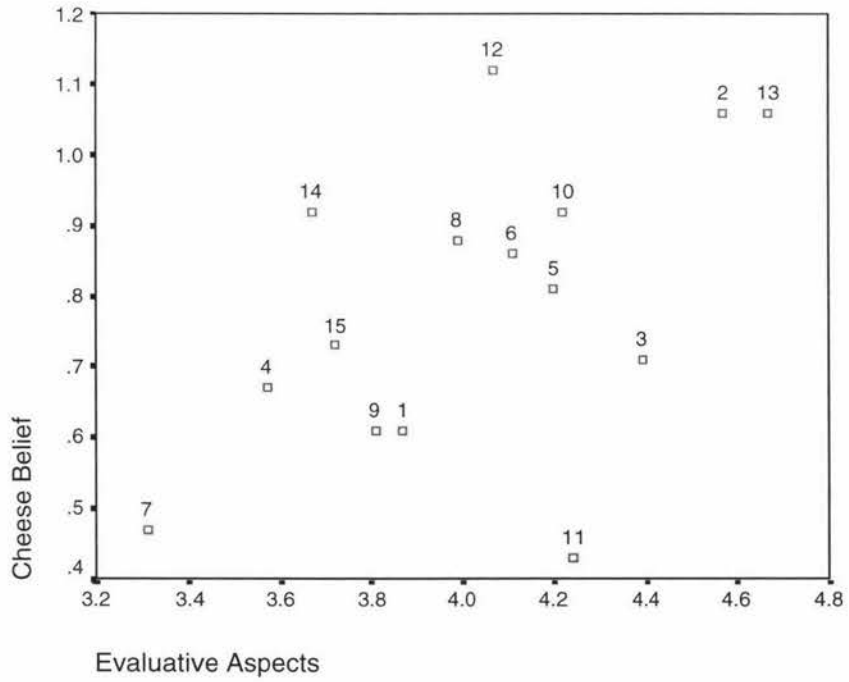


Figure 4.5 Cognitive Maps Showing the Attribute Distributions of Cheese



4.6 Analyses of Demographic Characteristics

The overall attitudes about four New Zealand dairy products are analysed by the following demographic characteristics: sex, range of age, origin, educational level, and length of residency. Firstly, to enable analysis of the overall attitudes among different categories, small groups in these categories were simplified. That is, small groups are combined with each other or with big groups. Secondly, residuals were checked for violation of assumptions. Finally, Univariate Analysis of Variance was conducted to reach to results.

Table 4.16 Modified Profiles of Survey Respondents

Characteristics	Categories	Total	Sample percentage
Age	Under 20 - 29	24	32
	30-49	31	41
	50- over 60	20	27
Origin	Mainland China	65	87
	Others	10	13
Education	Secondary school	22	28
	Some tertiary	12	16
	Tertiary graduates	40	53
Length of	Less than 6 months	17	23
	6 month – 1 year	12	16
	1 – 2 years	12	16
	2 – 5 years	24	32
	More than 5 years	10	13

Table 4.16 shows the modified results of the survey respondents, for Age category, the group under 20 and the group 20-29 were combined, and the group 50 -59 and the group over 60 were join together. For Origin category, the majority of the respondents were from Mainland China; only ten (13%) respondents were from Hong Kong, Taiwan and other Asian countries. Therefore, people from Mainland

China and other regions or countries could not be clearly compared with each other because of the small sample size of the second group. In Education category, respondents who belonged to two secondary groups were combined. Finally, in category of Length of residency, the respondents from 50 – 59 and over 60 year old were grouped together.

4.6.1 Crosstabulation Procedures

The **Crosstabulation** procedures are used to estimate relationships among variables. Table 4.17 shows the observed frequency of four categories depended on gender category of the respondents. One female respondent was missing in the education category, which the total respondents were 74. In examining the observed cell frequencies, in the education category, the female to male ratio in three groups were different, that is, the ratios of secondary school was 1.75:1, some tertiary was 3:1 and tertiary graduates was 1.35:1. When comparing with the total female to male ratio (1.64:1), it can be concluded that female respondents are the main component while male respondents had higher ratio in tertiary graduate group.

Table 4.17 Observed Frequencies of Education, Age, and Length of Residency on the Gender category

Sex of respondents						
Education		3	4	5		
	Male	8	3	17		28
	Female	14	9	23		46
	Total	22	12	40		74
Age		2	4	6		
	Male	8	9	11		28
	Female	16	22	9		47
	Total	24	31	20		75
Length		1	2	3	4	5	
	Male	5	5	5	11	2	28
	Female	12	7	7	13	8	47
	Total	17	12	12	24	10	75

In the Age category, the numbers of female respondents were double that of their counterparts in the first and second groups, which covered a range from under 20 years old to 49 years old. While the total female to male ratio (1.68:1), the female to male ratio (0.82) in the third group may indicate that old Chinese males are more likely to adapt a new lifestyle. In the category of Length of residency, the female absolute values were higher than that of male respondents. However, it is shown that more female Chinese come to New Zealand and stay longer than Chinese males did.

Table 4.18 shows two categories based on respondent the educational category, which are age, length of residency. For the Age category, fifty per cent of tertiary graduates were in the 30 - 49 group with only 4 respondents in this group having finished secondary school; that is, respondents in this age group are better educated that the others. In another two age groups, respondents were polarized, meaning more respondents had secondary and tertiary education than those achieved in the middle – some tertiary education. For the secondary category, it can be observed that the relationship between education and length of residency was not significantly different for each group.

Table 4.18 Observed Frequencies of Age, Length of Residence on the Education category

Education of respondents						
Age	2		4		6	
Secondary	9		4		9	22
Some tertiary	5		6		1	12
T graduates	10		20		10	40
Total	24		30		20	74
Length	1	2	3	4	5	
Secondary	5	3	4	4	6	22
Some tertiary	3	3	1	4	1	12
T graduates	9	6	7	15	3	40
Total	17	12	12	23	10	74

The following crosstabulation (Table 4.19) shows the relationship between age and length of residency. There were two distinct characteristics that could be extracted. In the first group, which referred to people who came to New Zealand less than 6 months, the different frequency indicated that many young people come to New Zealand recently, and also, people who belonged to 30 – 49 years old are the main population for the 2-5 years period.

Table 4.19 Representing the Relationship between Age and Length of Residence

AGE2 * LENGTH2 Crosstabulation

Count

		LENGTH2					
		1.00	2.00	3.00	4.00	5.00	Total
AGE2	2.00	10	5	4	4	1	24
	4.00	6	4	3	12	6	31
	6.00	1	3	5	8	3	20
Total		17	12	12	24	10	75

4.6.2 ANOVA Analysis

Attitudes towards milk

The Univariate method is useful as it is what we do if we have more than one independent variable as we shall see. Before an ANOVA is calculated, it is important to check that the data meets the relevant assumptions. There are two main considerations. First, the data from each of the groups should be approximately normal which can be checked by using SPSS statistical software. Secondly, the groups should have approximately equal variances.

Normality and homogeneity of the Sample

The assumption of normality is a prerequisite for inferential statistical techniques. In this research, one of the objectives is to determine if there are statistically significant relationships on overall attitude scores on the following variables: sex,

range of respondents' age, educational level, and the length of respondents' residency. Therefore, the precondition to conducting further analyses related to these demographic statistics is that the scores within each variable should be normally distributed. They're a number of different ways to explore this assumption graphically. The SPSS box plots as a convenient method can be used to assess normality.

The following box plots show how the dependent variable (here, F/A model attitudes toward milk) varies for each category (sex, education, length of residence and origin). The range from the highest to lowest value in a group is indicated by the horizontal thin bars at each end of the vertical box column. The dark horizontal line inside the rectangle indicates the mean (mean attitudes here). The rectangle itself indicates where most of the cases lie. Ideally, for normal distributions, the rectangle is in the middle of the range, and the mean line is in the middle of the rectangle. For these categories shown in the following four boxplots, dependent (overall attitudes toward milk) is normally distributed for most groups. Only a few of the groups are skewed (age group three, length groups 3, 4 and 5). However, ANOVA is robust when normality is violated, particularly if one has a large sample. Homogeneity of variance also can be checked from this series of boxplots which indicated they are not violated.

Figure 4.6 The Boxplot Representing Normality and Homogeneity of Milk Attitudes Based on Sex

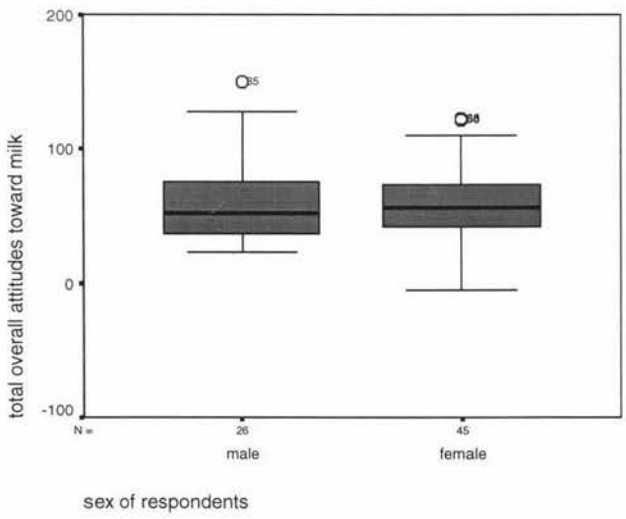


Figure 4.7 The Boxplot Representing N normality and Homogeneity of Milk Attitudes Based on Education

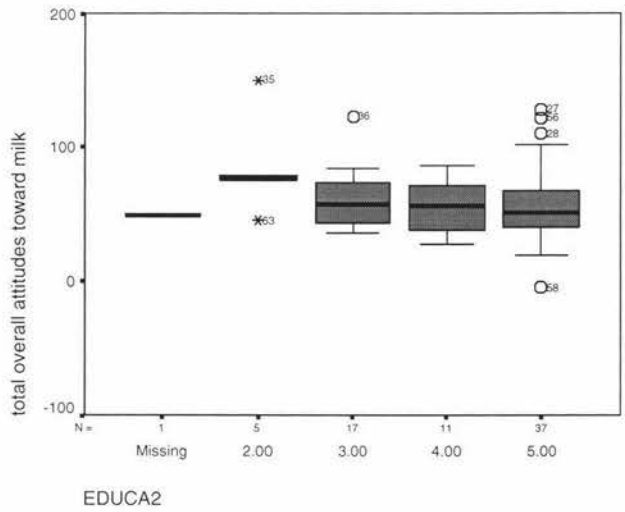


Figure 4.8 The Boxplot Representing Normality and Homogeneity of Milk Attitudes Based On Age

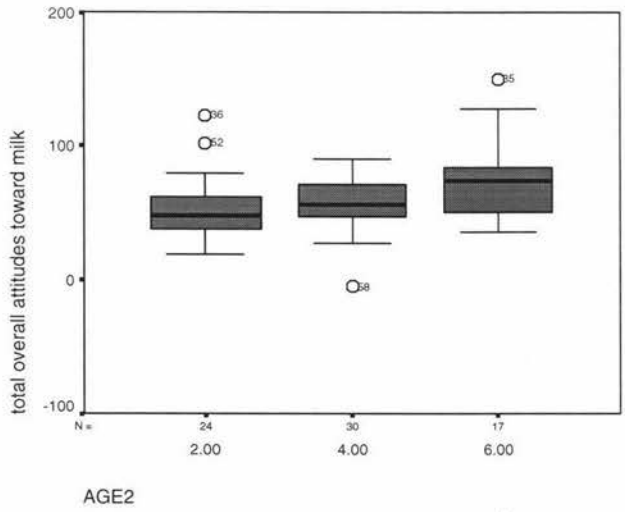


Figure 4.9 The Boxplot Representing Normality and Homogeneity of Milk Attitudes Based on Length of Residence

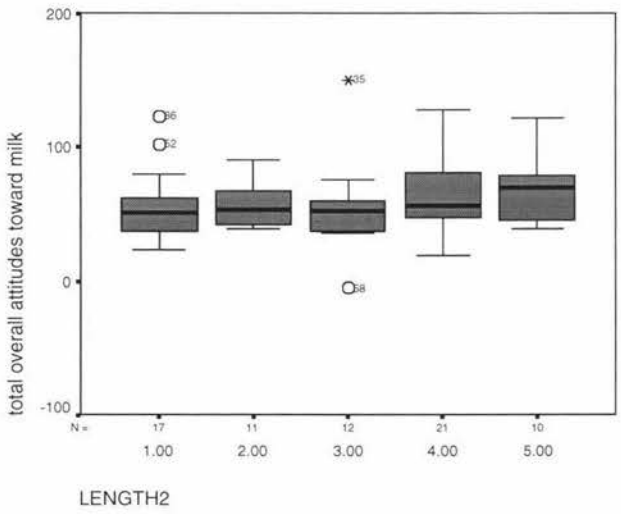


Table 4.20 Relationship between the F/A Attitudes and Selected Demographics

Milk	F	Sig
Sex	.18	.893
Education	.831	.440
Length	.592	.670
Age	4.432	.016

Table 4.20 illustrates that the correlation between F/A model attitudes and sex, education and length of residence were not significant (P> .05). However, for the Age category, the above table shows a significant effect p=. 016. That is, overall, there is a significant difference between the groups. In order to find out which groups were different, post hoc tests were carried out. To do this on SPSS is to select Post Hoc from the Univariate dialogue box and then select Scheffe, as shown in the dialogue box below.

Table 4.21 Group differences among respondent ages

Pairwise Comparisons

Dependent Variable: total overall attitudes toward milk

(I) AGE2	(J) AGE2	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
2.00	4.00	-2.358	6.978	.736	-16.283	11.566
	6.00	-22.272*	8.077	.007	-38.390	-6.154
4.00	2.00	2.358	6.978	.736	-11.566	16.283
	6.00	-19.914*	7.735	.012	-35.349	-4.478
6.00	2.00	22.272*	8.077	.007	6.154	38.390
	4.00	19.914*	7.735	.012	4.478	35.349

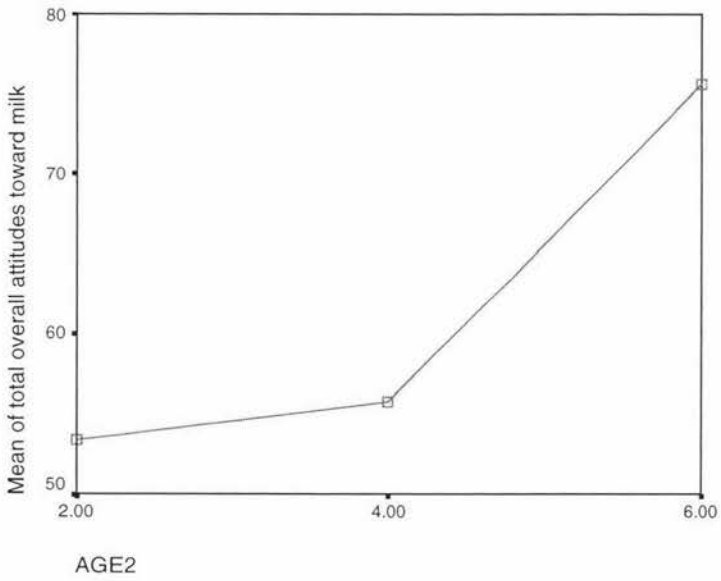
Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

From Pairwise Comparisons, it can be observed that each group is being compared in turn with each other group. It shows in this table that Group 1 and group 3 are significantly different and group 2 and groups 3 are also significantly different. This confirmed that people who are under 49 years old have different attitudes towards New Zealand fluid milk. An examination of the estimated marginal means for overall attitudes towards fluid milk and the age of respondents indicated that old people (over 50 years old) have more positive attitudes towards fluid milk than people who are less than 50 years old. Furthermore, by examining the Linear term for milk, it also concluded that overall attitudes increases consistently across age groups toward milk. Plotting the means illustrated a linear trend, as evident in the following figure.

Figure 4.10 Attitude Mean Plot Based On Age



Attitudes towards yoghurt, ice cream and cheese

For the other three products, normality and homogeneity were checked. For the next three categories, dependent variables (overall attitudes) were normally distributed for most groups and homogeneity was not violated. Significant values displayed in the following table were more than .05, so it is verified that there is no statistic significance for yoghurt, ice cream and cheese across the different demographics including sex, age, education and length of residency. It suggested that there is no significant difference in overall attitudes toward dairy products except fluid milk by age.

Table 4.22 Relationships between Attitudes and Other Three Dairy Products

Yogurt	F	Sig
Sex	1.32	.256
Education	.423	.657
Length	2.77	.070
Age	.560	.692
Ice cream	F	Sig
Sex	1.155	.287
Education	.302	.740

Length	1.84	.168
Age	1.127	.352
Cheese	F	Sig
Sex	1.024	.317
Education	.084	.920
Length	.460	.765
Age	1.65	.204

4.7 Discussion

Many previous studies focused on a single dairy product or several attributes of dairy consumptions. No studies on consumer attitudinal studies of so many dairy items with a wide range of attributes could be found in the literature review. Neither was any research available in relation to Chinese consumers' attitudes toward consuming foreign dairy products. It is difficult to make comprehensive comparisons with previous research. Therefore, some comparisons with researches on consumer attitudes toward individual dairy product will be made in the first part of this section, and then in the second part of this discussion, implications of the importance of products attributes will be highlighted in the social and demographic context.

4.7.1 Comparison with Previous Research

In the literature review, all mentioned studies in relation to dairy products have shown that western consumers ranked nutrition value and physical attributes, price of items as the most important attitude-related attributes when consuming dairy products. The findings concluded in this research shows that the Chinese consumers have a similar ranking of this range of attributes. Chinese consumers also rank the nutrition value and taste (mouth-feel) as important quality concerns and also price of items is another important attribute closely related to overall attitude. The evaluative aspect scores of individual attributes of dairy products in table 4.7 shows how Chinese consumers rank these attributes in relation to different aspects of dairy consumptions. Among these 15 attributes, "nutrition" and "mouth-feel" concerns ranked as the second and the third important attribute, followed the quality attribute, while the product appearance and aroma ranked tenth and fourteenth on this list. In the study of European consumer behaviours toward yoghurt conducted by Verbeke and Viaene, it was shown that the taste and nutritional value are perceived as the most important quality cues by the overall sample for both Polish and Belgium consumers. The two other organoleptic attributes, smell and appearance, are ranked between the least determining quality cues. That is, appearance and smell are not

the important sensory concerns when yoghurt was consumed. In this research, aroma (smell) and appearance are also ranked at a fairly low level in comparison with taste and nutrition. A further issue deals with the importance of product attributes as determinants of quality. The findings show the great similarity in their attitudes between Chinese consumers and Polish consumers. Brand attributes ranked as the fourth important attribute for Chinese consumers both in their evaluative aspects and subjective beliefs followed by the sensory attribute. It is confirmed again that Chinese consumers are brand seekers; they have quite positive attitudes toward different brands of New Zealand dairy brands.

Dairy product quality obtained the highest ranking, which can be covered by sensory, nutrition and function attributes. In Tuorila's study (1987) of the consumption of milk of different fat contents and Shepherd's research (1988), sensory, nutritional, functional and price items were included. Sensory, nutrition beliefs are important attributes when consumers made purchasing decisions.

In this research, Chinese consumers also considered that quality, nutrition values were the most important attributes when buying New Zealand dairy products. Brand name and price are also key attributes when they evaluate dairy products. Siu and Tsoi's studies (1998) of nutrition label usage of Chinese consumers in Hong Kong also showed that Chinese consumers are brand loyalty, label-oriented, health conscious and bargain-hunter. Many other studies also concluded that Chinese consumers are brand loyal. Therefore, the gained reputation of branded New Zealand dairy products will definitely obtain great brand loyalty from Chinese consumers. Product availability is an important attribute for Chinese consumers. This attitude was not mentioned in any other dairy-related research, which indicates the Chinese people have limited dairy products available to choose from when they lived in Mainland China. Chinese consumers also considered service-oriented attributes including product variety, informative content, packaging differentiation. Storage life also gained a fairly important ranking in the list. However, the ranking for these attributes are ranked lower than those attribute mention above. It may indicate that Chinese customers have a relatively low expectation of the product, which was discussed by Yau in his studies.

4.7.2 Implications of Product Key Attributes

For New Zealand fluid milk and yoghurt products, the beliefs about 'high nutrition value' and 'dependable quality' were ranked the highest, which were most associated with evaluative aspect scores of these attributes. Although consumers ranked the overall quality the most important attribute and the nutritional value attribute the second concern when they made dairy product consumption, consumers considered 'the high nutrition value' of New Zealand fluid milk and yoghurt products as the most distinguish characteristic followed by dependable quality. However, for New Zealand cheese, the pattern was the opposite. Chinese consumers agreed that overall product quality could be ranked higher than its nutritional value, which was ranked as the third positive belief. Obviously, this highly positive belief toward New Zealand cheese products could be doubted due to the low frequency of consumers (49 out of 75 respondents) and limitation of their relevant knowledge. For ice cream consumption, table 5.25 shows consumers ranked overall quality the most positive belief, while nutritional value is far less which obtained the twelfth ranking.

For all the four dairy products, some common beliefs toward these attributes were significantly different from the ranking of importance of them. Consumers evaluated that the price of items was fairly important, ranked at five in the evaluate aspect list. Although the Chinese consumers' beliefs about the price of New Zealand dairy products were still positive (0.63), they believed that the price of dairy products were not optimal.

Among all of these products, the belief 'high product availability' and 'wide product variety' achieved relatively high scores in comparison with the importance of these two attributes. That is, Chinese consumers have a greater level of agreement that New Zealand dairy products have high availability and wide variety than those of products in their original countries. The following tables (Table 4.23, 4.24, 4.25, 4.26) show the respondents assessment of their subjective beliefs toward New Zealand fluid milk in relation to each of the fifteen attributes.

Table 4.23 Summary of Belief scores of Fluid milk by Attributes

Descriptive Statistics

	N	Mean	Std. Deviation
milk nutrition value	75	1.47	.600
milk overall quality	75	1.44	.575
milk product availability	75	1.23	.649
milk mouthfeel	75	1.23	.649
milk value for money	74	1.08	.697
milk brand name	75	1.07	.759
milk wide product variety	75	1.01	.830
milk informative content	74	.93	.689
milk ease of use & storage	75	.91	.720
milk packaging differentiation	75	.77	.863
milk aroma	75	.75	.790
milk long storage life	75	.65	.937
milk appearance	74	.65	.784
milk low price	74	.65	.818
milk packaging design	75	.13	.935
Valid N (listwise)	73		

In Table 4.23, seventy-four respondents replied for each level of agreement for all these attributes. Only one person responded that he never consume New Zealand milk. Most of the beliefs were closely associated with valuate aspect scores of each attribute expect price item, product availability and variety.

Table 4.24 Summary of Belief Scores of Yoghurt by Attributes

Descriptive Statistics

	N	Mean	Std. Deviation
yoghurt nutrition value	68	1.38	.670
yoghurt overall quality	68	1.35	.664
yoghurt mouthfeel	68	1.15	.981
yoghurt product availability	68	1.12	.783
yoghurtease of use& storage	68	1.01	.743
yoghurt wide product variety	68	1.00	.829
yoghurt brand name	68	.97	.810
yoghurt value for money	67	.88	.862
yoghurt appearance	67	.84	.771
yoghurt long storage life	68	.81	.902
yoghurt informative content	68	.75	.799
yoghurt aroma	68	.65	.860
yoghurt packaging differentiation	68	.62	.898
yoghurt low price	67	.49	.927
yoghurt packaging design	68	.35	.989
Valid N (listwise)	67		

Table 4.24 shows sixty-eight people responded to each level of agreement for all these attributes; seven people said that they never consume New Zealand yoghurt. Most of the beliefs were closely associated with valuate aspect scores of each attribute expect price item, product availability and variety.

Table 4.25 Summary of Belief Scores of Ice Cream by Attributes

Descriptive Statistics

	N	Mean	Std. Deviation
ice cream overall quality	69	1.35	.590
ice cream mouthfeel	69	1.29	.769
ice cream product availability	69	1.20	.677
ice cream brand name	69	1.14	.692
ice cream value for money	68	1.09	.805
ice cream aroma	69	1.06	.745
ice cream long storage life	69	1.04	.775
ice ream ease of use & storage	69	1.01	.813
ice cream wide product variety	69	1.00	.767
ice cream low price	68	.96	.800
ice cream informative content	69	.94	.705
ice cream nutrition value	69	.91	.680
ice cream appearance	68	.88	.856
ice creampackaging differentiation	69	.61	.878
ice cream packaging design	69	.48	.833
Valid N (listwise)	68		

In Table 4.25, sixty-nine people responded to each level of agreement for all these attributes; six people answered that they never consume New Zealand yoghurt. Most of the beliefs were close associated with valuate aspect scores of each attribute expect price item, product availability and variety.

Table 4.26 Summary of Belief Scores of Cheese by Attributes

Descriptive Statistics

	N	Mean	Std. Deviation
cheese product availability	49	1.12	.696
cheese overall quality	48	1.06	.810
cheese nutrition value	49	1.06	.801
cheese wide product variety	49	.92	.886
cheese brand name	49	.92	.812
cheese informative content	49	.88	.781
cheeseease of use and storage	49	.86	.707
cheese value for money	48	.81	.734
cheese long storage life	49	.73	.995
cheese mouthfeel	49	.71	.957
cheese aroma	49	.67	.774
cheese packaging differentiation	49	.61	.786
cheese appearance	49	.61	.862
cheese packaging design	49	.47	.892
cheese low price	49	.43	1.021
Valid N (listwise)	47		

Table 4.26 shows that Forty-nine people responded to each level of agreement for all these attributes. Twenty-six people said that they never consume New Zealand cheese. The belief 'high product availability' was ranked on the top of this list indicated that Chinese consumers belief New Zealand cheese products are the most available dairy products. However, the belief 'favourite mouthfeel' as the important sensory attribute ranked much lower (10th) than its ranking on the lists of the three other dairy products - milk, yoghurt and ice cream. That is, Chinese people who accepted New Zealand cheese products for some reason keep a low degree of sensory appreciation.

4.8 Limitations and Possible Further Research

Studying the demographic characteristics, it is easily to find that the sample is less representative of the population of New Zealand Chinese. The female respondents have exceeded 62% of the valid sample while females are less than 38% (ref to Table 4.1). Moreover, analysing the statistical result of characteristics of educational level, the ratio of tertiary graduates is irregularly high which occupies 54.1% of the total sample quantity. Therefore, a more representative sample needs to be selected in any further research related to this topic.

The attributes that determine consumer attitudes toward consuming different New Zealand dairy products should be examined more thoroughly. Negative attributes such as fat content, sugar ingredient should be considered in future studies. In order to determine Chinese consumers' attitudes more precisely, a modified version of the Fishbein and Ajzen model including subject norm and other aspects, which related to cultural difference, should be developed.

Some important demographics such as income and social status apparently influence dairy consumption, which should be added in further research. Furthermore, attitudes and preference towards different dairy products are different; it is necessary to conduct more comprehensive studies for each dairy food.

CHAPTER FIVE

Summary and Conclusion

This study examined Chinese consumers' attitudes and beliefs towards consuming different New Zealand dairy products. This was accomplished by performing a mail survey of Chinese people who lived in Pamerston North during September and October of year 2001. The concept framework for designing the survey and subsequent analysis was taken from the Fishbein and Ajzen expectancy-value model.

The Fishbein-Ajzen expectancy-value model of attitude, known as evaluative measures of food choice and acceptance, has been used in a large number of previous studies. However, it has been argued that it is less accurate when employed in an Asian context. Therefore, three hypotheses have been developed in order to test the validity with Chinese consumers. As a result, (1) a high correlation between the score of overall likelihood and the sum of the F/A model attitude indicated that there is a significant relationship between the overall attitude and the F/A attitudinal model (2) belief-evaluation has greater predictive power than the evaluative aspects. (3) It is also found that the relationship between attitudes and reported behaviour is stronger than between attitudes and intended behaviour. A group of six well-educated Chinese was invited to make opinions toward the concerned action (consuming New Zealand dairy products). As a result, fifteen modal salient attributes were identified.

Another preposition of this research is the consistency of Chinese consumers' dairy preferences. That is, the New Zealand-settled Chinese people do keep their dairy preference during their living in New Zealand, and not change due to different length of residence so as to provide some meaningful indicators to consumer behaviour in Mainland China.

In this research, it has been concluded that the consuming preferences of dairy products of New Zealand-settled Chinese consumers are the same as Chinese people who live in Mainland China. This inferred that Chinese consumer preference towards different dairy products would not be changed due to different length of residency in another country. The data showed that fluid milk was the most frequently consumed dairy product among these items, and most consumers agreed on the importance of consuming fluid milk. Cheese products obtained the lowest mean score in both frequencies of consumption and attitude scores shown that it is the least consumed dairy product among the Chinese consumers.

The Chinese consumers' beliefs about each of the 15 attributes as well as an evaluation of the importance using the multi-attribute model, were developed by the Fishbein and Ajzen attitudinal model. The theory recommended that the *overall attitudes* are the sum of the respondents' *evaluative attitudes* towards the attributes of the good multiplied by the *beliefs* about the attributes of the good. Evaluative attitudes and beliefs can be measured as single scale items. For each of the 15 attributes, the consumers evaluate the strength of their beliefs using unipolar scales. Evaluative attitudes are measured in a similar method in section three. Respondents were asked to answer to what extent they agree or disagree with specific statements regarding each attribute when considering consuming different New Zealand dairy products. Additionally, an independent measure of their overall attitude was made in order to validate the estimate of attitude based on the evaluative attributes.

All average evaluative scores of these 15 attributes are positive, indicating the consumers perceived these attributes to be important when considering consuming dairy products. The highest ranking obtained by attributes is the overall quality of dairy products. Nutrition and mouthfeel concerns ranked as the second and the third most important attributes. Consumers considered that wide product availability is another distinct characteristic when thinking of New Zealand dairy products.

The two main objectives of this research are to identify the genuine attitudes of Chinese consumers toward buying New Zealand dairy products and the key

important attributes, which contribute the most to their whole attitudes. On average, Chinese consumers had positive attitudes towards all selected New Zealand dairy products, but the pattern varied between the three different dairy products. Quality, nutrition, mouthfeel, brand name and price items were the most important attributes which affected overall attitudes.

Objective three is concerned with Chinese consumer attitudes toward different dairy products based on selected demographic segmentation. In this research, the demographic characteristics included sex, range of age, origin, educational level, and length of residence. A significant difference between age group three and other two groups indicated that people who are over 50 years old had more positive attitudes towards fluid milk than people who are less than 50 years old. For other three demographics, there are some distinctions among those groups but no significant difference could be found.

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Appendix

8 August 2001

Dear participants,

What is your opinion of different New Zealand dairy products? We are conducting a survey to gather information on the attitudes of Chinese consumers toward dairy products.

Your answers to the enclosed questionnaire will enable New Zealand dairy products manufacturers to be aware of what they are doing well and what needs to be improved.

The following questionnaire is a part of a study at Massey University to learn how ethnic consumers think about New Zealand dairy products.

All responses will be treated confidentially and used only for the purposes of this study. A code number, not your name, will identify the completed questionnaire.

It will only take a few minutes to answer this simple questionnaire; we enclose a stamped reply envelope for your convenience.

Your assistance with this research effort is greatly appreciated.

Sincerely

Dabing Wang
Postgraduate Student

Dr. William C. Bailey
Professor of Agribusiness

CODE: _____

SURVEY OF ETHNIC CHINESE CONSUMER ATTITUDES TOWARDS NEW ZEALAND DAIRY PRODUCTS

Section One: This section enables the researcher to obtain information about the respondents. Please answer the following questions as accurately as possible (Please circle the number of your response). Your response will remain anonymous.

1. Sex

Male .....1 2 Female 2

2. Age

Under 20 years old.....1
20 - 29 2
30 – 39.....3
40 – 49.....4
50 – 59.....5
More than 60 years old.....6

3. Origin

Mainland China.....1 Taiwan.....2 Hong Kong.....3
Other 4

If you choose 'others', please indicate where _____

4. Which of the following best describes your latest education?

Primary school.....1
High School up to 3 years.....2
Secondary high school up to 6 years.....3
Some tertiary Education (trade, polytechnic) 4
Tertiary graduate.....5

5. For how many years have you been settled in New Zealand?

Less than 6 months.....1
More than 6 months and up to 1 year.....2
More than 1 year and up to 2 years..... 3
More than 2 and up to 5 years 4
More than 5 and up to 10 years.....5
More than 10 years..... 6

Section Two: Evaluate the following attributes of Dairy products (Yoghurt, Milk, Ice-cream and Cheese) using the following scale (circle the appropriate number).

5	4	3	2	1
Very Important	Important	Indifferent	Unimportant	Very Unimportant

1.	Appearance	5 4 3 2 1
2.	Nutritional value	5 4 3 2 1
3.	Mouthfeel	5 4 3 2 1
4.	Aroma	5 4 3 2 1
5.	Value for money	5 4 3 2 1
6.	Ease of use and storage	5 4 3 2 1
7.	Packaging design	5 4 3 2 1
8.	Informative content	5 4 3 2 1
9.	Different packaging sizes	5 4 3 2 1
10.	Brand	5 4 3 2 1
11.	Price	5 4 3 2 1
12.	Product availability	5 4 3 2 1
13.	Overall quality	5 4 3 2 1
14.	Product variety	5 4 3 2 1
15.	Storage life	5 4 3 2 1

Section Three: Survey of the beliefs towards four types of <u>New Zealand</u> dairy products associated to these attributes list on section two using the following scale (Circle the appropriate number in each box). <u>If you never consumed one certain product, please leave that column blank.</u>

Products	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
	A	B	C	D	E

For example: I strongly belief that New Zealand milk has high nutritional value, so I choose A in the second cell of the first column.

NZ's	Fluid Milk	Yoghurt
Attractive appearance	A B C D E	A B C D E
High nutritional value	A B C D E	A B C D E
Favourite mouthfeel	A B C D E	A B C D E
Pleasant aroma	A B C D E	A B C D E
Value for money	A B C D E	A B C D E
Ease of use and storage	A B C D E	A B C D E
Creative design	A B C D E	A B C D E
Clearly informative content	A B C D E	A B C D E
Different packaging sizes	A B C D E	A B C D E
Trustworthy brand names	A B C D E	A B C D E
Low price	A B C D E	A B C D E
High product availability	A B C D E	A B C D E
Dependable quality	A B C D E	A B C D E
Wide product variety	A B C D E	A B C D E
Long storage life	A B C D E	A B C D E

NZ's	Ice cream	Cheese
Attractive appearance	A B C D E	A B C D E
High nutritional value	A B C D E	A B C D E
Favourite mouthfeel	A B C D E	A B C D E
Pleasant aroma	A B C D E	A B C D E
Value for money	A B C D E	A B C D E
Ease of use and storage	A B C D E	A B C D E
Creative design	A B C D E	A B C D E
Clearly informative content	A B C D E	A B C D E
Different packaging sizes	A B C D E	A B C D E
Trustworthy brand name	A B C D E	A B C D E
Low price	A B C D E	A B C D E
High product availability	A B C D E	A B C D E
Dependable quality	A B C D E	A B C D E
Wide product variety	A B C D E	A B C D E
Long storage life	A B C D E	A B C D E

Section Four: Please indicate your overall feeling about the following activities by writing a number between 0 and 100 on the scale provided.

An example:

100% 50% 0
Very Indifferent Very
Favourable Unfavourable

1. Consuming New Zealand Fluid Milk

100% 50% 0
Very Indifferent Very
Favourable Unfavourable

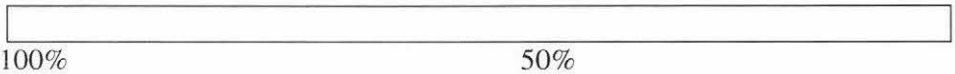
2. Consuming Yoghurt

100% 50% 0
Very Indifferent Very
Favourable Unfavourable

3. Consuming Ice-Cream

100% 50% 0
Very Indifferent Very
Favourable Unfavourable

4. Consuming Cheese



100% 50% 0
Very Indifferent Very
Favourable Unfavourable

Section Five: To help us analyse your answers above, please answer the following questions.

1. How often do you consume dairy products?

Fluid milk

More than 7 times a week.....1
More than once but less than 7 times a week.....2
Occasionally but less than once a week.....3
Never consume 4

Yoghurt

More than 7 times a week.....1
More than once but less than 7 times a week.....2
Occasionally but less than once a week.....3
Never consume 4

Ice-cream

More than 7 times a week.....1
More than once but less than 7 times a week.....2
Occasionally but less than once a week.....3
Never consume 4

Cheese

More than 7 times a week.....1
More than once but less than 7 times a week.....2
Occasionally but less than once a week.....3
Never consume..... 4

2. Did you consume dairy products before you came to New Zealand?

YES NO

If yes, please rank the top three dairy products you consumed, beginning with the product most consumed.

_____

_____.

3. Do you now consume more dairy products than you did before you came to New Zealand?

YES NO

If yes, please indicate the main reasons that caused you to do so.

_____

_____

_____.

5. In the following blank space you may add any brief comments regarding the consumption of New Zealand's dairy products if you believe they can assist this research.

THANK YOU FOR YOUR TIME AND ASSITANCE WITH THIS RESEARCH EFFORT.

For further information or any enquiries you may have please contact:

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