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The Affect the Marketing Mix Has on a Consumers Choice for Local Authority Leisure Facilities in the United Kingdom

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Abstract

United Kingdom local authority leisure facilities are beginning to move into a developing era of demand by the consumption of those who wish to use it due to the promotion of a healthier lifestyle. Because of this there is an increasing demand for those facilities to compete with private and not-profit organisations who have experienced and trained marketing departments to attract and publicise their products and services to the consumers out there. Therefore to stay in the market place and compete with the different sectors of the leisure provider a clearer understanding of the consumer base needs to be understood.

For the effective marketing and the facility management of those leisure facilities practioners need to understand more and more about what decisions are made when the leisure consumer makes a choice of a particular leisure facility over another and in what way marketing influences this choice?

Therefore this study looks at Leisure Divisions within three Local Authorities and to support this it draws upon marketing and consumer behaviour literature. The primary aim of the research was to investigate from the consumer's perspective what external marketing variables affected their choice on a local authority leisure facility. To establish this information, data was drawn upon visitors from facilities spanning across three local authorities situated and then a qualitative analysis was conducted in form of interviews to establish what decisions were made from the leisure consumer's perspective when making choices on a leisure facility.

80 were administered in a face to face questionnaires at each of the facilities by the researcher which were then completed by March 2007.

The consumer's abilities ranged from the recreational/ infrequent consumer through to the regular/ physically active consumer and the questionnaire contained ten questions incorporating a variety of ordinal and nominal questions as well as likert scale questions.

The response rate was fairly high at 100% (N=80) respondents represented the sample frame a cross section of gender, age and abilities. The quantitative data was analysed via SPSS 13.0 which is a statistical package. This revealed a variety of statistical results of approximately twenty with statistical findings ($P > 0.05$) conducted then a further 5% (N=4) was used for a qualitative analysis.

The most influential things that were found were that leisure consumers selected facilities based on locality and the most powerful marketing tool was word of mouth. .

In discussing such findings, a number of recommendations have been made as to the future management and marketing of the leisure facilities as well helping to develop this subject matter further.

Keywords: Professionalisation of marketing, Facility objectives, Word of mouth

1. Attitudes towards leisure facility marketing

Over the last 25 years attitudes have changed significantly towards facility objectives, design, and the management of opportunity and participation programmes. Also what has also become very prevalent that quality awards are at the heart of the industry such as QUEST? Part of these awards are linked to marketing efforts (Evening Chronicle, 2007) Prior to the 1960's there were very few indoor sports facilities; local government, now a major provider had a less influential role. The 1990's into the millennium has seen a very considerable resource including a majority of purpose built facilities (Elvin, 1993). Because of this facility explosion, there is a greater need for more professionals to manage and oversee such facilities and operations to ensure that local authorities are meeting the demands with in the consumers needs. The growth of indoor

provision in Britain is moving towards a total of 2,500 or so sports and leisure centres, has undoubtedly led to increased participation in sport. Although it is difficult to be precise about the number of indoor sports centres and halls it has been estimated 3500 in Great Britain

27.5 million people participate in sport and recreation in the UK at least once a week, in comparison to 15 million, five years previously. In 2002 the government's Game plan was a turning point for sport with in the England as to achieve inclusion with in communities by the use of and building of more sports facilities (Sport England, 2006). Because of this increased demand the way in which leisure facilities and their programs are projected require a more professional approach to marketing in attracting the discerning consumer,

1.1 The Professionalism of the image of facilities through marketing

The marketing of leisure facilities is a complex situation especially in the attraction of the diversity of its consumer. Two of the most difficult areas to define in leisure facility management are marketing and leisure (Crump & Clowes, 1992). Each one with in its own right is a multi disciplinary subject, and each one is becoming a growing area of academic study in the past ten years (Beech and Chadwick, 2007). Yet markets and leisure have existed in some form as a long form of human society (Mills, 1992).

Most marketing theory is based on the manufacturing industry, but today it is widely becoming a wide base in employment. With in the UK. It also must be recognised that the diversity of the range of employment in this area. Globally the sport and leisure industry has become what is now recognised as a major economical force that is an integral part of modern society (Haggerty & Patton, 1994) so more marketing professionals are required.

Marketing with in sport and leisure is an area that these leisure professionals are seeking help (Steer, 2005). A number of sport and leisure facilities especially in light of today's market place with increased governmental pressure on meeting financial targets are expected to entice its consumer base and compete with other leisure providers. Due to Compulsory Competitive Tendering (CCT) during the conservative government and now "Best Value" through the Labour a more professional approach to marketing is needed.

Though there is an increased demand for leisure, and government legislation is pressurising its providers and managers there are still a number of sport and leisure facilities struggling to produce a profit (Howards & Compton, 1995) in a highly competitive marketplace, and many are seeking to improving marketing efforts to strengthen their organisations (Mullins, Hardy & Sutton, 2000)

Over the last two decades demands on the provision of leisure services has increased in demand for the provision of sport and recreation facilities (Beech & Chadwick, 2004). Leisure professionals need to understand the key concepts of marketing and understand the decision in choice of its consumer, but yet this is the area they lack understanding in.

1.2 Leisure facility marketing still young in development

Leisure facility marketing is still a young and developing discipline and it is helpful to determine the direction of this field. One such area that appears to be vital to the practitioner in a competitive leisure market place is the need to better understand consumer behaviour. Only when the leisure facility marketer appreciates the needs and decision making processes of its consumers can he/she determine a sustainable competitive advantage and improve his/her marketing communications

The primary purpose of this study was to investigate; *The Affect the Marketing Mix has on a Consumers choice for Local Authority Leisure facilities in the United Kingdom*. The general framework underpinning this is from Engel, Kollat and Blackwells model of consumer behaviour shown in figure 1. Being first introduced in 1968 and updated in 1990 (Rice, 1997), this model identifies key variables that allow the marketer to understand the early searching stages in a making to a particular leisure facility.

By using this model it takes the process of purchasing as a problem solving/ decision making exercise. In the marketing context, Engel, Blackwell and Miniard (1990) suggest that this becomes: Motivation and recognition of need, information Search, Evaluate alternatives, Purchase and Outcomes (Lancaster & Reynolds, 2002). By using this model, it provides the manager with a largely theoretical approach to investigate the consumer buyer behaviour unlike the fragmented approach in the past (Chelladurai, 1994).

More specifically, this study focused upon the decision making process of the leisure consumer and in particular what will determine the process and factors that influence their choices in choosing a leisure facility.

This model has been applied by Brassington and Pettit (2000) to the product decision making process as such as purchasing a car or a bar of chocolate, but what must be argued is it applicable to leisure services? What attracts a person to a particular facility when there are so many other facilities to choose from with in the local area?

Given, the limited information and application of consumer needs to leisure facility marketing the research looks at a number of different profiles behind leisure facility consumers in England and furthermore why they chose them. And then subsequently looking at the decision making processes they went through.

2. Further understanding of marketing through Literature

Cowell (1978) three decades ago found that there was no major evidence of marketing being applied to local authority recreation in sports centre planning and provision. However, the question now rises is how good is marketing in this field today? There are exceptions to the general finding since then because marketing has received far greater attention than ever before (Torkildsen, 2005). Even so, the overall picture is one of limited evidence of effective marketing communications. Demand assessments were rarely undertaken before facilities were built, but the climate has now changed. However, there are few price experiments (discounts apart) or use of prices as promotional tools and promotional budgets are small and inadequate due to funding being allocated to other areas (Torkildsen, 2005).

Even though with this constraint in budgets, marketing could be done internally with in leisure facilities, but do their managers have the skills and expertise? Cowell (1978) states:

“That the absence of substantial marketing should not necessarily be seen as a criticisms or expertise”

Though Cowell (1978) suggests this could be argued, how can leisure facilities move forward with in their own field and stay competitive with in its changing environment?, how affective is marketing be practised? Three main possible reasons were put forward for the relative lack of effective marketing in governmental institutions; general institutional constraints and service constraints. Do they still apply today? Local Authorities still want to be all things to all people (Torkildsen, 2005).

It is clear that, while marketing may have considerable benefits in local authority provision and management and recreation, the use of marketing approaches must be adapted to suit the consumer base. Herbert (1989) suggested, we should approach marketing with five key questions:

- (1) Where are we now
- (2) Where do we want to be
- (3) How might we get there
- (4) Which way is best
- (5) How can we ensure survival

He further supports this through a diagrammatical representation shown in figure 2 in the leisure planning process

Though this model is useful and offers some guidance it does not clearly define the consumer in the context of leisure. The purpose of the marketer is to take them outside of the organisation and put themselves in the shoes of the consumer to fully understand why they make choices of leisure facilities? Understanding how an individual makes a decision to choose leisure facilities or a sport is critical to marketers who want to make customer orientated plans (Kang, 2002). In particular, how applicable are the many theoretical decision making process models to a consumers choice in leisure facilities? (McGhee, Yoon & Cárdenas, 2003). If leisure facility marketing ideally consists of activities designed to meet the wants and needs of the leisure/sports consumer, then historically the industry has been guilty of a lack of foresight in marketing.

2.1 Consumer Behaviour

Understanding consumers' wants and needs is fundamental to managing a successful leisure facility (Lancaster and Reynolds 2003, pg 50). This entails comprehension of the consumer behaviour, which has been defined as:

The acts that individuals are directly involved in obtaining and using economic goods and services, including the decision process that precede and determine acts (Walter 1978).

Consumer behaviour is a subdivision of human behaviour, and the understanding of this depends on the clarification of the other (Douglas, Field & Tarpey 1974).

But who is the consumer, and what categories of the leisure consumer exist? Mullins, Hardy & Sutton (2000) suggest one such approach, namely the categories “frequent”, “core” and “aficionado” are applied to football participants reflecting intensity of participation similar to an escalator (Mullins, Hardy & Sutton, 2000). Just as importantly though, participation can also be classified according to demographic parameters.

2.2 Demographic Implication on the choices of leisure facilities

As a marketer it is essential to understand the unique and physical components of the types of consumers that are attracted to a leisure facility, either as a spectator or participant. Demographic information segmentation can be useful, although it tends to rely on stereotypical images of groups of people who are linked through gender, age etc.. Parks & Quaterman (2002) define demographic segmentation as:

“Dividing the market into groups based on demographic variables such as age, sex, family size, income, occupation, education, religion and ethnicity”.

It attempts to chronicle what consumers are, in terms of observable attributes and quantifiable data (Walters 1978). The importance of demographic studies in the field of leisure facilities should not be underestimated. Though Brooks, (1990),

feel that demographic studies are crucial to leisure marketing because by identifying consumers who are most likely to use certain types of leisure products or services enables a more market driven focus on customer attributes (Manly, 1993). Further more, Mile and McDonald (1999) suggest that success in leisure marketing requires an understanding on what factors influence leisure facility consumption.

One such influence is the family. In what way will this affect their children's perceptions/influences on choices of leisure facility? Family structure has the potential to influence both participation and spectatorship (Cutler 1990). Having children in organised activities requires time and effort on the part of the parent(s), such as driving children to practices and competitions (Dick, 1997). This can affect later behaviour because participation in youth activities encourages future adult behaviour (Waldrop & Exeter 1990). What role do mothers as opposed to fathers have in their children's leisure facility consumption? How much time do single parents have to encourage sports participation at a leisure facility and how do leisure facility marketers motivate consumption on the part of the parents with limited time?

2.3 Motivation of the consumer in choice of Leisure Facilities

Motivation is the mixture of wants, needs and drives within the individual which seek gratification through the acquisition or object (Rice 1997). Marketers continually ask what ultimately promotes the consumer to purchase their products (Mullins, Hardy & Sutton 1993). Clearly consumer motivations are complex, and marketers must work vigorously to uncover them.

It is clear that a greater understanding is required. According to motivation theory, environmental stimuli may activate the drive to satisfy an underlying need. Theorists like Abraham Maslow, Henry Murray and David McClelland have elaborate models of the way physiological, psychological, and social needs influence behaviour (Korman 1974). Of their categories of motives, several seem to recur in sport literature. McClelland believes that some needs are socially acquired and picks out specifically the need for achievement (Rise 1997).

Achievement - several studies of university students have a tendency to bask in reflected glory when one's school team wins athletics contest. In a recent USTA, survey, serious players listed winning as a major reason for playing. In each case the urge to achieve appears to have been an important motivational force (Game Plan 1997). What may have a major link on the impact of playing may be the consumer on how they both value themselves and value their performance, or what value they hold on the leisure facility they choose.

2.4 Principles in the choices of leisure facilities

Values were originally defined in psychology (Florenthal, 2000). Spranger (1928), developed a value system based on personality characteristics, which is confirmed by Vernon and Allport (1931) as a system that generalised men. In general the values are based on the combined personal impact of the intersection of individuals (Grunet & Scherton, 1990). Therefore the individual's value system (Fig 3) represents personality characteristics as well as self actualisation, self fulfilment and cultural influences on the basis of social norms within sport (Florenthal, 2000).

Previous research has identified characteristics sensation seeking (Zukerman, 1974) and personal states of mind-arousal seeking (Apter, 1982) that drive individuals to search for leisure facilities. The value systems should represent this need for the consumption of leisure/ leisure facilities. Lee and Beatty (1992) argued that this system is another dimension of selection in leisure facilities within personal values. The most noteworthy approach to state of mind segmentation was developed by the Stamford Research Institute (SRI), called the values and lifestyles (VALS) typology (Shank, 1998). It assumes that attitudes, opinions, desires and other psychological collectively govern behaviour (Mullins, Hardy & Sutton, 2000). Although one study of exercise showed a relationship between VALS categories and exercise "inner directed" people exercised at twice the rate of "outer directed" people.

Although internal influences play a major role in the decision making process of a person's consumption of leisure and leisure facilities, there is still further research required in this area and there is no conclusive evidence to support this. Outside the internal influences there are external variables that can sway a person's choice, namely thoughts that make up the marketing mix. This area is fairly well researched in the consumption of products, e.g. running shoes etc. But very little is known about the consumption in the choices of leisure facilities.

2.5 Products that satisfy needs

A product is anything that satisfies a need, it can be tangible or intangible. Tangible products are physical goods, such as drinks, which are consumed to satisfy needs. Less tangible products that satisfy consumer needs include (1) people, (2) places, (3) events, (4) ideas, and (5) services. These kinds of products offer experiences that satisfy (Wells and Prensky 1996). Leisure facilities can satisfy the needs of its consumer by offering an experience where you can participate directly in activities such as badminton, or you can observe an activity by watching from a spectator gallery. The goal is the satisfaction of their desires by goods and services (Wasson, Sturdivant & McConaughy 1968). The consumer must make specific types of decision in order to purchase or select a particular leisure facility.

Recently, Shoham and Kahle (1996) introduced the concept of consumption communities to the marketing of leisure

services. They define a consumption community, as “a group of people having common consumption interests” (Shoham & Kahle 1996). Similarly Shouton and McAlexander (1995) use the term subculture of consumption, which they define as “a distinctive subgroup of society that self selects on the basis of a shared commitment to a product class, brand, or consumption activity, this was a similar view shared by Brooks (1998) in her study of sport and exercise. Applying these concepts to this research, it is expected that leisure consumers exhibit distinct attitudes and behavioural tendencies (Shoham, Kahle, Rose and Kropp 1997). The Theory underlying this approach was based on group behaviour research (e.g. Bearden & Etzel, 1982) where individuals use the behavioural patterns of reference group members as informational cues to fill group behavioural expectations to acceptance and status, and as a reference point for self image (Bearden, Netemeyer & Teel, 1989).

In order to better understand how people attach meaning and value to the products they consume, Keller (1993) like Brooks (1998) identified three categories. This categorisation draws on the work of Park, Jaworski, and MacInnins (1986), who identified three types of needs that are satisfied through production consumption: functional, symbolic, and experiential. The definitions of Park et al, (1986) were used as the basis for identifying benefits in professional sports. Functional needs are “those that motivate the search for products that solve consumption related problems. Consumers may purchase a certain cereal because it has less nutrition or certain toothpastes because they are proven to keep teeth whiter (Gladden & Funk, 2002). Symbolic needs are those “that fulfil internally generated needs of self enhancement, role position, group membership, or ego identification” (p.136). Consumers may purchase a luxury automobile because of what the ownership of a luxury automobile convey to others. Experiential needs are “desires for products that provide sensory pleasure, variety, and/or cognitive stimulation” (p.136).

Based on these definitions, it has been identified that the constructs could be classified as benefits in the professional leisure industry; participant identification, peer group acceptance, escapes, nostalgia, and pride in place. Identification with a leisure/sport facility/event is one more widely constructed in literature (Sutton, Milne, & Cimperman, 1997; Mael & Ashforth, 1992; Wann & Brandscombe, 1990; Cialidini, Borden, Thorne, Walker, Freeman & Sloan, 1976). Cialidini et al (1976) first offered the notion of basking in reflected glory, by observing individuals that publicise their association with successful leisure facilities and local authorities, here it is conceptualised that identification components of the pride in place of the brand association framework (Gladden & Funk, 2002). That is, identification with a particular event that fulfils a leisure consumer’s needs to affiliate with something successful or desirable and thus in one form of brand association, Shani (1997) further supported this as a successful relationship in marketing as it involves the core service the marketing mix and the other ‘P’ (Promotion, Place & Price), where a customer relationship can be built. Leisure facility products must provide the opportunity for such customisation. Leaf argued that leisure is an ideal medium for personalisation. “The service” can be tailored to satisfy very narrow individual needs. This might explain the proliferation of the new innovative leisure facility ideas that are tailored to unique needs (Milne, Sutton, & McDonald, 1996).

It is clear that all aspect of the marketing mix play an integral part in the consumer decision process when they are making choices. It is essential that all areas are taken into account and further study needs to be clarified especially such areas as the place.

2.6 Leisure Facilities the Place

Getz, (1998) seems to be one of key the researchers in addressing sport and leisure, by their destination, it addressing it as a component of supply and demand. He looks at it as destination, therefore drawing people to a significant place for participation. A key question has to be addressed, “what attracts the leisure consumer to a particular place or leisure facility?” Getz, (1998), goes further on to define sports/ leisure tourism, as a destination for development and marketing leisure facilities to obtain economic and community benefits. It could be argued that from the leisure consumers’ prospective, do they really pay much attention to the economic benefits of the community in their choices? Shilbury, Quick & Westerbeck (1998) describe a location that determines the catchments area of potential consumers and hence partly determine the profile of the customer. Within the leisure facility choice, it could be questioned in relation to that described by Shilbury et al (1998) as it is a specific consumer type. Mullins, Hardy, & Sutton, (2000) describe that consumers developed perceptions of the place in which it is situated, namely a facility image. Lancaster & Reynolds, (2003) described it as the transportation of goods from the manufacturer to the end customer. Whichever way that place is described, marketers must recognise that the leisure consumer seeks multiple places for their product consumption (Mullins, Hardy & Sutton, 2000).

More of an understanding needs to be established on why the leisure facility consumer is attracted to certain leisure facilities. Product and place are only two of the variables that play their part in the marketing mix. Price and promotion, what role do they play in the attraction of the consumer in this field?

2.7 Pricing Versus promotion in the choices of leisure facilities Consumption

According to Kotler (1999), sales promotion consists of diverse collection of incentive tools, mostly short term, designed to stimulate quicker and/or greater purchase of particular products/services by consumers. Fullerton & Dodge (1995) argue that perhaps the dominant marketing mix component is promotion. In leisure facilities, sales promotions have traditionally been in the form of price or non price promotions (Mullin, Hardy & Sutton, 2000). Price promotions occur when everyone or a selected group is admitted to the facilities at less than the regular price (McDonald & Rascher, 2000). ‘Non price

promotions are those facilities where everyone or a selected group of consumers receive merchandise or when value added entertainment (i.e. firework displays, San Diego Chicken night) is provided (take 'em Out, 1998). In leisure, as well as the whole experiences, there are price promotions for product extensions such as clothing, additional classes offering great reductions. In all industries, rapid growth in the use of sales promotions has resulted in promotional clutter, with a danger that consumers will become increasingly immune to their influence (Kotler, 1999). While this concept makes intuitive sense, there has been no empirical evidence to support this concept in the leisure facility marketing literature (McDonald & Rascher, 2000). There is however, theoretical support (Helson, 1964) for the expectation that frequency of price promotions will have a negative impact on sales response to price promotions.

Adaptation level theory (Helson, 1964) indicates that exposure to past stimuli (i.e. price) determines the adaptation level or the reference price. The frequent price promotion results in the lowering of the perceived price. Future price promotions, when evaluated against this lower reference price, are judged less attractive to consumers. This existence and impact of reference prices on purchase behaviour has been empirically tested (Kalwani, Yim, Rimme, Sugita, 1990; Nagle, 1987). The direct effect of frequency of price discount promotions on short term sales response has been tested within the context of retail grocery stores (Kumar & Pereira, 1995). Results indicate that the effect of frequency of price promotions depends on the extent of consecutive scheduling with the interaction of these two variables negatively affecting the short term sales response.

The study however, involved products and not services, and focused entirely on price promotions (Mullins, Hardy & Sutton, 2000). Kyle, Kersetter and Guadagnolo (2003) did a study in the consumer price expectations, with this in mind; the purpose of the investigation was to examine methods of manipulating consumer price expectations for a 10K road race offered by a public sport and leisure service provider. In the marketing literature price, it has been often associated with consumer's reaction to price. Mullins (1985) supported this theory through demonstration of his model on the unique characteristics of sport/leisure marketing, by the price paid by the sport/leisure consumer which is invariably quite small in comparison to the total leisure facility cost. It is generally defined as the standard price against which is the actual price of activity at a leisure facility they are considering to purchase (Kumar, Karande & Reinartz, 1998) and is based on the premise that consumers do not respond to prices absolutely, but only relative to the reference price. Reference considered in terms of internally and externally held standards. (Kyle, Kersetter, Guadagnolo, 2003). Internal reference prices (IRP) are stored in memory on the basis of actual prices paid, perceptions of fair prices, the price last paid, or a combination of these concepts (Mayhew and Weiner, 1992). The existence of an IRP is supported by adaptation level theory (Helson, 1964), which suggests that people adapt to the level of past stimuli and judge new stimuli in comparison with the adaptation level. External reference prices (ERP) are provided by observed stimuli in the purchase environment (Mayhew & Winter, 1992). Such stimuli could be provided by a point of purchase shelf tags that contain information "suggested retail price" or the actual price of another product against which price can be compared. This suggests that the ERP is based on the price of all event categories usually at the time of the leisure consumers purchase. Leisure consumer compare internal and external reference prices to the actual price of an activity in determining whether or not to buy it. Mayhew's & Wenier's (1992) theories are very compelling in today's marketing environment, but there is very little indication if price and promotion play a large decision in the leisure consumer decision process cycle. Kyle, Kersetter and Guadagnolo (2003) is the most recent and up-to-date in the way pricing expectations are perceived in the choice of leisure facilities. Yet this is not conclusive and therefore there is insufficient literature to support this study when the consumer is making choices during the decision process in leisure facilities.

2.8 The Decision Making Process of the Leisure Consumer

The consumer decision-making process is a widely researched component of the marketer's understanding of the behaviour of individuals when satisfying their needs in purchasing goods and services (Lancaster & Reynolds, 2003; Brassington & Pettitt, 2000; Schiffman & Kanuk, 2000; Kotler, 1999; Statt, (1997); Wells & Prensky, 1996; Engel, Blackwell & Miniard 1990 Walters, 1978). There have been numerous models presented (Figure 4) to gain a better understanding of the psychic sides of individuals.

Many academics within the fields of sport have made some attempt to apply this to conceptualise some of these models and apply them to the sport consumer (McGhee, Yoon, Cardenas, 2003; Parks & Quaterman, 2002; Mullin, Hardy & Sutton, 2000; Kang, 2000; Shilbury, Quick & Westerbeck, 1998; 1997) However very few have attempted to do so to the leisure facility market. Mullins, Hardy & Sutton, (2000) attempted to make some rationalisation in their model of understanding consumer behaviour in sport in figure 6. Like all models, figure 5 is a picture of a complex process, not a formula that guarantees understanding and correct decisions, but factors to sift through in order to understand and develop consumer decisions.

The subjects that have been broadly researched have been sport event tourism and the economic impact of events that have been evaluated and measured (Gratton & Henry, 2001; Gratton, Hobson, & Shilbi, 2000; Getz, 1998) Economic impact is not the only topic of interest for researchers (McGhee, Yoon & Cradenas, 2003). There are a variety of segments within sports events that have been identified and examined from a perspective. Sports events have been segmented by gender (Nogawa, Yamagashi, & Hagi, 1996) sexual orientation (Pitts, 1999) and event types (Johnson, 1992), but most of this

research has been directed at the spectator. This study on the decision making processes will focus on a different group that historically has been understudied; leisure facility consumers and more importantly the amount decision making involvement

2.9 Participant Decision Making Involvement

Involvement is defined by Havitz, Dimanche and Bogel (1994) as an unobservable state of motivation, arousal, or interest that has been evoked by a particular stimulus or situation and has drive properties. Involvement is a means of understanding a person's consumer behaviour and decision-making processes (Assael, 1992), enduring by nature therefore different from consumption patterns (Havitz & Dimanche and Bogel, 1998), the continuous and measuring pleasure and value as aspects of consumer behaviour and decision making (Bloch, Sherrell, and Ridgeway 1986). The involvement in decision making construct has roots in the consumer behaviour and marketing (Bechling, 1999); Bech, Larson & Nielson, 1999; Broderick & Mueller, 1999; Donovan & Jalleh, 1999). Consumers may exhibit varying levels of decision making. In a study of consumer behaviour, Assael, (1992) paralleled variance involvement with the decision making process. Specifically, a consumer who indicates high levels of decision making involvement is more likely to become loyal to one leisure facility and resist buying into another than someone with low levels of decision making involvement. In marketing, it is important to understand how to use involvement in decision making as a theoretical construct for understanding the decision making cycle of the leisure facility consumer (McGhee, Yoon, & Cardenas, 2003). Consumers with higher levels of involvement take longer to make a decision than those leisure facility consumers with lower levels of involvement (Assael, 1992, 1987; Maheswaren & Meyers-Levy, 1990). Those with high levels of involvement actively search for information in the decision process

Brassington and Pettitt (2000), describe that when psychological needs are involved, the need recognition may be slow dawning or may lead to a sudden impulse, when the leisure consumer, realising that the current position or feeling is not the desire, decides to do something to change it through a purchase. The individuality of each person is greatly complex, consumer decision making especially in leisure is difficult to encapsulate. There have been attempts to try and capture the richness of the experience, such as those proposed by Howard and Sheth (1969) and Engle, Kollat and Blackwell (1978). The Engel, Blackwell and Miniard model presented in Figure 6 although a more concise and a simpler outline, it provides a framework that still traces the progress of purchasing the leisure facility stage by stage from the leisure consumer point of view (Brassington & Pettitt, 2000).

Differences in level of involvement and decision making in various studies examining consumption of leisure and leisure facilities are not as conclusive as those in the more general areas of consumer behaviour (McGhee, Yoon & Cardenas, 2003). To address a leisure facility selection that is still evolving and trying to establish itself, and way and means of life is still very young. Questions have to be asked about leisure. Is the reason due to the lack of knowledge by leisure facility marketers/ managers who do not understand the complexities of the leisure consumer? Is leisure, due to its logistics and organisation due to its operational issues to technical? There has been very little research into the decision making process of the leisure consumer especially those who choose facilities. The demand for managers/ marketers to fully understand the complexity of the leisure, will ensure that the leisure and knowledge would and could enable it to develop and go further and reach the levels it is capable of.

3. Research Methodology

In summary three local authorities leisure facilities were chosen for the collection of data purposes. A total number of 80 subjects were given a questionnaire with a series of questions on. The parent population was chosen by random selection on visitors to the facilities of the three local authorities were used during this study. The age range was from 15 -60 with a range of ability types of the consumer being selected for the purpose of the project. By using a variety of abilities and ages ranging from 15 – 60 allowed to get a mixture of views from the leisure consumer on their choice of leisure facilities.

The research is broken down into two significant areas to understand consumer behaviour in the leisure industry. Using regression equations representing the relationship between consumers and selection of leisure facilities and casual variables, such as age, gender etc. This has led to growing interest in improved methods of measuring the behaviour and attitudes of the consumers in leisure as they have a wide range of goods and services. It has become apparent that by investigating the consumer's feelings about why they consume leisure, a more subtle approach is needed with direct questions (Chisnall 2001).

Qualitative analyses offer a more flexible approach which can unearth more in-depth attitudes towards Leisure. Veal (1997) points out that qualitative research will enable a more fluid relationship between various elements of the research to better understand the consumer's state, decision making process, and general impressions regarding the marketing event communications vehicle encountered.

A more in-depth analysis of the aim research was the identification, why leisure consumers make decision about the choices of leisure facilities was carried out. Some aspects were already discovered through the quantitative approach. The selection was conducted by taking 5 % of the total cohort from the questionnaire, e.g. 4 respondents. During this period all the

questionnaires were completed. The qualitative aspects of the research were lead by the researcher in an environment where it was conducive for the respondents.

3.1 Data Results

The total number of respondents was 80 and there were no spoilt responses who did not take part in the survey/questionnaire. 80 (100%) respondents met the criteria of the questionnaire. Of the 80 respondents a four (5%) were used for interviews in the analysis of the qualitative data. The selection of these respondents was based on how quickly their questionnaires arrived in relation to matching the criteria of the respondent type. The respondent rate for females was 66.1% and for males 33.9%.

The independent variables represent the main factors from the demographics, e.g. Age.

3.2 Frequency of the use of Leisure by the Consumer

The facility managers rely on demographic information to assist them in facility programming especially as this will dictate who will actually make the most visits to the venue. The unique nature of sport and leisure is it strives in communicating to every individual no matter how old they are based on lifelong learning and sustaining a healthier, brighter vision in continuing physical activity. The minimum visit was 1 through to in some cases seven visits in a week. What is clearly evident that average visits made per week are between one and two (Figure 7) with is reinforced with a mean value of 2.33 which represents the average visits made by an individual.

Using a Man Whitney U test there were no findings in a cross tabulation at the 95% significance level (P value $\Rightarrow 0.45$) with a frequency of visits made and gender. See figure 8.

Using a further cross tabulation with the number of visits made to a local authority leisure facility dependent on the external marketing variables that they were no significant findings using a Kuskal Wallis test at the 95% significance level (table 1)

In elaborating on the diversity of the level of response with the reference to the total numbers involved in the study with the parent population $N=80$, the level of response varies (see table 2) with just one of the variables (Place) of the marketing mix. Table 7 highlights that 71.6% (range from 4.0-7.0) feel that the location of a venue is fairly important factor when they select a leisure facility.

the mean represents the average of the total population in their ratings of level of importance.

3.3 Pricing Strategies Affecting Consumers Choices

The cost of travel can play a big part in this due to the narrowing options to the venue because of the bearing of funds available. When cross tabulating location with price using a Kruskal Wallis test there was a relationship above the 95% level ($P = > 0.05$, Table 3). So this is further reinforced in figure 9 where it seen as a great importance to most consumers used in this study. Also there was another significant finding above the 95% with the whole experience (Product) where a leisure facility is situated. There are a number of variables could affect this such as a new facility, socio demographical make up of the people in the area along with the users. The knowledge of the staff and instructors could have great bearing on it

Further cross tabulations were made using the types of activities undertaken based on how effective the promotion is off their facilities and the activities undertaken at the venues. Using a Kruskal Wallis test there were no significant findings at the 95% level ($P \Rightarrow 0.301$) (See figure 10).

3.4 Leisure Consumer Interviews

Numerous issues were highlighted during the individual interviews when selecting local authority leisure facilities, the demographic background on the leisure consumers backgrounds were very similar (Table 4).

One of the consumers worked in professional environment on a day-to-day basis and there was one student. The remaining consumers spent time at home and were not employed (2 responses). All of the consumers had access to transport for travelling too from venues (4 responses) and had some sources of income

3.5 Decisions when making choices

A range of issues were highlighted when the leisure consumers made their decisions when they chose of a leisure facility (Table, 5), but all of the consumers felt that location/place (4 responses) were very important when they select a leisure facility during the information search process. The price of facilities/ activities at venues also played a key importance (4 responses) a further issue was raised when they were alternatives to choose from is that how the facility was run and the welcoming atmosphere and experience (4 responses); product and packaging (3 responses); promotion (2 responses). A further interesting response was that people would revisit facilities either from word of mouth and how well people felt there experience was in attending the venue

4. Research Analysis Findings

The research title “*The external marketing variables that impact the consumer’s choice of local authority leisure facilitie*”?

Whilst the total parent population for this case study was 80, the respondent frame constituted was 80 (100%) with all of the

respondents making constructive comments on the research being carried out. Taking these factors into account, the main independent variables that will be used to support this discussion are gender, the number of visits made to leisure facilities and the types of activities consumed at the local authority leisure facilities.

4.1 Demographics

There were a large number of disparities in the consumers used in this study where there was a considerable difference in male/ female consumption of leisure 33.9%/ 66.1% respectively in gender split. Though this study took place directly after schools completing there day, e.g. 4pm and the questionnaires being completed by 5.30pm may have clouded the collection of data should it had been evenly distributed throughout the full working day and facilities opening hours.

However nationally participation levels are beginning to increase throughout all local authorities on their participation/ usage levels by females (see table 6). This is further reinforced by respondent C who states:

Having had children now and they are all attending school it allows me to visit my local leisure centre and keep my self generally fit. But Also I can do things I could of before children.

This is further supported by physical activity levels of shown in figure 11 that shows changes in activity levels between 1994 and 1998 (Department of Health, 1998). Over this four year period there was no change in the percentage of men who were achieving activity for health guidelines but there was a reduction in the medium category and an increase in the percentage of men who were sedentary (from 30% to 35%) (Sport England, 2004). For women there was increase in the percentage 'active for health' from 22% to 25%.

What is now clearly demonstrated through table 6 and figure 11 that females are now more actively involved in leisure participation. This view was reinforced from respondent A and C that leisure facilities must now promote more female orientated programs not just in the evening but also by day.

4.2 Place and Promotion

All Though 71.6 % of the number rated place a high level of importance (4.0 and above), when tested against the other variables there were no significant findings (figure, 14). Though there was one significant finding that a consumer may choose a leisure facility based on the price. There are many determinating factors could be play a part of this. One of those was stated by respondent A,, B & D (2007):

Many people choose their facilities because of child care arrangements or family living close by to help with the cost. Therefore ideal is one on your door step close tom home and so expensive.

The best form of promotion was not through routine channels for leisure facility selection, e.g. magazine, media etc, but by word of mouth. This supports Silverman's (1997) theory as he describes, "word of mouth is the most powerful force in the market place". Word of mouth refers to person to person communication and a communicator who is perceived as non-commercial regarding the service (Arndt, 1967). Several studies have shown that word of mouth communications can have an extremely powerful influence on the consumer purchasing process. As the accessibility and reputation of a leisure facility increases, the consumer is more likely to use it when making their selection and purchasing decisions (Biehal & Chakravati, 1986; Wyer & Srull, 1986). Figure 16 reinforces that the consumer will tend to look at the programme and what it offers, but for the more mature consumer the association comes from reputation, passed experience and what people are feeding back about the venue for travelling distance. Word of mouth would appear to be especially important today as sport/leisure related word of mouth is being spread rapidly via email, radio, discussion groups and websites (Sawnsen et al 2003).

4.3 Product

The packaging/programming of a leisure facility ranges from the minute a booking is made and payment is received through, to the information search and alternative evaluation stages of the decision making process. Moving through the decision making process through to the consumption (purchase and outcomes) stages, can result in either a bad or good experience for the consumer. The packaging of the facility plays a key factor and can assist a consumer in choosing one facility over another. From the initial packaging stage it can play an important role in the repurchase stage of a leisure consumer and their association with that facility (Gladden, & Funk, 2002; Mullins, Sutton & Hardy, 2000, Keller, 1993; Park, Jaworski, & Macinnis, 1986). According to Keller (1993) he relates the service/product consumption to the whole experience and where the consumers attach themselves to the facility itself. In addition the consumption of the leisure service/product it is also seen as experiential and in some cases often emotional (Mullin et al, 2000) therefore it is seen as intangible and cannot be taken away, only held in memory. Consuming the leisure provides virtually no tangible benefits (Gladden & Funk, 2002), though there has been a great deal of research into service/product association. There is very little evidence to support this especially in facility consumption

4.4 Price

Research into the costing, can be classified as an internal reference to the leisure consumer. Kyle, Kerstetter and Guadagnolo (2003) associated this work with the consumer's reaction to price; they further went on to define the standard price against

which the leisure consumer would evaluate the actual price of the activity they are considering for purchase (Kumar, Karande, & Reinartz, 1998). The key research that Kyle et al, (2003) substantiates his work is based on the Mayhew & Winer (1992) on internal reference Price (IRP) and external reference Price (ERP). Statistically there were no key findings (figure 15) or relationships to leisure consumption of facilities based on the price other than that of location, but there was a suggestion that leisure consumers base their selection on ERP's. Respondents A, C, & D (2007) go on to further support this finding by stating:

People do not mind purchasing an activity at a facility as long as it is local. But when there are two facilities close together people will tend to choose the cheaper one of the two.

In doing so, consumers consider the discrepancy IRP and ERP in their purchase decision. It could be argued that Kaheman and Tversky's (1979) prospect theory also provides a framework for analysing the leisure consumer's reaction to price.

4.5 Consumer decision making process of the leisure Consumer

Consumer behaviour research into local authority leisure facility consumption is very limited; if at all it has been attempted. Linking theorist models to a very diverse and driven consumer with a wide range of both internal and external influences in their attraction to the leisure and leisure can sometimes be misinterpreted by the facility manager/marketer. While models of leisure consumption tend to fragment consumer behaviour and can dilute the strategic value for leisure marketers, they also capture important distinctions. Engel, Kollat and Blackwell (1978) present their model on decision making in going through stages of problem recognition right through to outcomes and satisfaction or dissatisfaction (figure. 1). However complex this model is, it only represents the decision processing unit partially and it links to some of those influences that affect the leisure facility consumer. It is apparent that through this research in the collection of data and its analysis, both quantitative and qualitative, that there are no significant relationships between the key variables that may influence a person's decision during the information search stage of the decision process and this has been highlighted. Though the key influences are not linked to the leisure consumer. Kollat, Engel & Blackwell's (1978) model of consumer behaviour can be related to at various stages dependent at what level the consumer perceives their rationale for selection. This clearly links with McGhee, Yoon & Cardenas (2003) theory of high and low levels of involvement during this stage. Whereas an active leisure facility participant and beginner/ embarking on physical activity for the first time, because they have low levels of involvement, are less selective about their leisure facility and make decisions quicker because of other reasons, some of these could be things such as location. This will be clearly evident beyond the problem recognition stage and moving onto the information search recognising that internal and external influences play a vital role at this stage. Wells & Prensky, (1996) present a more comprehensive model going through this stage. This model allows the consumer to search dependent on their own personal goals and memories of experiences and the accumulated knowledge that has been learned over the years (Wells & Prensky, 1996). Wells & Prensky's (1996) model is more comprehensive in explaining this phase of the leisure consumer decision making process and may assist leisure facility managers/marketers to better understand this process; it certainly has a relationship to the leisure consumer. But Silverman's (1997) approach expressing word of mouth is a major influencer in selection of leisure facilities. This then brings into the actualisation that the exchange of thoughts/ideas occurs between two or more leisure consumers, none of whom is a marketing source. So the consumer tends to follow the internal direction (figure 4) during the search for alternatives during the latter stages with an accumulated shared knowledge from rich associative networks (leisure/ sport community). Prensky's model to be a more preferred model to adopt for the leisure consumer than Engel, Kollat and Blackwell (1978). Wells and Prenskys (1996) model adopts that memory plays a powerful medium in the satisfaction stage of consumer behaviour leading to the belief for repurchase. This model is further supported by table 6 and respondents A, B, C & D, that their new experiences are shaped from their previous experiences which follows Wells & Prenskys (1996) model through the internal search stage basing it on stored memory

5. Principle Findings

5.1 External Influences

The sample used provided an insightful source of information on the basis of whether external factors, e.g. the marketing mix (Price, Product, Place & Promotion) entices the consumer to select a leisure facility. Though there was very little evidence to support this. Price was an issue in some cases due to situational (lifestyle, e.g. income) circumstances such as children and income played a role in this choice.

Location of a leisure facility was also a key contributor when some consumers during the problem recognition stage (1) information search stage (2)/search for alternatives stage (3) when consuming leisure. This was due to the locality within the region and travelling distance to and from home. But this was on a whole not substantiated. The product/ service packaging featured as a partial influence amongst some of the respondents; however it was not a key feature. The general clarity of this point was down to the booking of an activity/use of a facility being completed the experience of taking part using the facility and being part of it.

5.2 Understanding the consumer decision making process on leisure facilities

Numerous authors have provided different models of consumer behaviour decision making and they have been predomi-

nantly directed at the consumption patterns of products. Many of these models have a sound methodical and structure in addressing each stage of the consumer decision making process, but really do not address the diversity of the leisure consumer and especially in the selection of leisure facilities.

It was found through the parent population in this study that Engel, Kollat and Blackwells (1978) model of consumer behaviour, though very useful in general terms did not fully address all of the key influences during the external factors of the service industry. Some of these factors were in some cases powerful influences during the information search stage during leisure facility selection, e.g. location and place. Yet again other key authors in sports/ leisure marketing such as Mullin, Sutton and Hardy (2000) have also attempted to adapt Engel et al (1978) model to the sports/leisure consumer, but base most of their theory on the sport /leisure experience and believe that satisfaction leads to direct repetition of purchase. Though this model goes some way in addressing the sports/leisure consumer it still misses the primary stages of the awareness/ information search stage. What must be clearly understood that more attention needs to be paid to this stage as it seems to directly influence the parent population in this study. During the problem recognition stage of the decision making process, most leisure consumers already by passed this stage because their need in some cases has already been addressed as they are already active in leisure facility usage. What must be noted is that word of mouth is becoming a powerful marketing tool. It has been discovered through this research that most decisions are made through this process and the marketing mix though a powerful tool plays only a partial factor in this unique and up and coming field.

For leisure facility practioners, to make progress and gain a better understanding of the leisure consumer they need to begin to adopt Statt (1997), Wells and Prenskeys (1996) model of consumer behaviour in stages one and two. These stages will assist the leisure practioners more so in the packaging and promotion of a leisure facility for re-purchase, due to the leisure facility experience. By gaining a better understanding of this process and the alignment of the primary key stages of the decision making process this will aid and hopefully improve the future leisure facility consumption leading to satisfaction.

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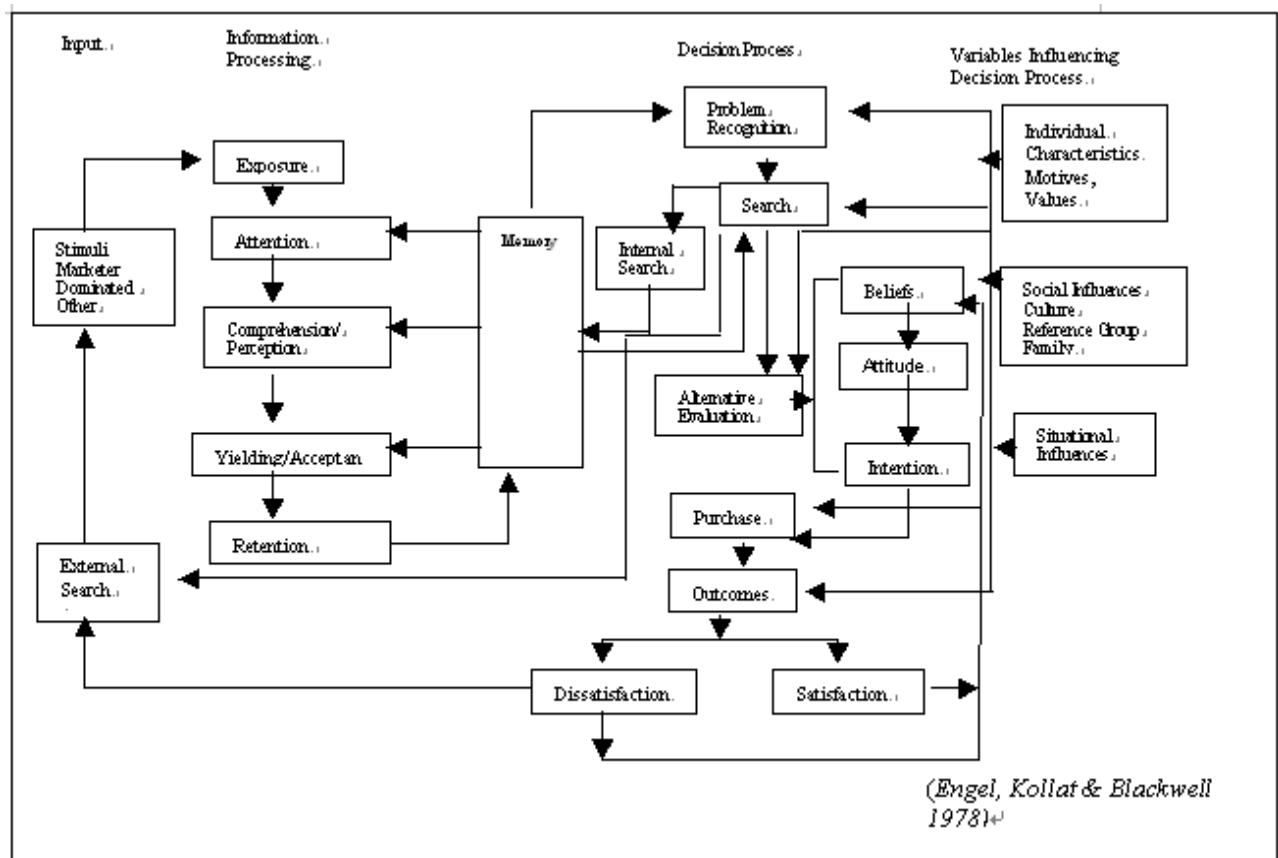


Figure 1. Complete model of consumer behaviour (Engel Et al 1990)

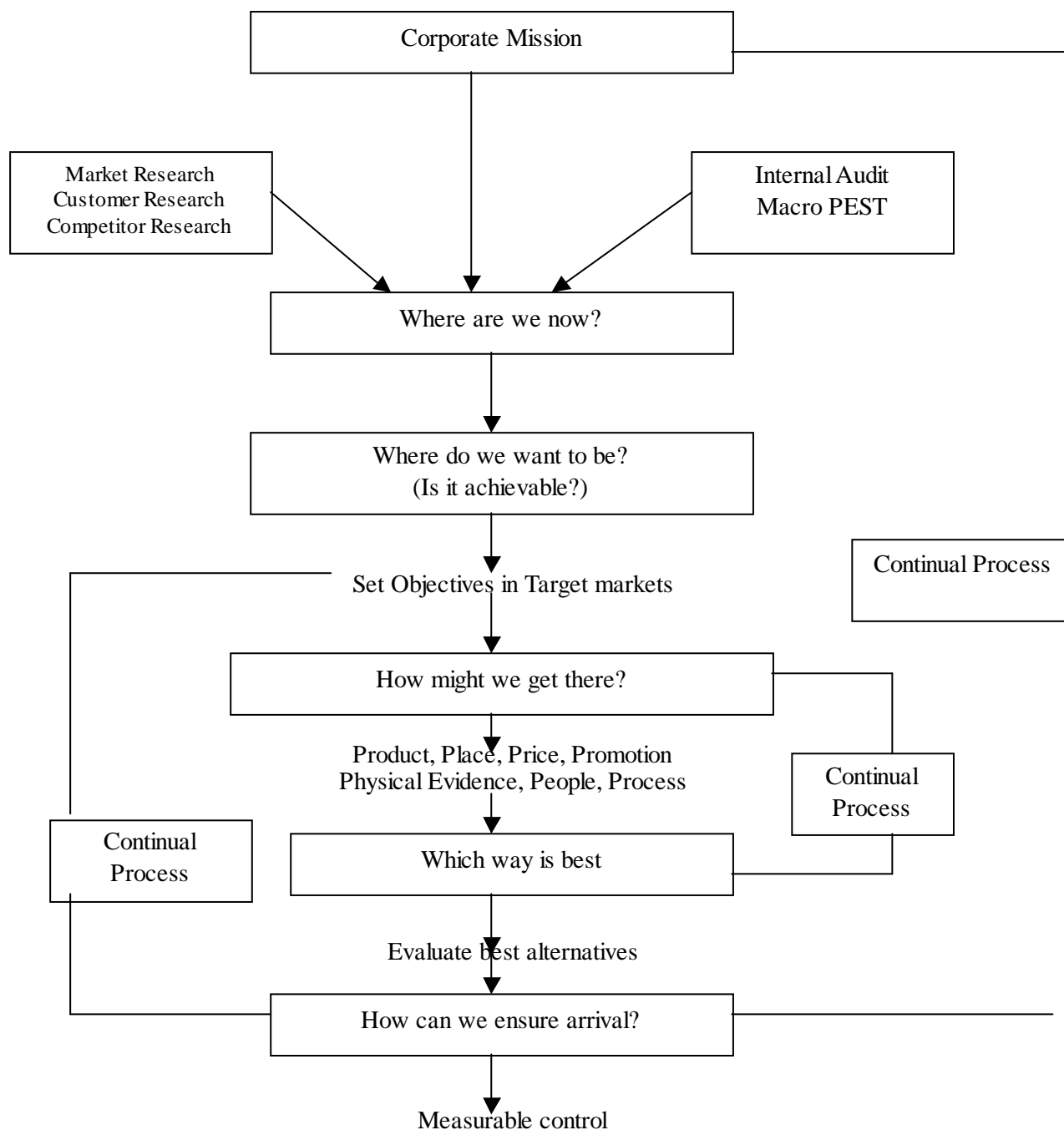


Figure 2. Leisure Planning Process (Adapted Herbert, 1989)

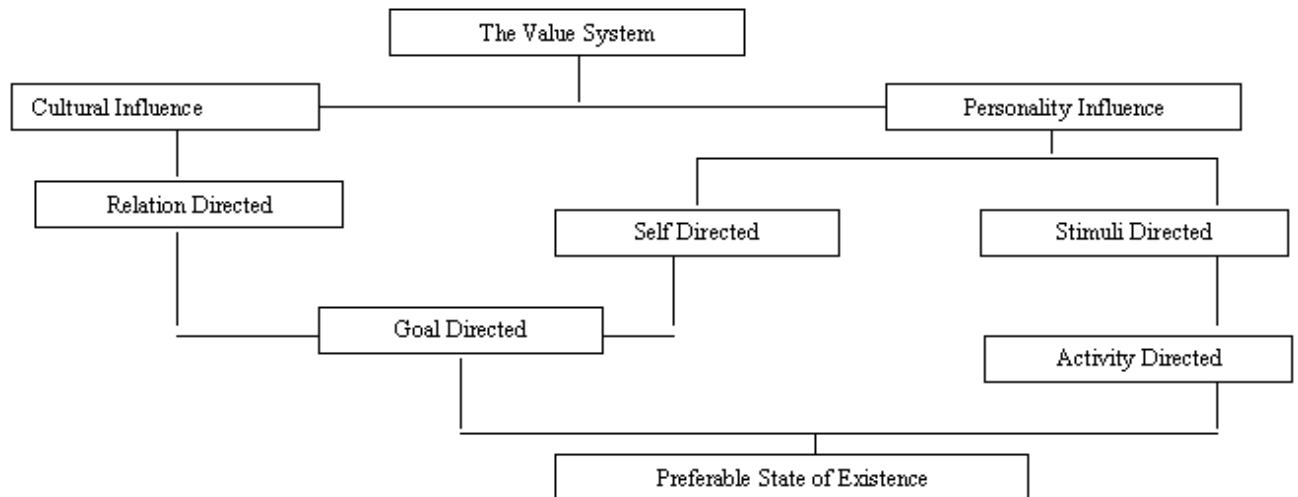


Figure 3. The Value Structure: A conceptual Model (Florenthal, 2000)

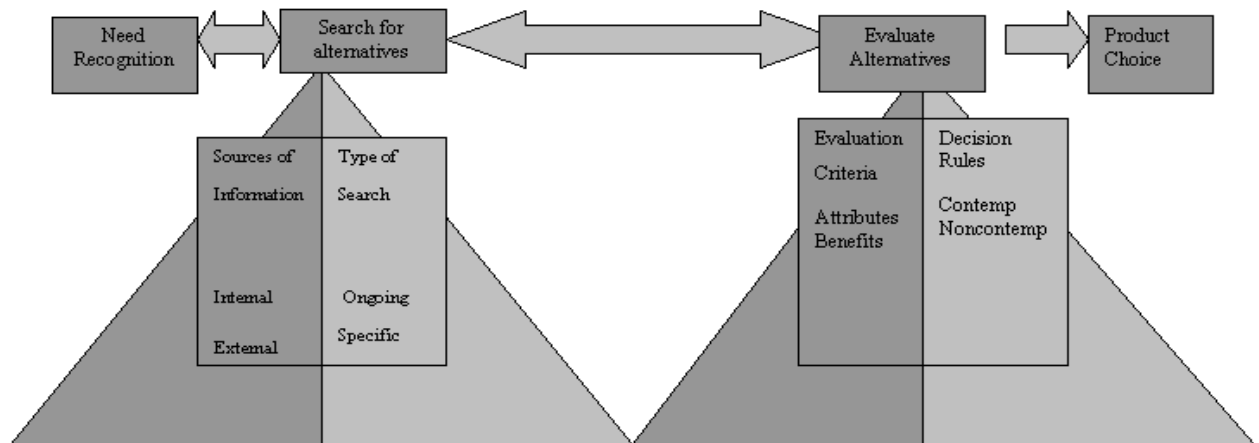


Figure 4. The decision making process (Adapted from Wells & Prensky, 1996)

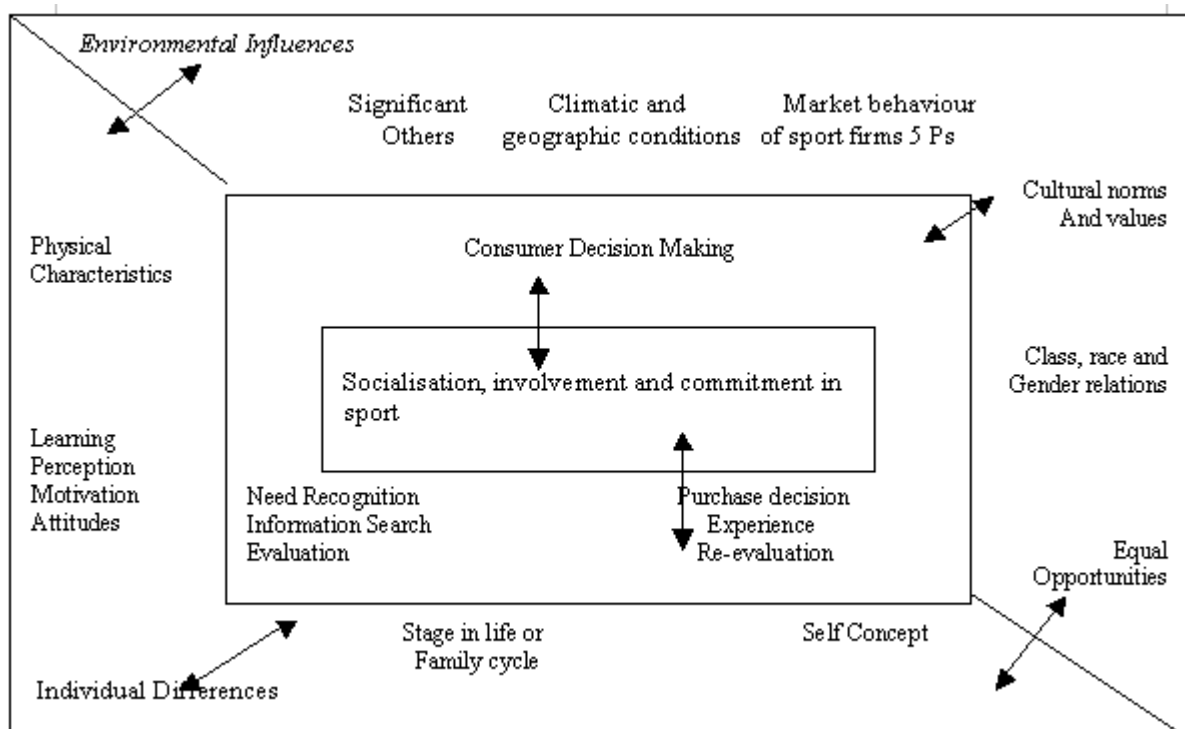


Figure 5. Consumer behaviour in sport (Adapted from Mullins, Hardy & Sutton, 2000)

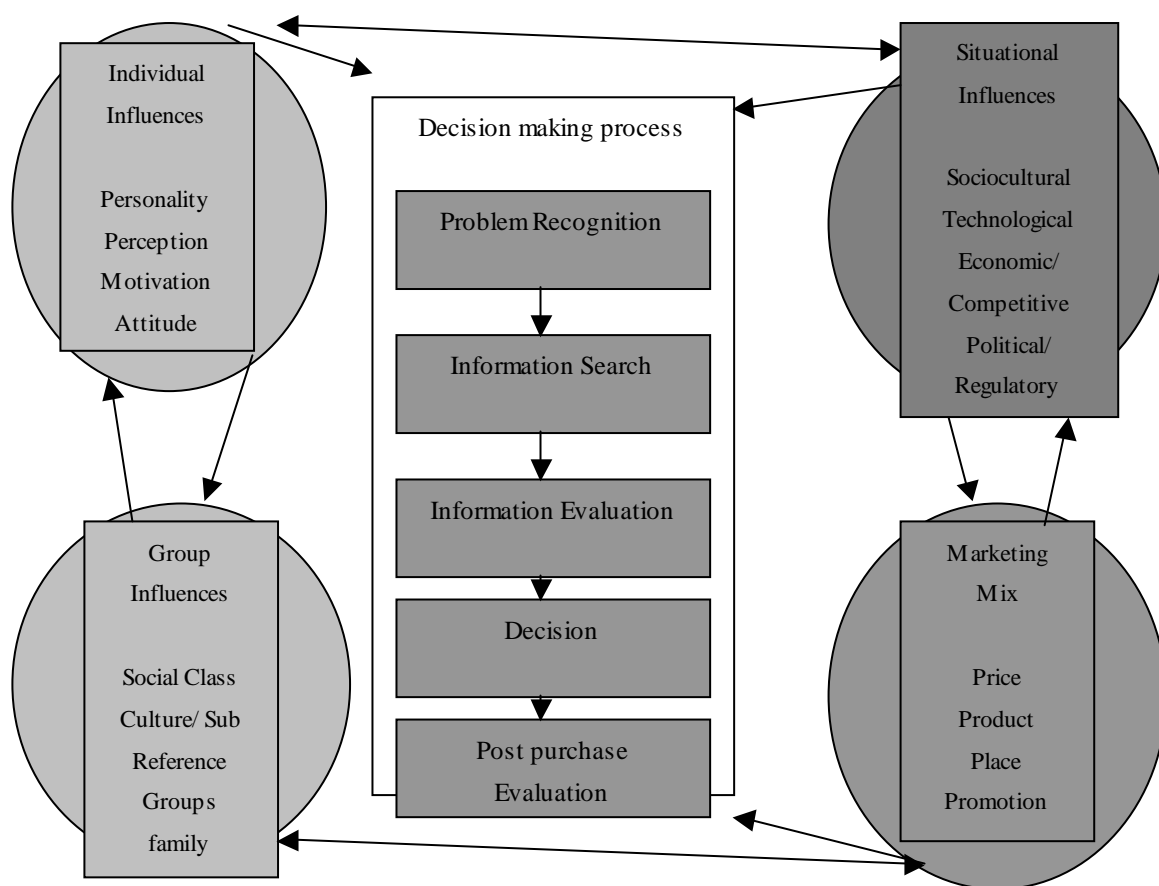


Figure 6. The Consumer Buying decision making process and its influencing factors
(Adapted from Brassington and Pettitt, 2000)

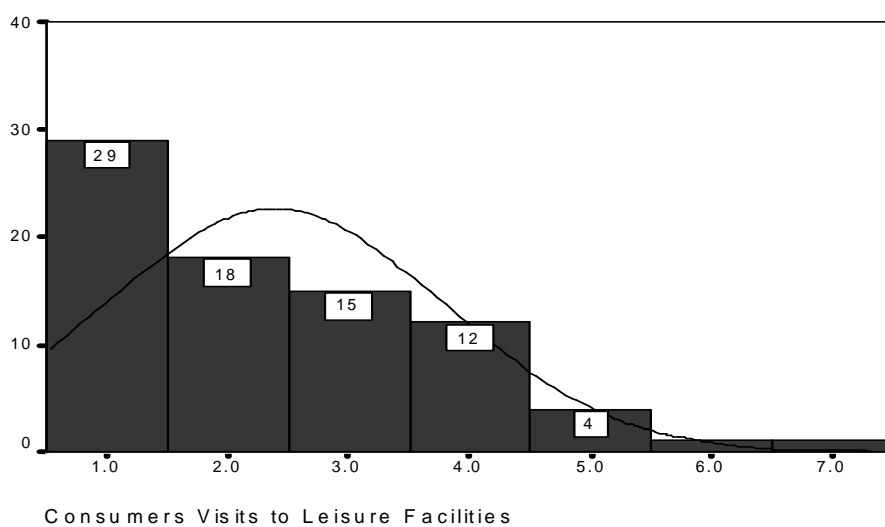


Figure 7. Consumers Visits to Leisure Facilities

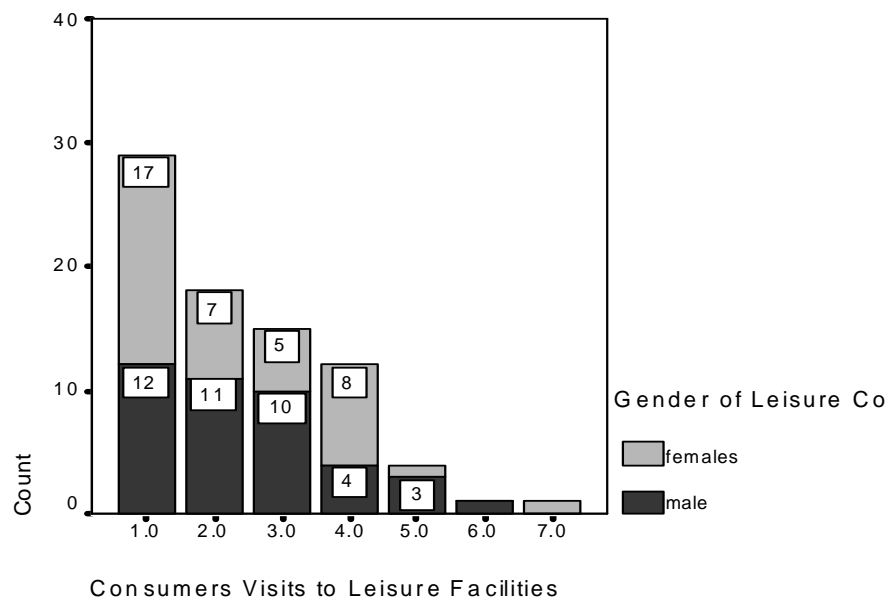


Figure 8. Consumer visits made to leisure facilities by gender

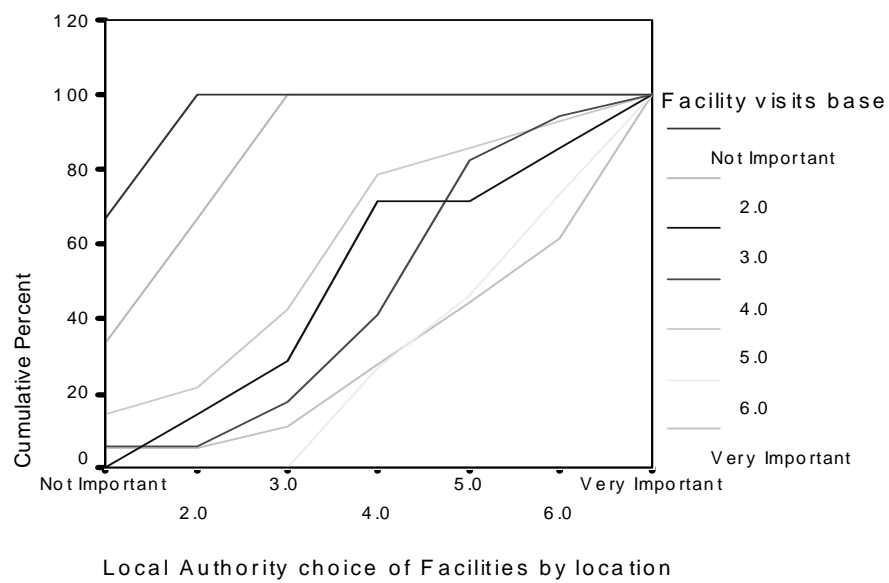


Figure 9. Selecting of facilities based on price of activities

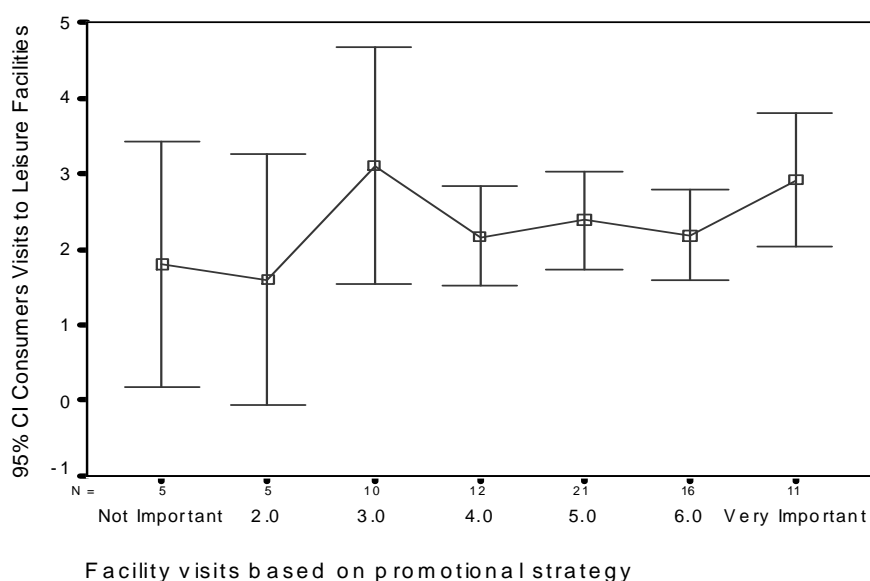


Figure 10. Activities/ Facilities chosen based on external promotion

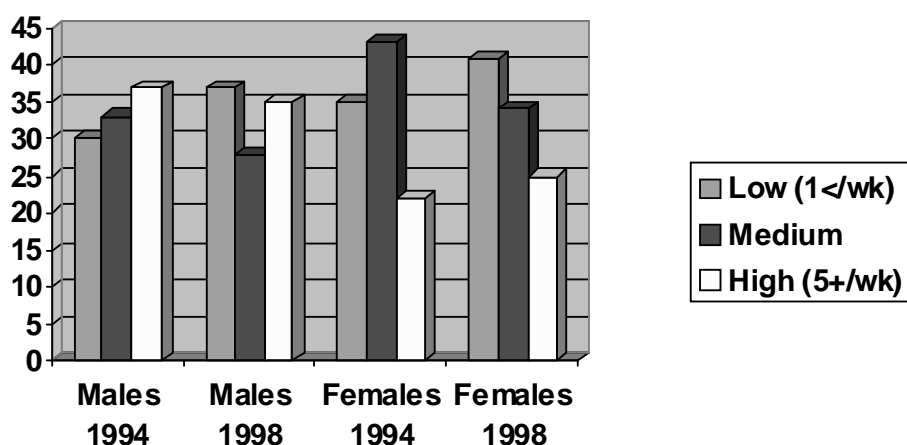


Figure 11. Physical activity level by sex, 1994 and 1998, England (Health Survey for England, 1998)

Table 1. Visits made to a local authority influenced by the marketing mix

	Local Authority choice of Facilities by location	Social Experience of Facilities	Word of Mouth/ regular user of the Facility	Facility visits based on pricing strategies	Facility visits based on promotional strategy
Chi-Square	4.257	1.336	3.184	1.421	7.507
df	6	6	6	6	6
Asymp. Sig.	.642	.970	.785	.965	.277

Table 2. Local Authority choice of Facilities by location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Important	9	11.3	11.3	11.3
	2.0	5	6.3	6.3	17.5
	3.0	8	10.0	10.0	27.5
	4.0	19	23.8	23.8	51.3
	5.0	14	17.5	17.5	68.8
	6.0	11	13.8	13.8	82.5
	Very Important	14	17.5	17.5	100.0
	Total	80	100.0	100.0	

Table 3. Choice of Local Authority Leisure Facilities based on cost

	Local Authority choice of Facilities by location
Chi-Square	31.457
df	6
Asymp. Sig.	.000

Table 4. Consumers response lifestyles and backgrounds

Gender	Single	Marital Status	Children	Professional	Student	Travel	income
Male	2	1	1	1	1	2	2
Female	2	2	2	0	0	2	2

Table 5. Evaluating Leisure Facility Selection

Reasons for Event Selection	Number of Responses
Location/ Place	4
Price	4
Product/ Package	3
Promotion	2
Atmosphere/ Experience	4
Reputation	3

Table 6. Persons attending leisure and recreation classes by sex of participants: type of college or organisation running classes (GHS 2002)

Type of college/ organisation running classes	Men	Women	Total
	%	%	%
Local Education Authority	16	26	23
College of Further Education	10	7	8
University Extra -Mural	3	5	4
other	71	64	66
Weighted base(000's)	759	1,835	2594
Unweighted sample	257	663	920



A Company Takes Human Resource as Basic Core Competition Formation

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Abstract

A Company is to provide telecommunications, internet billing platform and supporting services technology companies. As a knowledge-intensive small and medium-sized enterprise, human resources is the company's core competitiveness, companies continue the "people-oriented" core values, and human resources to a strategic height. This is the company survival and development of important support for the company's success is based on human resources management. A company's operating and development, utilization of human resources and other management knowledge, analysis of Company A in the management of the problem still exists, make a few constructive comments.

Keywords: Core competitiveness, Human resources management, Strategy

A company is to provide telecommunications, internet billing platform and supporting services technology companies. Group was established in 1994, Xi'an, the major business communications industries and technological products and services. 1995 Group formal involvement of Internet technology and investment fields and in 2005 introduced millions of Internet users-level billing platform. A company has a complete legal protection system, has made China's online games, e-commerce, electronic publishing, video, animation, production and distribution of books, IDC, and other formal license / permit. The company has a strong management team capacity, leading from different countries work together to build related industries from the elite for the construction of a vast number of Internet users both international trends and local characteristics of integrated services platform, advanced management methods, and strong technical force and the company has consistently uphold "people-oriented" concept of enterprise development should be relative, co-leading the rapid development of the company. Based on network technology is rising today, to look at the development of digital lifestyle unlimited future, Company A "for users with the most secure, high-speed transactions, entertainment, interactive platform for cooperation" as its mission, and continuously recruit outstanding talent, and seeking enterprises to be more long-term development.

1. A Corporation based on human resources core competitive ability analysis

According to Company A of industry characteristics, we can analyze, and the small and medium enterprise is a high-tech enterprise. Such enterprises already in the present-day society in a certain size, because of its mastery of more advanced technology, in comparison to the leading position, the value created by the generally much higher than other enterprises can create value, usually, such enterprises have the following characteristics:

First, the enterprise produces the product technology content high, the intangible asset is big. Performance for management service in high-tech and product research development compared to significant, research and development expense and technical personnel's investment quantity big, in the product materiality, the material cost occupies the product price the proportion to be very small.

Second, high input of. Small and medium-sized high-tech enterprises, not only in its pioneering stage must have substantial capital investment, but must also enter after a long period of substantial additional funds injected. Through scientific and technological achievements, industrial innovation generally has to go through research and development, pilot and the industrialization of three stages. All these business activities with the traditional enterprise production and business activities vary in enterprise development to a certain stage requires a lot of manpower, material resources and financial resources.

Third, the high-risk nature. Small and medium-sized high-tech enterprises in the initial stages of their venture, due to new technologies and new products by the process of development in the socio-economic operations, scientific and technological progress, and other factors, immature technology and people's understanding and mastering it is a process, so at this stage, there is a big investment and enterprise, technical personnel lack of experience, product performance instability, market uncertainty and other risks.

A Company is the basic features, but also in the industry has done quite well in the enterprise. Although the small scale

enterprises, but its sound human resources management Company A is the development of core strength. The reason why the business is the core competitiveness of human resources management, mainly because the majority of its staff for the knowledge-based software development talent, we all know that the software industry is of great mobility, the status quo in this industry, retain talent, and rational human resource management has become the public Division managers of the major work. Using statistical analysis tool SPSS to human resources to core competitive ability whether has the influence relativity to carry on the analysis, obtains the result, like Table 1.

Table 1. A company human resources and core competitiveness correlation analysis

Control Variables			Managers evaluation	Staff assessment	Core competitiveness
-none- ^a	Managers evaluation	Correlation	1.000	.758	.755
		Significance (2-tailed)	.	.007	.007
		df	0	9	9
	Staff assessment	Correlation	.758	1.000	.289
		Significance (2-tailed)	.007	.	.388
		df	9	0	9
	Core competitiveness	Correlation	.755	.289	1.000
		Significance (2-tailed)	.007	.388	.
		df	9	9	0
Core competitiveness	Managers evaluation	Correlation	1.000	.859	
		Significance (2-tailed)	.	.001	
		df	0	8	
	Staff assessment	Correlation	.859	1.000	
		Significance (2-tailed)	.001	.	
		df	8	0	

a. Cells contain zero-order (Pearson) correlations.

Through the above analysis, it is clear that enterprise managers and employees of enterprises of the state of human resources management and evaluation of the core competitiveness of enterprises are being related. In other words, human resources can be used as a company's core competitiveness.

2. A company in the human resources management and improving the existing problems

Through previous analysis we can see that, although the company in the human resources management has some advantages, but, in its course of development, will inevitably produce various problems, the simple summary of view, there are mainly the following three points:

- (1) The training of A Company no effective implementation.
- (2) A Company lack of an effective incentive mechanism.
- (3) A Company no systematic assessment of the performance of the system.

According to the above key issues, A Company combination of practical self-starting from the fierce competition in the market can survive, and the enterprises and better development, and enhance their core competitiveness, and actively seek to improve the program.

Firstly, suitable improvement training plan and effective implementation In the training program, the Human Resources Department in the relevant departments, according to the needs of staff and corporate development goals, jointly developed training programs, after consultation with staff on the revised staff satisfactory in the majority of cases during the implementation. When the training must be teamwork and broaden the curriculum, and this may increase the cohesion among employees, after training for feedback, staff training requirements after their feelings and experiences, not necessarily to staff on the paper, and basically take the easy way higher-level talks, but accept Master listen to the leadership forum to talk about the contents of each record to a comprehensive understanding of the staff.

Secondly, establish a scientific, rational and effective incentive mechanism China's accession to the WTO, the domestic and foreign markets competitive pressures intensify, the domestic human resources costs are much lower relative abroad, foreign investment into China, the talent will vigorously promote the localization strategy, which has high professional standards and wealth of experience of management and technical personnel will inevitably become large companies at home and abroad by the main playing recruitment goals. Therefore, Company A should be formed to retain talented people for the purpose of reasonable incentive mechanism to avoid the loss of business talent. Under normal circumstances, the incentive for enterprise staff and the spirit of no more than two substances, or people in the current labor means survival of the stage, the wage is still motivate staff playing the heavy way. Thus a scientific and rational mechanism for determining performance

appraisal is incentive to play the basic platform. Assessment criteria in determining the extent possible should be quantified and scientific and rational assessment criteria established between the various weights at the same time, in determining the content of indicators to consider the actual characteristics of the establishment of targeted and effective management in line with the requirements of the enterprise's own index system.

The incentives have many theories, from the level of early demand theory, X Theory, Y theory to the three kinds of needs of the modern theory, the theory of Goal Setting, expectations theory, the theory fair, comprehensive various theories, common management practice mode nothing more than material incentives and non-material incentives Modern human resources management practice experience and research show that modern management staff are involved in the demands and wishes to provide every opportunity to create and allowing workers to participate in the management of the initiative is to mobilize them an effective way.

People have all sorts of needs, and create appropriate conditions for the non-material, but also an important attract talent of more tools in the work of the people are met is an effective method. According to the quality of its talent and experience with the actual situation within enterprises, in accordance with the objectives of corporate strategy, personnel set up to the challenging task or posts to enable it to be at work in the development of space, not only to meet the talent of self-satisfied, self-fulfillment needs, but also makes people at work have been tempered, in turn, is conducive to the development of enterprises. Enterprises should develop a good competition for talent, adopting the practice of open competition for posts; In order to avoid drastic changes in organizational confusion staff enthusiasm, can also take existing operators to once again venture to develop new projects and new markets, and enable the introduction of new personnel management original industry solution. The Director-General would like to give opportunities to the Director-General to the post, to stem the possible status. In addition, through to the original operator conferred with aides and assistants to real power, the exercise of specific management functions, the original operators from the major guiding role of the consultant or the new replacing the old method.

At the same time, we should pay attention to the importance of encouraging corporate culture; Consideration paid leave by the active role; Skills training will be as the most basic of all the staff of the enterprise, essential requirements, training qualifications as a means of encouraging results to the excellent performance evaluation staff tilt; Focus on the staff level industry development, increasing the temptation to channel technical expertise; handle through competition, leading the work of selecting cadres.

In summary, I believe enterprises by improving performance and incentive mechanism can continuously improve their core competitiveness, in addition, it is worth mentioning that competitiveness lies in innovation, and innovation is the core competitiveness of nurturing a fundamental way. In order to attach importance to the role of enterprises as the core, all types of innovative management practices. "Humanistic Management" and "Center of the" corresponding to the management concept, which calls for understanding, and respect for people and give full play to people's initiative and enthusiasm. Improve the quality of enterprise employees, the most fundamental thing is to constantly strengthen study and learning-oriented enterprises to constantly enrich the actual content, in the staff strengthen the concept of lifelong learning, and create a team-learning environment, and encouraging employees to study and adapt to the market competition, adapt to the development needs of the business professional knowledge, enhance workers adapt to a competitive environment, the ability of competent different positions, raising the ideological and moral quality workers and the scientific, cultural, and technological quality, to enhance their core competitiveness and enterprise reform and development, and for the staff to join the comprehensive construction of a well-off society spiritual motivation and intellectual support for ideological security.

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Culture Shock: Causes and Symptoms

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Abstract

Culture shock has been a topic of research for many years because of its negative effects on both education and workplace. Most international students and foreign workers experience culture shock yet little research exists which has investigated differences in its causes and symptoms. This paper investigates the symptoms and causes of culture shock in different nationalities and the moderating effects of demographic factors and travel patterns.

Keywords: Culture shock

1. Introduction

"Culture Shock" has been a topic of research for over 30 years by European and American anthropologists and psychologists (Eickelmann, 2006). It is usually used to describe the physical and emotional discomfort experienced when someone moves to a completely new environment, although it also may result in a positive learning experience leading to increased self-awareness and personal growth (Adler, 1987). A list of the negative symptoms and the various stages one may go through when experiencing culture shock, as well as suggestions for dealing with it, is described by Guanipa (1998), Sorrento Lingue-International Study Abroad Programs (2006), and Schneider (2006), although no empirical data were presented. Culture shock has its negative effects on both education and workplace. According to a European Conference on Educational Research (McFarland, 1999), "Research shows that 83% of reporting companies experience expatriate failure, and 86% attribute failure to candidate selection and inability to adapt to host cultures." Some companies provide communication preparation for employees to help them adapt, but other causes of cultural shock are rarely addressed or acknowledged by companies or universities. Many students contact University Counseling services and report feeling more alienated because of the counselor's lack of knowledge about their culture. For example, the emotional impact of moving from a gender-segregated to a mixed educational system was criticized instead of acknowledged and understood. (Experienced by second author). Numerous studies focused on the difficulties students of specific nationalities experienced in adapting to different cultures. For example, for Chinese students see Wan (2001), for Taiwanese students see Swagler & Ellis (2003), for African students see Constantine, Anderson, Gregory, Berkel, LaVerne, Cadwell & Utsey (2005). Another major focus of research has been the relationship between various personality characteristics and the ability to adapt to a foreign culture (Ward, Bochner, & Furnham, 2001; Swagler & Jome, 2005; Shaffer, Harrison, Grehersen, Black, & Ferzandiz, 2006).

2. Concept Definitions

2.1 Culture Shock

The formal definition proposed by the Department of Counseling and School Psychology at San Diego State University was adopted: "We can describe culture shock as the physical and emotional discomfort one suffers when coming to live in another country or a place different from the place of origin. This term expresses the lack of direction, the feeling of not knowing what to do or how to do things in a new environment, and not knowing what is appropriate or inappropriate." (Guanipa, 1998) The variable "culture shock" was operationalized by calculating a total score of all the culture shock symptoms for each respondent, providing a multi-dimensional index score for "culture shock". In order to calculate the score for each respondent, the following weights for each response category were assigned: "Not at all" was 1 point, "Slightly": 2 points, "Moderately": 3 points and "Heavily": 4 points. Therefore based on the 10 symptoms listed, an index

score could range from a minimum of 10 points to a maximum of 40. Thus, the higher the score, the more culture shock the person had encountered. It was assumed that this yielded an interval scale in order to analyze the data by analysis of variance.

2.2 Causes of Culture Shock

Subjects were asked to indicate the degree to which they felt that 13 factors caused culture shock. A Likert scale from “Strongly disagree” (1) to “Strongly Agree” (5) was presented for each possible cause.

2.3 International Student

The definition included all students registered in the International Student Office, namely students with F1 and J1 visas.

2.4 Regions

As the samples for many countries were too small to be representative, the countries of origin were classified into several regions, according to their cultural similarity. Therefore our analysis was based on regions instead of country of origin. Our classification of regions was based on judgment and knowledge of the different cultures. (This was done by students from Palestine, Turkey, China and Russia). This is in keeping with Dowling and Welch (2005) who argue that one should not assume that national differences necessarily represent cultural difference. They argue that countries should be grouped based on their culture-common aspects. Our classification was as follows:

- (1) South East Asia: Burma, China, Indonesia, Japan, Mongolia, Philippines, Singapore, South Korea, Taiwan, Thailand, Vietnam
- (2) South Asia: India, Nepal, Pakistan, Sri Lanka
- (3) Africa: Democratic Republic of Congo, Ethiopia, Ghana, Kenya, Mozambique, Nigeria, South Africa, Tanzania
- (4) West Europe: France, Germany, Hungary, Spain, Sweden, Switzerland, UK
- (5) East Europe: Bulgaria, Romania, Russia, Turkey

3. Hypothesis

The main hypothesis was that international students from different countries experience different symptoms and causes of culture shock. Our dependent variables were the causes and symptoms of culture shock and our independent variable was country of origin (later combined to cultural regions). It was hypothesized that the following moderating variables would affect the relationship between the independent and dependent variables: level of degree pursued, travel patterns, previous exposure to the American culture, gender, age, and religion. Hypotheses for these variables are discussed in the following section.

4. Questionnaire

Data were collected from the target population using an on-line questionnaire. After extensive pre-testing, a questionnaire was sent to the respondents by e-mail. (see Appendix 1 for copy of the questionnaire).

The first question asked the country of origin. As previously explained, this response was used to classify respondents into different regions for analysis.

The second question asked their level of degree being pursued. It was assumed that there would be a significant difference between respondents having different levels of education. For example, undergraduate students are likely to be younger and less experienced and therefore would experience greater culture shock.

The third question inquired about their length of time in the University. This question could be a benchmark for the length of their stay in US at the same time. People who studied longer at CSUEB would have stayed longer in US and therefore have less severe culture shock.

The fourth and fifth questions were designed in order to test the difference between those respondents who had previously visited US before coming to study and those who did not. The number of visits to US prior to coming for an extended period was thought to moderate the extent of culture shock as the greater the number of prior visits, the less the culture shock.

The sixth question was directed at testing the hypotheses about the diminishing effect of culture shock among the respondents who had previous experience of living in a foreign country for an extended period, which was defined as “more than 3 months”. Questions 4-6 were included based on the discussion by Eickelmann (2006) who stated, “Research has shown that the more well-traveled and practiced (sic) at absorbing, accepting and adapting you are, the more easily you overcome culture shock.”

The seventh question was used to define the dependent variable “Symptoms of culture shock”. Each category in the question represented a symptom of culture shock and was defined based on previous research (Guanipa, 1998 and Schneider, 2006). These categories were: (1) Irritability, (2) Homesickness, (3) Sudden intense feeling of loyalty to your own culture (social withdrawal), (4) Overeating or loss of appetite, (5) Boredom, (6) A Need for excessive sleep, (7)

Depression, (8) Loss of ability to study effectively, (9) Marital or relationship stress, (10) Feeling sick much of the time (headache, upset stomach). Subjects were asked to indicate the frequency of experiencing each symptom during the first year of their stay in the United States.

The eighth question defined the other dependent variable, "Causes of culture shock". Each category in this question represented a possible causal factor of culture shock, and respondents were asked to indicate the degree to which they felt it was a cause of culture shock. These elements were: (1) Language, (2) Interpersonal Communication (body language, facial expressions), (3) Politics, (4) Mentality (mental attitude) (5) Religion, (6) American's Attitude towards International Students, (7) Infrastructure, (8) Service Quality, (9) Education System, (10) Food, (11) Environmental Concerns, (12) Social Responsibility, and (13) Immigration Policies. The answers indicated how crucial the respondents considered the differences in these 13 elements between their home country and the U.S.

Questions 9 through 11 collected information in order to classify respondents by the moderating variables of Gender, Age and Religion.

Question 12 was an open ended question to identify potential drawbacks of our questionnaire and generate areas for future research on the nature of culture shock.

5. Selection of Sample

Our plan was to reach all 571 international students with the help of Center of International Education. Unfortunately, the e-mails that enrolment services sent to all registered international students did not reach everyone because of full mail boxes of recipients and of internet service errors. A 33.5% response rate was achieved after editing, giving a usable sample of 191 respondents. Four responses were eliminated due to lack of indicating their country of origin. Three more samples in which the respondents reported that their country of origin was the United States were also eliminated as were partially completed questionnaires. As the question about "country of origin" was an open-ended question, students used different expressions for their countries. For example, students reported "China", "P. R. China", "Hong Kong, China" and "Macau, China", and these were consolidated into "China". This was later classified into the region "South East Asia".

5.1 Processing of small samples

Some categories in the survey did not have sufficient sample size for statistical analysis. In such cases, categories were collapsed into other categories. The following changes were made:

- (1) Age (Question 10): "40 or Older" was combined with "35-39" creating the new category "35 or older".
- (2) Religion (Question 11): We removed "Jewish" because of small sample size (Only one respondent).
- (3) Middle Eastern, South American, and North American respondents were omitted due to small sample size.

5.2 Analysis

The analysis consisted of two main parts. First, we analyzed the degree to which international students encountered various symptoms of culture shock during their first-year visit to the US. Secondly, we analyzed the causes of culture shock. Analyses (again using univariate analyses of variance) were also done for each of the following moderating variables: regions, education level, age, gender, religion, length of study at CSUEB, the number of times students have been to the US, and whether students had been in other countries before they came to the US.

6. Results

6.1 Symptoms of Culture Shock

For question 7, which asked how often various symptoms were experienced during the first year after coming to the United States, 52% the respondents indicated a "Moderate" or "Heavy" level for Homesickness, 44% for Social Withdrawal, and 44% for Boredom. The symptoms experienced the least (50% or greater indicating "Not at all") were Over-eating or Loss of Appetite (55%), Loss of Ability to Study Effectively (50%), and "Feeling Sick Much of the Time (headache and upset stomach) (62%). As shown in Table 1, virtually 100% of the respondents indicated that they had experienced symptoms of culture shock. Out of 178 respondents, 56 experienced more than 7 different symptoms of culture shock, 47 experienced 6-7 symptoms, 39 experienced 4-5 symptoms, 22 experienced 2-3 symptoms, and 6 respondents experienced only one of the symptoms. Eight respondents reported no symptoms at all (Refer to Table 1, Appendix 2).

6.2 Analyses by Moderating Variables

6.2.1 Regions

There were no significant differences in terms of experiencing culture shock between international students from different regions. This did not support our hypothesis and seemed to indicate that the symptoms cut across all national boundaries!

6.2.2 Education

International Students with different educational levels had a significant difference in experiencing culture shock ($P=.008$).

Our hypothesis, which was supported, was that since graduate students were generally older, more experienced and more knowledgeable than undergraduate students, they would experience less culture shock. The “Other” category, which consisted of exchange students, was not considered due to the small sample size. Exchange students who selected “other” category did not specify if they were graduate or undergraduate exchange students. For this reason, they were not included in either category. (Refer to Table 2, Appendix 2).

6.2.3 Age

Different age ranges did not show a significant difference. It is interesting to note that a plot of the means showed that the culture shock mean score and age ranges were inversely proportional. Since graduate students are generally older than undergraduates, this would support the previous results.

6.2.4 Gender

The study showed that there was no significant difference between males and females in the degree to which respondents encountered culture shock. This is somewhat surprising given that gender is often a significant moderating variable. While Hofstede (1980, 2001) concluded that cultural dimensions do not differ by gender, Stedham and Yamamura (2004) stated that women tend to be more relationship oriented with strong emphasis on interaction, communication, and harmony. This statement in turn suggests that women are more likely than men to experience internal issues of cultural differences.

6.2.5 Religion

There were no significant differences between students with different religions. After further analysis, it was discovered that 49 students answered “Other” as religion, 35 of them being from India. The option “Hindu” was missing from the survey. Since there are other religions in India, it could not be assumed that all “Other” Indians were Hindu.

6.2.6 Length of Study at California State University, East Bay (CSUEB)

There were no significant differences in the means of culture shock scores between students who had studied at CSUEB for different lengths of time. This was contrary to the hypothesis that the longer you were at the University, the less culture shock you would experience.

6.2.7 Times been to the U.S.

This factor was highly significant ($p = .001$). Students who had visited the United States for the first time and those who had been here only once before had statistically significant higher means of culture shock than those who had visited twice or more. This finding supported the hypothesis that the more exposure you had to the U.S. culture, the less the culture shock. (Refer to Table 3, Appendix 2).

6.2.8 Previous Travels

Question 6 asked if they had lived in a country different than their country of origin for more than 3 months prior to coming to the United States. The assumption was that students who had previously been to other countries had already encountered culture shock and therefore they would have less culture shock when they came to the US for the first time. The results supported this hypothesis ($p = .012$) (Refer to Table 4, Appendix 2). Further study about whether there were significant differences according to which countries and how many countries they had visited would be interesting but were beyond the scope of this study.

7. Causes of Culture Shock

The 13 elements of culture shock that international students were asked to consider as causes of culture shock were analyzed by assigning a score ranging from 1 for “Strongly Disagree”, to 5 for “Strongly Agree”. The higher the score, the greater was the student’s agreement that the element was a cause of their culture shock. As shown in Table 6, the percentage (50% or greater) of the respondents who indicated “Slightly Agree” and “Strongly Agree” to the causes of culture shock are as follows:

- (1) Language – 64%
- (2) Immigration Policies – 61%
- (3) Mentality (Mental attitude) – 60%
- (4) Education System – 58%
- (5) Interpersonal Communication (Body Language, Facial Expressions) – 58%
- (6) Food – 57%

All but 8 of the respondents indicated that they believed that culture shock was caused by at least one of the 13 causes. Twenty-seven respondents believed culture shock is caused by over 9 causes, 40 believed it is caused by 8-9 causes, 43 believed it is caused by 6-7 causes, 32 believed it is caused by 4-5 causes, 23 believed it is caused by 2-3 causes, and only 7 believed that it is caused by only one cause. Thus the concept “Culture Shock” is multi-determined, making it more challenging to overcome since numerous factors constitute its cause. (Refer to Table 6, Appendix 2).

Results of further analyses of these factors by various moderating variables follows:

7.1 Geographic Regions

There were statistically significant differences in the causal elements of “language”, “interpersonal communication”, “politics”, “mentality”, and “American’s Attitude towards international students” between students from different regions. (Refer to Table 5, Appendix 2). Students from South East Asia and East Europe had the highest means in Language, indicating that those students had significantly most difficulties in language skills, which became the major causes of their culture shock. For the causal element of Interpersonal Communication, results indicated that students from South East Asia and from Africa felt this was the major cause. The results showed students from East and West Europe as well as Africa considered Politics and Mentality to be the primary causes of culture shock. “American’s Attitude Towards International Students” was cited as the major element by students from South East Asia.

7.2 Education

There was a significant difference ($p=.049$) in educational level and belief that Religion was a cause of culture shock. Undergraduate students tended to agree more than graduates that religion was the cause of their culture shock. (Refer to Table 7, Appendix 2).

7.3 Age

There was a significant difference in Interpersonal Communication by different age groups, the younger the age group the more crucial was this element perceived. (Refer to Table 8, Appendix 2). The hypothesis was that as you age you tended to become more flexible and thus find it easier to communicate with others. The “35 or over” category was combined with the 30-34 one due to small sample size.

7.4 Gender

There was no significant difference between males and females in considering the causes of culture shock. This was also found to be true in the analysis of symptoms. Again, this was a surprising finding since many psychological variables are found to be gender specific. Further research on this variable should prove enlightening.

7.5 Religion

There were significant differences between students with different religions in the elements of “language”, “politics”, and “Service Quality” (Refer to Table 9, Appendix 2). Muslim and Buddhist respondents indicated Language as the major cause of culture shock. As for Politics, both Muslim and Christian students showed the highest mean scores. This is not surprising given the current conflict between the US and Middle East countries and thus lends support to the validity of the questionnaire. Service Quality is difficult to interpret as those indicating “no religion”, followed by Muslim and Christian, felt this element was the major cause of culture shock.

7.6 Length of Time Studying at CSUEB

As shown in Table 10 (See Appendix 2), there was a significant difference in “religion” between the length of time students had been studying at the University. It appears that between 1-2 years of study, religion becomes more important than before or after although the data do not clearly support any interpretation. This is an area needing further study.

7.7 Times Have Been to the U.S.

There were no significant differences in this category, contrary to the expectation that those who had been to the U.S. more often before coming here to study would experience less culture shock. Obviously the nature of their experience in their previous visits was a modifying factor.

7.8 Extent of Previous Travels

There was no significant difference in students who had been to other countries before they went to the US for the first time and those who had not. This did not support the hypothesis that those who had already experienced culture shock, and thus would have fewer symptoms of culture shock, would be expected to indicate significantly fewer causes. Obviously, more research is needed in this area.

8. Summary

Our main hypothesis was that different students (in terms of countries, education level, age, experience, gender and religion) had different levels of culture shock (in terms of symptoms and causes).

8.1 Culture shock symptoms

From the analysis, we concluded that all international students experience culture shock although there were different symptoms. Graduate students had encountered less culture shock than the undergraduate students and younger students had encountered more culture shock than the older students. This follows logically from the assumption that graduate students are older than undergraduates. The students who had been to other countries before they came to the US had

encountered less culture shock than those who have never been to other countries before. No matter where the students came from, no matter whether they were male or female, and no matter which religion they had, the majority encountered culture shock when they first came to the US.

8.2 Causes of culture shock

In regard to the causes of culture shock, we concluded that different students also had different reasons for experiencing culture shock. The differences were significant among students from different regions. South East Asia and East European students reported that their culture shock was mainly caused by Language. South East Asian and African students had more difficulties in Interpersonal Communication. American's Attitude Towards International Students was cited as the major cause by students from South East Asia only. East and West Europe and students from Africa reported that Politics and Mentality were the major casual elements. Students of different ages attributed different causes for their culture shock. The younger students regarded Interpersonal Communication as a major cause of their culture shock in comparison to the older students. Students who had been to other countries before they came to the US had less difficulty in Interpersonal Communication; thus they tended to minimize it as a cause of their culture shock. However, students who had not previously been to other countries considered Interpersonal Communication to be a major cause of their culture shock. There were no significant gender differences.

9. Discussion and Implications of Study

9.1 Implication for Counselors

Based of these findings, almost all students should be expected to experience some symptoms of culture shock, with most experiencing multiple symptoms. By understanding the different causes of culture shock as it relates to a person's background, academic counselors will be able to better understand and deal with this issue in more depth. As mentioned earlier, the fact that younger students feel that Interpersonal Communication is the main cause of culture shock means that they are unlikely to seek help from Americans and will feel isolated. Based on this, counselors in academic settings should include counselors from different backgrounds, not only to provide an alternative view of the experience but also to help coordinate and educate other counselors who might not have diverse cultural backgrounds. The fact that culture shock is multi-dimensional in its cause means that no "simple" action can be taken to ameliorate its symptoms.

9.2 Implications for Companies

Companies need to understand the issues that foreign workers might encounter and be better equipped to deal with the situation. For example, we saw that Language, Mentality, Interpersonal Communication, Politics, and American's Attitude Towards International Students were the main causes of culture shock depending on the region. Thus it is important that managers understand these causes in depth and be able to facilitate a smooth transition for both students and workers. The current concentration on only language and technical skills is not enough to provide this transition to another culture. Further understanding of student's and employee's backgrounds will increase the likelihood of better performance and greater social adaptability. These issues of recruitment, selection and training, and compensating employees are discussed in detail by Dowling and Welch (2005).

9.3 Limitations of the Study

- (1) Because of the breadth of the study, the grouping of the countries into various regions was not based on a specific cultural or interpersonal attribute; instead, it was based on general informal understanding of the similarities between different cultures in different countries. Therefore it is possible that variances within those regions may be greater than the variances between them. However, the statistically significant results obtained between regions indicate that this possibility did not mask regional differences as defined.
- (2) The difference in the wording of the questions about causes and symptoms may have produced inconsistent and interpretive discrepancies in the results. While the question about the symptoms asks the respondents if they personally experienced such symptoms as a result of culture shock, the question about causes asks the respondents what they believe to be a cause of culture shock which may or may not have been based on personal experience. No attempt was made to link specific symptoms with their causes.
- (3) For the purpose of encouraging the respondents to answer all the questions without being overwhelmed with the number of alternatives, possible symptoms and causes were reduced. For example, only 10 out of possible 16 or more symptoms were listed. The most common symptoms and causes were selected based on informal conversations with international students. Therefore, there are no data on other possible symptoms and causes as listed in Guanipa (1998).
- (4) As in any study utilizing a census, it is possible that those who responded were only the ones who had experienced culture shock. Although highly unlikely, this remains a possibility. Attempts to interview those who did not return the survey, in order to compare their responses with those who did, proved unsuccessful due to small sample size.
- (5) Forty-one comments were written in response to Question 12 which asked for comments or suggestions about culture shock among International students. A review of these indicated that "blame" for culture shock was divided between both

the U.S. and the students' lack of efforts to adapt to the American culture. No further content analysis was performed.

(6) The usual assumption that the Likert scale produces an interval scale is always open to question.

(7) Since each respondent was able to check multiple symptoms and multiple causes, it was not reasonable to use linear regression to establish the best predictor of culture shock from the list of causes. Future research could ask respondents to pair each symptom with its corresponding cause. Conversely, each cause could result in multiple symptoms.

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Appendix 1. International students and cultural shock questionnaire

This survey is conducted by MBA students of CSUEB. Our goal is to research culture shock among the international students at CSUEB. All the information in this questionnaire below is confidential and will be used for educational purposes only. We appreciate your cooperation and help. Thank you!

1. What is your country of origin? _____
2. What type of degree are you pursuing in CSUEB?
☐ Undergraduate degree ☐ Graduate Degree
☐ Other, please specify _____
3. How long you have been studying in CSUEB?
☐ Less than 6 months ☐ Between 6 months to 1 year
☐ More than 1 year to 2 years ☐ More than 2 years
4. Is this the first time that you came to the United States?
☐ Yes ☐ No

5. If you answered "NO" to question 4, how many times have you visited USA before you came here to study?

☐ 1 time ☐ 2 – 3 times ☐ more than 3 times ☐ I moved to live in the USA

6. Have you lived in a country for an extended period (more than 3 months) different from your country of origin prior to coming to the USA?

☐ No ☐ If Yes, please indicate the country (or countries) _____

7. Have you experienced the following symptoms during the first year after coming to the United States? (Please check the appropriate box)

	Not at all 1	Slightly 2	Moderately 3	Heavily 4
Irritability				
Homesickness				
Sudden intense feeling of loyalty to your own culture (social withdrawal)				
Overeating or loss of appetite				
Boredom				
A need for Excessive sleep				
Depression				
Loss of ability to study effectively				
Marital or relationship stress				
Feeling sick much of the time (headache, upset stomach)				
Other (please specify) _____				

8. Please indicate the degree to which you consider the following elements as causes of culture shock.

	Strongly Disagree 1	Slightly Disagree 2	Uncertain 3	Slightly Agree 4	Strongly Agree 5
Language					
Interpersonal Communication (body language, facial expressions)					
Politics					
Mentality (mental attitude)					
Religion					
American's Attitude toward International Students					
Infrastructure					

Service Quality					
Education System					
Food					
Environmental Concerns					
Social responsibility					
Immigration Policies					
Other (please specify) _____					

9. Please indicate your gender:

☐ Male ☐ Female

10. What is your age?

☐ 18 – 23 ☐ 35 - 39

☐ 24 – 29 ☐ over 40

☐ 30 - 34

11. Religion:

☐ Christian ☐ Muslim ☐ Jewish

☐ Buddhist ☐ None ☐ Prefer Not to Say

☐ Other _____

12. Please feel free to add any comments or suggestions about culture shock among International Students

Thank you for your time!!!

Appendix 2. Tables

Table 1. Symptoms of Culture Shock

7. Have you experienced any of the following symptoms during the first year of coming to the United States? (Please check the appropriate box)					
	Not at all	Slightly	Moderate	Heavily	Response Average
Irritability	40% (77)	34% (65)	20% (39)	5% (10)	1.91
Homesickness	18% (35)	30% (59)	26% (51)	26% (51)	2.40
Sudden intense feeling of loyalty to your own culture (social withdrawal)	23% (46)	33% (64)	27% (52)	17% (34)	2.38
Overeating or loss of appetite	55% (108)	23% (46)	14% (27)	8% (16)	1.75
Boredom	31% (61)	25% (48)	21% (40)	23% (45)	2.36
A need for Excessive sleep	46% (90)	24% (46)	20% (39)	11% (21)	1.96
Depression	41% (80)	34% (67)	15% (30)	9% (18)	1.93
Loss of ability to study effectively	50% (97)	26% (51)	14% (27)	10% (20)	1.85
Marital or relationship stress	49% (96)	24% (46)	13% (25)	14% (27)	1.91
Feeling sick much of the time (headache, upset stomach)	62% (122)	26% (50)	7% (14)	5% (10)	1.55
Total Respondents					194
(skipped this question)					3

Table 2. Educational Level and Culture Shock Means

Level	N	Mean	Std. Deviation	Sig.
Undergraduate	65	21.97	6.22	
Graduate	109	19.17	6.12	
Between groups				P= .008

Table 3. Frequency of Visiting the U.S. and Culture Shock Means

	N	Mean	Std. Deviation	Sig.
First Time	92	20.16	5.89	
1 Time	30	23.60	6.28	
2-3 Times	17	18.47	3.83	
More Than 3 Times	14	15.93	4.46	
Between groups				P = .001

Table 4. Previous Experience in Foreign Country and Culture Shock Means

	N	Mean	Std. Deviation	Sig.
No	143	20.71	6.28	
Yes	34	17.71	5.68	P = .012

Table 5. Differences in Causes of Culture Shock by Regions

ELEMENT	REGION	N	Mean	Std. Deviation	Sig.
Language	South East Asia	94	4.05	1.14	P = .001
	South Asia	45	2.40	1.47	
	Africa	7	3.00	1.29	
	West Europe	16	3.19	1.60	
	East Europe	14	4.21	1.19	
Interpersonal Communication (body language, facial expressions)	South East Asia	94	3.71	1.18	P = .010
	South Asia	46	2.87	1.53	
	Africa	8	3.50	.93	
	West Europe	16	3.13	1.41	
	East Europe	14	3.29	1.49	
Politics	South East Asia	94	2.82	1.22	P = .016
	South Asia	46	2.35	1.16	
	Africa	8	3.38	1.41	
	West Europe	16	3.38	1.15	
	East Europe	14	3.07	1.27	
Mentality (mental attitude)	South East Asia	94	3.35	1.11	P = .003
	South Asia	46	3.15	1.43	
	Africa	8	4.25	1.04	
	West Europe	16	4.25	.86	
	East Europe	14	4.00	1.30	

American's Attitude toward International Students	South East Asia	94	3.10	1.19	P = .024
	South Asia	46	2.43	1.34	
	Africa	8	2.63	1.06	
	West Europe	16	2.44	1.41	
	East Europe	14	2.50	1.16	

Table 6. Causes of Culture Shock

8. Please indicate the degree to which you consider the following elements as causes of culture shock.						
	Strongly disagree	Slightly disagree	Uncertain	Slightly agree	Strongly agree	Response Average
Language	19% (37)	9% (18)	8% (15)	33% (63)	31% (60)	3.47
Interpersonal Communication (body language, facial expressions)	15% (29)	14% (27)	13% (26)	35% (68)	23% (45)	3.37
Politics	20% (39)	20% (39)	27% (53)	23% (45)	10% (19)	2.83
Mentality (mental attitude)	11% (22)	12% (24)	16% (32)	38% (74)	22% (43)	3.47
Religion	27% (52)	16% (32)	23% (46)	23% (45)	11% (21)	2.75
American's Attitude toward International Students	20% (39)	26% (50)	18% (35)	26% (50)	10% (20)	2.80
Infrastructure	21% (41)	18% (34)	29% (57)	20% (39)	12% (23)	2.84
Service Quality	20% (40)	15% (29)	20% (40)	24% (47)	20% (40)	3.09
Education System	15% (30)	13% (25)	14% (27)	40% (78)	18% (34)	3.31
Food	15% (29)	13% (26)	15% (29)	31% (60)	26% (50)	3.39
Environmental Concerns	23% (44)	12% (23)	27% (53)	25% (49)	12% (24)	2.93
Social responsibility	21% (41)	12% (23)	27% (52)	28% (54)	13% (25)	2.99
Immigration Policies	12% (23)	8% (15)	19% (36)	27% (53)	34% (66)	3.64
Total Respondents						196
(skipped this question)						3

Table 7. Differences in Educational Level and Belief that Religion was a causal Element

Element	Educational Level	N	Mean	Std. Deviation	Sig.
Religion	Undergraduate	65	3.14	1.29	P=.049
	Graduate	109	2.63	1.34	

Table 8. Differences in Interpersonal Communication by Age Group

Element	Age Group	N	Mean	Std. Deviation	Sig.
Attitude	17-23	54	3.00	1.24	P=.045
	24-29	86	2.91	1.34	
	30-34	26	2.23	.99	

Table 9. Differences in Causal Elements by Religion

Element	Religion	N	Mean	Std. Deviation	Sig.
Language	Buddhist	25	3.92	1.35	P=.001
	Christian	46	3.46	1.44	
	Muslim	10	4.20	.79	
	Other	51	2.76	1.59	
	None	44	4.09	1.11	
Politics	Buddhist	25	2.56	1.12	P=.011
	Christian	47	3.19	1.21	
	Muslim	10	3.20	1.23	
	Other	52	2.38	1.17	
	None	44	2.89	1.28	
Service Quality	Buddhist	25	2.8	1.47	P=.038
	Christian	47	3.21	1.37	
	Muslim	10	3.30	1.25	
	Other	52	2.75	1.40	
	None	44	3.59	1.40	

Table 10. Length of Time Studying and Element of Religion

Element	Length of Time Studying	N	Mean	Std. Deviation	Sig.
Religion	Less Than 6 Months	43	2.53	1.37	P= .009
	6 Months to 1 Year	22	2.23	1.27	
	1 - 2 Years	63	3.19	1.19	
	More Than 2 years	50	2.88	1.37	



Discussion on Integration of Lean Production and Six Sigma Management

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Abstract

The paper introduces the emergence and development of Lean Production and Six Sigma management, compares and analyzes on Lean Production and Six Sigma management, it also analyzes the necessary and feasibility in integration of Lean Production and Six Sigma management, and points out the ways for integration of Lean Production and Six Sigma management: integration of organizational management, integration of implementing process, integration of process method, integration of using tool, Establishing conformable environment for Lean Six Sigma. Finally, the paper presents nine main parts that integrating Lean Production and Six Sigma management should be paid attention to.

Keywords: Lean Production, Six Sigma management, Lean Six Sigma

Lean Production and Six Sigma management are the two management methods of broad impact. The two methods have brought tremendous benefits to the enterprises which have successfully implemented the two methods. Lean Production and Six Sigma management cannot only be used alone, also be combined, each has its own advantages and disadvantages, and the two have complementary strengths. They are reinforced and linked mutually. If Lean Six Sigma can be integrally used, it will have a bigger effect.

1. Introduction of Lean Production and Six Sigma management

1.1 Lean Production

Lean Production originates in the Japanese Toyota Motor Corporation. It comes from the study and further development of management of American Ford Motor Company. Its core idea is to remove all non-value-added activities of links of enterprises, to create value of production as much as possible with less manpower, less equipment, in a shorter time and venues, further to meet customer production or service requirement. It emphasizes on reducing wastage and non-value added chain to reduce cost. Lean is not only the most productive way of the of impact on human society, but is a symbol of the new era of industrialization.

1.2 Six Sigma Management

Six Sigma management was put forward in the mid-1980s Motorola. Motorola summed it up by practice in order to be against the pressure on enterprise development and improve the quality standard. It is based on in order to improve the quality standard and total quality management theory and mathematical statistics on the total quality management theory and mathematical statistics. Its core idea is making all business work as a process, basing on data and facts. The use of quantitative methods in the flow of the factors affecting quality. Identify key factors to improve and continue to reduce volatility so that their ability to operate is the best and achieve customer's satisfaction. It follows the process by streamlining processes, controls flow variations, eliminates variability of the quality products in the process, thereby saving costs. Followed MOTOROLA, GE, so many world's top multinational companies like DELL, TOSHIBA, HP, SONY, CITIBANK, DESNEY, Hilton Hotel have adopted Six Sigma management to strengthen management, improve their management level, reduce costs and improve customer loyalty, increase sales and increase their core competitiveness

2. Lean and Six Sigma integration of the necessity and feasibility

2.1 Lean Six Sigma and the need for integration

From the above two comparative analysis can be seen, Lean and Six Sigma management have their own advantages and disadvantages of each other if they absorb each other's merits, the performance will be better. First, Lean Production specializes in systems analysis, the success of enterprises depends on the effective functioning of a good process, no matter how hardworking the staff, are they can't go beyond the design capacity of the process? Lean process management provides a framework for the project management of Six Sigma. Secondly, lean production needs experts' unique talents of knowledge, lacking of knowledge of the normative. Six Sigma management integrate various tools and solving problems in a standardized DMAIC process provide strong operability management tools for the project management. Again, Lean's

expert analysis on the scene, manage to quickly overcome the problems exposed at the scene, and focus on Black Belt. Six Sigma management under the guidance of quantitative analysis for the complex issues underlying causes can be found to solve the complex process the problem, but it needs a longer time to solve the problem. Different problems, need to combine the two, choose a different approach to solve the problem can increase the efficiency and capacity. Finally, from the operational level, the two management models of training, system improvements, and so need to integrate the way, one of the single use are defective (Zhou, He & Gao, 2006, 6,1-4).

2.2 The feasibility of integration of Lean Production and Six Sigma

First of all, both are the model of continuous improvement and pursuit of perfection. This is the homogeneity of their essences that is the reason why can there be possibility of integration.

Secondly, Lean Production and Six Sigma management are both closely connected with TQM, and their implementation are very similar to PDCA model, which provides a basis for the integration.

Again, although there are many differences between lean production and Six Sigma management on the operational level, they are not mutually exclusive. Take the culture for example, today's management emphasizes the integration of eastern and western cultural, and absorption of the advantages of different cultures for easy management; training methods and improvement methods of system all can be integrated (Zhou, he & Gao, 2006, 6,1-4).

3. Integration approach of Lean Production and Six Sigma

3.1 Integration of management

Matrix-type organization can be used in Lean Six Sigma. Figure 1 shows the structure.

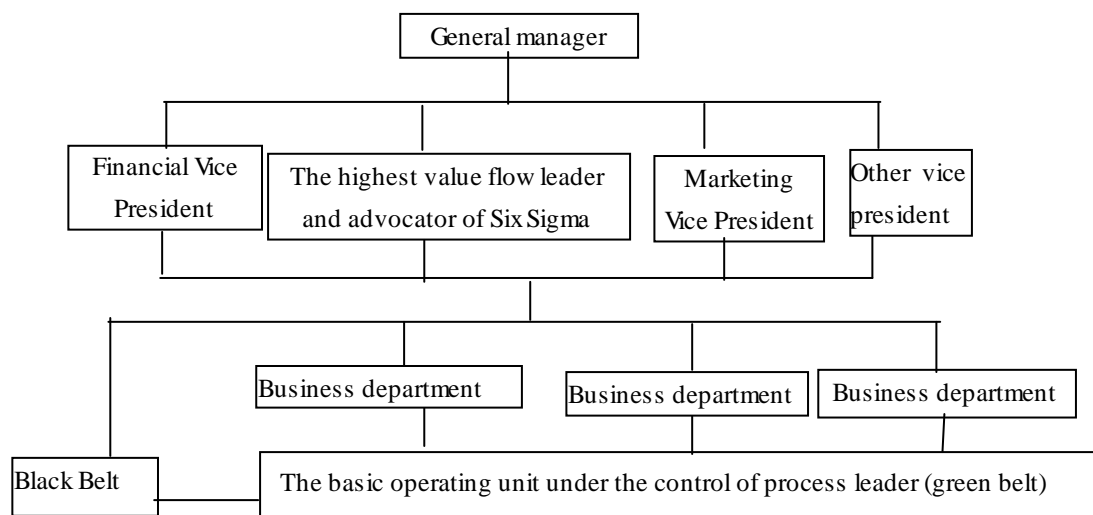


Figure 1. Organization structure graph of Lean Six Sigma

There are two lines in the system, one is mainly value flow managers at all levels throughout the business process; the other is mainly Black Belt and green belt throughout the project management. They are cross-combined. The first line is relatively stable and the staffs are full-time, while in the second line, the staffs are part-time except black belt. Lean theoretical content must be increased in Black Belt, Green Belt and other staffs training. The highest value flow leader must be a vice president (he can be operating manager), who is also an advocator of Six Sigma management (Zhou, He & Gao, 2006, 6,1-4).

3.2 Integration of implementation process

The principle of Lean should be integrated with DMAIC of Six Sigma management under the strategic framework in the process of integration. The new implementation process of definition - Measurement - Analysis - improvement - control is used and known as DMAIC. The difference between DMAIC and traditional DMAIC is Lean philosophy, methods and tools are added in the process. (He, Zhou & Gao, 2006, 1,13-17) Table 1 shows the implementation steps of Lean Six Sigma.

3.3 Integration of Methods

Six Sigma management uses DMAIC and SIPOC process analysis model developed from Deming's PDCA circular. Lean production uses the value flow analysis in the course of product realization method which is very similar to SIPOC, but it has not put forward DMAIC model as Six Sigma management in resolving specific issues. Therefore, the integration of them can be adopted.

First, pursue lean production, then draw current process chart of the enterprise, implement value flow chart analysis,

eliminate all MUDA in old process and remove unnecessary waste. On the basis, analyze remained process using DMAIC and implement continuous improvement to optimization process (Zhang, 2006, 11,14-16).

3.4 Integration of tools

The implementation of the Lean production makes enterprise order and the existing problems can be discovered in time, then Six Sigma management analyzes the data using statistical methods and technology, and looking for the causes from deep level. So the two tools can organically integrated, complementarily advantages. The integration can be carried out combining with the implementation process. Table 2 shows the specific tools.

Table 1. The implementation steps of Lean Six Sigma

Stages	Definition
Define	1. Defining customer needs, analysis system, looking for waste or variation, identifying improvement opportunities 2. Analyzing organizational strategy and organizational resources 3. Determining the project including the key export items, the resources they use, and the scope of the project
Measure	1. Defining process characteristics 2. Measuring process status (including the time processes or movements need) 3. Analyzing measurement system 4. Evaluating process capability
Analyze	1. Analyzing the process, identifying the root causes of waste or variation 2. Identifying the process and key input factors
Improve	1. Determining the relationship between input and output variables and proposing optimization program 2. Drawing up improvement plans
Control	1. Establishing action norms and implementing process control 2. Testing the measurement system, process and capacity 3. Summarizing the results, standardizing successful experiences and putting forward new issues

Table 2. Tools of Lean Six Sigma at different stages

Stages	Tools/Methods
Define	Pareto chart, KANO analysis, project identifier, value chain analysis, brainstorming, balance integration method, value flow chart, resources analysis, flow chart
Measure	Measurement system analysis, process capability, action analysis, time Measurement, Customer Satisfaction, OEE, process lead-time, TAKT, capacity utilization, data collection table
Analyze	Variance analysis, multiple variance analysis, FMEA, regression analysis, residual analysis, cluster analysis, 5W1H, new and old seven tools, flow chart, value flow chart
Improve	Critical path, full production maintaining, test design, Gantt Chart, benchmark analysis, similarity, improvement strategy, balanced analysis, optimization techniques, creative thinking, QFD
Control	Control chart, Poka-yuke, billboard, scene 5S, reliability verification, standard technology, visual technology, interactive audit, single-piece flow

3.5 To establish a “Lean Six Sigma” management of the environment (Zhang & Zeng, 2005, 6,25-28)

The establishment of “Lean Six Sigma” management of the environment, can set about from two aspects:

First, construct the logistics network of “Lean Six Sigma”, establish the necessary information management environment and the management of information systems technology platform. Generally speaking, the settlement of a certain product quality and process’s fluctuations and defects, use the Six Sigma management, through local processing processes and equipment adjustments can be realized. However, the process of improve the process and shorten the cycle often involve large-scale enterprises into the transformation of process, and even organizational structure changes. This requires the

enterprise existing logistics systems, such as production layout, production technology and raw material supplies, end products, and materials flow survey conducted in the building process efficiency on the basis of the evaluation criteria, and set up a customer demand-oriented fine Lean Sigma Logistics pulling mechanism, it is organizational guarantee of the fundamental resolution of upgrading the quality, speed and cost reduction, and this is “Lean Six Sigma” logistics network building. Meanwhile, we must establish the necessary information management environment and the management of information systems technology platforms, and realize CAD, CAM, MRPII, APS integrated with PDM. These advanced manufacturing technology is the realization of the picture, visualization control method’s basis, which together constitute Lean Six Sigma management of the logistics network environment.

Second, the creation of “Lean Six Sigma” corporate culture environment. Lean thinking and Six Sigma management of common stressed, is “to determine the value of customer demand flow” and “improve customer’s satisfaction” and emphasized that “excellence”, “the pursuit of perfection”, these concepts need to staff reflected them in each links of the process flow, after long time it is “Lean Six Sigma” corporate culture that formed. Practice shows that the implementation of “Lean Six Sigma” management is successful or not, operating tools and methodologies are critical to the application, but can a “Lean Six Sigma” corporate culture, is the fundamental determining factor.

4. Lean Six Sigma management and the integration of several caveats and cautions

4.1 Give full play to leadership

Lean production and the use of Six Sigma integration, need to deal with the issue of the whole system, at the same time, it is more complex to analyze and resolve problems, with different departments need to communicate the need for more resources to support, there are no more leadership support not be successful. The support of the leader should be real support, not just a verbal commitment, it requires leader to participate in the integration of Lean Six Sigma. Only take part in them, can they identify problems and effectively promote Lean Six Sigma integration (He, Zhou & Gao, 2006, 1,13-17).

4.2 Strengthen communication

Lean Six Sigma for the integration process, the communication plays a very important role. Communication includes not only the same level of communication within the organization, the communication between the upper and lower, but also the organization of communication with external customers, suppliers and communication; communication includes not only ideologically, but also learn from each other on the way. To strengthen communication, it can greatly promote Lean Six Sigma concept spread in the organization with the rapid speed, and reduce the resistance.

4.3 Attached importance to cultural construction

Lean Six Sigma emphasis on the facts, as well as the data-based, compared with the traditional extensive experience of management, its staff requirements are higher, and more stringent. Therefore, the implementation of Lean Six Sigma is also inseparable from cultural construction, which make each staff of the enterprise forms a habit of doing things, consciously according to Lean Six Sigma approach to doing things.

4.4 Establish a perfect management foundation

Lean Six Sigma enterprise integration, we must establish a comprehensive management foundation, especially basic data management, and continuous improvement in order to provide true, reliable data to enable enterprises implemented in the right direction.

4.5 Concern System

Lean Six Sigma is the strength of the system as a whole, rather than individual projects, the implementation of Lean Six Sigma to focus not only on the projects, we must also consider the overall improvement of the operation system, the company short-term financial performance should with the company’s long-term comprehensive strategic balance to consider (Chen, 2006,11,54-56).

4.6 To process management for the center

Lean and Six Sigma management integration should be process-centric, to rid itself of the organization functions as the starting point ways of thinking. This can really found in the entire value stream which is a value, which is a waste, and efficient management (He, Zhou & Gao, 2006, 1,13-17).

4.7 Focus should be in this business

Simple copying, copy the experience of others or mechanical combination Lean with Six Sigma is not successful. Enterprises should base itself on its own characteristics, with its own characteristics and embark on a road of integration (Wang & Zhang, 2006, 1,55-58).

4.8 Selecting suitable projects

Normally the implementation of Lean Six Sigma projects takes several months to see profits. Therefore, in the selection of the first project, we should pay attention to the probability of success and the evidence of benefit. It will be helpful to enhance

the confidence of the project team and carry out the follow-up projects. In addition, not all projects require Lean Six Sigma. The result is good for some of projects individually using the method or the Six Sigma management method. We should treat the projects differently according to their needs.

4.9 Involvement of people

In order to successfully implement enterprise integration, it must have the support of all the staff. If all staff support and participate in the integration of Lean Six Sigma, the integration of Lean Six Sigma will have a solid foundation.

5. Conclusion

The integration of Lean and Six Sigma management is necessary, Lean and Six Sigma management like the wrench and pliers in one toolbox. The result will be maximal, if both of them are possessed. Using Lean Six Sigma, enterprise can be closer to customers, understand the key demands of customers better and focus on the key aspects of process improvement more accurately to enhance the bottom line of quality. It will bring more revenue to the enterprise. Of course, the implementation of Lean Six Sigma process is very complex. It needs further research. We should grope in and summarize it constantly in practice.

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E-commerce Implications

Potential Problems and Challenges in Malaysia

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Abstract

E-commerce transaction has grown immensely. It has directly or indirectly imposed a number of challenges to the government administration particularly to the tax system. There are mix views to the implication of e-commerce. Some opine that e-commerce improves tax system, while others belief that tax system was designed in the era where e-commerce does not exist, thus, creating problems to the tax system. This study, therefore, investigates the tax problems posed by e-commerce and solicit opinions from various parties on problems faced in taxing e-commerce.

The findings reveal that tax administration was ranked as the highest potential tax problem, followed by tax evasion, double taxation, tax avoidance, and tax free. In addition, there is no significant difference in the subjects' attitudes towards e-commerce and internet tax. Overall results show that subjects perceive e-commerce as creating tax problems, however, their views do not differ on tax liability from physically or electronically oriented commercial environment.

Keywords: Tax, E-commerce, Problems, Challenges, Implications, Tax administration, Permanent establishment, Tax liability

1. Introduction

Cross country trade is vibrant since the days of Marco Polo. The growth of trade beyond cross border then increased profusely, using the conventional mean of doing business, where customer and supplier interact face to face. However, the sudden popularity of the international trade had somewhat created a new kind of trading problem to the government – which is tax problem. As tax is the major source of revenue for the government, difficulty in charging tax would means difficulty in getting revenue. Thus, a consensus has been established to solve the problem – tax treaties among trading countries. Established in the early 19th century, permanent establishment was used as the determinant to supplement the tax principle in charging tax liability in connection with international business, as such solved the problem of who should have the tax liability from foreign entities doing business in the country of origin (Buchanan, 2001).

Progressively, in the 20th century, the evolution of business became more global. The whole world became enthusiastic about the new mode of conducting business – the internet. E-commerce is one of the unique features provided by the internet. E-commerce, which is third layer of the internet had introduced the world with a new mechanism of commerce which is faster and easier (Edwards & Waelde, 2000). This transformation from the conventional to an electronic means of conducting business has been adopted world wide. This rapid growth of e-commerce is hailed as a revolution in global retail trade that is opening up new consumer markets across borders and continents. As good as it may seem, this new evolution of business mode has triggered the important aspects of taxing profitable income. This is because e-commerce has created a cyberspace trading whereby the businesses are engaged in a trade without having a physical presence which has disturbed the manifesto of conventional tax principle, which is identification of physical presence. This has led the government in many countries to face a new challenge of tax problems – loss of tax revenue (Thomas, 1999). Therefore, this paper investigates the potential tax problems posed by e-commerce in the Malaysian environment.

1.1 Objectives

The general objective of the study is to examine the potential problems created by e-commerce. Specifically, the paper aims:

- (1) To investigate tax problems posed by e-commerce;
- (2) To solicit opinions from the tax practitioners, IRB officers, accountants in the accounting firms, and accounting academicians on problems faced in taxing e-commerce business;
- (3) To compare the subjects' perceptions on the potential tax problems in e-commerce based on different countries scenarios.

2. Literature Review

2.1 Tax

Originally, tax determinant such as permanent establishment was established to solve the problem of tax dispute between countries. The issue of 'who has the right to tax income is important as income from tax is an important source of income to the government. As a result, government around the world has elected to minimize the problem by having bilateral agreements between countries through tax treaties.

Then again, the development of e-commerce has somewhat revolutionized the development of international trade. E-commerce has broken the chain and barriers of geographical border to almost every latitude and longitude. Obviously, the evolution of e-commerce has become so vast that even country that never heard before could be connected via internet and join the wagon of e-commerce. Although information technology revolution is tremendous, the impact faced by the tax authority is also challenging. Due to the rigorous development of e-commerce, tax revenue in many countries has been affected (Basu, 2001).

2.2 E-Commerce and Tax: Problems

Using new tool in the old house – how can e-commerce fit in the field of tax? Many issues have been pointed and debated in respect of e-commerce in relation to the field of taxation. There are a few schools of thoughts on this subject but sadly sparse studies have been conducted on this issue.

Generally, many believed that e-commerce would unquestionably stir the laws of taxation (Vohra, 2004; Horn, 2003; Cockfield, 1999). They pointed that the existing tax rules governing transactions was designed for conventional commerce where the physical presence can be easily identified, therefore, the same principles cannot be applied on e-commerce transactions. For example, the principles on permanent establishment (PE), which has been used as demarcation point to establish whether a source country should tax the profits derived from foreign businesses are based on the principles of physical presence. Apart from PE, there are also other important tax issues such as double taxation, and source-based nature of existing tax principles which could lead to tax avoidance, double taxation and tax free (Borkowski, 2002).

2.3 Developing Countries Perspective

Acknowledging the importance of the issue related with taxing e-commerce, developed countries such as United States, United Kingdom, France, Germany and Australia for example, have published e-commerce policy statement in the late 20th century (Foley & Khoo, 2000). Naturally, the developed countries have recognized the impact of e-commerce to the tax regime hence has taken ways and means to safeguard their tax revenue collection. However, there seem to be divergent of thinking between policy makers. Notably, the policy adopted by these countries slightly differs from each other taken into consideration the social, political and ideology of the countries. Nevertheless the policy accepts e-commerce as a new mode of doing business in the modern world.

Recognizing the commotion, the Organization for Economic Co-operation and Development (OECD) has initiated a tax model for e-commerce, which is now used as a benchmark for many countries including Malaysia (Sally, 2002). The OECD Electronic Commerce and Taxation Conference held in October 1998 reached consensus relating to various issues concerning e-commerce, which has resulted in a joint declaration on taxation and e-commerce. In addition, the Ottawa Conference concluded that government and businesses must cooperate in implementing a taxation framework for e-commerce in order for the full potential of new technologies to be realized. The conference representatives viewed that the new technologies have a great potential to simplify tax systems and enhance taxpayer services that are capable of being guided by the same principles that are used in current tax system. Sequentially, in October 1999, the OECD Working Group on Tax Conventions proposed the application of PE definition for e-commerce transactions, which have been used by many countries as a guide to address the issues on PE in their jurisdictions.

The OECD later updated the guideline with regards to PE where issues pertaining to e-commerce are discussed. The update has identified 28 different transactions and related payments involving varying degrees of e-commerce (Sally, 2002). However, the commentary on Article 5 (on PE) is still narrow because the commentary is confined to the consideration of the present definition of PE but not discussing the broader and important issue of whether any changes should be made to the definition, or the concept should be abandoned.

In cases of tax disputes between countries, tax treaties would be the solution to resolve the problem. Normally, PE would be used as a determinant to justify the status of the taxpayer. As PE means “a fixed place of business”, the legal authority would tax income based on the place where the physical presence of the taxpayer or the entity is identified. In the absence of PE, a country where goods or services are sold has no rights to tax the resulting income (Li & See, 2002). However, in the case of e-commerce, the determination of PE would seem to be a problem since the fixed place of business is uncertain. What used to be the traditional ways of taxing income, i.e. using physical location concept, now seems to play a minor role in solving disputes over the right to impose tax.

Evidently, a study by Othman, Hanefah, and Bidin (2004) indicates that 90% of the subjects agreed that the present definition of PE affects the concept of income in e-commerce trading. The results indicate that the subjects perceived the present PE definition, if used in e-commerce environment, would result in tax loss, double taxation, and tax evasion. They believe that e-commerce would undermine the principles used to determine PE, which would create opportunity for tax avoidance and evasion.

2.4 ASEAN Region Perspectives

In Hong Kong, a survey was conducted to study the potential international problems posed by the e-commerce. The study found that e-commerce poses tax problems, in areas such as tax administration, double taxation, tax evasion, tax avoidance and tax free to the tax authority. Interestingly, the study revealed that tax avoidance is the highest-ranked potential tax problem identified in respect of e-commerce (Davis & Chan, 2000). Other problems identified were double taxation and tax administration, whilst tax evasion was perceived to be the least potential problem.

Considering the impact of e-commerce to the tax authority, the Hong Kong Society of Accountants (HKSA) has established a Tax System Review Committee in order to examine matters related to its tax system. The committee is set up to identify the related tax area that would be affected by e-commerce; how e-commerce transactions should be taxed and how to establish a PE whether the existing tax legislation is strong and wide enough to bring the electronic based revenue to a tax net in order to avoid loss of tax revenues (Cheung, 2001).

India, on the other hand, has also moved in the same path as Hong Kong, in respect of the taxing e-commerce issue. In fact, some of the experts (based on the committee consisting of senior Indian government and industry officials) agreed that the present tax system would affect the tax revenue (Moran & Kummer, 2003). The committee opined that present tax practice, which rely on the permanent establishment need to be modified to suit the present technology advancement. The committee has taken a step forward in modifying its PE concept because they believed that the concept that is normally used would affect their tax revenue.

Progressively, Singapore which is poised to become the forerunner in the Asian region in regards to the adoption of e-commerce has issued a guideline on E-Commerce Tax in 2001 through its tax authority, Singapore's Inland Revenue Authority. With the aim to assist businesses in understanding the Income Tax treatment on e-commerce, the guideline provides various situations that could be adapted by the taxpayer (IRAS, 2001).

2.5 Malaysian Perspective

The existence of divergence in the tax practices is generally due to factors such as social culture, politic, etc. Divergent or not - most of the tax practices are designed with the basic element of tax consideration which are neutrality, certainty and fairness. Malaysia like other country applies a balanced tax system where all the elements stated above have been taken into consideration. Malaysian tax system is territorial in nature which applied the source based approach as to taxing chargeable income. According to the source based system practice in Malaysia, income is taxable if it is derived in Malaysia or received in Malaysia from abroad. Based on the source of income principle's rule, the place where the contract is negotiated, the place where the contract is completed, and identification of whether the place of business operations are carried on in Malaysia, are the determinant factors of taxing income (Malaysia Income Tax Act, 1967). In essence, this principle of using sources as rule to tax income is centered on the physical locations.

Regrettably, to date there is no specific guidelines issued by the IRB with regards to e-commerce taxation. The increase in trade volumes from e-commerce activities must be monitored. Therefore, a set of tax system which is equitably fair to the government and taxpayers need to be initiated. Predictably, the need for national tax system to reduce the imbalance of tax collection on e-commerce activities is suggested. In future, e-commerce and internet will be no longer alien to taxpayers. In fact, it will be the norm of doing business, therefore, a solid equitable tax system need to be established. As such, government should take a step further to accommodate the present tax system with the technology change in order to avoid loss of revenue.

3. Methodology

This study is conducted to solicit opinion towards e-commerce in relation to tax problems. The sample was obtained from various sources. Malaysia Institute of Taxation directory, which contain approximately 2,085 registered members was used to identify the sample of 625 tax practitioners. Sample for academicians was selected from Malaysian public and private universities teaching taxation where 20 academicians were selected and about 10 officers from the IRB were also identified

in this study as respondents.

Data were collected using a survey questionnaire. Questionnaire used by Davis and Chan (2000) was adopted with modifications in order to suit the Malaysian environment. The questionnaire contained three main sections. The first section contains general information of the subjects relating to their occupation, business nature, and experience of the subjects of either as a taxpayer or as a tax adviser. Section two consists of the subjects' opinions on tax problems associated with the e-commerce. The subjects were given a seven point Likert scale of 1 (strongly disagree) through 4 (neutral) to 7 (strongly agree). The potential tax problems are divided into potential double tax problems, tax free, tax avoidance, tax evasion, and tax administration. The following section contained two different scenarios dealing with e-commerce in multi-locations with different tax rules and tax treaties. The first scenario deal with a physical product (i.e. book) which contained the following information: ABC Ltd., a German corporation, a French primary server with a mirror server in Australia, a Malaysian customer, and a warehouse in Singapore.

The second scenario was a modification of the first scenario where the product sold is changed to the music downloaded directly from the homepage. Subjects indicated their degree of agreement with the argument based on the statement given. The statement contains four items describing the tax principles of various jurisdictions (France, Australia and Malaysia). Prior to a full scale study, the questionnaire was pre-tested among the tax experts, i.e., tax practitioners and academicians. Minor modifications were then made to several of the statements to increase clarity and understanding. The overall reliability shows a Cronbach Alpha of 0.716 which according to Sekaran (2000) and Nunnally (1978) as reasonable. A total of 655 samples were selected and questionnaires distributed. A total of 60 completed and usable questionnaires were received, indicating a response rate of 9%.

Data were analyzed using descriptive statistics of mean and standard deviation. Due to the small sample frame, a non-parametric test is used where group differences were analysed using Kruskal-Wallis. According to Coakes and Steed (2003), Kruskal-Wallis is equivalent to the one-way ANOVA which allows examining possible differences between two or more groups.

In this study, the following null hypotheses are tested:

H₀1: Attitudes relating to e-commerce and Internet tax are not affected by the subjects' occupation.

H₀2: Attitudes relating to e-commerce and Internet tax are not affected by the subjects' business nature.

H₀3: Attitudes relating to e-commerce and Internet tax are not affected by the subjects' years of experience as taxpayers.

H₀4: Attitudes relating to e-commerce and Internet tax are not affected by the subjects' years of experience as tax advisers.

4. Results

Table 1 provides the demographic data. There are five categories of occupations identified in the study which are tax professional (48.33%), accounting professional (11.67%), lecturer (20%), government officer (11.67%), and others (8.33%). These groups are of various business natures such as Certified Public Accountant firms (60%), government tax office (11.67%), educational institution (20%), and others (8.33%). Majority of the subjects has experience being a taxpayer and tax adviser within 6 to 10 years (33.33%).

4.1 Potential Tax Problems

In line with our objective which is to investigate tax problems posed by e-commerce, the study requested subjects to indicate whether they agree that e-commerce will posed potential tax problems of double taxation, tax free, tax avoidance, tax evasion, and tax administration.

Overall, the respondents agree that e-commerce creates taxation problems with mean score for all questions above 5.0 (Table 2). In ranked, it is found that tax administration shows the highest mean score in regards to the possible tax problem posed by e-commerce business, with mean and standard deviation of 5.63 and 1.45, respectively. Tax evasion is placed as the second possible tax problem with a mean of 5.37 and standard deviation of 1.50. The third possible problem is double taxation with mean of 5.27 and standard deviation of 1.53, followed by tax avoidance with the mean and standard deviation of 5.25 and 1.46, respectively. Finally, tax free has been identified as the last choice in regards to possible tax problem identified by the respondents with a mean result of 5.07 and standard deviation of 1.78.

4.2 Responses to Potential Problems Based on Scenarios

A set of scenarios based questions was designed to solicit the opinion of tax practitioners, accountants in accounting firms, Inland Revenue Board (IRB) officers, and academicians on problems faced in taxing e-commerce business. The objective is to solicit the opinions of the subjects with reference to case studies identified based on their experience and understanding of the law applicable in various jurisdictions. Subjects gave their opinions as to the suitability of income derived from e-commerce that should be taxed for each jurisdiction identified (i.e. Germany, France, Australia and Malaysia) based on their legal authority to tax transaction according to the laws applied in each jurisdiction for the tangible product purchased via the internet (in this case: book). The results indicate that Germany was chosen to be the most preferred jurisdiction to have the tax liability with a mean of 4.78, and followed by France which shows a mean of 4.08, which was ranked second

jurisdiction to have legal rights to taxing e-commerce business. Malaysia, however, is chosen as third place, while Australia was ranked as the last preferred jurisdiction that has the right to claim the tax liability with the mean of 3.58 and 3.47, respectively.

However, when the product purchased was changed to music (produced in Malaysia), which is downloaded directly from the homepage, the subjects perceived differently compared to the physical oriented commercial product. About 72.8% of the respondents with a mean result of 5.02 agreed that intangible product (music) purchased electronically should be subject to Malaysian tax as the profits is a source in Malaysia. Additionally, France with mean of 4.22 was ranked second. Further, slightly more than half (54.2%) agreed that France (the place where the server is located and having performed a complete business cycle in France) should therefore have the liberty to tax the profits. In contrast, with a mean score result of 3.67 and nearly half (46.55%) of the subjects did not agree that Australia (place of mirror server) should impose the tax liability although permanent establishment is in Australia.

4.3 Hypothesis Testing

Table 3 to Table 6 presents the results of the association between subjects' attitudes towards e-commerce and internet tax with their occupation in regards to the tax problems and tax rights based on the jurisdictions identified in the scenarios. Each scenario was supported by a statement that identified the legal rights of each jurisdiction; namely Germany (place of incorporation), France (place of server located), Australia (place of mirror server), and Malaysia (place of contract concluded).

4.3.1 Analysis of Results for H_{01} - Attitudes of E-Commerce and Occupations

The findings indicate that the attitudes relating to e-commerce and Internet tax are not affected by the subjects' occupation in respect of the potential tax problem identify (Table 3). Therefore, the hypothesis is not rejected. Similarly, the results show that the attitudes relating to e-commerce and Internet tax are not affected by the subjects' occupation in respect of the tangible product purchased electronically. And as for an intangible product (music) which can be downloaded from the internet, the results are also not significant. Hence, the hypothesis is not rejected.

4.3.2 Analysis of Results for H_{02} - Attitudes of E-Commerce and Business Nature

The results of the subjects' opinions related to e-commerce and internet tax according to the respondents' business nature shows that the attitudes of the subjects relating to e-commerce and internet tax are not affected by the subjects' nature of business (Table 4). This is supported by a non-significant value, therefore, the hypothesis cannot be rejected.

The subjects' opinions on tangible products sold via internet with different tax rules and tax treaties were also solicited. The results show that the attitudes relating to e-commerce and internet tax are not affected by the subjects' business nature. Overall results show a non-significant level for all of the jurisdictions.

The attitudes of the subjects towards e-commerce and internet tax between subjects' business nature were also tested for intangible product. It was found that the results are non-significant. This indicates that there is no difference in the subjects' opinions towards the treatment of tangible and intangible products transacted via internet.

4.3.3 Analysis of Results for H_{03} and H_{04} - Attitudes of E-Commerce and Experience as Taxpayers and Tax Advisers

The findings reveal that the attitudes are not affected by the subjects' experiences either as taxpayers nor tax advisers. Evidence indicates a non-significant results for tax payers and for tax advisers in connection with double tax, tax free, tax avoidance, tax evasion, and tax administration (Table 5 and 6). Accordingly, hypothesis is not rejected which is also consistent with Davis and Chan (2000).

In addition, the subjects are also tested on their attitudes relating to e-commerce and internet tax for tangible and intangible product sold via internet. The subjects were given three sets of scenarios dealing with internet trading in multi-locations with different tax rules and tax treaties. Overall results indicate a non-significant value in connection with the multiple jurisdictions identified in the scenario. Relatively, the outcome shows that there is no significant difference in attitudes relating to e-commerce and internet tax in respect of tax payer and tax advisers experiences.

4.4 Discussion

This survey focused on the opinions of different groups of subjects who are knowledgeable with taxation. As regards to the potential tax problems in e-commerce taxation, overall, the subjects agree that e-commerce would pose potential tax problems and this is consistent with Davis and Chan (2000).

However, Davis and Chan (2000) found that tax avoidance is the most probable potential tax problem by internet trading whereas, this study reveals that tax administration is rated as the most probable potential tax problem posed by e-commerce. This is probably because at present, there is no guideline or ruling related to taxing of e-commerce business in Malaysia. As such, the subjects in Malaysia tend to feel that without a specific law and regulation relating to e-commerce, the administration vicinity would be difficult to manage. Most probably, the subjects also perceive that the collection of taxes by the tax authority from e-commerce business would be difficult.

It has been pointed that inefficient tax administration can be a potential problem for taxing e-commerce, and this should not be taken lightly as it could endanger viability of general sales tax (Mikesell, 2004). To top it all, the lack of technology change in the regulatory environment and the advancement of internet and the like, would slow down the viability of tax administration process. Therefore, it is important for tax administrators to keep abreast with the advancement of the internet. According to Mikesell (2004), taxing the internet is not administratively feasible which could result in mistreatment of the principles of sound tax policy. Tax experts perceive that inefficient tax administration would cost the government in terms of revenue loss and the impact is even greater for internet tax (Mikesell, 2004). Supporting this, Krupsky (2003) pointed that principles of taxation such as fairness, neutrality, efficiency, predictability, and avoidance of double taxation may be seriously eroded. As a result, there will be more open chances for tax avoidance and tax evasion.

The study also found that tax evasion is the next best potential tax problem posed by e-commerce. This is probably because the subjects figured that due to the lack of administration in terms of tax liability, the taxpayer would have higher opportunity to evade tax. Due to the higher chances of taxpayer transact their e-commerce beyond national frontier, taxpayer could evade from paying tax liability, which means the taxpayer could shop for a tax haven as a gate away resort. Double taxation is the next possible tax problem identified in the study. This is probably because the subjects believe that tax treaties would be a solution to double taxation problem, therefore, did not take the problem too seriously. However, tax avoidance is found to be the fourth possible tax problem. Unlike Davis and Chan (2000), tax avoidance was ranked as the first potential problem posed by e-commerce. Davis and Chan (2000) claimed that the potential for taxpayer to avoid taxes are greater as the physical location is unclear in e-commerce environment, therefore, creating opportunity for tax avoidance. However, in this study Malaysians perceived differently, probably due to the small number of companies venturing into e-commerce.

Further, this study also captures the subjects understanding of tax problems posed by e-commerce based on various scenarios. Majority of the subjects agree that Germany, as a place of incorporation, is liable to tax the income of a company since it is incorporated in Germany and considered to be resident. Consistent with the findings of Davis and Chan (2000), the place of incorporation was ranked highly as the legal authority to tax for tangible product sold via internet.

In addition, the subjects also agree that France (being the place where server is located) should have the right to tax the company. On the contrary, the subjects disagree as to country where the contract is concluded (in this case, Malaysia) and the country which hosted the homepage in a mirror server (in this case, Australia) to have the tax liability. This probably because the primary purpose of the mirror server in Australia is not trading, hence, the subjects do not consider Australia to be qualified to claim the existence of permanent establishment. Interestingly, the results show slight difference in opinion of the subjects in regards to intangible product purchased via the internet. The subjects agree that tax liability should come under the country where the product was produced (in this case, Malaysia) whereas in regards to tangible product the subjects generally disagree that the profits should be subject to Malaysian tax. Probably, the subjects figured that if the product is produced in Malaysia, it shows that the source of income is within Malaysia and not outside Malaysia, as such, Malaysia has the liability to charge the taxable income. However, the perceptions do not differ with regards to tangible or intangible products for France and Australia. The respondents agreed that the company should be subject to tax since the server was located in France, and Australia, where the mirror server is located, therefore should not have the right to tax income.

Overall results show that there is no significant difference in attitudes relating to e-commerce and internet tax by subjects occupation, business nature, and experience as taxpayer or tax adviser. Similar finding were found in Davis and Chan (2000) where overall results towards to the attitudes relating to internet tax by occupation, business nature and experience did not show significant results. Therefore, the findings show that the attitudes of the developing countries and Malaysian opinion towards internet tax in regards to potential problems are similar with that of other countries in the region namely, Hong Kong, Europe, North America, South America and some parts of Asia.

4.5 Conclusion

This study draws attention to the importance of taxing e-commerce transactions issue in Malaysia. Overall findings indicate that there is no significant difference in the opinions of subjects with regards to taxing tangible or intangible product. In addition, overall findings also reveal that occupation, nature of business and experiences do not influence the subjects' opinions towards e-commerce tax liability in regards to tax problem and legality of claiming taxes in various jurisdictions. Further, the study also shows that tax administration is the highest rank potential problem relating to e-commerce and that tax free is the least potential tax problem raised due to e-commerce transactions.

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Table 1. Demographics of Subjects

Demography	Category	No. of response	Percentage Distribution
Occupation	Tax professional	29	48.33
	Accounting professional	7	11.67
	Lecturer	12	20.00
	Government officer	7	11.67
	Others	5	8.33
	Total	60	100
Business nature	CPA firm	36	60.00
	Government tax office	7	11.67
	Educational institution	12	20.00

	Others	5	8.33
	Total	60	100
Experience	As taxpayer:		
	None	-	-
	1 to 5 years	8	15.69
	6 to 10 years	17	33.33
	11 to 15 years	9	17.65
	16 to 20 years	7	13.73
	Over 20 years	10	19.60
	Total	51	100
	As tax adviser:		
	None	-	-
	1 to 5 years	5	12.82
	6 to 10 years	13	33.33
	11 to 15 years	7	17.95
	16 to 20 years	3	7.69
	Over 20 years	11	28.21
	Total	39	100

Table 2. Responses to Potential Problems and Various Scenarios

Questions:	No. of responses (% of total responses)							Mean	Std. Dev.
	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree		
Likert Scale:	1	2	3	4	5	6	7		
Tax problems:	2	3	4	4	9 (15.25)	29	8	5.27	1.52
Double taxation	(3.39)	(5.08)	(6.78)	(6.78)		(49.16)	(13.56)		9
Tax free	2	8	2	4	11	20	12	5.07	1.78
	(3.39)	(13.56)	(3.39)	(6.78)	(18.64)	(33.90)	(20.34)		0
Tax avoidance	1	3	3	9 (15.25)	10	23	10	5.25	1.45
	(1.69)	(5.08)	(5.08)		(16.96)	(38.98)	(16.96)		7
Tax evasion	1	4	-	10	10	20	14	5.37	1.49
	(1.69)	(6.78)		(16.95)	(16.95)	(33.90)	(23.73)		6
Tax administration	1	3	1	6 (10.18)	7 (11.86)	24	17	5.63	1.44
	(1.69)	(5.09)	(1.69)			(40.68)	(28.81)		9

Scenario 1:									
Germany	2 (3.33)	10 (16.67)	4 (6.67)	8 (13.33)	7 (11.67)	17 (28.33)	12 (20.00)	4.78	1.878
France	4 (6.67)	13 (21.67)	6 (10.00)	8 (13.33)	14 (23.33)	10 (16.67)	5 (8.33)	4.08	1.807
Australia	7 (11.67)	15 (25.00)	6 (10.00)	16 (26.67)	9 (15.00)	5 (8.33)	2 (3.33)	3.47	1.641
Malaysia	10 (16.96)	13 (22.03)	9 (15.25)	7 (11.86)	5 (8.47)	10 (16.96)	5 (8.47)	3.58	1.993
Scenario 2:									
France	4 (6.79)	14 (23.73)	2 (3.39)	7 (11.86)	13 (22.03)	15 (25.42)	4 (6.78)	4.22	1.858
Australia	6 (10.34)	16 (27.59)	5 (8.62)	8 (13.79)	12 (20.69)	9 (15.52)	2 (3.45)	3.67	1.791
Malaysia	4 (6.78)	9 (15.25)	1 (1.70)	2 (3.39)	6 (10.17)	26 (44.07)	11 (18.64)	5.02	1.952

Table 3. Perceptions of Respondents according to Different Occupation

Problem & Scenarios	Variables	N	Mean rank	5% significant
Tax Problems: Double tax	Tax professional	29	29.02	0.928
	Accounting Professional	7	33.29	
	Lecturer	12	29.25	
	Government officer	7	29.07	
	Others	4	35.25	
Tax free	Tax professional	29	29.10	0.967
	Accounting Professional	7	31.07	
	Lecturer	12	31.63	
	Government officer	7	27.71	
	Others	4	33.75	
Tax avoidance	Tax professional	29	30.59	0.961
	Accounting Professional	7	26.0	
	Lecturer	12	29.21	
	Government officer	7	32.07	
	Others	4	31.50	

Tax evasion	Tax professional	29	28.47	0.671
	Accounting Professional	7	24.07	
	Lecturer	12	33.13	
	Government officer	7	34.93	
	Others	4	33.50	
Tax administration	Tax professional	29	28.53	0.624
	Accounting Professional	7	23.93	
	Lecturer	12	34.75	
	Government officer	7	33.93	
	Others	4	30.13	
Scenario 1: Tangible Product (Book)				
Germany	Tax professional	29	28.50	0.634
	Accounting Professional	7	26.36	
	Lecturer	12	31.25	
	Government officer	7	36.93	
	Others	5	37.10	
France	Tax professional	29	26.28	0.326
	Accounting Professional	7	31.29	
	Lecturer	12	33.13	
	Government officer	7	34.57	
	Others	5	41.90	
Australia	Tax professional	29	28.26	0.240
	Accounting Professional	7	36.14	
	Lecturer	12	26.54	
	Government officer	7	30.57	
	Others	5	45.00	
Malaysia	Tax professional	29	29.22	0.120
	Accounting Professional	6	37.42	
	Lecturer	12	36.67	
	Government officer	7	16.93	
	Others	5	27.90	
Scenario 2: Intangible Product (Music)				
France	Tax professional	29	27.72	0.511
	Accounting Professional	7	27.57	
	Lecturer	12	30.38	
	Government officer	6	33.50	
	Others	5	41.50	
Australia	Tax professional	28	28.63	0.518
	Accounting Professional	7	28.36	
	Lecturer	12	26.25	
	Government officer	6	31.50	
	Others	5	41.40	

Malaysia	Tax professional	28	27.95	0.756
	Accounting Professional	7	30.79	
	Lecturer	12	34.25	
	Government officer	7	33.21	
	Others	5	25.70	

Table 4. Perceptions of Respondents according to Business Nature

Problem & Scenarios	Variables	N	Mean	5% significant
Tax Problems: Double tax	CPA firm	36	29.85	0.923
	Government tax office	7	29.07	
	Education Institution	12	29.25	
	Others	4	35.25	
Tax free	CPA firm	36	29.92	0.970
	Government tax office	7	27.71	
	Education Institution	12	31.63	
	Others	4	29.88	
Tax avoidance	CPA firm	36	29.69	0.980
	Government tax office	7	32.07	
	Education Institution	12	29.21	
	Others	4	31.50	
Tax evasion	CPA firm	36	28.31	0.677
	Government tax office	7	34.93	
	Education Institution	12	33.13	
	Others	4	27.25	
Tax administration	CPA firm	36	28.07	0.546
	Government tax office	7	33.93	
	Education Institution	12	34.75	
	Others	4	26.25	
Scenario 1: Tangible Product (Book)				
Germany	CPA firm	36	28.46	0.619
	Government tax office	7	36.93	
	Education Institution	12	31.25	
	Others	5	34.40	
France	CPA firm	36	27.25	0.245
	Government tax office	7	34.57	
	Education Institution	12	33.13	
	Others	5	41.90	
Australia	CPA firm	36	29.79	0.231
	Government tax office	7	30.57	
	Education Institution	12	26.54	
	Others	5	45.00	

Malaysia	CPA firm	35	31.17	*0.079
	Government tax office	7	16.93	
	Education Institution	12	36.67	
	Others	5	24.10	
Scenario 2: Intangible Product (Music)				
France	CPA firm	36	27.69	0.350
	Government tax office	6	33.50	
	Education Institution	12	30.38	
	Others	5	41.50	
Australia	CPA firm	35	29.34	0.724
	Government tax office	6	31.50	
	Education Institution	12	26.25	
	Others	5	36.00	
Malaysia	CPA firm	35	28.51	0.632
	Government tax office	6	33.21	
	Education Institution	12	34.25	
	Others	5	25.70	

* significant at 10%

Table 5. Perceptions of Respondents according to Experience as a Taxpayer

Problem & Scenarios	Variables	N	Mean	5% significant
Tax Problems: Double tax	1-5 yrs	7	27.07	0.366
	6-10 yrs	17	27.38	
	11-15 yrs	9	20.17	
	16-20 yrs	7	19.50	
	> 20 yrs	10	30.20	
Tax free	1-5 yrs	7	30.71	0.694
	6-10 yrs	17	27.12	
	11-15 yrs	9	21.67	
	16-20 yrs	7	25.43	
	> 20 yrs	10	22.60	
Tax avoidance	1-5 yrs	7	21.29	0.239
	6-10 yrs	17	29.56	
	11-15 yrs	9	21.50	
	16-20 yrs	7	18.50	
	> 20 yrs	10	30.05	
Tax evasion	1-5 yrs	7	36.00	0.131
	6-10 yrs	17	25.32	
	11-15 yrs	9	17.33	
	16-20 yrs	7	23.64	
	> 20 yrs	10	27.10	

Tax administration	1-5 yrs	7	37.50	*0.068
	6-10 yrs	17	22.85	
	11-15 yrs	9	18.06	
	16-20 yrs	7	28.29	
	> 20 yrs	10	26.35	
Scenario 1: Tangible Product (Book)				
Germany	1-5 yrs	8	20.63	0.309
	6-10 yrs	17	21.91	
	11-15 yrs	9	29.39	
	16-20 yrs	7	30.79	
	> 20 yrs	10	30.85	
France	1-5 yrs	8	29.31	0.474
	6-10 yrs	17	26.12	
	11-15 yrs	9	18.44	
	16-20 yrs	7	30.57	
	> 20 yrs	10	26.75	
Australia	1-5 yrs	8	29.13	0.516
	6-10 yrs	17	27.79	
	11-15 yrs	9	20.78	
	16-20 yrs	7	30.57	
	> 20 yrs	10	21.95	
Malaysia	1-5 yrs	8	23.25	0.660
	6-10 yrs	17	27.59	
	11-15 yrs	9	26.81	
	16-20 yrs	7	29.07	
	> 20 yrs	10	20.20	
	Total			
Scenario 2: Intangible Product (Music)				
France	1-5 yrs	8	21.75	0.148
	6-10 yrs	17	29.74	
	11-15 yrs	9	17.44	
	16-20 yrs	7	33.50	
	> 20 yrs	10	25.50	
Australia	1-5 yrs	8	22.19	0.197
	6-10 yrs	17	30.65	
	11-15 yrs	8	17.75	
	16-20 yrs	7	29.79	
	> 20 yrs	10	22.60	
Malaysia	1-5 yrs	8	24.50	0.223
	6-10 yrs	17	22.15	
	11-15 yrs	9	28.31	
	16-20 yrs	7	20.14	
	> 20 yrs	10	33.50	

Table 6. Perceptions of Respondents according to Experience as Tax Adviser

Problem & Scenarios	Variables	N	Mean	5% significant
Tax Problems: Double tax	1-5 yrs	5	26.90	0.182
	6-10 yrs	13	14.85	
	11-15 yrs	7	18.71	
	16-20 yrs	3	24.50	
	> 20 yrs	11	22.55	
Tax free	1-5 yrs	5	21.40	0.854
	6-10 yrs	13	19.92	
	11-15 yrs	7	16.07	
	16-20 yrs	3	23.50	
	> 20 yrs	11	21.00	
Tax avoidance	1-5 yrs	5	18.90	0.632
	6-10 yrs	13	21.50	
	11-15 yrs	7	14.71	
	16-20 yrs	3	18.33	
	> 20 yrs	11	22.55	
Tax evasion	1-5 yrs	5	24.80	0.605
	6-10 yrs	13	19.85	
	11-15 yrs	7	16.14	
	16-20 yrs	3	15.00	
	> 20 yrs	11	21.82	
Tax administration	1-5 yrs	5	21.00	0.887
	6-10 yrs	13	18.73	
	11-15 yrs	7	19.00	
	16-20 yrs	3	16.83	
	> 20 yrs	11	22.55	
Scenario 1: Tangible Product (Book)				
Germany	1-5 yrs	5	19.40	0.902
	6-10 yrs	13	18.58	
	11-15 yrs	7	23.43	
	16-20 yrs	3	17.50	
	> 20 yrs	11	20.45	
France	1-5 yrs	5	18.60	0.787
	6-10 yrs	13	1.62	
	11-15 yrs	7	16.43	
	16-20 yrs	3	24.83	
	> 20 yrs	11	22.05	
Australia	1-5 yrs	5	21.60	0.816
	6-10 yrs	13	21.00	
	11-15 yrs	7	18.14	
	16-20 yrs	3	25.50	
	> 20 yrs	11	17.77	

Malaysia	1-5 yrs	5	20.10	0.966
	6-10 yrs	13	20.96	
	11-15 yrs	7	21.57	
	16-20 yrs	3	17.67	
	> 20 yrs	11	18.45	
Scenario 2: Intangible Product (Music)				
France	1-5 yrs	5	15.30	0.390
	6-10 yrs	13	23.38	
	11-15 yrs	7	14.57	
	16-20 yrs	3	22.67	
	> 20 yrs	11	19.05	
Australia	1-5 yrs	5	18.80	0.232
	6-10 yrs	13	23.62	
	11-15 yrs	7	16.79	
	16-20 yrs	3	26.00	
	> 20 yrs	11	14.45	
Malaysia	1-5 yrs	5	14.60	0.523
	6-10 yrs	13	18.88	
	11-15 yrs	7	19.50	
	16-20 yrs	3	18.50	
	> 20 yrs	11	24.50	



Reconsideration about the Construction of Town Informationization in China

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Abstract

With the development of urbanization, the construction of town informationization is becoming more and more urgent and important in China. At present, the consciousness of town informationization is not deep; the information application is not of large scale; information-based talents are not enough and the information industry is of low level. Besides, lots of towns don't know what to do and how to do in town informationization. In this paper, the author analyzed the connotation of town informationization, and discussed the methods to push forward the construction of town informationization, according to the characteristics of the present town informationization.

Keywords: Town informationization, Connotation, Consideration

With the rapid development of town informationization and information era, the town informationization has become the main symbol to evaluate the sustainable development of town, and it is an important factor to bring along the development of the whole country. At present, lots of towns are carrying out the construction of informationization, but they still have some cognitive problems about what they should do and how to do in informationization.

1. The connotation of town informationization

Town is the economic, political and cultural center of the rural area, and is the bridge and ligament to link the city and rural area. The town informationization mainly includes the following aspects:

1.1 *The informationization of resource and environment*

The resource and environment of town include the country, cultivated land, climate, mineral, agricultural breed, animals, plants and industries etc. Henan is in the center of China, it has broad land and abundant resources and environment. The area of cultivated land and forest, water resource, road, and the environment of industry and agriculture might change at any time, these information should be well and truly grasped, because large scale and instant data about resource and environment will be propitious to the reasonable usage of resource and the improvement of resource utilization ratio, and it will be good for the disaster prevention and relief, pollution control, soil conservation, and protection and improvement of environment.

1.2 *The informationization of society and economy of town*

The content of society informationization and economy informationization is very broad, such as, the running of rural industry, industrial and agricultural production, the development of service industry, science and technology, information industry and tourism, the situation of finance and revenue, the construction of infrastructure such as supply of water, electricity and gas, road, waste water treatment, garbage treatment and environment protection, the construction of school, hospital, kindergarten, gerocomium, the construction of social service and security system, the change of population, the popularization degree of education and science and technology, the situation of residents' income and habitation etc. Government of all levels should know about the situation of society and economy so as to take appropriate measures to face up to various problems.

1.3 *The informationization of science and technology and education*

The content of science and technology and education informationization includes the following aspects, developing the primary industry, secondary industry and third industry with modern science and technology, tackling key program of science and technology, establishing data bank about technological information, establishing science and technology garden, providing technological and information service for industry, agriculture and enterprises, carrying out modern long-distance education, imparting knowledge through teaching software. The radio network, television network, and the internet should be taken together to help the town to adopt and use the latest achievement at home and abroad, so as to

bring the function of science and technology into play.

1.4 The informationization of town market

The informationization of town market mainly includes the informationization of means of production market, the informationization of industrial and agricultural product market, and the informationization of consumer goods market. By collecting, processing and transmitting the supply and demand information about means of production, consumer goods and industrial and agricultural products, towns can link with local market, national market and international market. The market operation and the industrial and agricultural production should be guided by the collected information, so as to accommodate the ever-changing market, accelerate product circulation and improve market circulation efficiency.

1.5 The informationization of town management

The enlargement of town scale and the complication of organization and structure of town put forward higher demand on the town management. The development of informationization will provide technological support for the demand mentioned above. Leaders of town and the manager of each department and each industry will be able to know about every aspects of the town through information sharing, so they can firstly get new cognition about town development, then reconstruct the various affairs of the town and achieve better town structure, and then establish corresponding policies and countermeasures and put forward new management concept. The cycle will definitely improve the decision-making ability of managers and improve the management of town.

2. Reconsideration about the construction of town informationization

At present, the consciousness of town informationization is not deep; the information application is not of large scale; information-based talents are not enough and the information industry is of low level. Owing to the restrictions of management, technology and capital and the influence of the characteristic of town informationization, the construction of informationization is confronting with great difficulty. Hence, in the process of the construction of town informationization, the information knowledge should be firstly popularized and the cost of construction should be low, besides, the practical situation of local area should be taken into consideration, the superiority of local area should be thoroughly brought into play.

2.1 The construction of town informationization should be planned as a whole and coordination should be strengthened

The “unified planning” should be carried out from the level of the nation and the local area. On the one hand, government should establish definite guiding thought, principle, content and objective, and make fundamental prescription on organization, capital, management and supervision according to the basic rule of informationization development and the situation of town in China; on the other hand, the local area should establish proper and specific blue print for the construction of town informationization according to the content of national programming and the practical situation of local social and economic development, so as to guide and supervise the construction of town informationization. Besides, the project of small town informationization and its qualification should be managed strictly from the aspects of evaluation index, capital source, management manner of construction and operation. For example, access condition can be set up to avoid the blind construction of some grass roots units. Local area should pay much attention to the project of town informationization before the national policy is issued.

Further more, management and coordination should be strengthened in the construction of town informationization. Resource integration is not required in grass roots units, but coordination between departments is very important. At present, the town informationization project usually is undertaken by a certain department, so there is little resistance. With the development of informationization, demand on resource integration will be more and more, and resistance from other departments will be stronger and stronger, so the construction of informationization in various departments should be carried out simultaneously in the beginning.

2.2 The knowledge and skill of informationization should be popularized

Comparing with large and medium-sized cities, town is relatively closed. It is not convenient for town to introduce new technology, new tool and new product, especially in the area of informationization. Most people of town have little opportunity to use computer, they don't know about internet, data management system, not to mention the production and management by means of informationization. In order to advance town informationization, knowledge and technique about informationization should be popularized firstly to improve people's consciousness of informationization. There are various ways to spread knowledge and technique about informationization, for example, TV program and broadcast about informationization, game about informationization knowledge and report of scholars.

2.3 The informationization resource of large and medium-sized city should be utilized thoroughly

There are few informationization talents in town, especially high potential talents. Owing to the limitation of educational resources and strength, it is difficult to carry out high-level education and training about informationization. Besides, technological innovation ability and informationization project developing ability of small town is weak. Hence, small town should carry out construction of town informationization by dint of the talents and technological resource of large and medium-sized cities. Software development and hardware manufacture can be carried out in large and medium-sized cities,

but IT enterprise should make deep investigation into the practical situation of small towns, so as to provide proper plan for small town informationization, and the cost should be lowered as much as possible by reuse of module. IT enterprise and college can establish informationization training center in towns, and cultivate informationization talents for towns. Local government should send public servants to large and medium-sized city to study informationization and expand their eye shot.

2.4 Public information platform of town should be constructed

The information application scale of each field in the town is not large, while informationization needs great investment. The framework of government is relatively simple; a platform about governmental public information should be established, in that way, all the governmental organizations can do electronic governmental affairs on the platform. The enterprises in the town are mostly small and medium-sized; an enterprise public information platform should be established to realize the informationization of enterprise. The most of the industries in the town are retail trade, service industry and small scale manufacturing, public information platform on a specific industry can be established, so all the units can issue information on the platform, and government can carry out supervision through the platform. The “centralized” information method is applicable for town informationization.

2.5 Small and medium-sized information industrial park can be established in the qualified towns

In most of the large and medium-sized cities, land resource is not enough, and there are lots of urban problems such as traffic jam, environmental pollution. Some IT enterprises can be transferred to the information industrial park of town, especially the IT product manufacturing enterprises that are labor intensive. For example, the people of town are able to do the job of computer assembly and circuit board firing after training, accordingly, the employment pressure can be relieved. In east China, especially in Jiangsu and Zhejiang, IT manufacturing of town greatly accelerated the economic development of local area.

2.6 Town urbanization should has local characteristics

The construction of town informationization should be done according to the practical situation of town, such as the economic structure, special industry, advantageous resources. If the distinctive industries of the town are textile and costume, informationization can firstly be carried out in textile and costume industry to enlarge market share and improve the fame of product, the town of Dachen in Yiwu is an example. The town that is located in the traffic hinge can carry out traffic informationization; such as intelligent transportation and the issue of traffic information, the Meishan city in Sichuan is an example. If the pillar industry of town is hardware manufacturing, hardware manufacturing and enterprise information should be firstly carried out; electronic business affairs will enlarge the market share and improve the fame of hardware manufacturing, the Yongkang city in Zhejiang is an example. If tourism is the dominant industry, tourism information can be firstly carried, which will enlarge the market share and improve the fame of tourism product, Tongli town of Suzhou is an example.

The sticking point of town information is programming. The development strategy of town informationization is that town programming, industry programming and regional programming should be integrated, and town should be united with the surrounding cities, and the position of individual town should be taken into consideration. Programming should not become an empty political slogan or a slogan of governmental affairs; it should keep development space for the future. It can be seen that town informationization is the means to develop economy, but is not the “image engineering” or “performance engineering”.

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On the Problem of Identifying the Appropriate Price Variable to Study the Price-Volume Relation

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Abstract

Model selection tests and criteria are employed to identify empirically the most appropriate price variable for the purpose of studying the price-volume relation. Five different price variables are considered as explanatory variables in model selection tests, which are carried out on a bilateral basis using data on stock prices and trading volume in eleven markets/indices. The results show that the most appropriate price variable varies from one market to another although two price variables appear to be dominant: the extreme value variance and the absolute price change. The results do not provide much support for the notion of asymmetry in the price-volume relation. It is suggested that it may be useful to use non-nested model selection tests and criteria to identify the most appropriate price variable before testing for causality, which is the principal tool used for examining the price-volume relation.

Keywords: Price-volume relation, Stochastic volatility, Non-nested model selection tests

1. Introduction

The objective of this paper is to identify, on an empirical basis, the most appropriate price variable that can be used to study the price-volume relation in stock markets. This relation has attracted the attention of financial economists because of its implications for the functioning and regulation of financial markets. For example, if lagged volume determines current price volatility then current volume can be used to predict future volatility, implying the violation of the notion of informational efficiency. A finding like this can also be of use for regulators in deciding the desirability of market restrictions. Furthermore, the relation can be used to formulate a trading rule, if it turns out that current and past trading volumes convey information about future price movements. In his classic survey of studies of the price-volume relation, Karpoff (1987) put forward four reasons why this relation is important: (i) it provides insight into the structure of financial markets; (ii) it is important for event studies that use a combination of price and volume data from which to draw inferences; (iii) it is critical to the debate over the empirical distribution of speculative prices; and (iv) it has significant implications for research into futures markets.

Studies of the price-volume relation employ one or more of several price variables: the absolute price change, the price change per se (the signed price change), the conditional variance of the price change derived from ARCH and GARCH models, and the squared price change. The results of these studies seem to be sensitive to the choice of the price variable. For example, by using an ARCH specification, Lamoureux and Lastrapes (1990) found that volume has a positive contemporaneous but not a lagged effect on volatility. Conversely, Najand and Yung (1991) conclude, by using a GARCH specification, that the price-volume relation is not contemporaneous but rather lagged. On the other hand, Foster (1995) concludes, by using a GARCH specification, that price volatility is better explained by previous volatility rather than by contemporaneous or lagged volume. In earlier research, more evidence was found for positive correlation between volume and the absolute price change than between volume and the price change per se. Moosa and Bollen (2003) used non-nested model selection tests and information criteria to show that realised volatility (which is calculated from intra-day data) is more appropriate than measures based on GARCH models. The objective of this paper is to extend the work of Moosa and Bollen by "running

matches” between potential price variables in an attempt to find out the most suitable price variable, using data on 11 developed and emerging stock markets.

2. Background

Earlier work on the price-volume relation predominantly used one or both of the two price variables: the absolute price change and the price change per se. The choice between the price change per se and the absolute price change has implications for asymmetry in the price-volume relation, as using the absolute price change implies symmetry, meaning that large volumes are associated with large price changes, irrespective of the sign of the price change. This was the essence of Yin’s (1966) work, which sparked subsequent work on asymmetry in the price-volume relation.

With the popularisation of the ARCH/GARCH models in the 1980s, economists started using ARCH/GARCH measures of price volatility to study the price-volume relation. According to Foster (1995, p 937) the ARCH/GARCH measures are more objective than the biased measures of price volatility used previously (the absolute price change and the price change per se). One justification for using ARCH/GARCH models for investigating the price-volume relation is that heteroscedasticity in returns results from a mixture of distributions. Lamoureux and Lastrapes (1990) argue that the mixture of distributions hypothesis, advocated by Clark (1973) and by Epps and Epps (1976), can be represented by a GARCH model whose specification is derived from correlation in the directing variable: the rate of information arrival. The underlying argument goes as follows: when information (proxied by volume) enters the market in clusters, this leads to the clustering commonly observed in asset returns, which can be represented by a GARCH process. Arguably, this observation is also consistent with the sequential information arrival hypothesis due to Copeland (1976). While both hypotheses imply the presence of a positive contemporaneous relation between price volatility and volume, the lagged relation is portrayed differently: the sequential information arrival hypothesis predicts bidirectional causality whereas the mixture of distributions hypothesis (or at least one of its versions) predicts unidirectional causality running from volume to volatility.

Studies of the price-volume relation using ARCH/GARCH price measures have produced mixed empirical evidence. Lamoureux and Lastrapes (1990) investigated actively traded stocks to find out whether the ARCH effect commonly found in stock returns is due to time dependence in the process generating information. The daily rate of information flow into the market was proxied by trading volume. The introduction of volume into the conditional variance equation was found to make the ARCH effect disappear from the equations representing the majority of stocks considered, a finding implying that volume can explain, and hence cause, price volatility. In order to avoid the simultaneity bias problem, lagged volume was used, but this variable was found to have little explanatory power. Najand and Yung (1991) examined the price-volume relation using data on T-bond futures with a GARCH model. The results revealed positive contemporaneous correlation between volume and volatility in only a few cases, a result that they attributed to simultaneity bias. When lagged volume was used, correlation became positive in all cases.

Although Foster (1995) claims that ARCH/GARCH measures of volatility are more appropriate than those previously used (the absolute price change and the price change per se), Moosa and Bollen (2003) argue that the concept of realised volatility (Anderson et al, 1999) is more appropriate than the GARCH measure. The problem with realised volatility, however, is that it is calculated from intra-day data, which makes it unusable in an investigation based on daily data. As an alternative to the ARCH/GARCH measures, Koopman et al (1999) advocate the use of stochastic volatility, which has two main attractions, compared to the more often-used ARCH/GARCH model. The first is that the stochastic volatility model is the discrete time analogue of the continuous time model used in option pricing (for example, Hull and White, 1987). The second is that the statistical properties of stochastic volatility are easy to determine. However, it must be mentioned that under certain conditions the stochastic volatility model is similar to a GARCH(1,1) model or an IGARCH(1,1) model. Stochastic volatility has never been used in studies of the price-volume relation.

Another price measure that has been used in studies of the price-volume relation and the maturity effect is the extreme value variance, which is calculated from the trading period’s high and low prices. For example, Serletis (1992) used this measure in his study of the price-volume relation in energy futures contracts, providing evidence for the presence of the maturity effect (futures prices become more volatile and volume increases as contracts approach maturity). Herbert (1995) used the same measure in his study of the natural gas futures contracts and found that past levels of trading volume influence current price volatility, and that past price volatility has much less effect on current trading volume.

The empirical work presented in this paper involves the use of model selection tests and criteria to identify the most appropriate price variable out of the five variables described in this section: the price change per se, the absolute price change, the squared price change, stochastic volatility and the extreme value variance. In each case of the eleven markets examined here, one price measure is tested against another, which gives ten “bilateral” cases for each market. In the following section, the tests and price measures are described.

3. Methodology

Volume can be specified as an ARDL model of a price variable as follows:

$$v_t = \delta + \sum_{i=1}^p \phi_i v_{t-i} + \sum_{i=1}^p \phi_i x_{t-i} + \varepsilon_t \quad (1)$$

Where v is the (logarithm of) trading volume and x is a price variable. Consider the following two models, M_1 and M_2 , representing two versions of equation (1)

$$M_1 : v = X_1\beta_1 + \xi_1 \quad (2)$$

$$M_2 : v = X_2\beta_2 + \xi_2 \quad (3)$$

where X_1 is an observation matrix on lagged volume and lagged price variable x_1 , X_2 is an observation matrix on lagged volume and lagged price variable x_2 , β_1 and β_2 are unknown regression coefficient vectors, and ξ_1 and ξ_2 are disturbance vectors. The models M_1 and M_2 are said to be non-nested if the regressors of either of them cannot be expressed as an exact linear combination of the regressors of the other.

The first of the non-nested model selection tests is the *JA* test due to Fisher and McAleer (1981). The test statistic for the null hypothesis that M_1 is preferred to M_2 is the t ratio of λ in the OLS regression

$$y = X_1\beta_1 + \lambda(A_2X_1\hat{\beta}_1) + u \quad (4)$$

where $A_2 = X_2(X_2'X_2)^{-1}X_2'$. The null hypothesis is rejected if the coefficient λ is statistically significant as indicated by its t ratio. Similarly, the test statistic for the null hypothesis that M_2 is preferred to M_1 is rejected is the t ratio of μ in the regression

$$y = X_1\beta_1 + \mu(A_1X_2\hat{\beta}_2) + w \quad (5)$$

where $A_1 = X_1(X_1'X_1)^{-1}X_1'$. The null hypothesis is rejected (meaning that M_2 is not preferred to M_1) if the coefficient μ is statistically significant as indicated by its t ratio. If the null hypothesis is rejected in both cases, then both models are misspecified.

The second test is the encompassing test due to Deaton (1982), Dastoor (1983), and Mizon and Richard (1986). For the null hypothesis that M_1 is preferred to M_2 the encompassing test statistic is the F statistic for testing the null that $\Omega = 0$ in the regression

$$v = X_1\Pi + X_2^*\Omega + u \quad (6)$$

where X_2^* denotes the variables in M_2 that cannot be expressed as an exact linear combination of the regressors of M_1 . Similarly, a test statistic can be calculated for the null that M_2 is preferred to M_1 . The results are interpreted in the same way as in the case of the *JA* test.

The two selection criteria used for the same purpose are the Akaike Information criterion (*AIC*) and the Schwartz Bayesian Criterion (*SBC*). Let L_1 and L_2 be the maximum log-likelihood functions of models M_1 and M_2 respectively. The *AIC* for the choice between the two models (Akaike, 1974) is calculated as

$$AIC(M_1 : M_2) = L_1 - L_2 - (k_1 - k_2) \quad (7)$$

where k_1 and k_2 are the number of estimated coefficients for M_1 and M_2 respectively. M_1 is preferred to M_2 if $AIC(M_1 : M_2) > 0$, and vice versa.

The *SBC* for the choice between the two models is calculated as

$$SBC(M_1 : M_2) = L_1 - L_2 - \frac{1}{2}(k_1 - k_2)\log(n) \quad (8)$$

where n is the sample size. Again, M_1 is preferred to M_2 if $SBC(M_1 : M_2) > 0$, and vice versa.

Now, we turn to a description of the price variables. If p_t is the logarithm of the price, then the price change per se is

$\Delta p_t = p_t - p_{t-1}$, the absolute price change is $|\Delta p_t|$, and the squared price change is $(\Delta p_t)^2$. The concept of stochastic volatility, which is used in this paper, can be found in Shephard (1996) and in Ghyles et al (1996). Define the rate of return as $r_t = \Delta p_t$, and assume that it is generated by the process

$$r_t = k \varepsilon_t e^{(h_t/2)} \quad (9)$$

where h_t is a measure of stochastic volatility that follows the process

$$h_{t+1} = \phi h_t + \eta_t \quad (10)$$

such that $\varepsilon_t \sim IID(0,1)$, $\eta_t \sim NID(0, \sigma_\eta^2)$ and $|\phi_t| \leq 1$. Here, k is a scale factor, ϕ is a parameter and η_t is a disturbance term that is assumed to be uncorrelated with ε_t . If ϕ is close to one, the stochastic volatility model is similar to a GARCH(1,1) model, and if ϕ is exactly one, such that h_t is a random walk, then the model is similar to an IGARCH(1,1) model.

It is relatively easy to estimate the stochastic volatility model by using a quasi-maximum likelihood method, which requires the transformation of the observations to

$$\log r_t^2 = \kappa + h_t + \xi_t \quad (11)$$

where

$$\xi_t = \log \varepsilon_t^2 - E(\log \varepsilon_t^2) \quad (12)$$

$$\kappa = \log k^2 + E(\log \varepsilon_t^2) \quad (13)$$

To avoid the problem arising from the possibility that some of the observations are zero, Breidt and Carriquiry (1996) suggest the following Taylor series-based transformation:

$$\log r_t^2 \cong \log(r_t^2 + cs_r^2) - cs_r^2 / (r_t^2 + cs_r^2) \quad (14)$$

where s_r^2 is the sample variance of r_t and c is a small number.

The last price measure used in this paper is the extreme value variance, which is calculated from the high and low prices as follows:

$$\sigma^2 = [\log(p^H) - \log(p^L)] / 4 \log 2 \quad (15)$$

where p^H is the high price, p^L is the low price for the trading period. This measure of volatility is several times more efficient than conventional estimator as pointed out by Garman and Klass (1980) and Parkinson (1980).

4. Data and Empirical Results

The empirical results presented in this paper are based on daily data on the stock prices (market indices) and trading volume in the following markets: the U.S. (represented by the Dow Jones Industrial Average, the S&P500 index and the NASDAQ index); the U.K. (represented by the FTSE), France (the CAC index); Spain (the Madrid General Index, IGBM); Japan (Nikkei Dow Jones); Hong Kong (the Hang Seng Index); Korea (the Seoul Composite Index, KOSPI); Canada (Toronto 500 index) and Mexico (Mexico Stock Index, IPC). The sample data, which was obtained from the Yahoo Finance website, covers periods that vary from one market to another. In general, sample sizes range between 258 and 1000 observations.

As explained earlier, model selection tests and criteria are applied to pairs of price measures for each market, giving a total number of 110 cases (10 cases per market or price index). Figure 1 shows the frequency of the underlying price measure appearing superior to the price measure it is tested against using the aggregate results of all markets. The extreme value variance appears to be the most successful of the five variables, outperforming the other price variable in 30 per cent of the cases (where a case involves two price variables in a particular market). This is followed by the absolute price change, which outperforms by far its traditional rival, the price change per se. The latter comes last in the league.

Although stochastic volatility appears in third place in the aggregate data covering all markets, it does not dominate in any single market, as shown in Table 1, which reports the most appropriate measure on a market by market basis. Here, the extreme value variance is the most appropriate price variable in the U.S. (DJIA and the S&P500), Japan, Canada and Mexico. The absolute price change turns out to be the best performer in the U.S. (NASDAQ), U.K., France, and Hong Kong. In the other two markets the squared price change and the price change per se turn out to be the most appropriate price variables in Spain and Korea, respectively. Tables 2-5 show selected detailed results of testing the price change per se against the four

other variables, reporting the test statistics for the two non-nested model selection tests (*JA* and *EN*) and the information criteria (*AIC* and *BIC*). For example, Table 2 shows that M1 is rejected against M2 and that M2 is not rejected against M1, implying that the absolute price change (the price variable in M2) is superior to the price change per se (the price variable in M1). The only exception to this results is the case of the Korean market, where M1 is not rejected against M2 but M2 is rejected against M1, implying the superiority of the price change per se in this market. Similar stories can be gleaned from the other tables but they invariably show the inferiority of the price change per se, implying that the direction of change in the price does not really matter.

5. Concluding Remarks

The objective of this paper was to detect the most appropriate stock price variable to be used in studies of the price-volume relation. Five different price variables were employed as the explanatory variables in model selection tests on a bilateral basis. By running these tests 110 times to cover the five price variables and eleven markets, pair wise, the results revealed some results that can be summarised as follows:

1. The most appropriate price variable to be used in examining the price-volume relation varies from one market to another although two price variables appeared to be dominant: the extreme value variance and the absolute price change.
2. In only one market out of eleven (Korea) does the price change per se appear to be the most appropriate price variable. This does not provide much support for the notion of asymmetry in the price-volume relation, as it seems that what matters for volume is a big price change, irrespective whether it is a positive or a negative change.
3. Although stochastic volatility appears to be the most appropriate variable in 21 out of 110 cases, it is not the most appropriate variable for any single market.

One can perhaps safely conclude that it may be useful to use non-nested model selection tests and information criteria to identify the most appropriate price variable before testing for causality, which is the main tool used to examine the price-volume relation. It may be the case that choosing the wrong price variable constitutes a measurement error, which would have repercussions for the validity of inference based on the empirical results.

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Notes

Note 1. For recent work on the price-volume relation, see Gallo and Pacini (2000), Moosa and Korczak (2000), Moosa and Silvapulle (2000), Huang and Yang (2001), Lee and Rui (2002), Bohl and Henke (2003), Ciner (2003), Moosa et al (2003), and Lucey (2005). Lo and Wang (2000) analyse the concept of trading volume and consider its implications for portfolio theory.

Note 2. In Karpoff's survey of studies of the price-volume relation, only one out of 19 studies failed to find positive correlation between the absolute price change and volume, but four out of 16 studies failed to find support for positive correlation between the price change per se and volume.

Note 3. Those using the absolute price change include Clark (1973), Epps and Epps (1976), Westerfield (1977), Cornell (1981), Harris (1983), Tauchen and Pitts (1983), and Rutledge (1984). Those who used the price change per se include Epps (1975, 1977), Hanna (1978), Rogalski (1978), James and Edmister (1983), and Smirlock and Starks (1985). Those using both of these variables include Godfrey et al. (1964), Ying (1966), Morgan (1976), Comiskey et al (1984), Harris (1984) and Wood et al (1985). Only one study (Granger and Morgenstern, 1970) used the squared price change as an alternative to the absolute price change.

Note 4. Using the absolute price change is based on the belief that "it takes volume to make prices move", whereas using the price change per se is based on the belief that "volume is relatively heavy in bull markets and light in bear markets".

Note 5. Studies dealing with the issue of asymmetry in the price-volume relation include Smirlock and Starks (1985), Jain and Joh (1988), Bessembinder and Seguin (1993), Assogbavi et al (1995), Brailsford (1996), Moosa and Korczak (2000), Cooper et al (2000), Moosa et al (2003), and Griffin et al (2004).

Note 6. The essential difference between the two hypotheses rests on the speed with which the new equilibrium is reached following the arrival of new information. The sequential information arrival hypothesis allows a number of incomplete equilibria to be realised before the final equilibrium is reached. The mixture of distributions hypothesis, on the other hand, allows the final equilibrium to be reached immediately. Both of these hypotheses have been used to explain the relation

between trading volume and the absolute price change. Harris (1983, 1984) points out that the mixture of distributions hypothesis implies positive correlation between volume and the price change per se if the conditional mean of the price process is proportional to the number of information arrivals.

Note 7. These conditions will be stated in the following section where the stochastic volatility model is specified.

Table 1. The Most Appropriate Price Variable

Market	Price Variable
U.S. (DJIA)	Extreme value variance
U.S. (S&P500)	Extreme value variance
U.S. (NASDAQ)	Absolute price change
U.K. (FTSE)	Absolute price change
France (CAC)	Absolute price change
Spain (IGBM)	Squared price change
Japan (NDJ)	Extreme value variance
Hong Kong (Hang Seng)	Absolute price change
Korea (KOPSI)	Price change per se
Canada (Toronto 500 Index)	Extreme value variance
Mexico (IPC)	Extreme value variance

Table 2. Model Selection Tests and Criteria (Price Change per se vs the Absolute Price Change)

Market	Testing	<i>JA</i>	<i>EN</i>	<i>AIC</i>	<i>BIC</i>
DJIA	M1 vs M2	8.38*	70.25*	-34.45	-34.45
	M2 vs M1	0.91	0.83		
S&P500	M1 vs M2	-5.74*	29.88*	-95.44	-77.44
	M2 vs M1	-0.71	0.50		
NASDAQ	M1 vs M2	-5.24*	34.24*	-87.00	-72.00
	M2 vs M1	-3.97*	15.78*		
FTSE	M1 vs M2	-2.44*	5.93*	-2.49	-2.49
	M2 vs M1	-0.99	0.97		
CAC	M1 vs M2	-5.53*	30.53*	-14.39	-14.39
	M2 vs M1	-0.69	0.48		
IGBM	M1 vs M2	-1.00	0.99	0.17	0.17
	M2 vs M1	-1.15	1.33		
NDJ	M1 vs M2	-1.54	2.38	-0.48	-0.48
	M2 vs M1	-1.20	1.43		
HS	M1 vs M2	3.83*	57.90*	-88.09	-88.09
	M2 vs M1	2.87*	8.65*		
KOPSI	M1 vs M2	-0.76	0.58	10.19	4.68
	M2 vs M1	-3.37*	8.31*		
Toronto 500	M1 vs M2	2.21*	4.90*	-2.44	-2.44
	M2 vs M1	-0.22	0.05		
IPC	M1 vs M2	-10.73*	115.10*	-47.65	-47.65
	M2 vs M1	-3.86*	14.91*		

* Significant at the 0.05 level

Table 3. Model Selection Tests and Criteria (Price Change per se vs the Squared Price Change)

Market	Testing	<i>JA</i>	<i>EN</i>	<i>AIC</i>	<i>BIC</i>
DJIA	M1 vs M2	6.84*	46.76*	-23.13	-23.13
	M2 vs M1	0.58	0.33		
S&P500	M1 vs M2	-7.02*	45.23*	-64.09	-58.09
	M2 vs M1	-1.08	1.16		
NASDAQ	M1 vs M2	8.79*	34.62*	-44.57	-38.57
	M2 vs M1	3.07*	9.42*		
FTSE	M1 vs M2	-1.42	2.01	-0.50	-0.50
	M2 vs M1	-1.01	1.01		
CAC	M1 vs M2	-5.25*	27.56*	-13.23	-13.23
	M2 vs M1	-0.33	0.11		
IGBM	M1 vs M2	1.24	1.54	-0.21	-0.21
	M2 vs M1	1.06	1.12		
NDJ	M1 vs M2	-1.53	2.35	-0.30	-0.30
	M2 vs M1	-1.32	1.75		
HS	M1 vs M2	11.59*	134.35*	-55.78	-58.23
	M2 vs M1	2.17*	8.79*		
KOPSI	M1 vs M2	5.62*	7.48*	-4.61	0.90
	M2 vs M1	2.45*	7.79*		
Toronto 500	M1 vs M2	1.83	3.36	-1.62	-1.62
	M2 vs M1	-0.36	0.13		
IPC	M1 vs M2	-6.68*	44.65*	-12.32	-12.32
	M2 vs M1	-4.41*	19.47		

* Significant at the 0.05 level

Table 4. Model Selection Tests and Criteria (Price Change per se vs Extreme Value Variance)

Market	Testing	<i>JA</i>	<i>EN</i>	<i>AIC</i>	<i>BIC</i>
DJIA	M1 vs M2	5.21*	18.19*	-72.13	-48.12
	M2 vs M1	0.44	0.19		
S&P500	M1 vs M2	-7.85*	46.90*	-129.63	-114.62
	M2 vs M1	-1.12	1.26		
NASDAQ	M1 vs M2	-11.26*	40.96*	-83.96	-71.95
	M2 vs M1	-4.82*	23.23*		
FTSE	M1 vs M2	-1.99*	3.98*	-1.51	-1.51
	M2 vs M1	-0.99	0.97		
CAC	M1 vs M2	5.35*	28.67*	-13.67	-13.67
	M2 vs M1	-0.48	0.23		

IGBM	M1 vs M2	0.08	.01	0.57	0.57
	M2 vs M1	1.06	1.13		
NDJ	M1 vs M2	-2.19*	4.81*	-1.31	-1.31
	M2 vs M1	-1.48	2.20		
HS	M1 vs M2	-2.31*	40.62*	-72.17	-67.26
	M2 vs M1	-2.36*	13.01*		
KOPSI	M1 vs M2	-3.71*	13.73*	5.24	-0.27
	M2 vs M1	-3.40*	9.42*		
Toronto 500	M1 vs M2	3.32*	11.02*	-5.52	-5.52
	M2 vs M1	-0.05	0.003		
IPC	M1 vs M2	-9.93*	45.24*	-55.85	-50.85
	M2 vs M1	-3.65	13.31*		

* Significant at the 0.05 level

Table 5. Model Selection Tests and Criteria (Price Change per se vs Stochastic Volatility)

Market	Testing	<i>JA</i>	<i>EN</i>	<i>AIC</i>	<i>BIC</i>
DJIA	M1 vs M2	-8.04*	64.65*	-31.43	-31.43
	M2 vs M1	-1.17	1.36		
S&P500	M1 vs M2	-8.59*	47.88*	-46.21	-43.21
	M2 vs M1	-0.52	0.27		
NASDAQ	M1 vs M2	-8.08*	28.49*	-70.68	-55.67
	M2 vs M1	-3.97*	15.79*		
FTSE	M1 vs M2	-0.25	8.21*	-12.81	-5.94
	M2 vs M1	-0.93	0.87		
CAC	M1 vs M2	-4.89	23.91*	-11.29	-11.28
	M2 vs M1	-0.79	0.62		
IGBM	M1 vs M2	-0.50	0.25	0.51	0.51
	M2 vs M1	-1.13	1.27		
NDJ	M1 vs M2	-1.60	2.56	-0.69	-0.69
	M2 vs M1	-1.09	1.18		
HS	M1 vs M2	13.33*	177.59*	-73.39	-75.85
	M2 vs M1	2.50*	10.03*		
KOPSI	M1 vs M2	-1.07	1.15	9.92	4.41
	M2 vs M1	-2.52*	8.33*		
Toronto 500	M1 vs M2	1.71	2.93	-1.47	-1.47
	M2 vs M1	0.04	0.002		

IPC	M1 vs M2	10.61*	112.63*	-49.59	-49.59
	M2 vs M1	2.96*	8.76*		

* Significant at the 0.05 level

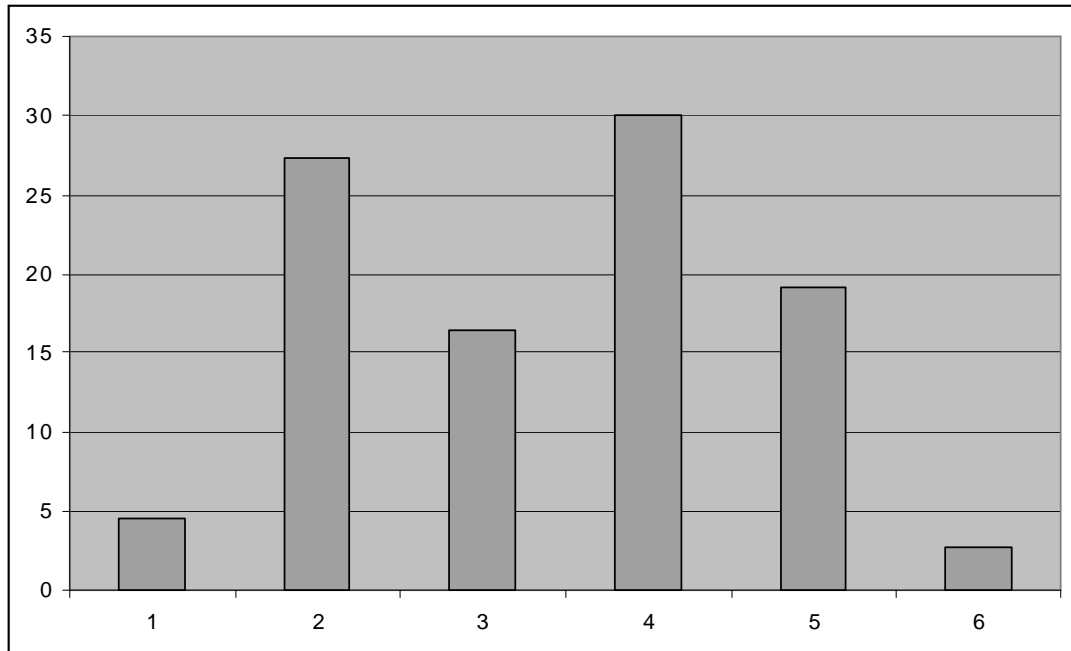


Figure 1. The Frequency of Superiority over Another Price Variable (%)

1: Price change per se, 2: Absolute price change, 3: Squared price change, 4: Extreme value variance, 5: Stochastic volatility, 6: Inconclusive



The Real Options Model of Optimal Timing in Banks' Write-off Decisions under Dynamic Circumstance

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Abstract

This paper employs a real option approach to evaluate the value of the option to delay write-offs non-performing loans (NPLs) in commercial banks. On the assumption that the callback rate of NPLs follows the standard geometric Brownian and the reinvestment return follows jump-diffusion model, the partial differential equation which the value keep to is obtained using dynamic programming technique. With the condition of value-matching and smooth-pasting, the solution of the equation is obtained. The optimal timing in banks' writing off their NPLs is gained with the solution, along with the condition to put off disposal of NPLs.

Keywords: Non-performing loans, Real Options, Optimal Timing

1. Introduction

Since 1990s, the Japanese economy has been in a prolonged recession, with many banks weighed down by large-scale non-performing loans (NPLs), in particular to the real estate and construction corporations, when the bubble economy blow up, the land prices and real estate prices fall sharply. This brought serious impact on the development of Japanese economy and banks' operation. A lot of Japanese economist made deep research to the problem. Many authors like Cargill argued (Cargill, 2000), the failure to promptly solve the non-performing loan problem generated a credit crunch. It has contributed to stagnant for almost a decade and has interfered with the Bank of Japan's effort to stimulate the economy. The influence is embodiment in the damage of bank's asset collocation function. They figured out that the banks should write off their non-performing loans immediately. However, there are some authors, like Hoshi (2000), they argued, that purely from the banks' perspective, to put off writing off their NPLs until the economy anabiosis can be a rational choice. This is because under the stochastic circumstance with potentially large losses associate write-offs, the option to write should have some value. Hence, in deciding whether to write off the non-performing loans immediately, the banks should weight between the value of the option to wait and the (net) value of carrying out write-off immediately. Hoshi pointed out that under the condition of banks non required by the authorities to dispose the true magnitude of their non-performing loans, there is no incentive to dispose of their non-performing loans. Rather, they tend to increase their lending to riskier project. The true problem cause by non-performing loans is that banks lose their incentive to lend to corporations with prospective project, which might damage the intermediary function of banks, and the economy, meanwhile, the magnitude of non-performing loans enlarge continue. If the social cost caused by the damage of banks' financial intermediary function outweigh the subsidy costs, then it might justified to use funds to push self-help efforts on banks to clean up their non-performing loans.

Presently, the largeness non-performing loans in bank system is also one of the most importance questions which influent the finance stabilization and secure in China. Now there are two ways to disposal of the NPLs, one is centralization another is decentralization. Centralization manners are done by financial Asset Management Company (AMC) formed by the government, with responsibility for purchase the NPLs produced in banks, then sale, auction, securitisation them and so on. Decentralization is a way to dispose of the NPLs which is done by each bank separately. Though centralization ways can write-off the mass NPLs immediately, improve the quality of the banks' assets, there are still a lot problem. The government seldom employs them. From the status of the banks in our country, it is an effective way to dispose of the NPLs continuative coming into being, which adjust measures to local condition. It can make use of the embranchment institutions all over the country of the commercial banks.

At the present time, there are a lot of researches on the issue of NPLs in China. But their research mainly focus on the definition and the causation of NPLs, the impact on economy and financial system of the country, and the mode of writing-off the NPLs, and so on. There are few researches on the issue of NPLs from the point of microcosmic view. Naohiko Baba

(2001), a scholar from Japan, researched the optimal timing in banks' write-off decisions to NPLs under the possible implementation of a government subsidy scheme, with a real option approach, according to the characteristic of Japanese banks' NPLs and the financial assistance policy of Japanese government. But what he researched was housing mortgage loans in Japan. This paper we apply the approach from Naohiko Baba to research the optimal timing in banks' write-off decisions of the commercial banks in general.

2. Basic Assumptions and Models

From the commercial banks' perspective, there are five main factors that affect the disposition of NPLs as following:

- (1) The rate of return from non-performing loans.
- (2) The value of the reinvestment return from the non-performing loans: we assume that the bank can invest the funds (collect from reinvestment) to prospective projects, and we consider the average return of the financial market as the reinvestment return.
- (3) The value loss caused by carrying out write-offs: Namely, the loss because of non-performings being unable to be reclaimed completely.
- (4) The loss of reputational repercussion from not writing off non-performing loans immediately: such as the loss caused by an upward jump in fund-raising costs when the high rate of non-performings leads to the credit rank's change.
- (5) The implementation of a government subsidy policy: The government subsidizes the banks' write-off through the government's rescue scheme.

The government subsidy police are temporarily not considered in this article. Only the optimal timing in banks' write-off decisions under the first four factors is considered in this article.

2.1 Basic Assumptions

Suppose that at the time of $t = 0$, banks' asset & debt situation is as follows:

Assets	Liabilities
loans ($L_G^0 + L_B^0$)	Funds (F_U)
Good Loans (L_G^0)	Net worth (N)
Bad Loans (L_B^0)	

Figure 1. A Simplified Balance Sheet

Assumption 1: The book value of banks' non-performing assets is L_B^0 , after becoming non-performing assets, the interest rate is as the same as before, For the convenience, we employ the continuous compound interest. At the time t , $L_B^0 e^{r_0 t}$ denotes the book value of non-performing assets, α_t denotes the ratio of loss from writing-off non-performing assets, $L_B^0 e^{r_0 t} (1 - \alpha_t)$ denotes the writing-off income, and $L_B^0 e^{r_0 t} \alpha_t$ denotes the write-off loss.

Assumption 2: The rate of the reinvestment return of write-off NPLs is \bar{R}_t , which is defined as the proportion of closing value to opening value. For the convenience to set up the analyzing model and to solve the model at the last, we set R_t denoting the reinvestment return rate of book-value NPLs, namely, the yield coming from writing-off one book-value' NPLs. The relation between \bar{R}_t and R_t is:

$$L_B^0 e^{r_0 t} R = L_B^0 e^{r_0 t} (1 - \alpha) \bar{R}$$

Assumption 3: α_t , the ratio of loss from writing off NPLs, and R_t , the return coming from writing-off one book-value' NPLs, follows the geometry Brownian motion:

$$d\alpha = \alpha \mu_\alpha dt + \alpha \sigma_\alpha dw_1 \quad (1)$$

$$dR = R(\mu_R dt + \sigma_R dw_2 - dq) \quad (2)$$

Where w_1, w_2 denotes the standard Brownian motion. $\mu_\alpha (\mu_R)$ denotes the expected growth rate of $\alpha(R)$, $\sigma_\alpha (\sigma_R)$ the

standard deviation parameter of $\alpha(R)$, $dw_1(dw_2)$ the increment of a wiener process of $\alpha(R)$, dq the increment of a Poisson (jump) process with the probability λdt , the paper assumes $E[dRdq] = E[d\alpha dq] = 0$, that is, dw_2 and dq are assumed to be independent of each other, so as to dw_1 and dq . Also, it is assumed $E[(dw_1)^2] = E[(dw_2)^2] = dt$ and $E[d\alpha dR] = \rho dt$, implying the correlation ρ between R and L can be considered in the following analysis. Lastly, equation (2) states that when a jump occurs, R falls by sum fixed ratio ϕ ($0 < \phi < 1$). For computational facility, this paper assumes $\phi = 1$ throughout the paper.

2.2 The Basic Model

Then at the time t , the value of write-offs is given by considering only the part of the standard geometric Brownian motion of equation (1) such that

$$V_t(R_t) = E_t \left[\int_t^\infty L_B^0 e^{r_0 t} R_s e^{-\mu(s-t)} ds \right] = \int_t^\infty L_B^0 e^{r_0 t} R_t e^{-(\mu - \mu_R)(s-t)} ds = \frac{L_B^0 e^{r_0 t} R_t}{\mu - \mu_R} = \frac{L_B^0 e^{r_0 t} R_t}{\delta_R} \quad (3)$$

Here $\mu = \mu_R + \delta_R = r_f + \nu \rho(R, M) \sigma_R$ is assumed to be hold as in Dixit and Pindyck(1994), which is derived from the CAPM(Capital Asset Pricing Model). Here, μ denotes the risk-adjusted discount rate, δ_R the rate of return shortfall in R , r_f the risk-free interest rate, ν the market price of risk, $\rho(R, M)$ the coefficient of correlation between R and the market return M . For the value of write-off $V(R)$ to be bounded, the condition $\delta_R > 0$ must hold. Otherwise, the bank would never carry out write-off irrespective of uncertainty and sunk cost.

If the banks can write their own ticket to the write-off time when the NPLs come into being, the banks will dispose of the NPLs immediately or wait behind in order to choose optimal timing under the uncertainty of rate of callback and return on assets in the future write-off. The decision-making of commercial banks aims to maximize the value of the disposal:

$$\max \left\{ E \left[V_T(\alpha_T, R) - L_B^0 e^{r_0 T} \alpha_T \right] \cdot e^{-\rho T}, 0 \right\}$$

Here ρ is discounted rate, T the time to make decision. The condition $r_0 < \rho$ must hold, because r_0 is the lending rate which the borrowing firm operates in gear, and ρ is the rate of discount on cashflow coming from the reinvestment of NPLs. The former is riskier than latter under the uncertainty of rate of callback and return on assets.

Let $F(\alpha_t, R_t)$ denote the value of keeping the option to write-off alive in the future. The Bellman equation can be written as

$$\rho F(\alpha_t, R_t) dt = E_t[dF] \quad (4)$$

$$\frac{1}{2} \left(\sigma_\alpha^2 \alpha^2 F_{\alpha\alpha} + \sigma_R^2 R^2 F_{RR} + 2\rho\sigma_\alpha\sigma_R\alpha RF_{\alpha R} \right) + \mu_\alpha \alpha F_\alpha + \mu_R R F_R + F_t - \mu F + \lambda \{ F(t+, 0, \alpha) - F(t, R, \alpha) \} = 0 \quad (5)$$

$$F(t, \alpha^*, R^*) = V_t - L_B^0 e^{r_0 t} \alpha^* \quad (6)$$

$$F_R(t, \alpha^*, R^*) = V_R \quad (7)$$

and

$$F_\alpha(t, \alpha^*, R^*) = -L_B^0 e^{r_0 t} \quad (8)$$

Where condition (6) is the value-matching condition and condition (7) and (8) are both the smooth-pasting conditions. At the value R^* and α^* , the value of $F(R, \alpha)$ would equate to the value of $V(R_t) - L_B^0 e^{r_0 t} \alpha_t$, which is the income from disposing of the NPLs.

In fact the value of R^* and α^* are unknown, hence, the condition (6), (7) and (8) are unknown too. The problem is called a “free boundary” problem (Dixit and pindyck, 1994). In such a case, it is very difficult to obtain clear-cut analytical solutions even numerical solutions. Nevertheless, fortunately, the property of homogeneity of the net value function $V_t - L_B^0 e^{r_0 t} \alpha_t$ allows one to reduce the problem to one dimension. Thus the optimal decision only depends on the ratio $r_R = R/\alpha$, rather than the value of R and α itself. The waiting area and writing-off area can be parted by the radial $r_R = R/\alpha$. This implies that the value of $F(t, \alpha, R)$ should also be homogeneous of degree one with respect to R and α . That is, the following set of relationships holds:

$$F(t, \alpha, R) = \alpha \cdot f(t, \frac{R}{\alpha}) = \alpha \cdot f(t, r_R) \quad (9)$$

$$F_\alpha = F_{\alpha\alpha}(t, \alpha, R) = f(t, r_R) - r_R f_{r_R}(t, r_R) \quad (10)$$

$$F_{\alpha\alpha} = F_{\alpha\alpha}(t, \alpha, R) = \frac{(r_R)^2}{\alpha} f_{r_R^2}(t, r_R) \quad (11)$$

$$F_R = F_R(t, \alpha, R) = f_{r_R}(t, r_R) \quad (12)$$

$$F_{RR} = F_{RR}(t, \alpha, R) = \frac{f_{r_R^2}(t, r_R)}{\alpha} \quad (13)$$

$$F_{\alpha R} = F_{\alpha R}(t, \alpha, R) = \frac{-(r_R)}{\alpha} f_{r_R^2}(t, r_R) \quad (14)$$

Using equations (9)-(14), equation (5) can be rewritten as

$$\frac{1}{2}(\sigma_\alpha^2 + \sigma_R^2 - 2\rho\sigma_\alpha\sigma_R)(r_R)^2 f_{r_R^2} + (\mu_R - \mu_\alpha)r_R f_{r_R} + f_t + (\mu_\alpha - \mu)f = 0 \quad (15)$$

$$\text{Let } G = \sigma_\alpha^2 + \sigma_R^2 - 2\rho\sigma_\alpha\sigma_R; \quad H = \mu_R - \mu_\alpha$$

Equation (15) is an ordinary second-order differential equation. The solution to the equation takes the form:

$$f(t, r_R) = A e^{r_0 t} (r_R)^\beta \quad (16)$$

Where A and β are coefficients to be determined. Direct substitution of solution (16) into equation (15) yields

$$\frac{1}{2}G\beta(\beta-1) + H\beta + (\mu_\alpha + r_0 - \mu) = 0 \quad (17)$$

Thus β can be solved analytically as

$$\beta = \frac{\frac{1}{2}G - H + \sqrt{\left(\frac{1}{2}G - H\right)^2 + 2G(\mu + \lambda - \mu_\alpha - r_0)}}{G} \quad (18)$$

$\beta > 1$ must hold. Now boundary conditions (6)-(8) can be rewritten as

$$Ae^{r_0 t} (r_R^*)^\beta = \frac{L_B^0 e^{r_0 t} r_R^*}{\delta_R} - L_B^0 e^{r_0 t} \quad (19)$$

$$\beta A e^{r_0 t} (r_R^*)^{\beta-1} = \frac{L_B^0 e^{r_0 t}}{\delta_R} \quad (20)$$

and

$$f(t, r_R^*) - r_R f_{r_R}(t, r_R^*) = -L_B^0 e^{r_0 t} \quad (21)$$

Where r_R^* denotes the threshold ratio. Note that of these three boundary conditions, no single one is independent of the other two.

Equation (19) and (20) jointly imply

$$r_R^* = \frac{\beta}{\beta-1} \delta_R \quad ; \quad A = \frac{(\beta-1)^{\beta-1}}{\delta_R^\beta \beta^\beta} L_B^0 \quad (22)$$

The solution of Equation (15) is

$$f(t, r_R) = A e^{r_0 t} \left(\frac{\beta}{\beta-1} \delta_R \right)^\beta = L_B^0 e^{r_0 t} / (\beta-1)$$

And the optimal timing in banks' write-off decision can be obtained as follow:

$$T = \inf\{t \geq 0 : r_R = \frac{R_t}{\alpha_t} = \frac{\beta}{\beta-1} \delta_R\}$$

Figure 2 illustrates a free boundary r_R^* of the ratio of reinvestment return to write-off losses. In regime $\phi_{\tilde{\Pi}}$, the current value of r_R is below the threshold value r_R^* , so that the bank prefer waiting to writing off now. Also, Figure 2 depicts boundary conditions for $f(t, r_R)$ and the determination of r_R^* . At the threshold ratio r_R^* , the value from write-offs meets the value of waiting tangentially.

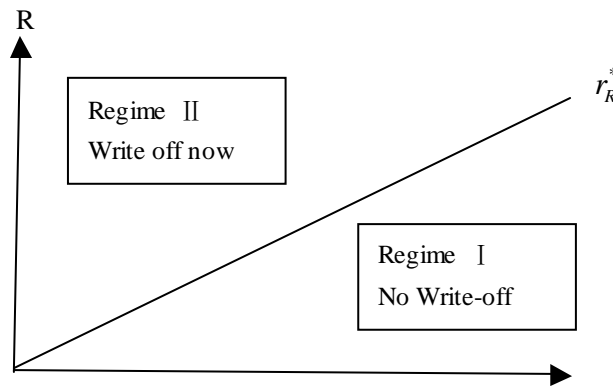


Figure 2. Free Boundary of r_R

Now we consider the influence coming from the change of the parameter λ . How does an increase in downward jump risk of the reinvestment return influence the optimal decision-making of rational banks? Generally, the effects of a positive value of the probability of the downward jump risk λ can be states as follows. First, it reduces the expected reinvestment return of capital gain on R , which decreases the value of waiting. On the other hand, it increases the variance of changes in R and thus raises the value of waiting. It turns out by numerical analysis that under normal circumstances, the former effect is more dominant. Figure 4 lay out the result that the former effect is much larger than the latter, thereby reducing the threshold ratio r_R^* . Further, notice that a small increase in λ lead to a substantial decline in r_R^* , prompting the bank to immediately write off. Based on the fact above, the government can takes some action to urge the banks to write off their NPLs by the believable way of threaten, for example, to reduce or cancel the

assistance to the loss of disposal of the NPLs.

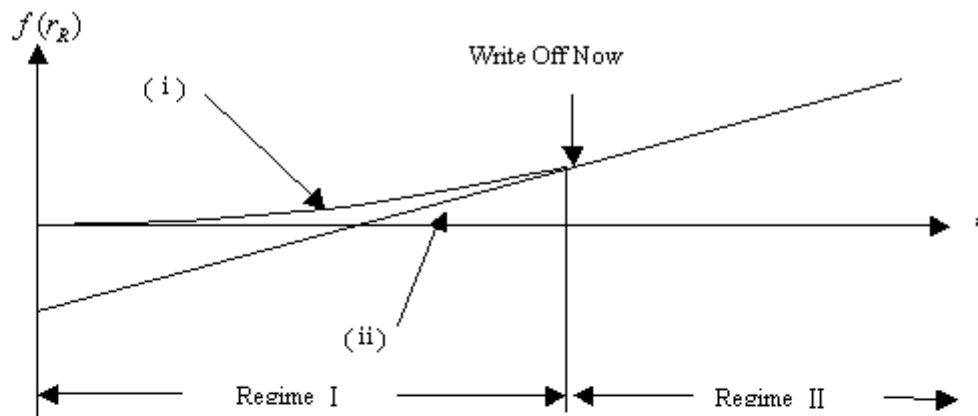


Figure 3. Boundary Conditions for $f(r_R)$ and the determination of r_R

$$(i) f(r_R) = A e^{r_R} (r_R)^\beta, \quad (ii) f(r_R) = \frac{L_R^0 e^{r_R} r_R}{\delta_R} - L_R^0 e^{r_R}$$

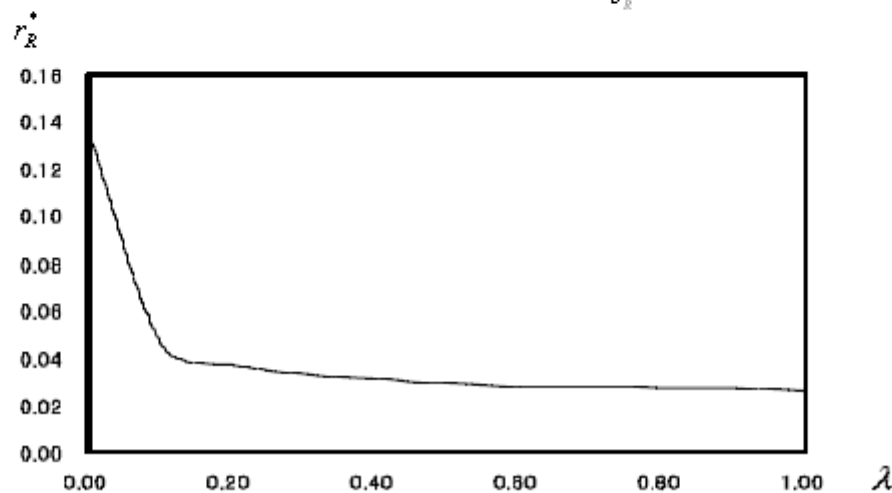


Figure 4. Dependence of r_R^* on λ

3. Conclusion

This paper has investigated how rational banks' optimal timing of write-offs is influenced by uncertainty stemming from the ratio of loss and return from writing-off NPLs. A real option approach was employed to evaluate the value of option to delay write-offs. Under normal circumstances, only when the rate of reinvestment return is very large, it is rational for the banks immediately to write off their NPLs. The uncertainty gives banks incentive to wait until the circumstance is favorable to them to write off their NPLs.

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Tracking the Credit Collection Period of Malaysian Small and Medium-Sized Enterprises

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Abstract

Profits of a company depend upon its frequency of reinvestment, or turnover, of its capital. Frequent turnover would not be possible if collections are slow as they deny the company the use of its own capital. Credit collection period is, therefore, an important factor that may influence a company's overall performance. Hence, this study explores the average collection period profile of 279 small and medium-sized manufacturing companies in Malaysia using the companies' financial statements from 1999 through 2002. This paper also examines if different industry sector has different collection period. Then the study relates the average collection period to company financial performance as measured by operating profit on total assets. Finally, the study investigates if there is any relationship between collection period and company size. These relationships are then examined again after taking industry sub-sector into consideration.

Keywords: Credit collection period, SMEs

1. Introduction

Credit is the ability of obtaining economic value now, on good faith, in return for a promise to pay at a specified date in the future. Trade credit involves supplying goods and services on a deferred payment basis, thus creating an interval between purchase and payment. Rather than requiring cash immediately following to the sales transaction, the selling firm allows payment at a later date, therefore granting credit to finance the buying firm's purchases of the seller's goods. Pending payment, the amount owed by the buyer is recorded in the seller's balance sheet as trade debtor or accounts receivable. Categorized under current assets, trade debtor represents the supplier's claim against the customer.

Alternatively, trade credit can be viewed as a loan a supplier provides to its customers in conjunction with product sales. This short-term loan is tied in both timing and value to the exchange of goods (Ferris, 1981). It is a by-product that is being packaged together to the goods sold or services rendered to customers, ensuing to a simultaneous transaction in both financial services and the products supplied.

In general, a company would want to collect receivables sooner rather than later as this will enable the company to increase its frequency of reinvestment, or turnover, of its capital. Frequent turnover would not be possible if collections are slow as they deny the company the use of its own capital. Late payments not only reflect on the efficiency of the credit department but also result in increased collection costs, and increase the risk that payment will never occur. Delayed payments entail an increase in working capital for the company due to the need to raise financing from one of the four sources (Chittenden & Bragg, 1997): increased debt, which leads to higher interest payments, reduced profits, and reduced borrowing capacity; increased equity, which dilutes and devalues existing investors' stakes if stockholders returns are unchanged; reduced capital investment in the future, limiting the seller's long-term business performance; or an increase in the length (and therefore the amount) of trade credit taken from suppliers. Collection period is, therefore, an important factor that may influence a company's overall performance.

But, important though credit collection function is, it is often neglected and managed inefficiently. The ability to liquidate the receivables should be of great concern to companies since non-payments and late payments by credit customers can negatively affect the business operation. The problem, however, is not new and not confined to any particular industry or country. In the UK for example, the Bolton Committee (Bolton, 1971) reports that many firms are haphazard in granting credit and slow and irregular in the collection of debts, on occasion even neglecting for weeks on end to submit bills for work done or goods delivered. Similar situation happens in the US. A survey by Grablowsky (1976) reports that most firms moved an account from active in-house collection to the bad debt file between four to twelve months after the due date. The survey

also reveals that even if a customer became a slow payer or was occasionally delinquent, many retailers continued to extend credit to him or her. These signify the existence of collection problems in the US. This was also highlighted by McMahon and Holmes (1991) in their review of small business financial management practices in North America. Although dated, these patterns still appear to hold today. More recent studies show that there are still persisting problems related to collection, late payments and none-payments (Howorth & Reber, 2003; Howorth & Wilson, 1998; Peel, Wilson, & Howorth, 2000).

2. Research Questions

Handling collection is an integral part of trade credit management. For, without effective collection effort, there will be inadequate resources to support the working capital requirements and hence, affecting the liquidity position of a company. The importance of sufficient liquidity in any company needs no special emphasis. Sufficient level of liquidity must be achieved and maintained so that funds would be readily available to settle off obligations as they arise or due. The adequacy of cash and other current assets, together with efficient working capital management, essentially determine the survival or demise of the company. Therefore, matters related to trade credit collection need to be explored so as to enable companies to understand and better manage their trade credit. It is in this context that an attempt has been made in this paper to look into some aspects of collection period experienced by the local manufacturing SMEs.

In broad terms, this study is undertaken to put forward some empirical evidence about the distribution of average collection period (ACP) of trade credit by small and medium-sized enterprises in the manufacturing sector, and its relationships to some selected factors. Specifically, the present study is carried out to address the following research questions:

- (1) What is the profile of the ACP among the manufacturing SMEs in Malaysia?
- (2) Do different industry sectors have different levels of ACP?
- (3) Does ACP have any relationship to financial performance?
- (4) Is ACP related to company size?

The remainder of this paper is organised as follows. In the next section, the extant literature on late payment and collection period of trade credit is succinctly reviewed. The methodology is explained and the summary statistics of the data is presented in the section that follows. Next, the findings are presented and the final section offers the conclusion.

3. Literature Review

Trade credit literature has been explored from various perspectives. Several early publications focused on the credit management practices adopted by large (for example Goddard & Jay, 1981; Kirkman, 1977; Pike & Cheng, 2001) and small companies (Grablowsky, 1976; Peel et al., 2000; Wilson, 1996). Besides reporting the survey on the operations of the credit practices of the sampled companies, some of these studies also looked into a variety of relationships among the different aspects of credit management. Other studies related to trade credit investigate the motives of credit extension (among others include (Deloof & Jegers, 1996; Emery, 1984; Ferris, 1981; Pike, Cheng, & Chadwick, 1998; Schwartz, 1974). These studies looked into the rationale to offering credit to customers. Still, another trade credit management issue that has caught researchers' attention is outsourcing. Mian and Smith (1992) study outsourcing practices in the US while Lamminmaki and Guilding (2004) examine the practices by Australian companies.

Another important element of credit management is collection. Many of the studies done on trade credit collection deliberate on credit period, late payment, and collection period. Credit period is the length of time allowed to the buyer before payment is considered past due. The period is usually conveyed, as credit term, to the credit customer either verbally, or expressed in writing. Late payment is the fulfilment of debt obligation at a date beyond the credit period. Collection period, on the other hand, is the number of days taken by customers to pay their bills. To sum up, late payment occurs when the collection period exceeds the credit period. While collection period can be calculated from the financial statements, information on credit period is not available from secondary sources. With such limitation, this study gives attention only to collection period.

Several studies concentrate on late payment by small firms in the UK. Howorth and Wilson (1998) develop 13 small firm case studies and detail analysis on their management and financing of trade credit showed that late payment problems are common. However, firms suffering due to these problems are those undercapitalised and had poor credit management practices, and did not do anything about their debtors' late payments. Chittenden and Bragg (1997) examine the impact which late payment has on the SMEs and the overall economy. Peel et al. (2000) analyse the response of small firms on the legislative and regulatory measures in curbing late payment in the UK. In their study on credit management policies within large UK companies, Pike and Cheng (2001) find that firm size is negatively associated to both collection period and late payment. Smaller firms tend to have longer collection period and experience greatest delay in receiving debt payment from customers. In contrast, Shipley and Neale (1984), in their study on the UK and US firms, observe that the average collection period in both countries were noticeably longer among the larger companies. Deloof and Jerger (1996) too find similar results among Belgian firms. Comparable findings also emerge in the African manufacturing sector (Fafchamps, 1997).

Deloof (2003) investigates the relation between working capital management and corporate profitability and suggests corporate profitability can be increased by reducing the debtors days and inventory days. Several other research which look at the relationship between operating performance and cash conversion cycle (CCC) offer similar results of negative association (Kamath, 1989; Shin & Soenen, 1998; Soenen, 1993; Wang, 2002). In view of the fact that CCC depends on the inventory, receivables, and payables periods, cutting down the collection period will almost always reduce the CCC. Although these studies employ CCC, rather than the collection period data directly, they implicitly indicate the relationship between ACP and financial performance.

On the local scene, Regupathi and Zainudin (2003) observe the collection period of companies listed on the Bursa Malaysia (the Malaysian stock exchange). Their findings indicate that different industry sectors had different collection period, and for all sectors, the collection period was lower before, compared to after, the 1997 financial crisis. The study also looks into the relationship between collection period and company size. The results vary for different sectors. In consumer products, industrial products, and construction sectors, larger companies seemed prompter in collecting trade credit, but quite the reverse for plantation sector, and non-association for other sectors included in the study. The present research adopts Regupathi and Zainudin's (2003) article, but taking small and medium-sized manufacturing enterprises as the subject. However, unlike the earlier research, this study only managed to draw on a 4-year data instead of ten years as used in the previous study. This is comprehensible as the financial data on listed companies are more publicly accessible compared to SMEs. This study also does not take economic condition as one of the variables since there was no major variation in the general economy of Malaysia during the period under study.

4. Data and Methodology

The present study is based on a sample of 279 small and medium-sized manufacturing enterprises operating in Malaysia. At the first instance, the record of Small and Medium Industries Development Corporation (SMIDEC) was referred for the selection of units. SMIDEC is a specialised government agency that was established to further promote the development of small and medium industries in the manufacturing sector through the provision of advisory services, fiscal and financial assistance, infrastructural facilities, market access and other support programmes. The directory comprises small and medium-sized manufacturing companies registered with the Companies Commission of Malaysia (CCM) under the Companies Act 1965. Out of one thousand companies randomly selected from the SMIDEC's list, only 279 were chosen for the study due to availability of data. This study used the data extracted from the annual financial statements, from 1999 to 2002, of the selected manufacturing SMEs. The companies' annual financial statements were obtained from Business and Search Information Services (BASIS), a company that compiles and provides business information for their clients.

The dependent variable in the study is the average collection period (ACP) that was computed for each of the 279 SMEs, and for each of the years from 1999 through 2002. It was calculated by taking the trade debtors item from the balance sheet and dividing that with the revenue or turnover (sales) item from the income statement, and multiplying this by 360 days. ACP, is the primary indicator of the quality of receivables that measures the average speed, in days, with which the receivables or trade debts turn into cash.

This study selected three independent variables. The first independent variable is the industry sector. Since the unit of sample was selected from the SMIDEC directory, the study simply adopted the listing sector as categorised by the agency, with slight modification. As there are only two companies in the pharmaceutical industry, and just one in palm oil-based industry, all three were reclassified under chemical and petrochemical products sector. The breakdown of the 279 sample companies is presented in Table 1. In term of number, the manufacturing SMEs in the four sectors, namely machinery and engineering, electric and electronic, transport equipment and metal products, made up the majority, contributing slightly more than 65 percent of the sample companies. All other sectors involved in the study have less than 20 companies each, with non-metallic mineral products, paper and printing, and textile, apparel and leather sectors poorly represented with less than 10 companies each (see Table 1).

The second independent variable is the financial performance. Several previous studies had used operating profits in calculating profitability and financial performance (Eljelly, 2004; Shin & Soenen, 2000; Wang, 2002; Zainudin, 2006). Operating profits is preferred to after-tax profits as it does not consider taxes in the computation. Occasionally, profits after tax may not truly reflect the earnings generated from business operations particularly where tax incentives are available. Hence, in line with many earlier researches, this study uses operating profits divided by total assets (OPTA) to represent financial performance.

The third and final independent variable is company size. Many previous research use total assets and/or sales to represent size of a firm (Eljelly, 2004; Moss & Stine, 1989; Regupathi & Zainudin, 2003; Zainudin, 2006). Although the market value of equity could also be a proxy to represent size, the author feels that the figure is less stable in the current market condition. Besides, unlike larger firms whose shares are quoted on the stock exchange, the value of equity for small firms could not be easily determined. In this study, size is measured in terms of total assets instead of sales since the data on the latter is not complete. Furthermore, Eljelly (2004) observes that there exists a strong highly positive correlation between total assets and sales which show that they are substitute measures of size (see Table 2).

One potential problem with financial data is the question of normality of the underlying parameters. Hence, prior to further analysis, the distribution of the variables representing the collection period, financial performance and size of the sample companies are observed. The distributions of these variables are highly skewed as indicated by the skewness statistics and kurtosis statistics presented in Table 2. Next, a test of normality on the variables was conducted. The Shapiro-Wilk statistics shown in Table 3 are found to be statistically significant, indicating that the average collection period, financial performance and company size were not distributed normally. Since the results suggest non-normality for the variables, non-parametric statistics are utilised in addressing the research questions (see Table 3).

To address the research questions posed earlier, first of all, descriptive statistics were used in providing the profile of the ACP of the Malaysian manufacturing SMEs. Next, to examine whether or not different industry sectors had different levels of ACP, the non-parametric Kruskal-Wallis test statistic was used. Finally, to address the third and fourth research questions, i.e., to establish the relationships between ACP and financial performance, and between ACP and company size, Spearman rank correlation was used.

5. Findings

Table 4 presents the profile of ACP for the various industry sectors in Malaysia. From the descriptive summary of the variables, it is found that the mean and the median values (number of days) are very different for most industry sectors. In describing the ACP profile, given a very skewed distribution of ACP, the median rather than the mean is preferred as the latter is less representative of the central tendency value of ACP. Moreover, some extreme cases might have exaggerated the mean and caused it to be less meaningful. For example, in the transport equipment sector where, upon a meticulous scrutiny, it is found that there is a company with an ACP of over 1,000 days. This might not reflect the company's current situation, but could have result from its practice of not writing off uncollectible old debts. These bad debts are being carried forward from one year to another, subsequently accumulating and swelling the trade receivables, and therefore the ACP. Accordingly, the median ACP tends to be more precise in describing the ACP profile.

Using the median ACP as the basis for comparison, the findings indicate that trade credit was collected soonest in the electric and electronic sector (26 days), followed by rubber products sector (60 days). Except for textile, apparel and leather industry that takes about 138 days, other sectors spend not more than three months, on average, to collect their trade receivables from their credit customers (see Table 4).

To examine whether or not different industry sectors had different levels of ACP, the Kruskal-Wallis test is used. To derive a more meaningful result, the 12 industry sectors are sorted into seven groups based on the characteristics of their distribution. The results presented in Table 4 shows that the statistic is significant, signifying that the ACPs for all the groups are different. The ranking produced from the Kruskal-Wallis test appears to agree to the ranking of the ACP median of each group. The test indicates that trade credit was collected soonest by SMEs in the electric and electronic sector while those in the textile, apparel and leather sector seems to take the longest time in their collection effort (see Table 5).

To answer the third and fourth research questions, the non-parametric Spearman rank correlation coefficient was utilised. The results are presented in Table 5. From the table, it is evident that the coefficient between ACP and OPTA is -0.089. The value of the correlation is found to be significant at 1 percent level. It indicates that there is a weak negative association between collection period and financial performance of SMEs. This means that companies with shorter collection period tend to perform better. This is consistent with many previous studies that look at the ACP-financial performance relationship (Deloof, 2003; Kamath, 1989; Shin & Soenen, 1998; Soenen, 1993; Wang, 2002). It is of course unlikely that there is a direct causal relationship between ACP and financial performance as both variables are outcomes of a wide range of operating factors.

Correspondingly, the correlation coefficient between ACP and TA is quite similar. The Spearman correlation coefficient of -0.296 reveals that there is also a low degree of negative correlation between collection period and company size for the Malaysian manufacturing SMEs. This negative association implies that smaller firms be likely to experience longer collection period. The results concur to Pike and Cheng (2001) but in contrast to other studies (Deloof & Jegers, 1996; Fafchamps, 1997; Peel et al., 2000; Shipley & Neale, 1984) that suggest bigger companies tend to have longer collection period.

Although the non-parametric Spearman rank correlation coefficients are found to be statistically significant for both relationships, the measure does not allow us to identify causes from consequences. It is difficult to say that if shorter ACP leads to better financial performance, nor can we say whether length of the ACP is influenced by company size (see Table 6).

The relationships between ACP and financial performance, and between ACP and company size are further explored taking industry sector into account. Table 6 shows both relationships for each of the seven categories of industry sector. Looking at the relationship between ACP and financial performance (represented by OPTA), the results, in general, show that in some industry sectors, ACP appeared to be independent of financial performance, whereas in others, there seemed to be some association. In the machinery and engineering, chemical and petrochemical products, transport equipment, metal products, and wood and wood products, ACP appeared to be negatively correlated with financial performance. This

denotes that companies in these sectors that have shorter ACP tend to perform better.

Further analysis on the relationship between ACP and company size (as measured by total assets, TA) by industry sector is also shown in Table 6. The ACPs for paper and paper products, plastic products, and textile, apparel and leather sectors seemed not to have any correlation with company size. Except for food, beverage and tobacco, and non-metallic mineral products sectors, which have positive association, all remaining sectors have their ACPs negatively correlated to company size. This indicates that larger SMEs in the food, beverage and tobacco, and non-metallic mineral products sectors tend to take longer to collect trade debts. In other remaining sectors that exhibit negative association, larger companies tend to be more prompt in their trade credit collection. Unfortunately these results of correlation by industry sector could not be compared justly to a previous study by Regupathi and Zainudin (2003) as the basis of industry sector classification is very different.

6. Conclusion

Credit collection is only part, but for many firms a very important component, of trade credit management. This study provides the profile of trade credit collection period for manufacturing SMEs in various industry sectors. The findings reveal that different sectors had different ACPs, implying that some sectors were more efficient than others in managing their credit collection. The SMEs in the electric and electronic sector were prompter in collecting their trade credit compared to the other sectors. The textile, apparel and leather sector seemed to be the slowest collector.

The findings also revealed that there is a negative correlation between collection period and financial performance. Companies that collect their debts faster seemed to generate better returns. This is as expected since early collection enables the company to reinvest its capital more frequently, thus, increases its return. However, after the analysis is performed separately based on industry sector, the relationship is statistically significant for only five sectors out of 12. More precisely, SMEs in the machinery and engineering, chemical and petrochemical products, transport equipment, metal products, and wood and wood products that experienced shorter collection period are likely to perform better. In other industry sectors, the trade credit collection period and financial performance seemed to be independent of each other.

The study also indicated that collection period is negatively associated to company size, with smaller-sized companies facing the greatest delay. Perhaps, though not conclusive, being small, the SMEs are at the mercy of their large and dominant customers who are able to dictate terms to their suppliers. Nevertheless, this relationship is also observed individually based on industry sector. It is found that three industry sectors did not display any relationship between collection period and size, two sectors had positive correlation while the remaining seven sectors registered negative association.

In summary, this paper attempted to explore the collection period of SMEs in the manufacturing sector and relating it to some selected variables, namely financial performance and company size. Besides looking at the overall sampled companies, relationships among the variables for individual industry sectors are also examined. Note that the dependent variable in the study is collection period. Issues on late payment, which need more urgent attention, were not considered, as information on the credit period is not available. Hence, further work need to be done to include more variables to better portray the situation of credit collection in Malaysia.

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Table 1. Number of Companies by Industry Sector

Industry Sector	Number
Food, Beverage & Tobacco	14
Machinery & Engineering	53
Chemical & Petrochemical Products	17
Paper and Printing	9
Plastic Products	16
Electric & Electronics	50
Textile, Apparels & Leather	7
Rubber Products	13
Transport Equipments	35
Metal Products	44
Non-Metallic Mineral Products	5
Wood & Wood Products	16
Total	279

Table 1 provides the breakdown of the sample companies categorised according to their core business activities. The sectors are based on the categorisation used in the directory of SMEs published on the official website of the Small and Medium Industries Development Corporation.

Table 2. Skewness and Kurtosis Statistics of Variables

Variables	Skewness statistics	Kurtosis statistics
Average collection period (ACP)	7.544	81.238
Operating profit to total assets ratio (OPTA)	-2.447	25.776
Total assets (TA)	8.222	82.956

Table 2 shows the skewness and kurtosis statistics of the variables. The skewness statistics of more than +1 and less than -1 indicate that the distributions are markedly skewed. The high positive kurtosis statistics for all the variables signify that the distributions are more peaked than the normal curve. Both skewness and kurtosis statistics for all the variables imply that the distributions are quite different from a normal curve.

Table 3. Test of Normality

Variables	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ACP	.229	1106	.000	.478	1106	.000
OPTA	.141	1106	.000	.832	1106	.000
TA	.368	1106	.000	.296	1106	.000

Table 3 displays the results for normality test on the variables. Both the Kolmogorov-Smirnov and Shapiro-Wilk statistics are statistically significant and hence, this signifies that the variables are not distributed normally.

Table 4. ACP by Industrial Sector and the Kruskal-Wallis Test

Group	Industry sector	Median ACP	N	Mean Rank
1	Food, Beverage & Tobacco; Non-Metallic Mineral Products	78.12	76	582.22
2	Machinery & Engineering; Chemical & Petrochemical Products; Transport Equipments	87.72	412	618.88
3	Paper and Printing; Plastic Products	90.13	100	659.07
4	Electric & Electronics	25.90	199	318.39
5	Textile, Apparels & Leather	137.65	28	821.82
6	Rubber Products	59.57	52	469.44
7	Metal Products; Wood & Wood Products	76.09	239	570.10
Total cases			1106	
Kruskal-Wallis Chi-Square				160.617
Degree of freedom				6
Asymptotic significance				.000

Table 4 shows the profile of ACP for the various sub-sectors of the manufacturing sector. The median indicates that trade credit was collected soonest in the electric and electronic sub-sector while the textile, apparels and leather sub-sector was the slowest. The table also shows the results of the Kruskal-Wallis test. The statistic is significant, indicating that the ACPs for all the seven sub-groups were indeed different. This confirms that the trade credit collection period was different in different sub-sectors of the manufacturing sector.

Table 5. Correlations between ACP and OPTA and between ACP and TA

			OPTA	TA
Kendall's tau_b	ACP	Correlation Coefficient	-.060**	-.202**
		Sig. (2-tailed)	.003	.000
		N	1106	1106
Spearman's rho	ACP	Correlation Coefficient	-.089**	-.296**
		Sig. (2-tailed)	.003	.000
		N	1106	1106

** Correlation is significant at the 0.01 level (2-tailed).

Table 5 presents the results of correlation between ACP and both financial performance and company size. The value of the correlation is found to be significant. This implies the presence of negative association between ACP and both variables, indicating that the lower is the ACP, the better the company perform, and the bigger it is.

Table 6. Correlation Coefficients between ACP and OPTA and between ACP and TA

Group	Industry sector	OPTA	TA
1	Food, Beverage & Tobacco; Non-Metallic Mineral Products	.162 .162 76	.444** .000 76
2	Machinery & Engineering; Chemical & Petrochemical Products; Transport Equipments	-.101* .041 412	-.219** .000 412
3	Paper and Printing; Plastic Products	-.103 .306 100	-.135 .179 100
4	Electric & Electronics	-.039 .588 199	-.324** .000 199
5	Textile, Apparels & Leather	-.235 .229 28	-.157 .425 28
6	Rubber Products	-.018 .897 52	-.407** .003 52
7	Metal Products; Wood & Wood Products	-.133* .040 239	-.143* .027 239

Each cell provides the correlation coefficients, the p-value, and the number of cases. The single asterisk and double asterisks indicate p-values of less than 5 percent and 1 percent respectively.

Table 6 provides the correlation coefficients between ACP and financial performance and size, but taking industry sub-sectors.



Influences of Different Underwriting Mechanisms on Offering Prices and the Case of China

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Abstract

There seem to be little discussions on the influences of different underwriting mechanisms on offering prices. Under different underwriting mechanisms, the issuer, the investment bank and the investor will consider the offering prices based on his own benefit. As a result, the offering price is affected by different underwriting mechanisms. In China, most of the stock IPO takes the form of stand-by underwriting. Because of the huge demand on the new share issue from Chinese investors, the investment bank almost has not unsold stocks to underwrite. Therefore, there is no big difference in the risk that the investment bank faces between the firm commitment underwriting and best-effort underwriting. As a result, when the Chinese investment bank is allowed to participate in the procedure of pricing offering price, the pricing behavior of the investment bank has no big difference in the two risk- similar mechanisms. Considering different advantage and suitability of different mechanisms, China needs to change the single underwriting mechanism situation and encourage the practice of the firm commitment underwriting mechanism.

Keywords: Securities, Underwriting mechanism, Offering price

1. Underwriting Mechanisms

Strictly speaking, underwriting means firm commitment underwriting, but it is generally used as both best-effort underwriting and firm commitment underwriting. Here, we indicate the underwriting as general meaning, including best-effort underwriting and firm commitment underwriting. Securities underwriting is the most original and core business for the investment bank, it is also one of the basic characteristics that the investment bank distinguishes itself from commercial bank. Internationally most of IPO has the participation of the investment bank. In some extreme situation, the issuer will organize the IPO by himself and directly sell the stocks to the investors without the participation of the investment bank.

1.1 The Best-effort Mechanism

Generally speaking, a best-effort agreement is an arrangement whereby investment banks agree to do their best to sell an issue to the public, because investment banks are acting as agents, they avoid the risk associated with underwriting because they do not buy the securities and can return the remains to the issuer.

Under the best-effort underwriting mechanism, there is no underwriting group or selling group because the new share issue is not underwritten. Therefore, strictly speaking, the investment bank should be called commission agent, although it is usually called underwriter.

In the best-effort underwriting mechanism of America, the issuer makes agreement with investment bank, in which they stipulated the offering price and the maximum and minimum amounts of the new share issue. During the selling period, the investment bank tries his best to sell the stocks to the investors. If the amount of the sold stocks is lower than the minimum point in a specified period (usually 90 days), then the IPO will be canceled, and all the funds that have been collected will be transferred from the account of the third party who acts as the trustee to the investors. The best-effort underwriting mechanism is usually adopted by high-risk small scale companies, while the issuer prefers to choose the firm commitment underwriting mechanism when the amount of capital raised exceeds US \$10 million.

1.2 The Firm Commitment Mechanism

Firm commitment underwriting mechanism means that the investment bank will buy the new securities according to the agreement and resell the securities to the public at a markup, bearing all of the expenses associated with the sale; Or stand-by underwriting mechanism, it means at the end of the underwriting period, the investment bank purchases all the unsold securities by himself.

Under the firm commitment underwriting mechanism, the issuer can get the guaranteed funds in the certain period, and transfer all or most market risk to the investment bank. The issuer usually sold all the new share issues to the underwriting group which has one or several leading underwriters.

Firm commitment underwriting mechanism is a widely used issuing mechanism in the developed market. In America, when the issuing company signs the agreement with the investment bank, the red-herring prospectus will be revealed to the public, in which the range of the offering price is given. When the issuing company and the investment bank accomplished the marketing and got the purchasing willing from the investors, the offering price will be finally confirmed, at the same time, the final prospectus is revealed to the public. The issue of the securities started officially when the SEC ratified the issuance. The investment bank needs to sell all the securities to the investors at price less than the predetermined offering price.

In some countries or areas, the investment banks (correctly speaking, the leading underwriters) can decide whether to make market when he takes firm commitment underwriting. The behavior of market making is an accepted legal manipulating marking price behavior by some supervising institution. (Note 1) In the large-amount issuance situation, the underwriter takes the responsibility to stabilize the market price to prevent the market price from dropping under the offering price on the first day of the stock listing in the secondary market. The market maker mechanism is well applied in the NASDAQ market. Through the market making, the interest of the underwriter is further connected with the invest value of the issuer, which is beneficial to the after-market stable performance of IPO and can shorten the over-reaction period and the span of regression of IPO price discovering process as possible as it could be. If the demand of the new share issue almost equals the supply or the former is stronger than latter on the listing day, the trade price will not drop under the offering price. As a result, the underwriter need not make market. If the trade price dropped under the offering price, the underwriter can purchase stocks from the secondary market to stabilize the price; if the price keeps dropping, the underwriter can decide whether to continue to act as the market maker.

Contrary to the dramatic drop of trade price, the trade price can also dramatically soar. At such situation, some underwriters can take over-allotment option measures to stabilize market, that is, the green shoes option clause in the underwriting agreement. According to the rule 2710 (C) (6) (B) (IX) of the National Association of Securities Dealers (NASD), the amount of the securities that the underwriter sold can go beyond the originally stipulated amount, but less than 15% of the overall amount of the securities of firm commitment underwriting.

In the stand-by underwriting mechanism, after the listing of the new securities, the trade price is automatically formed by the strength of market demand and supply, the underwriters seldom take market making or over-allotment option measures to stabilize the market.

The traditional underwriting mechanism in the U.K. is the stand-by underwriting mechanism. The “issuing house” published issuing announcement and accepted the subscription of investors representing the interests of issuer. The issuing house will stop subscribing when he gets enough amount of subscription and the securities will be allocated to the subscribers by the issuer. If the subscribing amount is over the issuing amount, the issuer will take different methods to allocate these securities to the subscribers. The investment bank usually does not make spread profit and not subscribe the securities at his own account; he acts as the broker to service the customer and only receives underwriting fees. The underwriter will purchase all the unsold securities if there are still some securities not being purchased by the investors in certain period. This mechanism is called “strict”, “old fashioned”, “stand-by” underwriting in America, and this mechanism is widely used in rights offerings at the present, such as “stockholder new shares warrants” or convertible bonds “convertible rights”, but it is seldom used in IPO.

2. A Comparison of different underwriting mechanisms

In the stand-by underwriting, the investment bank will purchase all the unsold securities only under the condition that there existed unsold securities. This kind of situation seldom happened in practice, so the investment bank faces lower risk than in the firm commitment underwriting but higher risk than in the best-effort underwriting. In the stand-by underwriting, the investment bank needs certain amount of funds to finance the possible purchases for the unsold stocks, so the capital cost of stand-by underwriting is higher than the best-effort underwriting because in this mechanism the investment bank does not need funds, while the cost is lower than the firm commitment underwriting because the investment bank needs large amount of funds. In the stand-by underwriting, the investment bank only takes underwriting fees, so the profit is lower than the firm commitment underwriting but higher than the best-effort underwriting.

To reduce the underwriting risk, the professional requirement for the investment in the firm commitment underwriting is highest among the three mechanisms. The investment bank needs strong marketing webs, the capability to control demand

from the investors, the capability to correctly price capital assets.

Under the best-effort underwriting mechanism, the investment bank only takes commission fees, and the profit usually has nothing to do with the abnormal profit that the investors get in the secondary market after the new share issue. Therefore, the investment bank pays little attention to the offering prices.

From the response of investors to different underwriting mechanisms, due to the asymmetric information in the IPO, Bower (1989) found that under the firm commitment underwriting mechanism, the underwriter acts as the role to guarantee the enterprise value for the investors, while under the best-effort underwriting mechanism, the investors will estimate the individual issuer's value at the average value because they can only get the information about the enterprise average value.

In the best-effort underwriting mechanism, the investment bank may propose the offering price from its own benefit due to the benefit conflict between him and the issuer, consequently, it is difficult for the issuer to judge whether the price proposition is in the benefit of him due to the lack of information about the demand. However, generally speaking, because the investment bank needs not to bear too much risk from sale, the motivation to make lower offering price is not strong. While the issuer hopes to make offering price as high as possible because he wants to collect funds as much as possible; at the same time, the issuer will also consider the risk from failing to sell all the securities, so the offering price can not be priced too high. The final offering price (P_{ob}) will stay between the lower offering price (P_{obmin}) that the issuer takes the issuing risk into consideration and the higher offering price (P_{obmax}) that the issuer hopes to collect more funds. That is,

$$P_{obmin} \leq P_{ob} \leq P_{obmax} \quad (2-1)$$

Under the firm commitment underwriting mechanism, the benefit targets of both investment bank and issuer have changed. The investment bank is motivated to price the offering price lower to reduce the selling risk. While the issuer hopes to get higher offering price to collect more funds because the selling risk that he faces is greatly reduced. Therefore, the offering price (P_{of}) in the firm commitment underwriting mechanism will stay between the price (P_{ofmin}) at which the investment bank could successfully issue the securities and the price (P_{ofmax}) that makes the issuer satisfied.

$$P_{ofmin} \leq P_{of} \leq P_{ofmax} \quad (2-2)$$

The upper limit of Inequality (2-1) and (2-2) is the same, it is the offering price at which the issuer hopes to collect more funds. That is

$$P_{obmax} = P_{ofmax} \quad (2-3)$$

But the lower limit of inequality (2-1) and (2-2) is different. Generally speaking, P_{obmin} is the lower limit of offering price when the issuer takes the issuing risk into consideration, while P_{ofmin} is the lower limit of offering price when the investment bank takes the issuing risk into consideration. The difference between these two prices is determined by the different risk judgment from the investment bank and the issuer, so they may be equal or unequal in the quantity.

In the practice, best-effort underwriting mechanism is widely adopted by some not famous issuers because it is difficult for them to find the underwriter to underwrite the securities. When the best-effort underwriting is used, the issuing risk is basically borne by the issuer himself. Of course, this kind of mechanism is also taken by some famous companies to issue new securities.

Besides the above mechanisms, some small companies even can take the Direct Public Offering (DPO) mechanism to directly sell the securities to the investors by internet, they will bypass the intermediary (investment bank) when the market condition can guarantee the price discovering process to function normally. In America, DPO needs to be registered in the securities supervising institution and this registration cost will be lower than that in SEC. Therefore, DPO is usually adopted by small companies to save cost. For example, the stocks of many consuming goods enterprises are mostly subscribed by their consumers when the enterprises take DPO to issue securities. The investors will be more cautious when they make investing decisions because there is on participation of the investment bank, which indicates that there is lack of prudent investigation and the evaluation to the stock from the professional institution as well as common risk bearer. As the internet is widely used, DPO has broken through the traditional time and space restrict. Under the condition of the perfect and efficient supervision, DPO will be paid more attention due to its merits: fast transferring information, simple process as well as lower cost.

3. IPO Underwriting Mechanisms Adopted in China

In the early stocks issuance stage of mainland China, the methods of the best-effort underwriting or self selling were widely adopted. The securities department of the bank sold the new securities as the agent when the best-effort method is used. The securities company was born at the end of 1980s, and the best-effort underwriting was basically taken by the securities company to issue securities at the end of 1980s and the beginning of 1990s.

The state council issued "Temporary Regulatory of Securities Issuance and Trade Administration" in April, 1993, which stipulated that IPOs should be underwritten by securities operating institutions, and the methods included firm commitment underwriting and best-effort underwriting. (1998) "Securities Law" (21th clause) further declared that the firm commitment

underwriting is that securities company purchases all the securities from the issuer at the agreement price or purchases all the unsold securities by himself at the end of the underwriting period. There is no obvious change in 2005 “Securities Law” (28th Clause). But in practice, except for several individual cases of firm commitment underwriting, most of IPO in China took stand-by underwriting methods. (Note 2) Table 1 shows the different IPO underwriting mechanisms that China has adopted since the issuance of stocks began in the mainland.

4. Institutional Analysis on IPO Underwriting Mechanisms of China

Chinese laws and rules have not special restrict on the underwriting mechanisms of investment banks, after all, Chinese capital market is in the early stage of construction, only several enterprises adopted best-effort underwriting mechanism, individually for firm commitment underwriting mechanism, most IPO took the stand-by underwriting mechanism. While in developed countries, such as America, firm commitment underwriting mechanism is widely used, what is the reason behind the phenomenon?

To understand the reason that the firm commitment underwriting mechanism is not widely used in China, we need to consider from the following aspects: the capital requirement to the investment bank, the borne underwriting risk, the related underwriting fees as well as the securities underwriting background of China.

The capital requirements and the underwriting risks for the investment bank are increasing progressively under these three kinds of mechanisms: best-effort underwriting, stand-by underwriting and the firm commitment underwriting.

Under the best-effort underwriting mechanism, the investment bank need not use its own capital only acting as the agent to sell the securities. If the subscriptions are not enough or failed, the loss for the investment bank is the reduction of the underwriting fees or nothing to receive, so the risk is quite small.

Under the firm commitment underwriting mechanism, the investment bank needs to purchase all the securities and then resells to the investors, so the capital requirement is very high for the investment bank. The investment bank is required to prepare enough funds for each IPO so that he could subscribe all the securities at predetermined price, which means that large amounts of capital are occupied, consequently, the loss of the interest cost and opportunity cost of the capital is caused. If the investment failed to sell all the securities, then the sale risk is borne by the investment bank. Of course, in practice, the underwriting risks and opportunity loss are quite small, because the investment bank usually sells majorities of the securities to the institutional investors or cooperators who have good reputation and have long-term cooperation relationship with the investment bank. The investment bank will receive underwriting spread or sales discount which comes from the difference between the proceeds an issuer receives and the price paid by the public except for the underwriting fees. The higher profit is attractive to the investment bank.

Comparison to the investment bank of developed country, the capital strength of the Chinese investment bank is much weaker, especially in the early developing stage of the equity market, the scale of Chinese securities underwriting institutions are quite small, therefore, the best-effort underwriting mechanism is in accord with the capital strength and the capability of bearing risk of the investment bank. With the development of the Chinese equity market, the capital strength and the capability to against the underwriting risk will be improved, finally the best-effort underwriting mechanism will be replaced by stand-by underwriting mechanism. The reason that the firm commitment underwriting becomes the top choice in developed countries is that the investment bank has quite strong capital strength and capability to against risks except for receiving huge profit.

The statistic results of IPO underwriting mechanism from Huang (2006) showed the average of the premium rate under the best-effort underwriting mechanism is much higher than that under the stand-by underwriting mechanism in general, but there is no obvious difference in the average premium rate between several IPO samples under the best-effort underwriting mechanism and large amount of IPO samples under the stand-by underwriting mechanism, furthermore, with the improvement of the Chinese market overall standard, the premium level in the later stage is reduced compared to the earlier level. The best-effort underwriting mechanism was widely adopted in the early stage and the stand-by underwriting mechanism was basically adopted in the later stage, therefore, the comparison of premium level between different underwriting mechanisms is reduced correspondingly.

The Chinese IPO market demand is much greater than the supply in the long term, in addition, the demand for the new issuance of the Chinese investors is very strong. As a result, actually the investment bank has no unsold securities to underwrite and the risk that the investment bank faces under the stand-by underwriting mechanism has no big difference compared with the best-effort underwriting mechanism. Therefore, when the Chinese investment bank is allowed to participate in the offering price-making, there is no big difference in the investment bank pricing behaviors under the two risk-similar underwriting mechanisms. From this viewpoint, the contribution of the stand-by underwriting mechanism to enhance price discovering efficiency in the primary equity market has not been developed very well.

5. The Optimization and Improvement of Underwriting Mechanisms

For the optimization and improvement of underwriting mechanisms, we think that the firm commitment underwriting mechanism should be encouraged to carry out, but it should not be limited to any one mechanism. In addition, to better connect

the benefits of the investment bank and the issuer, the mechanism is required to be innovated.

5.1 Encouragement to carry out the Firm Commitment Underwriting Mechanism

The research on the underwriting mechanism is very scarce both at home and abroad, the firm commitment underwriting mechanism is widely adopted in the developed market, and people paid little attention to this conventional question.

The stipulation of the Chinese law on the underwriting mechanism is very simple. The 2005 “Securities Law” (28) stipulates that “the issuers should sign the underwriting contract with the securities companies if the law or administration rules stipulate that the securities should be underwritten by securities company, the securities are these that the issuers offered to the unspecified investors. The securities underwriting takes the forms of best-effort underwriting or firm commitment underwriting.” The majority cases of China IPO all took the method of stand-by underwriting mechanism, it seems that it becomes a convention, so it is paid little attention.

While when we compared the firm commitment underwriting mechanisms at home and abroad, we find that there exists tiny difference between firm commitment underwriting and stand-by underwriting. Many researchers ignored this kind of difference of firm commitment underwriting mechanism between China and some developed countries when they focused on the registration mechanism and book-building mechanism. The direct reason that caused the difference is the difference of the underwriting institutions. The investment bank is required to purchase all the securities under firm commitment underwriting mechanism, therefore, the investment bank must have strong capital strength. At this point, the asset scale of Chinese underwriting institution has wide gap compared with the investment bank in developed market, this kind of underwriting strength gap induced that Chinese investment bank is ready to adopt the stand-by underwriting mechanism to reduce the underwriting risk.

Except for the capital strength requirement for the investment bank in firm commitment underwriting mechanism, the risk that the investment bank needs to bear is also very high in this mechanism, so the professional ability requirement for the investment bank is also quite high. To successfully sell all the securities, the investment bank must have stronger pricing ability and marketing ability. The book-building mechanism that is widely adopted in the developed market provides the investment bank opportunity to show his pricing ability and marketing ability, therefore, the combination of the book-building mechanism and the firm commitment underwriting mechanism becomes the optimal choice in the developed countries. At the present, China is carrying out IPO price inquiring mechanism. To further integrate the investment bank into the issuance process, it is reasonable to encourage the adoption of the firm commitment underwriting mechanism. Integrating the interest of the investment bank into IPO process is beneficial for investment bank to develop his professional advantages in the IPO price discovering process, or in other words, it is beneficial for Chinese investment bank to go into the professional orbit in accord with the international rules.

Because firm commitment underwriting mechanism requires higher capital scale and professional skills, and under international background of merging investment banking and commercial banking in the financial field, to enhance the firm commitment underwriting capability of the investment bank, China should allow the transformation from the prohibition of the crossing of different financial operations to the relaxation of the regulation, allowing the crossing activities in the bank industry, insurance industry and securities industry, and cultivate the competitive power of investment banks which have great capital scale, strong professional skills and high reputation. As a result, the scale of Chinese investment banks will be enhanced and the role of Chinese investment bank in the primary equity market will be highlighted and the overall market operation will function regularly.

5.2 The Choice of Different Underwriting Mechanisms According to the Issuing Circumstance

In specified IPO cases, the investment bank and the issuer are supposed to choose different underwriting mechanisms freely. Actually for the smaller scale IPO, the issuer can adopt best-effort underwriting or even DPO mechanism if he has certain issuing capability according to the international experience, and the price discovering process will be shorten correspondingly and the issuing cost for the issuer will be reduced. But according to “Securities Law” (2005) (28), the issuers should adopt best-effort mechanism or firm commitment underwriting mechanism when they sell securities to unspecified investors, which excludes the DPO mechanism. We think, this mechanism which can greatly save the issuing cost and need not the participation of the investment bank should be included in IPO mechanisms.

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Notes

Note 1. Of course, the underwriter cannot manipulate the price without any restriction. In America, the underwriter needs to provide detailed report to SEC when he makes market. In the trade of new issuing securities, the leading underwriter can

make market according to the SEC rules, other selling group members can purchase the new issuance only when the leading underwriter declared the selling group was dismissed. The purchased securities to stabilize the market cannot be sold out at higher price than the purchasing price. The loss induced from the dealing is allotted proportionally to the selling group members

Note 2. The statistical materials about the stock issuance cases that have adopted different underwriting mechanisms are very scarce. Through scanning website <http://www.goole.com/zh/CN> to look for the prospectus, issuing announcement, listing announcement one by one and inquiring some target companies by telephone, we confirmed that two companies: Zhong-shan Torch High & Tech. Industrial & Commercial Co. Ltd. (Stock code: 600872) and Dong-fang-dian-ji (Stock code: 600875) adopted the firm commitment underwriting mechanism in their IPOs. The stock listing announcement of Zhong-shan Torch High & Tech. Industrial & Commercial Co. Ltd (published in 1995) disclosed that: "The social public shares can not be issued publicly in 1994 due to the "three policies" that are issued by Securities Supervision Committee of China" in 30th, July 1994, Guangdong Guang-fa Securities Company underwrote 28 million shares of social public stocks at the price of RMB 8 per share in advance as the leading underwriter and transferred the fund to the company's bank account on 28th, October 1994. To diversify the shareholding, Guang-fa Securities resold all the 28 million shares to the public by adopting the combination of "Limit subscription, free appointment, lottery allotment, payment with lot" and "appointment on presentation of documents, payment all in advance, subscription with lot, refund without lot" on 8th, December 1994 and 19th, January 1995. The subscription amount reached 853.658 million shares in the compulsory period and the rate of lot is 3.28%". The listing announcement of Dong-fang-dian-ji (published in 1995) disclosed that: "The issuance of A shares adopted firm commitment underwriting mechanism, and the leading underwriter underwrote the shares by setting up underwriting group".

Table 1. Different Underwriting Mechanisms Adopted in China

Mechanism	Period	Major Characteristics
Self Selling	Before 1 st , January 1993	This was the mainly adopted method of securities issuance at the beginning of reform and open. "Temporary Regulatory of Securities Issuance and Trade Administration" and "Securities Law" have not been issued at that time. The issuers were usually the shareholding system reform experimental companies and they directly sold the securities to the investors.
Best-effort underwriting	Before 31 st , December 1993	This issuance mechanism is used in the early stage of China, and during this stage, "Temporary Regulatory of Securities Issuance and Trade Administration" and "Securities Law" have been issued but the state council has not decided to govern the financial industry and proposed separated industry administrating idea. The securities department of the bank sold the new securities as the agent, and the underwriters did not purchase the stocks and only collected commission according to the amount of the sold stocks.
Stand-by underwriting	After 11 th , April 1991	After Shanghai Securities Exchange and Shenzhen Securities Exchange were officially set up, most IPOs of China adopted this mechanism, that is, the underwriters purchased all the unsold stocks and they received underwriting fees according to the proportion of the collected funds.



Culture Clash: A Case Study of Rover and BMW

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Abstract

This paper examines the culture clash at Rover when BMW took over the company from British Aerospace. Research has shown that the globalisation of business across national and cultural boundaries has resulted in some culture-clashes and there has also been an increase in interest in the impact of culture on business. This paper explains the breakdown in communication and the different approaches to car manufacturing in Rover under BMW's ownership.

Both Rover and BMW were symbols of national pride and therefore deeply embedded in their own culture. When BMW took over the Rover group, the company was making profits and Rover had won numerous quality awards. Six years later, BMW decided to sell Rover at a substantial loss but retained the new mini which has been very successful. Although some of the problems faced by BMW were outside their control, the culture clash certainly exacerbated the problem.

Keywords: Management, Culture, Rover, BMW

1. Introduction

This paper examines the culture clash at Rover when BMW took over the company from British Aerospace. Research has shown that the globalisation of business across national and cultural boundaries has resulted in an increase in culture-clashes and there has been an increase in interest in the impact of culture on business. This paper explains the breakdown in communication and the different approaches to car manufacturing in Rover under BMW's ownership.

Both Rover and BMW were symbols of national pride and therefore deeply embedded in their own culture. When BMW took over the Rover group, the company was making profits and Rover had won numerous quality awards. Six years later, BMW decided to sell Rover at a substantial loss but retained the new mini which has been very successful. Although some of the problems faced by BMW were outside their control, the culture clash certainly exacerbated the problem.

This paper examines the culture clash at Rover when BMW took over the company from British Aerospace. British Aerospace had turned the company around since the purchase of Rover from the government and the company had also been hailed as the learning business. When BMW took over there was a culture clash and the company was eventually sold to Phoenix after substantial losses.

It can be said that culture has a fundamental impact on the way that a business is run and that it is not an easy task to superimpose a management style on another company, especially in another country. Both BMW and Rover are important in their own country, deeply rooted in the British and German cultures as symbols of their national pride.

This study was carried out in order to discover the reasons for the culture clash between Rover and BMW and how they contributed to the failure of the take-over. Also how the differences in approaches between the two companies became irreconcilable, and primarily what were the lessons to be learned and how to overcome culture clashes in the future.

The aim is to look at the impact of cultural factors on the failure of BMW's management of Rover and whether there were critical factors that can be identified as causing problems. The take-over was based on achieving economies of scale and that combining the two companies would benefit both BMW and Rover because it would give the combined company a bigger market share. This question is how can an efficient management such as BMW lose its effectiveness when transferred across national and cultural boundaries.

This paper also looks at the way that cultural diversity can have an impact on communication, human resources, research and development, and other key areas. The problems of communicating in a different language, training, sharing information and knowledge and telephone conversations can all be affected, particularly when the business in question is based on engineering and technology. This paper tries to explain the reasons for the failure of the take-over, and the different cultural approaches to management.

This study aims to discover the importance of cultural factors in applying management techniques from one country to another. Successful international organisations have managed to overcome cultural diversity in a variety of ways. This

paper looks at the way in which Rover managed to turn itself around by re-inventing itself as a learning organisation and how that contributed to the culture clash with BMW.

2. Corporate Culture

The globalisation of business across national and cultural boundaries will result in an increase in culture-clashes. Frey-Ridgway (1997) notes that differences in management style and organisational behaviour can often be traced back to cultural influences. There has been an increase in interest in the impact of culture on business (Hofstede, 1993, Trompenaars, 1995). Hofstede (1993) notes that management practices differ throughout the world and may deviate considerably from the American model.

Culture shapes people's sense of identity and affects their behaviour and differences in management style and organisational can be traced back to cultural diversity (Frey-Ridgway, 1997). Culture can have an underlying impact on management, and can shape identity, attitudes and behaviour.

Hofstede (1993) outlines the dimensions of culture as power distance, individualism, masculinity and uncertainty. All societies are unequal but some are more equal than others. Power distance can be defined as the degree of inequality among people, from relatively equal which can be described as a small power distance, to extremely unequal i.e. large power distance. Individualism is the degree to which people act as individuals rather than as groups and the opposite of individualism is collectivism. The third dimension is masculinity and its opposite is femininity. This is the degree to which masculine traits such as assertiveness, performance, success and competition prevail over the more feminine values such as quality of life, personal relationships, care for the weak and solidarity, which are associated with women's roles in society. The fourth dimension, uncertainty avoidance, can be defined as the degree to which people prefer structured rather than unstructured situations. Structured situations are those where there are clear rules about behaviour which may be unwritten and imposed by tradition. A society with strong uncertainty avoidance can be called rigid and one with a low uncertainty avoidance, flexible.

In Germany an engineering qualification is highly valued and the traditional role into top management has been from an engineering apprenticeship. German workers generally do not therefore need a manager to motivate them, but an engineer to assign them their tasks and to be technically competent. Management in the US is generally highly individualistic and short-term oriented whereas in Germany it is less individualistic (Hofstede, 1993). Also organisations in Germany represent a more structured model as opposed to the organisation as a 'market' in the US management model. This paper illustrates the cultural clashes that appeared when BMW took over Rover and tried to impose the German management culture on a company that has turned itself around from losses into profitability through encouraging learning.

This paper examines how national culture in Germany and the UK affected corporate culture in Rover and BMW and the failure to understand the differences in both national and corporate culture contributed to the problems with BMW's take-over of the Rover Group.

3. Cultural Diversity in Business

What is culture in a management context? Schein (1985) defines culture as the way in which a group of people solves problems. According to Hofstede (1993),

'Culture is the collective programming of the mind which distinguishes one group or category from another'.

According to Trompenaars (1993) culture comes in layers 'like an onion' and that to understand it you have to look at the different layers. An organisation may look very similar from the outside with similar functions and hierarchical structures etc. but underneath, there may be a fundamental difference in culture. This was certainly the case with Rover and BMW. On the surface, they were both car manufacturers with similar functions and hierarchies but with fundamentally different management cultures.

Cultures also have different levels and can be separated into national, corporate and professional. National culture is French or German, for example. Corporate culture is at the organisational level and people will have professional cultures.

Despite the superficial similarities in organisations there will be different approaches and understanding for people from different cultures. Although culture affects all aspects of the organisational culture, management processes and attitudes often fail to take these into account. An example of this was EuroDisney where initially the French staff failed to accept the American culture that was being imposed on them.

The layers of culture start with explicit products such as buildings, language, food, dress etc. The middle layer is the norms and values of the culture. Norms can include legal and social frameworks, politics and religion. The core of the onion is the basic assumptions of how people live their out lives, often based on historical and geographical factors. As people have developed in different geographical conditions, for example, they have evolved a different way of surviving.

According to Geertz (1973) culture is the means by which people communicate and develop their knowledge. However, even within different cultures there are differences but often it is the differences rather than the similarities which are noticed and these often lead to stereotypes which exaggerate and caricaturises cultural differences.

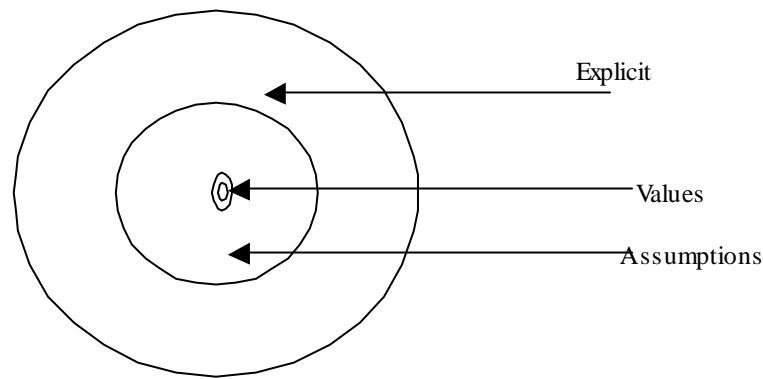


Figure 1. Layers of culture

(Adapted from Trompenaars, 1993)

Language is a clear illustration of cultural differences and other non-verbal forms of greeting and touching can be different in different cultures. German culture relies on formal structures and any changes have to be formalised than agreed as in British organisational culture (Hampden-Turner, 1991). These differences in culture between the British and German national and management cultures, as well as a different language, caused some fundamental problems for BMW when they decided to take over the Rover group. The next section looks at the learning organisation culture, which was developed in the Rover Group prior to the take-over.

4. Background

In the late 1980's losses at the Rover group were £100 million a year, quality was low and employee morale was getting lower. By 1996, the situation had been turned around. The company was making profits, international sales had doubled and Rover had won numerous quality awards. The new Range Rover and the Rover 600 were selling well. By 1994 profits were £56 million a year. Both top management and employees attributed the turnaround to Rover's learning organisation initiatives.

The Rover Learning Business (RLB) was created as a company within a company in 1990. Graham Day stated that the company had to learn if it was to compete globally. The RLB was to provide a new culture for Rover, a learning culture and this was to transform the company from its previous 'resistant to change' culture into a fast learning 'success through people' culture (Taylor, 1997).

When BMW purchased Rover there were concerns that the last British volume car manufacturer was to be sold. Rover was the largest single employer in the West Midlands with 33,000 employees, of whom 22,000 were employed in Solihull and Longbridge.

The advantages for BMW were seen as the ability to enter new market segments and increase its share of the European car market considerably. BMW also acquired expertise in small front-wheel drive vehicles and the cars could be sold under the Rover name, avoiding the dilution of the BMW brand image (Miller, 1994). BMW wanted to gain four-wheel drive capability as it was one of the fastest growing segments of the market. Range Rover, a strong brand name in the luxury end of the market, would be sold through BMW's networks. The advantages for Rover included investment in technology and engineering.

5. Research Method

The case method was chosen for this study as it provides the opportunity to gain an in-depth understanding of the impact of cultural diversity facing the management of BMW following its take-over of Rover. Yin (1994) states that the single case study can be used to observe and analyse in greater depth than would be possible with any other method. In addition, given the fact that Rover was the only remaining British mass car manufacturer prior to the take-over, and that BMW was German, the circumstances were therefore unique. Extensive interviews were conducted with one of the founders of the Rover Learning Business. A lifelong Rover employee, he saw at first hand the many changes that Rover went through, particularly the take-overs by BAe and BMW.

6. Rover

Rover made its first car in 1904 and then became part of British Motor Holdings. British Motor Holdings and Leyland merged in 1968 to become British Leyland, which included Austin, Jaguar, Land Rover, Morris, Triumph and Wolseley as well as Rover. By 1973 the successful Leyland Truck division was supporting the losses in the car division. In 1975 the government nationalised British Leyland. British Leyland continued to make losses and Margaret Thatcher brought in Graham Day. Day sorted out the production problems and moved Rover upmarket with Honda's support. The truck division was sold to DAF and the buses to Volvo, the spare parts to Unipart to a financial group and Rover to BAE. The successful alliance with

Honda meant that Rover increased sales by 15% in the early 1990's. This was partly due to the success of Land Rover as the four-wheel drive market grew. The Rover 400, 600 and 800 were basically Honda's and the strategic alliance between Rover and Honda was very successful.

Rover and Honda signed a licensing agreement in 1978 and in 1988 British Aerospace bought the Rover Group in 1988. British Aerospace agreed not to sell Rover until 1993. The recession in the early 1990's affected Rover and they reported losses of £8 million in February 1992 including a £45 million write-off as a result of withdrawing from the US market (Potter, 1995). In 1992, George Simpson, the MD of Rover started a major re-structuring of the business based on Japanese HRM principles which included a 'jobs for life' guarantee. Honda's 20% involvement helped it move up-market but it was considered too small to operate as an independent manufacturer. By 1993 the alliance with Honda had led to an improvement in quality and Honda was able to sell the Discovery as the Honda Crossroad in Japan.

In 1989 Rover's George Simpson declared a new vision for the Rover group 'to become internationally renowned for extraordinary customer satisfaction'. The company had been operating for decades previously without a vision and this one surprisingly had nothing to do with cars. The vision had been prepared after a long consultation process involving hundreds of people. A two-day workshop was organised to decide how to deliver this vision and four objectives were articulated as part of this vision. The objectives were as follows:

- (1) Quality. To be in the first three of league tables of European manufacturers, in a quality league in each product sector e. g. small cars.
- (2) Exports. To become internally renowned and sell 50% of vehicles abroad.
- (3) Costs. To reduce costs by 30%. If costs could be reduced by 30% when the company would make bigger profits.
- (4) Image and Reputation. Rover wanted to change the market niche from the one they were in and go up-market to compete with Saab and Volvo.

At this event, fourteen project teams were put together to achieve these objectives.

'These objectives were considered so ambitious that the majority of people thought we would never do it.'

Each project team was linked to a strategic initiative and was led by a main board director. Each director assembled their or her own project team. The idea was that progress would be achieved through people and that people were the key to achieving these objectives.

The idea was to develop the Rover Learning Business as a business within a business, to develop the learning culture. The idea started from 3 people and was to be applied to 40,000. By 1997, the Rover Group was acknowledged as a leader in the field and given an award for the best learning business. The name of the project was changed from Progress Through People to Success Through People at the board meeting in November 1989. This strategic initiative was the first to go public. Graham Day was the Chairman of the Rover Group in 1989.

One of the keys to the success of the Rover Learning Group was that all the employees had two employers, Rover and the Rover Learning Group. The Rover Learning Group was a business within the business, a subsidiary for motivating and implementing the learning culture. Initially, only three people were involved in the idea and the concept had to be rolled out to 40,000. The whole process took approximately nine months.

Another key factor was the involvement of key people. The Rover Learning Group was approved at the Rover main board in November 1989. The title of the project was 'Success Through People'. The previous board issue had been the poor quality of Range Rover in the USA, which had necessitated a lot of rectification work. The Board members were not in a mood to consider new projects but there was agreement in principle to the idea. All the main board members were invited to be on the executive operating committee to build the infrastructure within the company. Key managers such as the manufacturing director at Longbridge and the Managing Director of the parts division were involved in the project.

The support of Sir Graham Day, the chairman of the Rover Group, was also crucial to the success of the project. When Day launched the scheme in a speech to the city in March 1990 he introduced the project by stating what he had found when he came to the UK on the state of training in the UK and what Rover was going to do. Day also agreed to chair the Rover Learning Group. This was considered very important to the credibility of the Rover Learning Group. As one person said,

'As soon as he said yes, everyone in the company knew this was important because Graham Day does not back losers'.

The Rover Learning Business was credited with the change from the situation when British Aerospace bought Rover in 1988 for £150 million to six years later when BMW bought Rover for £800 million. In addition, BMW also took on Rover's debts. In 1988 no one else made an offer for Rover and the government offered 'sweeteners' to BAe to take over the company. Six years later, several companies were interested in Rover and BMW brought the company in a take-over which took everyone by surprise, including Honda, Rover's partner.

The reason for the turnaround in the company's fortunes in the six years during BAe's ownership was achieving change through people. Rover could not afford to invest in new technology so the only thing they could invest in was the people

who worked for the company.

'The only thing we could invest in was the people because we did not have enough to invest in anything else'.

The company started making a profit after many years of making substantial losses. Very little was invested in systems or capital equipment. The main investment was in people's time. The Rover Learning Business was the focal point of this investment.

7. Rover Learning Business

Learning organisations focus on learning, which challenges existing values, procedures and knowledge to develop a new organisational model. According to Henderson (1997), the problem with organisational learning is that it focuses on overcoming learning obstacles. However, if learning obstacles were overcome, managers would be inundated with the latest management techniques and would therefore become less efficient.

What is a learning organisation? A learning organisation is one that improves performance through learning, invests in education and training and encourages people to fulfil their potential (Taylor, 1997). Other characteristics of a learning organisation include the communication of its vision for the future, and encouraging its employees to improve quality and continuous innovation.

'If the company seeks to survive and prosper, it must learn' (Graham Day, Chairman, Rover Group).

It was recognised that the key to achieving Rover's four strategic objectives was through the people who worked for Rover. The success of the RLB was that it changed the culture within Rover. Profits and turnover per person increased and warranty costs were reduced. Rover became acknowledged as a world leader in organisational learning and received several awards. This expertise was recognised by other countries and organisations and representatives from RLB went all over the world to help them create a learning culture so that they could implement change.

The board members of the Rover Learning Business were all influential people. They included Sir Graham Day, the Chairman of the Rover group, Baroness Blackstone, Principal of Birkbeck College and Minister for Lifelong Learning, the Hon. Sarah Morrison, main board member of GEC, George Bain, the principal of the London Business School, Professor Charles Bahn, City University, New York, Professor Peter Toyne, Vice Chancellor of Liverpool John Moores University and Derek Gladwin, now Lord Gladwin, a senior union official.

The Rover Learning Business was linked to the quality strategy. This was outlined on one sheet of A3 paper, which included the vision, business objectives, and accountability for the Quality Strategy including the nine main business processes. The nine business processes were chosen as the ones that would add the most value for achieving the business objectives. Included in the nine business processes was one on Corporate Learning. Each of the nine business processes was identified as either a primary driver or a related driver to the four business objectives. Corporate Learning was one of three business processes that was a primary driver to all the business objectives.

The definition of Corporate Learning used by Rover was 'the process by which growth is managed through people who want or need to learn'. The vision for Corporate Learning was to become the 'world best learning company' by the end of 1995. Actions for individuals included £100 for any employee to learn about the subject of their own choice, which was non-vocational. This was known as REAL - Rover Employee Assisted Learning. Each employee also had their own personal development plan agreed with his or her line manager. Employees were also encouraged to use their own preferred learning style and to keep an annual learning diary. The idea was that everyone would learn in an environment conducive to learning and on subjects which would improve the performance of the business.

The purpose of the Rover Learning Business was to create an environment for continuous learning and have a leadership role for the corporate learning process within the Rover Group's quality strategy. The Rover Learning Business fulfilled this role in Rover until the BMW take-over.

Improving quality was essential for Rover and the principles of corporate learning were based on those of Total Quality Management including the following:

- (1) Continuous improvement
- (2) Management led
- (3) Everyone responsible for quality
- (4) Company-wide
- (5) Cost of Quality

(Source: Taylor, 1997)

One of the fundamental aspects of the Corporate Learning initiative was that the top management were meant to be fully involved. Each of the Rover Group members was to participate in the Rover Learning Business. The Rover Learning Business was based on simple procedures and a lack of bureaucracy. The underlying philosophy of Rover Learning was 'success through people'. Employees were encouraged to take responsibility for their own learning and development. Each

Rover site was fitted with open learning facilities, which were open to all employees. The change in emphasis from the late 1980's and early 1990's was from a 'training' culture to a 'learning' culture (Taylor, 1997). RLB's mission was to create a culture of 'continuous learning' within Rover in order to achieve its business objectives. The training departments were re-named the training and development departments and Rover was awarded the title 'world learning organisation' in Canada in 1997.

8. BMW and Rover

BMW was still profitable in the early 1990's but like Rover, it was too small and the company needed to expand its range to compete with the larger manufacturers. BMW was particularly interested in Land Rover, and Rover's four wheel-drive capability. Honda had the first option to buy the remaining equity in Rover. In 1994, BMW made an offer to buy Rover for £800 million and take on a £900 million in net debt and off balance sheet finance. Honda was offered 51% of Rover but refused and subsequently the managers were very upset about the BMW deal. BAe had put its shareholders first but Honda felt that their trust had been betrayed (Potter, 1995). Pischetsreider, the Chairman of BMW, wanted to turn Rover into a strong and exclusive brand like BMW.

In the 1990's Rover had a strong brand image as 'the ultimate driving machine' and BMW was the car of the yuppies in the 1980's (HBS, 1993). The brand was promoted as a performance car at a reasonable price that retained its value and second hand car prices were maintained. BMW emphasised quality and performance in its advertisements and offered a range of models and prices in terms of prestige and size. BMW cars were sold on the basis of the engineering. BMW exported most of its cars and exports rose from 70% of sales in 1995 to 80% in 1997 (Potter, 1998).

After the acquisition of Rover, BMW planned an investment of £500 million per year in the UK in order to counteract the decades of low investment in plant and machinery (Potter, 1998). By October 1996 all key management and marketing positions within Rover were filled with BMW personnel. BMW also planned to rationalise the operational aspects of BMW and to merge the supplier networks and engineering activities whilst at the same time increasing Rover sales to 800 cars per annum. The idea was to combine BMW's high technology approach to car manufacturing to Rover's appeal for lifestyle. In 1996 Rover launched the Freelander, the new small Land Rover. BMW also announced plans to invest £400 million in a new engine plant in the UK. In 1996, Rover exported 50% of sales but made losses of £100 million.

John Towers was the Managing Director of Rover after the BMW take-over, Bert Pischetsreider was the Chairman of BMW and Rover. He wanted the company to work together and to learn from each other. BMW had six main committees to organise the company. None of the six committees were on people. They were on things such as purchasing and engineering. Bert Pischetsreider tried to impose a different culture on Rover. John Towers wanted to introduce BMW to Rover Learning. Bert Pischetsreider only visited Rover once a month but John Towers took him to the Rover Learning Business to meet the board members.

After eighteen months Bert Pischetsreider stepped down as Chairman and Wolfgang Reisler, the second in command at BMW, was appointed Chairman. John Towers left Rover but he remained Chairman of Rover Learning Business until 1996. BMW appointed Walter Hasselkiss as Chief Executive. By 1997, when Hasselkiss took over, the pound had started to rise against other currencies and this posed a serious problem for Rover's exports. The customer base by now was 60% international. BMW also intended to invest heavily in engineering and the pound's strength meant that this investment would become more expensive for BMW.

By 1997 the high value of sterling was beginning to cause serious problems for BMW and the Rover could not make a profit. BMW's board started to get concerned and started calling Rover, 'the English patient'. Several of the Rover senior managers, including Pieschreider, Reisler and Hasselkiss were sacked. BMW were looking for scapegoats.

By now the culture at Rover was changing rapidly. From a hands-off management style, BMW had taken control of every decision and the company was being managed from Munich. BMW applied German management practices to Rover and insisted on total control, discipline and all instructions had to be followed to the letter.

'The culture went from hands-off to down your throat.'

One of the casualties was the Rover Learning Business, which was disbanded as a department in 1997. Rover was by this time winning awards for being a learning organisation but the losses were mounting for BMW. Joachim Miller was appointed Chairman and Chief Executive and the decision was made in to sell the company. BMW lost £3 billion and sold the company for £1.8 million, keeping the mini and the new mini.

9. Implications

One of the problems with German management is that HRM management has a low status (Radlesome, 2000) whereas engineering qualifications are highly regarded. The Rover approach was rooted in the Total Quality Management techniques adopted by the Japanese. Car manufacturers in Japan had adopted the TQM techniques since the 1940's and had used them to improve the quality of their cars and their management. Rover had had links with Honda and this may have reinforced the TQM approach.

Take-overs of companies in other countries can be risky as in the case of Marks and Spencer's take-over of Brooks Brothers in the US. BMW's take-over of Rover was ambitious. On the surface, both companies were car manufacturers and there were obvious economies of scale. However, both companies were deeply rooted in their own national culture and the cars were a source of national pride.

BMW's take-over of Rover failed for a number of reasons. However, cultural factors did play an important part in this failure. The German management culture is precise and regulated whereas British management culture is less formal. Although both firms were car manufacturers, this only emphasised the difference as engineering has a high status in Germany and an engineering qualification is highly valued.

Traditionally, Rover would have been closer to BMW on Hofstede's cultural dimensions, particularly masculinity and uncertainty avoidance. Given that Anglo-Saxon culture originally came from Northern Europe and that Rover's roots were in engineering, the scale of the culture clash was probably unexpected. The development of the learning culture at Rover, however, was more feminine and unstructured which is closer to the Japanese management culture than the traditional engineering culture which prevailed at Rover before the link with Honda. It is clear that the links with Honda had a deeper effect on the culture than was apparent. The question is whether BMW's approach would have been different if they had known this. It is possible that a deeper understanding of the national and management culture at Rover would have helped BMW.

It can be concluded from this study that cultural differences, both national and managerial, can have a considerable impact on the success or failure of mergers and take-overs in different countries. International businesses such as HSBC recognise cultural diversity whereas others apparently ignore them although organisations such as McDonalds have local managers who are encouraged to join local business networks. Recognising cultural diversity is important, not only on a social level, but also in business.

10. Conclusion

By May 2000, Rover was in crisis. The Quandt family had decided that they could no longer sustain losses at Rover and decided to put the company up for sale. The initial buyer was Alchemy but Alchemy was viewed as an asset stripper and there were concerns that there would be severe job losses. A consortium led by Rover's former chief executive, John Towers, Phoenix, bought the company. The unions favoured the Phoenix bid because it planned to retain mass production, and although sales initially increased due to discounts and support for Rover, it failed to make a profit and went into receivership in 2005.

BMW had decided to withdraw from Rover and to concentrate on the new mini. The strategy of concentrating on the one model appears to be working with sales doing well, although there were initial losses. BMW decided to build a new manufacturing plant and start from scratch rather than build at Longbridge and face the same problems as before. This was expensive but now BMW and the new mini has been a success. BMW's current strategy is to grow from within rather than by acquisition.

Although some of the problems faced by BMW were outside their control, in particular the strong pound, the culture clash certainly exacerbated the problem. Rover had turned the company around by investing and empowering its employees. BMW's approach was to invest in the engineering side of the business and resume total control. The overall effect was to increase losses at Rover to a level that BMW could not sustain and Rover had to be sold. BMW managed to survive the losses from the Rover take-over and turn itself around by developing new models. It is clear that cultural factors can make it difficult to impose a management style on another company, especially when it is in a different country with a different language. Taking cultural factors into account is essential if such ventures are to succeed.

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Optimal Investment Decision on Open-end Funds

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Abstract

The study of open-end fund is conducted in this paper in terms of the theory of Random process and the theory of Sequential Decision, which based on the benefit of investors and the cost of transaction (commission occurred in the transaction). In addition the thesis introduces the method of factor of random discounting, by which investors can choose the optimal way of investment, which is calculated in an analogue case.

Keywords: Umbrella funds, Open-end funds, Sequential decision, Ergodicity

1. Introduction

In 2001 Open-end fund was introduced into China. The fund is characterized by refund, less risk and more income. But the problem is that in China the fund is only used in few financial products and manipulated in a similar way. The way of investment is all alike. The introduction of the "Securities Investment Fund Law" and QFII (qualified foreign institutional investors scheme) will undoubtedly promote the function of the orderly market, and enforce regulations and law, which provides a good opportunity for fund development. The new variety of fund will emerge continuously; the type of product design will be more varied. The fund companies such as Xiang Cai Hefeng, China Merchants, Jiashi, Cathay Pacific and a number of fund management companies have designed Umbrella Fund that is also adapted to the demand of the market. This problem has been studied previously (Yao Er-qiang, 1998, pp.455). Umbrella Fund refers to a mother in a number of sub-funds established under the Fund. They are of independent management. In the conversion between the funds the cost is lower or zero. Of Umbrella funds in Europe, the United States and Hong Kong, the proportion is as high as 60%. It is expected to reach 70% -80% in China. It can meet the demand of different investors in the investing objective, direction and areas. The products under the same brand can appeal to investors with different preferences, enjoy the advantages of the scale of economy and lower the cost of administration. Also will some new types of open-end fund such as (SR recorded as LOF), index funds, secured capital funds, futures funds and other fund come out. Among them, investors have to be faced with the dilemma of choosing to which one is the most profitable. That makes up one of the subjects worth studying.

First, investors can choose fund in terms of its performance. Because Securities Investment Fund has just been introduced into China, the approach of valuation adopted in the west is not suitable in China. And the valuation organizations in China are not yet recognized as the just authorities and performance of fund is so fluctuated that speculation is wild. This problem has been studied previously (Wu Qi-fang, 2003, pp.33). Second, the anticipated profit that fund management company promise is not deducted from the proceeds related to the cost which occurs in liquidity of fund which reported by Liu Hailong (2003, pp.217) and Edelen, R. (1999, pp.439-466). Because investors would purchase and redempt fund, conversion and pay higher transaction costs. All fund management companies are competing for rates and take rates progressive decline, back-end fees, the redemption rate or conversion rate of 0, and other measures Managerial experience from Europe and the United States, high-yield can bring in high costs and high costs come from the investors transaction costs. So from a long-term development, competitive rates will be maintained at a certain level. In addition, China's foreign fund compared with the size of a far cry from, but it is closer to the level of rates, leading fund management companies operating difficulties. Therefore, the choice of investment fund investors must consider transaction costs.

In this paper, we make a research on the medium and small investors, because the transactions rates are relatively fixed for

them, and transaction costs directly affect the profit number. In the course of the study, with discounts to the sequential theory-based decision-making process, and in accordance with open-end fund investment existence of two rates are different from the past, the discount factor random formula, the establishment of a model, through calculating, the optimal draw more accurate decision-making.

2. Sequential basic tenets of the decision-making process

Markov process with the assumption that a state of N , from the state i to the state j has shifted to step k ways, each way recorded as $1, 2, k, \dots, K$, the probability of occurrence for the k transfer p_{ij}^k , for the corresponding profit r_{ij}^k ,

$v_i(n)$ said from the beginning i of the transfer n of maximum profit, and the following recursive relationship

between $v_i(n+1)$ and $v_j(n)$

$$v_i(n+1) = \max_k \sum_{j=1}^N p_{ij}^k [r_{ij}^k + v_j(n)] \quad i = 1, 2, \dots, N \quad (1)$$

If

$$q_i^k = \sum_{j=1}^N p_{ij}^k r_{ij}^k \quad (2)$$

Then (1) can be written as

$$v_i(n+1) = \max_k [q_i^k + \sum_{j=1}^N p_{ij}^k v_j(n)] \quad (3)$$

Above q_i^k ground state i with the first k form of a transfer of the average profit (profit expectations).

Now considering the process of transfer of part of the loss, the introduction of random discount factor α_i^k, λ_j^k . From

(3) losses can be divided into two parts: one part state i with the first k form of a transfer of the average to state j ,

Have to pay the cost ratio is the ratio recorded as losses λ_j^k , then (3) can be changed into

$$v_i(n+1) = \max_k [(1 - \alpha_i^k) q_i^k + \sum_{j=1}^N (1 - \lambda_j^k) p_{ij}^k v_j(n)] \quad (3')$$

$v_i(n+1)$ means started from the state i that the transfer of the $n+1$ times. α_i^k means from the state i of the k

form of a transfer to loss ratio of j . λ_j^k is the N -step transfer of the remaining loss ratio.

We know alignment of the Markov chain has the following theorem. (G. B. Gnedenko, 1956 and Wang Zi-kun, 1976).

Theorem 1: With a $S+1$ finite state of the homogeneous Markov chain $\{\xi_n\}$, if the existence of positive integers n_0 ,

made of all $i, j = 0, 1, 2, \dots, s$ exist $p_{ij}(n_0) > 0$, this Markov chain is through the state, that is, when the number

$n \rightarrow \infty$ transfer probability exists Limit

$$\lim_{n \rightarrow \infty} p_{ij}(n) = \pi_j \quad (4)$$

The beginning has nothing to do with the state of i , π_j meet equations

$$\pi_j = \sum_{i=0}^s \pi_i p_{ij} \quad (j = 0, 1, 2, \dots, s)$$

And

$$\pi_j > 0 \quad \sum_{j=0}^s \pi_j = 1 \quad (5)$$

is the only solution.

Now considering all the states through the N -state Markov process. Assuming that the transfer process can be long-term, and considering the process depends on the total expected profit frequency of the transfer system, the total number of transfers n profit with the increase of constantly changing. Because the process is after all the states, there is a probability π_i limit state has nothing to do with the initial state. Basing (3) where each transfer with a way to use the k , can be removed from the right side of great symbolic value \max_k , Anything dealing with the two sides of the Z-transform from the literature available:

$$v_i(n) = ng_i^k + v_i \quad (6)$$

This is that abscissa is n , Y-axis equation is $v_i(n)$ for coordinate surface point $(n, v_i(n))$ changing an artwork when

$n \rightarrow \infty$, which is the approximation line. v_i is the approximation line nodal increment on the axis of bank, at present

$$g_i^k = \sum_{j=1}^N \pi_j q_j^k \quad (7)$$

g_i^k : from state i begins to change n times, and average changing under k kinds of metastasis way every time in

mansion earns profit when pretty big. q_j^k : Be that many times we use k kinds of way to begin to change from state j ,

the transferred average earns profit every time. When thinking that process is chain only when one cycles and every state gets through, so it is having same earning profit g after all beginning state changes many times suitable, see R. A. Howard in 1963.

$$g = \sum_{j=1}^N \pi_j q_j \quad (8)$$

Now (6) becomes

$$v_i(n) = ng + v_i \quad i = 1, 2, \dots, N \quad (9)$$

Put (9) style into (3) style is got on the right,

$$v_i(n+1) = \max_k [q_i^k + ng + \sum_{j=1}^N p_{ij}^k v_j]$$

Be that (10) style is write be accomplished

$$v_i(n+1) = \max_k w_i^k + ng \quad (10)$$

Can use as the checkout number that every state asks to maximization, n in style (4) and style (9) exchange into $n+1$, we get

$$v_i(n+1) = (n+1)g + v_i \quad i = 1, 2, \dots, N$$

Which right holds substitution arriving at

$$v_i(n+1) = [q_i^k + \sum_{j=1}^N p_{ij}^k v_j(n) + ng]$$

Get a set of equations

$$g + v_i = q_i^k + \sum_{j=1}^N p_{ij}^k v_j \quad i = 1, 2, \dots, N \quad (11)$$

Considering the loss part when the process is changing, introducing random discount factor, (11) style become:

$$g + v_i = (1 - \alpha_i^k) q_i^k + \sum_{j=1}^N (1 - \lambda_j^k) p_{ij}^k v_j \quad i = 1, 2, \dots, N \quad (11')$$

3. Order passes through the decision process algorithm step

Order birthplace decision process algorithm as follows:

First step:

Order $t = 1$, $v_j(0) = 0$ Calculate the checkout number $w_i^k = (1 - \alpha_i^k)$, $q_i^k = \sum_{j=1}^N (1 - \alpha_i^k) p_{ij}^k r_{ij}^k$. when

$$w_i^l = \max_{1 \leq k \leq K} w_i^k, \text{ order } l = d_i^1, i = 1, 2, \dots, N.$$

Be once optimized decision-making $D^1 = (d_1^1, d_2^1, \dots, d_N^1)^T$. calculate $q_i^{d_i^1} = \sum_{j=1}^N (1 - \alpha_i^{d_i^1}) p_{ij}^{d_i^1} r_{ij}^{d_i^1}$ (12)

Solve a set of equations,

$$g + v_i = (1 - \alpha_i^{d_i^1}) q_i^{d_i^1} + \sum_{j=1}^N (1 - \lambda_j^{d_i^1}) p_{ij}^{d_i^1} v_j, i = 1, 2, \dots, N. \text{ gain that } g, v_1, v_2, \dots, v_N.$$

Second step: order $t=2$

Calculate the checkout number $w_i^k = (1 - \alpha_i^k) q_i^k + \sum_{j=1}^N (1 - \lambda_j^k) p_{ij}^k v_j$, when $w_i^l = \max_{1 \leq k \leq K} w_i^k$, order

$$d_i^2 = l, i = 1, 2, \dots, N.$$

Have to optimize decision-making the 2nd time $D^2 = (d_1^2, d_2^2, \dots, d_N^2)^T$.

As above recursion until the mansion t step, calculate

$$q_i^{d_i^t} = \sum_{j=1}^N p_{ij}^{d_i^t} r_{ij}^{d_i^t} \quad (13)$$

Solve a set of equations

$$g + v_i = (1 - \alpha_i^{d_i^t}) q_i^{d_i^t} + \sum_{j=1}^N (1 - \lambda_j^{d_i^t}) p_{ij}^{d_i^t} v_j \quad i = 1, 2, \dots, N \quad (14)$$

Gain that g, v_1, v_2, \dots, v_N .

Calculate $\lambda = |D^t - D^{t-1}|$, when $\lambda \leq \varepsilon$, stop order birthplace iteration, g is to be that the maximum earns profit. Otherwise, order $t = t + 1$, shift to the mansion t step.

In the arbitrarily ε is small positive number which is being appointed as to shifting to an earlier date in algorithm,

$|(\cdot)|$ expresses the vector model. Reason is demonstrable $v_N = 0$ does not affect the person optimizing result in untying

set of equations process middle order. And reason is demonstrable, if tactics B earning profit is $\text{slap } g^B$, iteration tactics

of time as soon as order birthplace A earning profit is $\text{slap } g^A$, then $g^A \geq g^B$, which reported by R. A. Howard in

1963.

4. Open-end funds investment decision calculates an example

Following ascertains the open-ended fund investment decision considering transaction costs according to iteration method of tactics.

4.1 Fundamental hypotheses

- (1). Assumes that the investor invests in a single day, redeems or changes a fund, but calls back a fund no forever or.
- (2). Assumes that the fund management company wants to long range to continue to manage, and every kind of type fund there exists in long range.

4.2 Variables explanation

Since our country fund manages lower open-ended fund of company flag great majority at present, that every fund manages the lower fund of company flag only when are one future may be a various type's affirmatively. Think that the event composing condition's has pure probability in the process of Markov. Consider a series of random experiments, at every time the experiment is only limited or countable be the fundamental event more infinitely $A_i (i=1, 2, 3, \dots)$ may happen. Say system is in state right away A_i . This problem moves downwards in fundamental hypothesis premise, we can manage a

company being regarded as state with every fund, buying different type fund under the flag being regarded as metastasis way, the stock fund, bond fund, balance fund wait for instance. Then thinking that every fund manages company's every kind of type fund is investment, some funds which the investor is invested in surely manage some company's kind of type funds. Umbrella shape fund is appearing, feasible fund type enriches especially, choice foundation of investor is

more. Change probability being able to do estimation from history data, difference of earning profit being able to win front and back two funds avails according to metastasis process asks for. Random discount factor α_i^k representing to buy the kind of type k fund the mansion i fund manage company mansion buys rate, λ_j^k representing surplus n changes every step transferred rate, it can give to out from underneath formula

$$1 - \lambda_j^k = (1 - \alpha_j^p)(1 - \beta_i^m) \quad i = 1, 2, \dots, N \quad j = 1, 2, \dots, N \quad (15)$$

When $i \neq j$, β_i^m representing to redeem the i fund managing the m kind of type fund rate, α_j^p representing to buy the kind of type p fund from the j fund manage company the buying rate. When $i=j$, β_i^m representing redeems rate to be 0; $(m \neq p)\alpha_j^p$ representing the changing rate which is buying another type of the same company fund, It can be that 0 also can be not 0; $(m=p)\alpha_j^p = \beta_i^m = 0$, Be that the fund not being in progress changes. $1 - \beta_i^m$ representing to gain which remove the redemption rate which is the i fund management company m types funds, $1 - \alpha_j^p$ representing to remove the rate which is from the purchase of the first j fund management company first p types of funds, $1 - \lambda_j^k$ can use $(1 - \alpha_j^p)(1 - \beta_i^m)$ that be removed after the transaction costs of the actual proceeds.

4.3 Simulation examples are given below

As shown in table 1 data:

Table 1. Open-end fund initial investment decision-making data tables

State	Mode	Application rates	Transfer rates	Transfer probability		Profit		Step transfer Profit
i	k	α_i^k	λ_j^k	p_{i1}^k	p_{i2}^k	r_{i1}^k	r_{i2}^k	$(1 - \alpha_i^k)q_i^k$
1	1	1.5%	2%	0.5	0.5	9	3	5.91
	2	2%	3%	0.8	0.2	4	4	3.92
2	1	1%	1%	0.4	0.6	3	-7	-2.97
	2	1.5%	0.5%	0.3	0.7	1	-19	-12.805
	3	3%	3%	0.7	0.3	6	8	6.402

According to the data in table 1 which can be optimal investment strategy

$D = [1, 3]^T$. That is a long-term shift, the first fund management company's first type of fund benefit the most, the second fund management company third types of fund profit-largest. To calculate here is simple, relatively few data is used only on the first iteration concluded. Each iteration is in fact resulting in a corresponding transfer rate, which will eventually come to the fund of the largest fund company profits to every fund company. Such investors can choose one or more funds according to their personal preferences for investment.

4.4 The problem that should be stated

(1). Although we do not directly consider the scale of the fund putting its impact on investment decisions, but to some extent transaction costs has been reflected.

(2). In the process of calculating a fund company which has two or more types of funds is optimal strategy, the choice of different types of funds can be the biggest profit.

(3). In considering fund proceeds at the same time, we have to consider the level of risk (risk large returns, but the risks small receipts small). Because of all the different types of risks associated with the fund which is established, investors can be different risks according to their preference which will combine the optimal decision-making for investment.

5. Conclusion

In this paper the issue of open-end fund issue of the optimal has been analyzed in terms of Sequential Principle investment decision to analyze, and using random discount factor to describe transaction costs, and giving the different random discounts compare to the past with the Markov process model, which is deriving from the decision-making so that more accurate. This paper provides an investment decision-making method for investors, while provides a basis to investment fund management company to increase capacity and improve management to provides, that is, when the fund management company operate only one type of fund in long-term which has the largest profit. It also should strengthen management for other types of funds in order to improve yield rate.

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Learning Organization and Process-output Association

A Case from India

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Abstract

With rapid progress in the information and communication technologies in recent years, the demand for technical manpower in these areas has also increased. This has resulted in the establishment of a large number of institutions through out India, offering a variety of programmes towards meeting the demand. As the competition increases to a stage of threatening the survival of these institutes, the concept of 'learning organization in engineering education' is getting more significant. This paper analyses the influence of the core process of any engineering education programme - 'Teaching learning process' - in determining the important 'personal mastery' construct, the 'student performance'. Framework of the study is developed from the accreditation process of National Board of Accreditation (NBA), India. The study highlighted that for an effective learning organization, both the constituents – the teacher and the learner- should be of good quality.

Keywords: Learning organization, Process-output association, Engineering programmes

1. Introduction

Chris Argyris and Donald Schon first used the phrase "organizational learning" in a book 30 years ago. The concept of learning organization was coined to describe those organizations, which experimented with new methods of business for surviving in the highly competitive, turbulent market (Senge, 1990; Argyris and Schon, 1996). As the evolution of organizational learning continues, it can be seen that existing learning tools used more often for new purposes and the development of other learning tools to increase corporate competitive advantage (Fulmer et al, 1998). The concept is getting more and more significance as the competition increases to a stage of threatening the survival of organizations itself. With the explosion in enrollments of engineering education programmes in India, engineering colleges are also trapped in such a situation. Many colleges are in the verge of closure due to shear competition and backtracking of admission aspirants. An institute, which learns through its experience and through the individual and combined learning of its human resources, can only survive in today's circumstances.

2. Concepts of learning organizations to engineering colleges

An organization grows to a learning organization when the learning by the people within the organization is converted into the learning by the organization itself. This includes two major levels – learning by individuals and learning by the team. People at all levels, individually and collectively, should increase their capacity to produce the required results they are aiming at. In learning organizations everyone's opinions are valued and amount that people can contribute is not determined by position in the organization. To meet the challenges of competitions and to maintain the quality, management must use their most valuable assets, their human resources, in the most productive manner. Towards this end, the participative management style is gaining more and more acceptance (Jindia et al, 1995). Top-down and bottom-up communication flows; learning "up and down" the hierarchy; group self-awareness; heightened collective learning; greater cohesiveness and enhanced creativity are some of the peculiarities of a learning organization.

In Indian engineering education system, the occurrence of learning is taking place at five levels. They are student level, class level, department level, college level and university level. Top-down and bottom-up learning with in the hierarchy should be strengthened (Figure 1) to convert the system into a learning organization. Proper measures are to be taken to assure the continuous improvement of learning with in the system. Presently, no formal measures are available for the systematic assessment of learning with in the system. An attempt has been made to develop a framework from the accreditation criteria of National Board of Accreditation (NBA), which is the accreditation agency for technical education programmes in India. NBA is charged with the task of evolving a procedure for quality assessment in the technical education sector in India on the basis of specified guidelines, norms, benchmarks and criteria (NBA, 2000). They have formulated the criteria or

standards, by which the strengths and weaknesses of the individual programmes in any institution can be judged. NBA uses eight criteria (Table 1) to assess the capabilities of engineering programmes. Though these criteria of NBA are not covering all the features required for the systematic assessment of learning, by combining those variables that staggered around the various criteria of NBA, we can develop some representative measures.

Five learning disciplines are described as the basis of learning organization (Senge, 1990). They are 'Personal mastery, Mental models, Shared vision, Team learning and Systems thinking'. Categorization of various (relevant) variables of NBA under these five learning disciplines for different levels of hierarchy of engineering education system is depicted in Table 2. As the NBA accreditation is for individual programmes in a college, it cannot be utilized for measurement of learning at university level. The first criterion of NBA is for the assessment of management functioning of the college/programme. Five variables coming under this criterion can be used to represent the 'mental model' concept and another set of seven variables from the same criterion can be used to represent 'shared vision' concept of Learning Organization. 'Shared vision' at department level is represented by two variables of third criterion of NBA. The ten variables, which give the indication of 'team-learning', can be found from the last two criteria of NBA. The discipline 'personal mastery' of individuals is categorized under two levels. 'Faculty & staff level learning' can be measured through four variables of third criterion of NBA. 'Student level mastery' is evolved through the five variables of the third criterion of NBA.

The present NBA accreditation process follows a 'reductionist approach' (Breaking down the whole into parts, study each part and mechanically sum up to predict the performance of the whole). Engineering education system is an assemblage of inter- dependent, mutually interacting subsystems and hence this approach is inadequate to assess the holistic- characteristic of the system. The main feature, which is lacking in the NBA criteria, is the 'system thinking'. System thinking is the ability to see interrelationships rather than linear cause-effect; the ability to think in context and appreciate the consequences of actions on other parts of the system. Hence an entirety of measurement of organizational learning that is taking place in Indian engineering colleges/programmes is not attempted in this paper. Instead, the paper tries to find out the influence of the core process of any engineering education programme - 'Teaching learning process' - in determining the important 'personal mastery' construct, the 'student performance'.

3. Teaching learning process and Student performance

Capabilities of an organization are formed through the co-ordination and integration of activities and processes, and are the product of collective learning of individual assets (Khalid et al, 2002). In an engineering college assets are physical & financial resources, faculty, students and management. The capabilities of the college are developed by the proper utilization of these assets through the teaching-learning process. Teaching learning process is represented by the fifth criterion of NBA and assessed by the ten variables under this criterion. A principal component analysis has been conducted on these variables to find out the linear components behind them (Viswanadhan, 2004). Three components, named as 'Learning facilities', 'Instruction, evaluation and feedback' and 'Academic calendar' were emerged from the analysis.

Variables connected with student performance are coming under the fourth criterion of NBA. This criterion, which is called as 'human resources – students', contains eight variables out of which five variables are indicators of student performance. These indicator variables are 'academic results, admission to post graduate courses, performance in competitive examinations, employment in past year and employer's feedback'. A detailed study of these indicators will give a clear picture of learning occurred at the student level, programme level and even college/category level.

4. Data collection, analysis and observations

Undergraduate engineering programmes are offered by four major categories of colleges in India namely autonomous, government, aided and self-financing. NBA assessment scores of 162 undergraduate engineering programmes coming under different categories from different parts of India are collected for the study. Categorization of programmes is given in Table 3. Percentage scores of the three components representing Teaching-learning process and the five variables representing Student performance are tabulated for the analysis.

Autonomous colleges: - National Institute of Technologies (NIT) and some other high profile colleges are functioning under autonomous status in India. Most of them are 'deemed universities'. They enjoy academic, administrative as well as financial autonomy. The study resulted in the following observations about the autonomous colleges. Academic results of these colleges are very good (82%). Their graduates are getting immediate placements in reputed companies (77%). Employers are reasonably satisfied with their graduates' performance (67%). Performance in competitive exams (60%) and admission to PG programmes (63%) are not up to the mark in these institutes. Now the association of different components of teaching – learning process with the dimensions of student performance is given in Table 4. None of the student performance dimensions are correlated with 'Academic calendar'. 'Academic Results' and 'Admission to PG courses' are significantly associated with 'Learning Facilities' and 'Instruction Evaluation and Feedback'. 'Employers Feedback' is correlated only with the 'Instruction Evaluation and Feedback'. 'Performance in competitive exams' and 'Employment in last year' do not seem to have any correlation with teaching – learning process components.

Government colleges: - Central and state governments administer this second category of colleges. AICTE, state govern-

ments and universities, to which these colleges are affiliated, fix pay scales and service rules for the staff employed in these categories of institutes. University is mainly responsible for the framing of rules for the academic part of these institutes. They frame course duration, subjects to be taught, examination pattern, and the grading system. Government, based on merit as well as reservations, does student admissions. From the study, good academic results (85%) and better placements to the graduates (76%) are found to be the strengths of these programmes. The other three student performance dimensions are at the same level and also good (67%) in these colleges. The relationship of these dimensions with the teaching – learning process components are given in Table 5. The first three dimensions; ‘Academic Results’, ‘Performance in Competitive exams’ and ‘Admission to PG courses’ are significantly correlated with all the teaching – learning process components. ‘Employment in last year’ is correlated with ‘Instruction Evaluation and Feedback’ where as ‘Employers Feedback’ is not significantly correlated with any of the teaching – learning process components.

Aided colleges: - Third category of colleges is coming under grand-in-aid sector. Education societies or private bodies are managing these institutes. They take up the responsibility of providing capital assets like land, buildings, etc. Government provides salary and other working expenses to these colleges. AICTE, state governments and universities to which these colleges are affiliated, fix pay scales and service rules for the staff employed in these institutes. University frames the course duration, subjects to be taught, examination pattern, and grading system. Students are admitted to these institutes by government and management, based on merit as well as reservations basis. In the study, ‘Academic Results’ (79%) and ‘Employers Feedback’ (71%) seem to be good in these categories of colleges. Other dimensions are below the minimum requirements of NBA standards. Except for one or two outliers, the entire set of programmes considered for the study, got a 50% score for the dimension-‘Performance in Competitive exams’. Correlation structure between student performance dimensions and teaching – learning process components are shown in Table 6. Most of the bi-variate correlations found to be insignificant for aided colleges. Only the correlation of ‘Admission to PG courses’ with ‘Instruction Evaluation and Feedback’, ‘Employment in last year’ with ‘Learning Facilities’ and ‘Employers Feedback’ with ‘Academic Calendar’ are found to be significant.

Self-financing colleges: - Fourth category of colleges is working fully under self-financing basis. Education societies or private bodies, which take up the responsibility of running these institutes, are mainly responsible for providing physical facilities, teaching staff, equipments and other supporting staff for these programmes. University frames the rules for the academic part of these institutes. Students are admitted partly from the merit list prepared by the government and partly from a list prepared by the management. The study reveals that all dimensions excluding ‘Academic Results’ (78%) are at nominal level (55%) in these institutes. Bi-variate correlations are presented in Table 7 for further analysis. Most of the associations between the performance dimensions and process components are found to be insignificant for these colleges also. The only highly significant association in this category of colleges is between ‘Academic Result’ and ‘Instruction Evaluation & Feedback’.

5. Discussion

Components of teaching-learning process are almost constant irrespective of categories. But this statement is not applicable to the dimensions of student performance. While government colleges and autonomous colleges are standing at the top in almost all dimensions, other two categories, especially self-financing colleges are weak in these dimensions. Academic results are rated as very good in all colleges. This result might be the indication of the overemphasis given to the university examinations by the engineering colleges. Engineering education might be formulated and is carrying out around an examination-oriented structure. It can be suspected that other objectives of engineering education (EPC, 2002) like communication skills; problem-solving skills, team working and ‘learnability’ are not being properly addressed in the present system. This is visible from the poor performance of students in the competitive examinations. Very low scores of employer’s feedback in self-financing colleges compared to other categories of colleges point out the importance of experience factor in education sector. As the self-financing colleges are comparatively younger, they may not be in a position to maintain good rapport with industries, which in turn reduces the quality and quantity of feedback from the industrial sector.

Same level of teaching-learning process and different levels of student performance indicate the influence of some other factors in the performance. The major one may be the student quality. As the best quality students are getting admitted to autonomous and government engineering colleges, the student performances of those colleges are also naturally high. The other criteria like faculty, management may also have influence in the student performance. Association of teaching-learning process and student performance shows a drastic decrease as the analysis progresses from government colleges to aided and self-financing colleges. This result might be an indication of the fact that for an effective teaching-learning process, both the constituents – the teacher and the learner- should be of good quality.

6. Conclusions

One of the major disciplines of learning organization, the ‘Personal mastery’, is addressed through the analysis of teaching-learning process and student performance of undergraduate engineering programmes in India. For the assessment of learning in organizations, longitudinal data is needed. Presently most of the engineering colleges are not maintaining properly organized longitudinal data. Hence the analysis was based on the cross sectional data of NBA, which is a limitation

of the present study. Another important feature of learning organization, 'System thinking', is also not taken care of in the present assessment methods and working patterns of engineering programmes. With out considering the dynamic complexity and effect of feedback loops, the study would not be complete, which can be thought of as a future course of research work.

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Table 1. NBA Criteria for accreditation

Criteria	Weights
1. Mission, Goals and Organization	100
2. Financial & Physical Resources and their Utilization	100
3. Human Resources: Faculty & Staff	200
4. Human Resources: Students	100
5. Teaching – Learning Processes	350
6. Supplementary Processes	50
7. Industry – Institution Interaction	70
8. Research & Development	30
TOTAL	1000

Table 2. Categorization of variables for measurement of learning from NBA criteria

Level	Learning disciplines of Learning organization	NBA Criteria	NBA Variables
University	Nil	Nil	Nil
College Management	Mental Models	I Mission, Goals and Organization	1.1.A.Mission & goals 1.1.C.Attitude 1.1.D.Planning & monitoring 1.2.A.Leadership 1.2.B.Motivation
	Shared Vision	I Mission, Goals and Organization	1.1.B.Commitment 1.1.E.Incentives 1.1.F.Effectiveness 1.2.C.Transparency 1.2.D.Decentralization & delegation 1.2.E.Involvement of faculty 1.2.F.Efficiency
Department (Programme)	Shared Vision	III HR - Faculty & Staff	3.1.E.Attitudes & commitment 3.2.D.Attitudes & Involvement
	Team Learning	VII Industry Institute Interaction	7.1.B.Continuing education 7.1.C.Consultancy 7.1.D.Industrial Visits and 7.1.E.Training 7.1.F.Project Work 7.1.F.Extension Lectures 7.1.G.Placement
		VIII Research & Development	8.1.A.Institutional Budget for R & D 8.1.B.Academic/Sponsored/Industrial R & D 8.1.C.Publications and patents
Faculty and Staff	Personal Mastery	III Human Resources - Faculty & Staff	3.1.F.Faculty development - Faculty 3.1.G.Performance appraisal- Faculty 3.2.E.Skill Up gradation - Staff 3.2.F.Performance appraisal - Staff
Students	Personal Mastery	IV Human Resources - Students	4.1.D.Academic Results 4.1.E.Performance in competitive Examinations 4.1.F.Admission to Post Graduate Courses 4.1.G.Employment in past year 4.1.H.Employer's Feedback

Table 3. Number of programmes under the four categories of colleges

Category of Engineering Colleges	Number of Programmes
1.REC & other Autonomous Colleges	40
2.Government Colleges	25
3. Aided Colleges	17
4. Self – financing Colleges	80
Total	162

Table 4. Process-Output association in Autonomous colleges

Output Variables	Process components		
	Learning Facilities	Instruction Evaluation and Feedback	Academic Calendar
Academic Results	0.518**	0.375*	-0.169
Performance in Competitive exams	0.217	0.28	0.105
Admission to PG courses	0.585**	0.513**	0.174
Employment in last year	0.048	0.066	0.107
Employers Feedback	0.403**	0.305	0.008

Table 5. Process-Output association in Government colleges

Output Variables	Process components		
	Learning Facilities	Instruction Evaluation and Feedback	Academic Calendar
Academic Results	0.59**	0.631**	0.525**
Performance in Competitive exams	0.455*	0.788**	0.624**
Admission to PG courses	0.558**	0.784**	0.441*
Employment in last year	0.171	0.427*	0.188
Employers Feedback	0.188	0.393	0.332

Table 6. Process-Output association in Aided colleges

Output Variables	Process components		
	Learning Facilities	Instruction Evaluation and Feedback	Academic Calendar
Academic Results	0.249	0.231	0.27
Performance in Competitive exams	0	0	0
Admission to PG courses	0.491	0.603*	0.078
Employment in last year	0.559*	0.426	0.144
Employers Feedback	0.306	0.316	0.539*

Table 7. Process-Output association in Self-financing colleges

Output Variables	Process components		
	Learning Facilities	Instruction Evaluation and Feedback	Academic Calendar
Academic Result	0.206	0.353**	-0.094
Performance in Competitive exams	0.154	0.022	0.228*
Admission to PG courses	0.266*	0.14	0.001
Employment in last year	-0.244	-0.097	-0.039
Employers Feedback	0.11	0.246*	0.217

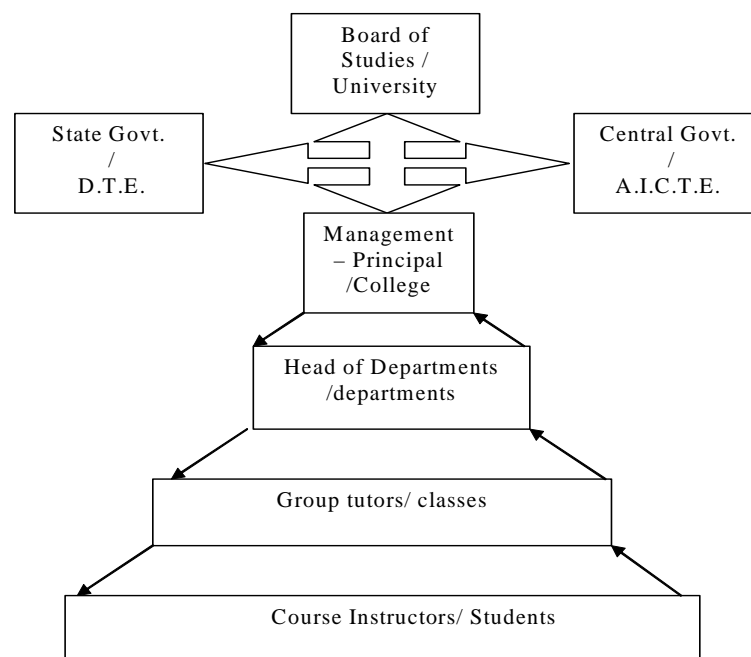


Figure1. Engineering education system as learning organization



Century Development and Trend of Marketing

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Abstract

Since the marketing was established about one century ago, with the advancement of the society and the variance of the environment, it has gone through dynamic development process with continual changes, enrichments and perfections. This article will expatiate on the development and trend of marketing from three aspects including marketing concept, marketing strategy and marketing means.

Keywords: Marketing concept, Marketing strategy, Marketing means, Innovation development

The marketing was originated in US at the beginning of the 20th century, in its development course with almost hundred years, its research objects have developed from circulation domain to production domain and after domain, its contents are continually enriched, its concepts are continually updated, and its system is gradually matured. The father of modern marketing, Philip Kotler appraised that the marketing had become a sort of applied science which was established on the bases of economics, behavioral sciences and modern management theories. With continual developments of science, technology and economy, the marketing has experienced many innovation developments in its grown course, and these innovation developments are embodied in marketing concept innovation, marketing strategy innovation, and marketing means innovation.

1. Innovations of marketing concept

The market management concept is the guidance idea of the enterprise management activities, which is also called business philosophy. With the variances of the age and the continual advancement of the society, the ideas to guide enterprise management activities have changed continually, i.e. the market management concepts have experienced innovations and developments. They are embodied in the innovations and evolvments of five representative enterprise management concepts such as production concept, product concept, salesmanship concept, marketing concept and social marketing concept.

1.1 Production concept

The production concept is a sort of rather old management concept, which management idea starts from the view of enterprise, takes production as its centre, and sells what the enterprise produced. This concept was existed before 1920s, and at that time, the social productivity was correspondingly lagged and the market trend was the seller's market in which the demands were bigger than the supplies, i.e. if only enterprise produced, the market must exist. In such market conditions, the management concept (production concept) made enterprises try their best to organize all resources, increase outputs, reduce costs and enhance distributions as their central missions, but don't consider customers' different demands in the market, and the missions of the marketing department of the enterprise were very simple, and the activities of marketing research were almost hardly inexistent.

1.2 Product concept

The product concept is still an old management concept, which idea consists in that customers always love bargains and if only the products are good, customers would become surplus and the products have good market. Enterprises blindly create cheap and excellent products but ignore customers' real demands. In Theodore Levitt's "Marketing Myopia", he pointed out that the railway stopped increase and the movie almost made Hollywood overwhelmed completely because railway enterprises took railway but not transportation as their guidance, and Hollywood took movie but not amusement as its guidance, in a word, they made same mistake, i.e. the marketing myopia.

1.3 Salesmanship concept

Comparing with two former concepts, the salesmanship concept possesses some innovations and developments, which directs enterprise emphasizing production and strengthening advertisement and salesmanship. Enterprises exert salesmanship and advertisement to hawk products to actual customers and potential customers, conquer competitors, enhance market occupation and acquire abundant profits through advertisement and salesmanship. This concept existed from the

late of 1920s to 1950s, because in this period, with the development of science and technology, the production technique had improved, the product amount and varieties increased quickly, and the market development trend was gradually transformed from seller's market to buyer's market.

1.4 Marketing concept

This is a completely different management concept comparing with three former concepts, which means that the start and centre of the enterprise marketing is to fulfill customers' demands, i.e. enterprise produce what customers' needs. This concept was originated after 1950s. The consecution of management concept is reversed, and enterprises organize productions and distributions according to customers' demands and desires starting from the market demands, but don't attract or search customers through producing products in the past. It is a sort of revolutionary innovation development from salesmanship concept to marketing concept, and it is one of important concepts of capitalism enterprise management idea. Just as American managerialist Peter F. Drucker pointed out in "Management", one of two functions of enterprises was marketing. The occurrence of marketing concept makes the traditional marketing develop to the modern marketing.

1.5 Social marketing concept

The social marketing concept is further developed and perfected on the base of marketing concept, which meanings is that the products provided by enterprises are not only to fulfill customers' demands and desires, but also to consider the long-term benefits of customers and the whole society. This concept was originated in 1970s, and at that time because of facing population boom, environment pollution, global inflation and other crises, some enterprises issued fake advertisements, produced insecure and unhealthful products, harmed customers' benefits, and accordingly induced the discontentment of the society. Just under this background, enterprises begun to survey their marketing activities and considered three benefits including their own benefits and the long-term benefits of customers and the society when they established marketing strategy.

The five above sorts of management concepts can be combined into two sorts, one is the traditional management concept (including production concept, product concept and salesmanship concept), i.e. the sales concept, and the other one is the new marketing concept (including marketing concept and social marketing concept), i.e. the marketing concept. Their starts, aims and approaches are different, and the former starts from products, adopts the method of increasing productions or strengthening salesmanship, and finally achieves profits through expanding distributions, and the later starts from customer, adopt the method of integrated marketing, and finally achieves profits through fulfilling customers' demands. As viewed from that point, the innovation of the marketing concept experiences the process from quantitative change and qualitative change. Just as Philip Kotler said, the differences of these two concepts would induce very different results, and the distribution consciousness could only bring unstable short-term success, but the marketing consciousness could bring up stable long-term increases.

2. Innovations of marketing strategy

When the marketing concept experiences continual innovations, the marketing strategies are continually innovated, and that is embodied in the variance of "4P-4C-4V-4R".

2.1 "4P" strategy

"4P" is the combined strategy with four representative marketing factors including product, price, place and promotion which take production as the centre, and it was put forward by Jerome Mc Carthy in the late of 1950s. This strategy had profound influences to the theory and practice of the marketing, and was regarded as the classics in the marketing theory. In fact, "4P" had existed from the late of the 19th century to the beginning of the World War I, and in that period the world was in the times of shortage economy, and the supplies couldn't fulfill the demands in the market which was the classic seller's market. To enterprises, marketing only possessed common functions, and enterprises needed not notice customers' difference demands, and more cared about the production and price of the products, and only in that way, enterprises would get rich profits. At the late of the World War I, demand exceeded supply in some developed capitalistic national markets, enterprise competition begun to become intense, enterprise couldn't but develop functions of salesmanship and channel marketing, therefore, the marketing mode changed from "distribution decided by production" to "distribution promoted by production". In a word, enterprise implemented the "4P" marketing strategy taking production as the centre.

2.2 "4C" strategy

After the World War I ended, with the rapid development of industry, the world developed from shortage economy to surplus economy, supply exceeded demand in the market, and the buyer's market replaced the seller's market. Enterprises started to notice customers' demands to obtain competitive predominance in the market. Up to 1980s, aiming at problems existing in "4P", American Robert Lauteerborn put forward the marketing strategy of "4C". "4C" includes customers' demands and expectations (Customer), customers' costs (Cost), customers' purchase convenience (Convenience) and the communication between customers and enterprises (Communication). The connotations of "4C" include four aspects. The first one is to forget products and notice customers' demands and expectations. The second one is to forget price and notice the costs that customers would pay. The third one is to forget locus and notice consumers' convenience. And the last one

is to forget salesmanship and notice the communication with customers.

2.3 “4V” strategy

With the advent of new economic times, the marketing strategy is further developed to the combined form of “4V” which means variation, versatility, value and vibration. The connotations of “4V” include four aspects. First, enterprises should create variations if they want to create customs, and the market would exist and obtain competitive predominance when variations exist. Second, versatility is that enterprises offer series products with different functions according to customers’ different demands, and customers select products with corresponding functions according to their own demands and payment abilities. Third, products have basic value and extended value, and the present development trend is that the proportion of basic value in the value composing descends gradually, but the proportions of extended values of high technology, brand, or enterprise culture in the product value composing would further enhanced, so the product competition among enterprises have not only limited in the basic value of product, but more in the extended value of product. Four, the vibration is that enterprise continually occupies the market and keeps the “value maximum” brought by the value innovation of competition to customers and the “profit maximum” brought by that to enterprises, which emphasizes associating innovational ability of enterprise with values prized by customers and produces vibrations between enterprise and customers.

2.4 “4R” strategy

In recent years, American marketing expert Don E Schultz put forward new “4R” strategy. The “4R” strategy is to establish relevance with customers (Relevance), enhance market response (Response), exert relationship marketing (Relationship), and the return is the reward of marketing (Reward). The biggest characters of “4R” strategy are that enterprises take competition as the guidance, emphasize the communication and win-win between enterprise and customers, forwardly create demands when actively adapting customers’ demands, and enterprises must establish rapid response mechanism to enhance response speed and responses, reduce complains and stabilize customer group furthest when facing quickly changeable market, and enterprises must establish long-term and stable relationships with customers if they want to occupy market, and the communication is the important means to establish relationship, and to search rewards, enterprises must implement low cost strategy, and obtain more customers based on payment cost minimum of consumer, so values offered for customers by enterprises and rewards searched by customs supplement and promote each other, and would achieve the effects of win-win objectively.

The above marketing strategies are not the relationships they can replace each other, which embodies the continually perfecting and innovating process of the marketing strategy.

3. Innovations of marketing means

Tremendous changes of market environment fully influence the marketing activities of enterprises in all directions, which not only requires enterprises innovate upon marketing concept and marketing strategy, but also requires enterprises innovate upon marketing means. The innovations of marketing means can be embodied from following aspects.

3.1 Innovation of marketing organization

To facing challenges from market competition, enterprises must innovate upon marketing organization, strengthen transverse communication and mutual harmonization of the organization to fulfill customers’ demands, accordingly create profits. The marketing organization of modern enterprise presents development trends such as association, flat, dummy and conception, which make decision-making more direct, quick and flexible, and such organizational form combines enterprise and market more tensely and ensures the speediness and science of the marketing.

3.2 Implementing network marketing by means of Internet

The development of information technology provides necessary material bases and technical conditions for marketing means, and enterprises can utilize internet to offer commodities and services, set up electric marketplace, implement network research and grasp economic information and market conditions, which is the network marketing emerged as the times require in the knowledge economic times, i.e. a sort of electric business activity utilizing communication technology of internet to implement marketing.

3.3 Developing relationship marketing

Relationship marketing is to regard marketing activities of enterprise as the process of communication between enterprise and supplier or distributor or competitor or governmental institution or other companies. Its times background is in 1990s and its essential characters are the bidirectional information communication, mutual benefit of marketing activity, harmonization of strategic course. To keep and extend market share, enterprises must maintain a customer group having long-term cooperate relationships with them, and long-term fellowships decides developmental potential of every enterprise.

3.4 Implementing brand marketing

Brand is the business appellation of commodity, which is originated by enterprise and has remarkable characters to identify

products of enterprise. Enterprise can enhance market influence of brand and win customers' loyalties through strengthening brand management. To face such challenges as quickly changeable scientific technology, endlessly emerged new products, consumers' new conceptions, enterprises can continually endow brands with new connotations and images to form strong attractive powers to customers through market innovations of brands.

3.5 Developing service marketing

Service has four characters such as immateriality, inseparability, otherness and the character that cannot be stored. Because service doesn't involve transfer of property in the consumption process of enterprise and consumers, so every concrete service is the integration of four above characters. The different combinations of four characters can form variation and competitive predominance. The present market development trend is that service factor has replaced product quality and price and become the new focus of competition, and one important aspect of future enterprise competition is service competition.

3.6 Developing marketing innovation according to local conditions

In the practice of marketing, the marketing innovation increasingly becomes rich and colorful, and some marketing innovation means such as customized marketing, direct marketing, chain joining marketing, green marketing, agent marketing and so on can be referenced by enterprises according to their own actual situations. But because different enterprises face different markets, which makes different fractionized markets have big differences in the aspects such as scale, character, purchasing power and diathesis of objective groups, so enterprises should avoid blindly copying marketing concept and means of foreign craft brothers, or else which may induce the failure of enterprise marketing innovation.

4. Conclusion

Continual advancements of the society fully influence various aspects of marketing. In almost one century developmental course of marketing, marketing innovation runs through its whole grown process and infiltrates to its every aspect. With the globalization of world economy and the quickness of market integration, the marketing environment in the 21st century is experiencing world-shaking changes, so enterprises must continually implement marketing innovation if they want to seek survival and development in such a changeable and highly competitive market in future.

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Superior-subordinate Conflict Management Styles an Empirical Study of Malaysian Companies

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Abstract

This study examined the relationships between organizational context, conflict handling styles and subordinates' satisfaction with supervision. Data from 139 respondents from major industries in Malaysia including service, manufacturing, mining and construction demonstrated that subordinates were more satisfied with their superiors' supervision through their exercise of integrating, compromising, and obliging styles. On the other hand, subordinates who perceived their superiors as primarily utilizing dominating and avoiding style viewed them as incompetent in supervision and thus lowering their level of satisfaction with supervision. Among the conflict handling styles, integrating was most correlated with organic structure. The organic structure was found to be positively correlated with the satisfaction with supervision. These results implied that organic structure can be a potent force in maintaining organizational stability, although not unambiguously, the present results also seemed to suggest that subordinates tend to be less satisfied with superiors with wider span of control.

Keywords: Organizational context, Structure, Span of control, Conflict management styles, Satisfaction with supervision, Organizational behavior, Managerial supervision

1. Introduction

Conflict is known to be inseparable in all human interactions. In any organization, role differentiation acquires different use of conflict handling styles. Work direction, reward, supervision, discipline and performance review also involve the use of conflict handling styles. Organizational change and control may be viewed from a conflict perspective. In attempts to explain the nature or dynamics of a particular organizational phenomenon, conflict may be incorporated as a causal factor.

A great question confronting our industrial society is concerned with the issue on how can the skills of managers be enriched so as to make it possible for them to act with greater proficiency when their contributions are from dealing with and through people especially their subordinates? One way of looking into this issue is from the conflict perspectives. The attention to interpersonal relationships is due to our belief that sound superior-subordinate relationships are important and consistent with humanistic and cooperative work environment sought by contemporary managers. It is also believed that positive interpersonal relationship at workplace is able to increase subordinates' satisfaction with supervision and subordinates with high levels of satisfaction are more likely to be committed to the organization (Brown & Peterson, 1993).

Differences in the perception of conflict possess implication in its own right. This is due to superior's uses of conflict styles may be reinforced by subordinates' responses or the superior may anticipate subordinates' reaction to the use of conflict styles. It is worthwhile for the superior to be aware of the existence of multiple sources of conflict in work situations and how it promote subordinates' job satisfaction since dissatisfaction itself could lead to many organizational dysfunctions such as decline in work performances, absenteeism, high turnover, and job stress (Churchill, Ford & Walker, 1976; Fisher & Gittelson, 1983; Van Sell, Brief & Schuler, 1981; Rahim & Buntzman, 1989).

On the other hand, the importance of organizational contexts as variables for organizational studies have also been well established as correlates or consequences of conflict handling styles. Unfortunately, most of the research attention was in the context of job design or job characteristics. Less attention has been given in linking the types of conflict handling styles with organizational variables such as span of control and structure, and subordinates' satisfaction with supervision. Knowing how conflict handling styles related to organizational context and supervisory satisfaction will enable the superior to change or maintain his/her conflict styles to achieve desirable outcomes. Thus, this study which seeks to find out the correlates and consequences of conflict handling styles and subordinates' satisfaction with supervision would ultimately contribute to the knowledge of organizational behavior in this area.

1.1 Research Questions

The delineation of research question is to find out the various methods of conflict handling styles employed by superior in the Malaysian companies, what are the correlates and consequences of conflict handling styles and how it affects subordinates' job satisfaction. Hence, this study seeks to answer the followings research questions.

- (1) Are there any significant differences in subordinates' satisfaction with supervision when subjected to different conflict management styles?
- (2) Are there any predictable relationships between organizational contextual variables and conflict handling styles and subordinates' satisfaction with supervision?

1.2 Scope of the Study

The foundation of this study rests upon the interaction among major variables as depicted in Figure 1. (Note 1) The primary data used in this study is secured through survey questionnaire. Cross-sectional data of respondents from Malaysian three industries namely, service, manufacturing, and mining and construction is subjected to quantitative analysis to test the conflict handling styles model.

2. Literature Review

This section reviews the relevant constructs and variables as well as their interactions involving: (1) Typologies of conflict handling styles; (2) Organizational contextual variables: Span of control and Structure; and finally (3) Supervision with satisfaction.

2.1 Typologies of Conflict Handling Styles

There are various styles of behavior by which interpersonal conflict can be handled. In order to manage conflict effectively, one style may be more suitable than the other depending upon the situation. Follett (1940) conceptualized five methods of handling conflict in organizations i.e. domination, compromise, integration, avoidance and suppression. Conflict management style has been continuously measured by a variety of different taxonomies. Researchers in social psychology and organizational behavior have proposed models that reduce the myriad tactics of conflict handling styles. One of the first conceptual schemes for categorizing conflict revolved around a simple cooperation-competition dichotomy followed the intuitive notion that styles can be arrayed on a single dimension ranging from competition or selfishness (Deutsch, 1949, 1973). However, doubts were raised over the ability of the dichotomy to reflect the complexity of an individual's perceptions of conflict behavior. In other words, the limitation of single-dimension model is that it fails to encompass styles that involve high concern for both self and other, and styles that involve neither high concern for neither self nor other (Ruble & Thomas, 1976; Smith, 1987, Thomas & Kilmann, 1974; Pruitt & Rubin, 1986).

Subsequent theorists then drawn on a new two-dimensional grid for classifying the styles as suggested by Blake and Mouton (1964, 1970) which is a self-oriented and other-oriented concern. Other authors have labeled the two dimensions differently (e.g., Thomas & Kilmann, 1974; Rahim, 1983a, 1986; Thomas, 1976; Pruitt & Rubin, 1986; Van de Vliert & Hordijk, 1989, but the basic assumptions have remained similar. Although it has also been debated that individuals select among three or four conflict styles (Pruitt, 1983; Putnam & Wilson, 1982), but evidence from confirmatory factor analyzes concluded that the five factor model has a better fit with data than models of two, three and four styles orientations (Rahim & Magner, 1994, 1995). While the conflict styles somewhat differ in terms of name, the general principles and basic descriptions of the styles appear very similar (Kozan, 1997).

For the purpose of this study, the researcher has chosen Rahim and Bonoma (1979), and Rahim (1983, 1985, 1986a, 2001) styles of handling interpersonal conflict on two basic dimensions: concern for self and concern for others. It is among the most popular styles of handling conflict used in research. In fact, Rahim and Bonoma's (1979) model was based on Blake and Mouton's (1964) grid of managerial styles as well as the Thomas-Kilmann MODE instrument (1974). Specifically, Rahim and Bonoma confirmed and refined the factor structure of the managerial grid through contact over 1,200 corporate managers across the United States (Rahim, 1983). This work leads them to identify five specific conflict styles as shown in Figure 2. (Note 2) Rahim (1983, 1986a, 2001) defines styles of handling conflict as integrating, obliging, dominating, avoiding and compromising. It was Rahim's idea that "organizational participants must learn the five styles of handling conflict to deal with different conflict situations effective" (Rahim, 1986a, p.30).

2.1.1 Integrating Style

High concern for self and others reflects openness, exchange of information, and examination of differences to reach an effective solution acceptable to both parties. The integrating style concentrates on problem solving in a collaborative manner. Individuals with this style face conflict directly and try to find new and creative solutions to problems by focusing on their own needs as well as the needs of others. Lawrence and Lorsch (1967) found the problem-solving (integrating) style to be more effective than other styles for attaining integration of the activities of different subsystems. When the issues are complex, this style is suitable in utilizing the skills and information possessed by different parties to formulate solutions and successful implementations. Thus, the integrating style is believe to be both effective and appropriate in managing

conflicts and, therefore, is perceived as highly competent (Tutzauer & Roloff, 1988).

2.1.2 Obliging Style

Low concern for self and high concern for others style is associated with attempting to play down the differences and emphasizing commonalities to satisfy the concern of the other party. Obliging is associated with accommodating behaviors that include putting aside one's own needs to please the partner, passively accepting the decisions the partner makes, making yielding or conceding statements, denying or failing to express one's needs, and explicitly expressing harmony and cooperation in a conflict situation (Wilmot & Hocker, 2005). These types of conflict strategies are indirect and cooperative (Blake & Mouton, 1964). It can be used as a strategy when a party is willing to give up something with the hope of getting something in exchange from the other party when needed.

2.1.3 Dominating Style

High concern for self and low concern for others style has been identified with win-loses orientation. The dominating style relies on the use of position power, aggression, verbal dominance, and perseverance. This style is direct and uncooperative (Blake & Mouton, 1964). Within interpersonal context, the dominating (competing/distributive) style has been found to be associated with low levels of effectiveness and appropriateness. However, Papa and Canary (1995) suggested that the dominating style might be somewhat effective in organizational contexts when there are production-related goals. In this case, an individual might use power strategies and aggression to effectively accomplish a goal, even though these strategies may be seen as inappropriate at a relational level.

2.1.4 Avoiding Style

Low concern for self and others style has been associated with withdrawal, buck-passing, or sidestepping situations. An avoiding person fails to satisfy his or her own concern as well as the concern of the other party. This style is useful when the issues are trivial or when the potential dysfunctional effect of confronting the other party outweighs the benefits of the resolution of conflict.

2.1.5 Compromising Style

Intermediate in concern for self and others style involves give-and-take whereby both parties give up something to make a mutually acceptable decision. It may mean splitting the difference, exchanging concessions, or seeking middle-ground position. It may be appropriate when the goals of the conflicting parties are mutually exclusive or when both parties, who are equally powerful, e.g. labor and management, have reached a deadlock in their negotiation. This style may be of some use in dealing with strategic issues, but heavy reliance on this style may be dysfunctional.

2.2 Organizational Contextual Variables

Several researches have attributed the conflict handling style to various factors e.g. span of control (Morris, Steers & Roch, 1979) and organizational structure (Weber, 1946; Burns & Stalker, 1961).

2.2.1 Span of Control

Span of control is the number of subordinates reporting to a superior. If the span is narrow, manager will have few underlings. Narrow span will provide closer supervision and tighter "boss-oriented" controls; thus resulting in tall, hierarchical structure. Small spans of control increase the time a superior can work alongside of any given subordinates, and therefore provide greater chances for building shared goals as well as coaching and feedback (Likert & Likert 1976; Tannenbaum 1968). According to Taylor (1911) consistent with these arguments, Porter and Lawler (1964) found that superiors with small spans of control were more available for coaching and feedback.

If it is wide span of control, manager will have a larger number of subordinates reporting to them. As a consequence, the structure will be flatter (Jones, 1994). In general, wider span has lesser opportunity for supervision due to the large number of subordinates. Managers with larger spans were more likely to handle problems with subordinates in a more formalized, impersonal manner, using warnings and punishments instead of coaching and feedback (Kipnis & Cosentino 1969; Kipnis & Lane 1962; Goodstadt & Kipnis, 1970; Ford 1981; Heller & Yukl 1969). While wider span of control may reduce management costs, the effectiveness of manager may be compromised. In turn this could influence job satisfaction and turnover (Altaffer, 1998).

On the other hand, there seems to be several positive effects on individual attitudes and behavior when the span of control is large. Employee morale will improve with a broader span since subordinates will be subjected to a lesser degree of detailed supervision. In fact, one of the worst aspects of a narrow span of control is the opportunity it gives a manager to harass his subordinates. Wider spans will generally entail more responsibility be given to subordinates, thereby making the job more fulfilling. At the same time, a flatter structure will provide more growth for the subordinates and create more reliance and trust from the supervisor. Thus, span of control can be an important variable in the superior-subordinate exchange relation. Moreover, studies by Morris, Steers and Roch (1979) shows that superior span of control contributes to the explained variance in role conflict. Extending this argument, it is also presupposed that supervisory span will have influence to the way manager handling conflict.

2.2.2 Organizational Structure

The study of organizational structure relies on the differentiation of position, formulation of rules and procedures, and prescriptions of authority. Wider focus in these formal dimensions of structure has been heavily influenced by Weber's (1946) work on bureaucracy, which depicted precise and impersonal structures of tasks, rules, and authority relations as central to rationalizing the real world. The extension and replication of Weber's work on structure are plentiful (Hall, 1996; Meyer, 1972; Pugh, Hickson, Hinings & Turner, 1968). Various dimensions of structure serve as framework for the analysis of interactive patterns of organizational members which can relate to individual performance or satisfaction.

In this study, structure is conceptualized on a mechanistic-organic continuum. Burns and Stalker (1961) suggest that some successful organizations or work group tend to favour vertical specialization and control or horizontal specialization and coordination. When an organization stresses rules, policies, and procedures, this will be leading to rigidity and inflexibility and when organizations specifies the techniques for decision-making, and develops an elaborate control system backed by a centralized staff, this is called "mechanistic" or "bureaucratic". This type of organization tends to have a vertical emphasis as the staff units will always be placed at the top of the system. In mechanistic or bureaucratic organizations, employee alienation and strict adherence to roles often mean avoiding conflict by resorting to intransigence.

Burns and Stalker (1961) called the opposite type "organics". This strategy tends to emphasize horizontal specialization and coordination and there are comparatively few rules enforced in the organization. The benefit of the organic structure is its flexibility, adaptability, and early recognition of external change (Burn & Stalker, 1961; Lawrence & Lorsch, 1967; Webb & Dawson, 1991).

Both of these structures provide consistent patterns of organizing that can be adjusted to fit pressures from contextual variables. Obviously each of the two "ideal" patterns appears to have its own strengths and weaknesses. The mechanistic pattern appears more suited when organizations are most interested in efficiency (Litterer, 1973). Conversely, where there is high variability, and an organization is less sure of how to transform inputs to outputs, the organic form may be preferred (Reimann & Negandhi, 1975).

2.3 Satisfaction with Supervision

Satisfaction with supervision has received extensive attention in organizational research. In this study, satisfaction is defined as, "a pleasurable or positive emotional state resulting from the appraisal of one's job" (Locke, 1976). Work satisfaction is an important workplace construct and one that is of concern for effective management. Thus, numerous research findings suggest that conflict management style is related to various aspects of employee satisfaction are of interest and represent an important extension to the job satisfaction literature. These findings imply that satisfaction with supervision is one of the most important attitudinal issues in the workplace that managers face (Babin & Boles, 1996). Smith, Kendall, and Hulin (1969), in their well documented measure, the Cornell JDI (Cornell Job Descriptive Index) described five areas of satisfaction: the work itself, the supervision, the co-workers, the pay, and the opportunities for promotion on the job. Since the theme of the present study is on the superior-subordinate relationships, the job-facet satisfaction is most relevant to satisfaction with supervision. The conflict handling styles which superior uses in an organization in supervising their subordinates can have a broad impact on the subordinates' attitude towards work. The amount of supervision and direction given to the subordinates will increase their satisfaction with supervision. Conversely, many studies recorded that supervision to the extent that the superior exercises dominating and avoiding is found to have a negative impact on the subordinates' satisfaction (Kahn, Wolfe, Quinn, Snoeck, & Rosenthal, 1964).

3. Hypothesized Relationships

The hypotheses were grouped into several sets. There are: (1) those dealing with consequences of conflict handling styles upon subordinates' satisfaction with supervision (H1a & H1b), (2) those dealing with association of organizational context upon conflict handling styles (H2a & H2b), and (3) those dealing with the association of organizational context and satisfaction with supervision (H3a). More specifically, the following hypotheses were formulated which serve as focal points for the study.

Organizational conflict researchers (e.g. Rahim & Buntzman, 1989; Burke, 1970; Lawrence & Lorsch, 1967; Likert & Likert, 1976) generally assert that superior who exhibits integrating, compromising, and obliging styles are more prong to foster a cordial dyadic relationships among superiors and subordinates. These styles are related to an effective conflict management. Several studies on the integrating, compromising, and obliging styles of handling conflict show consistent results in satisfaction with supervision (Korabik, Baril, & Watson, 1993; Tutzauer & Roloff, 1988; Wall & Galanes, 1986; Vigil-King, 2000). Likewise, other studies recorded that superior uses dominating and avoiding is linked to negative effect on subordinates' satisfaction (Kahn, Wolfe, Quinn, Snoeck, & Rosenthal, 1964). Thus, it can be hypothesized that:

Hypothesis H1a: Superior's integrating, obliging, and compromising styles have direct and positive effect on the subordinates' satisfaction with supervision.

Hypothesis H1b: Superior's dominating, and avoiding styles have negative effect on the subordinates' satisfaction with supervision.

Superiors who possess wider span of control are more likely to deal conflict with subordinates in a more formalized, impersonal manner, using warnings and punishments (Kipnis & Cosentino 1969; Kipnis & Lane 1962). In addition, as spans of control increase, managers are found to more autocratic (Heller & Yukl, 1969). Likewise, Burns and Stalker (1961) define organic structure as horizontal specialization and there are few rules being emphasized in the organization. Work group employing organic structure is having less conflict and the superior tends to use more compromising or integrating style. As such, the following hypotheses are predicted:

Hypothesis H2a: Wider span of control is positively associated with dominating, and avoiding style, but negatively associated with integrating, obliging and compromising style.

Hypothesis H2b: Organic structure is negatively associated with dominating and avoiding style.

In relation to organizational context, research by Meadow (1980) concluded that organic structure is positively related to satisfaction of higher order needs, but mechanistic structure is associated with their frustration. This statement is also supported by Rahman, Mawdudur, Zanzi and Alberto (1995) in their study which confirms organic structure is associated with greater job satisfaction with supervision. Considering these past findings, the following hypotheses are suggested as follows:

Hypothesis H3a: Organic structure has direct and positive effect on the satisfaction with supervision.

4. Research Methodology

4.1 Sampling Design

The sample for this study comprises of the executives, managers and professionals in services, manufacturing, mining and construction companies. This sample was selected for three reasons: (1) measurement of perceptions on constructs such as conflict handling styles, structure and span of control requires some abstract and purposeful thinking which is certainly helped by having a certain stature in the organization, (2) this represents the group of more educated people who are more aware of the kind of conflict styles with superiors and normally hinge more on the non-traditional organizational-based kind of relationship to sustain their interest in the organization, and (3) the industries are among the more dominant industries in Malaysia that contribute significantly to the Gross Domestic Product and labour employment. The companies that met the above criteria were selected from the list of companies gathered from the Federation of Manufacturers Malaysia (FMM), Construction Industry Development Board (CIDB), and Malaysian Trade and Commerce Directory. Random sampling was used in selecting the samples from the large database. Data from subjects was obtained through survey questionnaire.

4.2 Research Instruments

All data used in the study consist of responses to questionnaire items. Measures of the relevant constructs were taken from previous studies and are discussed here.

4.2.1 Conflict Handling Style

Conflict management styles were measure by using the Form C of ROCI-II (Rahim, 1983a). This multi-item instrument contains 28 items uses a 5-point Likert scale to assess subordinates' perceptions on supervisor's style of handling conflict. The ROCI-II was designed to measure 5 dimensions or styles of resolving conflict. 7 items for measuring integrating style, 6 items each for measuring obligating style and avoiding styles, 4 items for measuring compromising style and 5 items for measuring dominating style.

4.2.2 Organization Structure

Structure is conceptualized on a mechanistic-organic continuum using Burns and Stalker scale (1961). Organization structure was represented a 7 item scale which measures organicity, i.e. the extent to which organizations are structured as organic versus mechanistic entities. This scale was also developed by Khandwalla (1977a, 1977b) and later used by Covin and Slevin (1989) and Low (2005).

4.2.3 Span of Control

Span of control is a measure of the total number of person being supervised by a superior. For statistical analysis the span of control is measured as the natural logarithm of this number.

4.2.4 Satisfaction with Supervision

The instrument used to measure satisfaction with supervision is the updated version of the original Job Descriptive Index (JDI; Smith et al., 1969) which was later revised by Roznowski (1989). The instrument is made up of 18 items.

4.3 Data Analysis Techniques

Simple correlation was used to measure the relationships among conflict handling styles and subordinates' satisfaction with supervision. It allowed a straight forward interpretation of the hypothesized relationships.

5. Research Results and Discussions

5.1 Sample Characteristics

From the total of 145 responses received, data from 139 respondents were usable. By ethnic group, 42% of the respondents were Chinese, 38% were Malay, and 17% were Indian, while other races made up the rest. By gender, 53% were male and 47% were female. In terms of age, the highest proportion of respondents fell into the 23-30 years age group. They accounted for 63% of the total number of respondents. This was followed by the 31-40 years age group (33%), while those above 41 years old accounted for the remaining.

On the whole, the education level of the respondents was high. Nearly 84% of the respondents had education up to tertiary level. Only 1% of the respondents had no tertiary education. The high educational level was reflected in the position or the type of occupation held by the majority of the respondents i.e. 7 Directors/General Managers/ Assistant General Manager, 3 Senior Managers, 46 Departmental Manager/Assistant Managers and 83 Executives.

The average salary of the respondents was higher than the population's average. The survey data showed that 27% of the respondents earned more than RM5000 per month, 14% earned RM4001 to RM5000 per month, 49% earned RM3001 to RM4000 per month, and 10% earned RM2001 to RM3000 per month.

On average, the respondents had worked in the present company for 4 years with a standard deviation of 3.6 years. It was noted that 59% of the total respondents had worked for 1 to 3 years in the present company, 25% had worked between 4 to 6 years, 12% had worked between 7 to 9 years, and 4% had worked between 10 and 13 years, while only 1% of the respondents had worked longer than 20 years in the present company. The degree of job mobility among respondents was reflected in the average number of previous jobs held by respondents i.e. 2 jobs. For the present sample, 20% responded that they had no previous job, 29% had one, 32% had two, 11% had three and the rest reported that they had more than 4 previous jobs.

In terms of the organizational size, the survey had selected sample which represents the medium to large sized Malaysian companies. It was found that 39% of the companies had 1 to 100 employees, 7% had 101 to 200 employees, 9% had 201 to 400 employees, 17% had 401 to 1000 employees and 29% had more than 1000 employees. Classifying the business according to the type of industry revealed that a greater portion of the companies are in services industries (55%), followed by manufacturing industries (23%) and 6% of mining and construction.

The survey revealed the following information about the respondent's superior. A 76% superiors reported in the survey were males and 24% were female. A majority of them were holding medium to high management positions. Racial composition of the superiors was: 46% Chinese, 41% Malay, 8% Indian and 5% from other races. On average, the superiors had worked in the organization for 11 years with a standard deviation of 7.6 years - longer than the subordinates' average. Only 1% had worked for less than a year, 30% had worked between 1 and 5 years, 29% had worked between 6 and 10 years, 17% had worked between 11 to 15 years, 13% had worked between 16 to 20 years and 10% had worked more than 20 years in the present company. The superiors were holding various positions in the company with 33% of them in the first hierarchical level, 30% in the second level, and 26% in the third level, while only a fraction of them were in the lower management positions. Their educational level was also predictably high, with 55% of them having had tertiary education. Only 6% had up to either primary or secondary education. By designation, 64 of the superiors were the directors/general manager/assistant general manager of companies, 23 were the senior managers, 50 were the departmental manager/assistant managers and the rest consisted of executives.

5.2 Validating the Scales

The standardized Cronbach Alpha for each subscale is provided in Table 1. (Note 3)

5.3 Testing of Hypotheses

Hypothesis H1a states that superior's integrating, compromising and obliging styles have direct and positive effect on the subordinates' satisfaction with supervision. The correlational analysis in Table 2 (Note 4) provided good support for H1a. The integrating, compromising and obliging styles of handling conflict showed positive relationships and highly correlated with satisfaction with supervision. These three correlations were significant beyond .01 level.

In the relationship of conflict handling styles to satisfaction with supervision, integrating style ranked highest among other style exercises ($r = .62, p < .01$). This was followed by compromising style and obliging style which had coefficients of correlation of .33, $p < .01$ and .29, $p < .01$ respectively. The ranking of intercorrelation was somewhat similar to the study of Rahim and Buntzman (1989) conducted on respondents with post graduate working experience. It was expected that integrating, compromising and obliging style represents a high level of inner acceptance between superior and subordinate relationships. As Rahim and Buntzman (1989) found out, the integrating, compromising, and obliging style of handling conflict tends to foster a more satisfied, cooperative and prolonged relationships among superiors and subordinates.

Literature on organizational conflict also shows that integrating, compromising, and obliging styles are positively associated with supervision with satisfaction. Burke (1970) suggested that, in general, a confrontation (integrating), compromising,

and obliging styles were related to the effective management of conflict that lead to supervisory satisfaction, while forcing (dominating) and withdrawing (avoiding) were related to the ineffective management of conflict that lead to supervisory dissatisfaction. Lawrence and Lorsch (1967) indicated that an integrating, compromising, and obliging styles dealing with inter-group conflict was used to a significantly greater degree in higher performing organizations than lower performing organizations.

A field study with a convenience collegiate sample by Rahim and Buntzman (1989) suggested that the integrating (problem solving), compromising and obliging styles of handling conflict is positively correlated with supervision with satisfaction. Likert and Likert (1976) strongly argued and provided some evidence to suggest that an organization that encourages participation and problem solving (integrating) behaviors attains a higher level of satisfaction with supervision. Several studies on the integrating, compromising, and obliging styles of handling conflict show consistent results. These styles result in high joint benefit for the parties, better decisions, and greater satisfaction with supervision (Korabik, Baril, & Watson, 1993; Tutzauer & Roloff, 1988; Wall & Galanes, 1986). Vigil-King (2000) study shows that superior that use more integrating conflict management styles are likely to have higher subordinates' supervision with satisfaction than superior using less integrating styles.

Among subordinates, integrative style emerges as a very important cue for acceptance and recognition of the superior's conflict management style as reflected in the present result. It most likely gains their compliance and least likely to provoke their resistance (Gross & Guerrero, 2000). Similarly, greater satisfaction with supervision among subordinates may lead to greater cooperation and heightened dependence. In the superior-subordinate interaction, subordinates frequently say what is acceptable rather than what they know is true. Therefore, an individual subordinate may use a more obliging style with superiors. This is due to subordinates are likely to withdraw from a conflict situation (Kahn, Wolfe, Quinn, Snoek & Rosenthal, 1964).

As the present results supported the general view the integrating, compromising and obliging style has a positive effect on the superior-subordinate relationship. The high degree of intercorrelations among the integrating, compromising and obliging served to temper the previous discussions and tended to suggest that while integrating style emerged as the dominant explanatory of conflict handling style, its effective utilization might be tied to some extent, to the superior's exercise of a combination of other style such as compromising and obliging style.

Hypothesis H1b predicts that superior's dominating and avoiding styles have negative effect on subordinates' satisfaction with supervision. Both the dominating and avoiding styles showed relatively negative but significant correlation ($r = -.50$, $p < .01$; $r = -.24$, $p < .01$ respectively) with supervisory satisfaction. In the dominating style, subordinates' responses tend to be dependent on the normative acceptance of the position and prerogatives of the organization at large including its leadership. The present result concurred with the conclusion made by Rahim (1986) and Burke (1970) that dominating and avoiding styles are less effective means of supervisory satisfaction.

The present result seems to support Hypothesis H1b. The study indicated that the dominating style perceived held by a superior was negatively associated with supervisory satisfaction. Past researchers supported this correlation (e.g. Van de Vliert, Euwema, & Huismans, 1995; Van de Vliert, 1997; Rahim & Buntzman, 1989; Gross & Guerrero, 2000) have stated that dominating style which is derived from control over negative or punishing outcomes for others does not appear to be a suitable style for dealing with subordinates. It is negatively related with concern for the other party which will usually not improve the relationship (Sorenson, Morse & Savage, 1999). The traditionalists believed that dominating is ineffective and can lead to conflict of social interaction. Although it has been found in some studies that individuals can achieve substantive outcomes through forcing behavior (De Dreu & Van de Vliert, 1997; Rahim, 1992; Thomas, 1992) but people could not be forced into a deep-seated acceptance of organizational requirements.

Hypothesis H2a suggests that wider span of control is positively associated with dominating, and avoiding style but negatively associated with integrating, obliging and compromising style. The relationships as appeared in Table 2 (Note 4) between the perceptions of supervisory span of control and perceived conflict styles were not significant, although there were some marginal relationships, but logical with all the conflict styles. The interpretation of these results and their relevance to the hypothesis proposed in this study seems to vaguely suggest that wider span of control is positively associated with dominating ($r = .11$), follow by compromising ($r = .05$) style of handling conflict. The variable is negatively associated with integrating and ($r = -.13$) and avoiding ($r = -.07$) style of handling conflict. The results of the data analysis seemed to offer ideas on the direction of relationships, but yet failed to reach the desired statistical significance. Although Hypothesis H2a was not supported in statistical terms, some explanation may be offered with regards to the present results. As span of control is related to the number of subordinates reporting to their superior, wider the span of control is positively associated with dominating and avoiding style as superiors need to exercise dominating style to control their subordinates.

The present result seems to imply that superiors who were perceived to have broader span of control tend to exercise greater dominating style. The reason for this was not conclusive. Many plausible explanations were possible, but it was believed that superiors with wider spans were more likely to handle problems with subordinates in a more formalized, impersonal manner, using warnings and punishments instead of coaching and feedback (Kipnis & Cosentino, 1969; Kipnis & Lane,

1962). Hence subordinates' attempts to exercise greater influence may be seen as a threat to the superior's control of their underlings. Furthermore, as the gap between superiors and subordinates will even likely to increase as a direct consequence of punitive procedures, the subordinates tend to avoid participation.

Weak relationship between integrating and broader span of control suggested that those who exercise integrating style over wider span of control accorded lesser control over subordinates. Though the degree of control by exercising of integrating style has been questioned, the very least the integrating style can foster better relationship for the subordinates to perform better. This conclusion was drawn from the assumption that people generally prefer integrating than dominating style and integrating approach can provide greater satisfaction with supervision. No comparison was made as there was no past research done with regard to this correlation.

It was interesting to note that there is some evidence that a manager's satisfaction increases as the number of subordinates supervised increases (Cummings & Berger, 1976) but it might not indicate subordinates' satisfaction with supervision. This finding plays down the importance of span of control in contributing to the satisfaction with supervision and lead one think that span of control may not be as important as the perception of conflict handling style in ensuring subordinates' satisfaction.

Overall, the results agreed with hypothesis H2a. However, the present result should be used with caution as the measurement of both construct was not based on the objective measurement but on individual perceptions. Individual differences such as desire for position power, inner motivation, etc might intervene in the relationship between span of control and conflict handling style.

Hypothesis H2b states that organic structure is negatively associated with dominating and avoiding style. The relationship between organic structure and conflict handling styles was significant as one would expect. The result agreed with Hypothesis H2b that organic structure is negatively associated with avoiding ($r = -.23, p < .01$) and dominating style ($r = -.30, p < .01$). This was probably due to the reason that structure and conflict styles were very much a related concept. The former measures the organizational structural design while the latter measures one's style of handling conflict. Nonetheless, an important common element appeared to exist between them that explained their negative and statistically significant relationship between organic structure and both the dominating and avoiding style.

Hypothesis H3a suggests that organic structure has direct and positive effect on the satisfaction with supervision. Correlational result in Table 2 (Note 4) showed that organic structure was positively associated with the satisfaction with supervision ($r = .19, p < .05$). A study was conducted by Meadow (1980) on Organic Structure, Satisfaction, and Personality found out that organic structure in small work groups is positively associated with the satisfaction of higher order needs. It was observed that strong personality aspiring towards dominance, autonomy, and achievement respond more positively to organic structure and more negatively to mechanistic structure. This statement also supported by Rahman, Mawdudur, Zanzi, Alberto (1995) as reported in their study that more organic structure and greater job satisfaction with supervision.

6. Conclusion

Overall, the results of this study were quite consistent with the hypotheses based upon other organizational studies involving qualified and professional people. The research instruments used in this study were tested and found to be reliable in our Malaysian work environment. The results provided some tentative, but hopefully useful guidance for organizational administration.

Inter correlations among the five styles of conflict handling showed that the results are closely similar to Rahim and Buntzman (1989). The results revealed that integrating, compromising and to some degree obliging are found to be in association with each other. These intercorrelations may give rise to a favorable halo effect with respect to the perceived influence, for example if a superior is perceived as having integrating style, this will also augment other styles (e.g. compromising, obliging) at his/her disposal. On the other hand, dominating was the least correlated with all other styles and most often stands alone. Among all the conflict styles, dominating was most related to avoiding style. It indicates that dominating and avoiding style tend to be used interchangeably. Though not considered as a serious disadvantage, notable intercorrelations among the five styles of handling conflict denote the difficulty of finding conflict style typology which is both exhaustive and conceptually distinct.

The conflict management styles were also found to be associated to an individual perception's of the source of conflict style. Superior who was perceived to exercise dominating style tends to exercise greater management control – giving little opportunity for the subordinate to be personally responsible for a meaningful portion of his/her works. In assessing the effectiveness of the various influence means, the results suggested that integrating, compromising and obliging should be emphasized to ensure subordinates' satisfaction with supervision. Dominating style should be minimized in any influence attempt except in situations that call for such approach, such as time of crisis or low performance. Comparative studies revealed an interesting difference in the rank ordering of superior styles of handling conflict. Study by Rahim and Buntzman (1989) ranked integrating, compromising and obliging as the most favorable, and dominating and avoiding as the lowest among conflict styles in eliciting subordinates' acceptance of supervision satisfaction. The results suggested a notion that the effectiveness of conflict handling style does relate to the situation and context of the job environment. Although the

desirability of some conflict styles were obvious, it should be noted that they might not necessarily have same impact on all attitudinal and behavioral outcomes measures. For example, Rahim (1986), Bachman, Bowers and Marcus (1968) and Rahim and Buntzman (1989) discovered that integrating and compromising were more associated with organizational effectiveness, dominating style was the most important for complying with superior's request and integrating, compromising and obliging were most related to supervisory satisfaction.

The challenge of the contemporary organization is also to encourage the use of the integrating/problem solving style of handling conflict among superior and subordinates. Employees should also be trained not to engage in win-lose or bargaining style of handling conflict. This can be done by strengthening the integrating conflict-management style and discouraging the use of an avoiding style. To attain this goal, training in conflict management of subordinates and superiors and appropriate changes in organization design and culture would be needed (Rahim, 2001).

Among the conflict handling styles, integrating was found to be the most associated with organic structure. The organic structure appeared to be positively correlated with the satisfaction with supervision. These results implied that organic structure can be a potent force in sustaining organizational stability.

The extent of span of control a superior has is dependent on how many subordinates he/she supervises. The results indicate that there was some marginal relationship between supervisory span of control and conflict styles although there were not so significant. Therefore, it was concluded that there was a weak but positive correlation between span of control and dominating style. This was due to the fact that superiors with wider spans of control tend to practice more formal way when dealing with their subordinates. On the other hand, superior who adopts integrating style over wider span of control would consequently exert lesser control over subordinates although integrating style is said to be able to foster closer relationship between superior and subordinates. The results also showed that that subordinates tend to be less satisfied with superiors with wider span of control.

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Notes

Note 1. Model of Conflict Handling Style and Interactions

Note 2. The Styles of Handling Interpersonal Conflict

Note 3. Summary of Scales Items and Measure of Scale Reliabilities

Note 4. Pearson Correlations among Key Variables

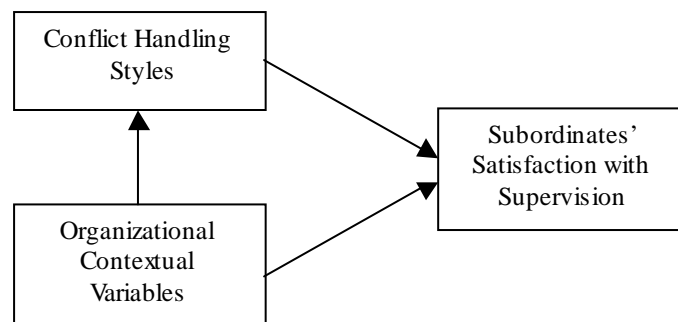


Figure 1. Model of Conflict Handling Style and Interactions

Conflict handling styles and its interactions variables involving organizational contextual variables i.e. span of control and structure; and subordinates' supervision with satisfaction.

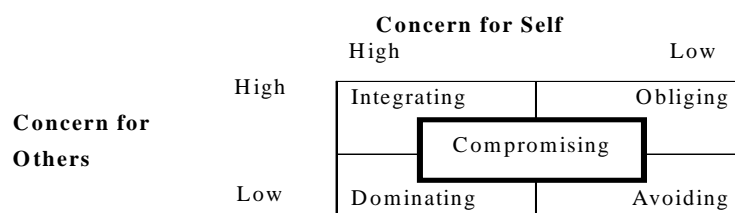


Figure 2. The Styles of Handling Interpersonal Conflict

(Adapted from Rahim and Bonoma, 1979)

The five conflict styles that emerge from various combinations of two dimension i.e. concern for self and concern for others.

Table 1. Summary of Scales Items and Measure of Scale Reliabilities

Scales	Cronbach Alpha
Conflict Handling Styles	
Integrating	.95
Obliging	.85
Compromising	.78
Dominating	.90
Avoiding	.78
Organizational Contexts	
Structure	.86
Span of control	n.a.
Satisfaction with Supervision	.86

n.a. Indicates alpha is not applicable

The internal consistency reliability coefficients for all the scales were satisfactory (Nunnally, 1978). All the scales had coefficient Cronbach Alpha greater than .78.

Table 2. Pearson Correlations among Key Variables

	Variables	1	2	3	4	5	6	7	8
1	Superior Span of Control	1.000							
2	Integrating	-.134	1.000						
3	Obliging	-.130	.493**	1.000					
4	Avoiding	-.070	-.203	.177*	1.000				
5	Compromising	.048	.519**	.352**	.004	1.000			
6	Dominating	.111	-.429**	-.155 ⁿ	.327**	.015	1.000		
7	Dominating	.032	.271**	.077	-.231**	.155	-.299**	1.000	
8	Satisfaction with supervision	-.142 ⁿ	.622**	.289**	-.238**	.331**	-.495**	.193*	1.000

* Correlation is significant at the .05 level (2 tailed)

** Correlation is significant at the .01 level (2 tailed)

ⁿ correlation is marginally significant at .10

This table shows the intercorrelations among key variables such as conflict handling styles (i.e. integrating, obliging, avoiding, compromising and dominating), span of control, structure and satisfaction with supervision.



Problems and Policy Recommendations in Shandong's Service Industry

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Abstract

The level of service industry is a significant target when measuring the socialization of production and the development of market economy. Despite of its status as a major province in economy and population as well as a coastal province, Shandong has a lagging service industry. Especially when compared with other developed provinces in China, its poor capacity in service industry can be displayed in amount, structure as well as quality. In order to facilitate its development in service industry, some efforts must be made such as updating ideas, speeding up reform, improving people's income, speeding up the urbanization course, optimizing the structure of service industry, promoting the openness of service market, strengthening personnel training and so on.

Keywords: Service industry, Shandong province, Problems, Policy recommendations

With the weight of economy in the major developed countries shifting towards service industry, this industry has got an increasing percentage in employment and GDP and therefore, a general tendency of the shifting from "industry economy" to "service economy" has been formed. In the recent years, with much importance put on service industry by the Shandong Provincial Committee and Government, great achievements have been made in its development in order to expand employment, optimize industry structure, enhance general economic profit and promote the overall and harmonious development of economy and society. However, problems are still serious, hence calling for more effective measures to facilitate the development of its service industry.

1. Problems in Shandong's Service Industry

Compared with other developed provinces, Shandong's service industry is underdeveloped in amount, structure as well as quality, which doesn't go with either its status as a major province in economy or the requirements of an overall, harmonious and sustainable development. The major problems are as follows:

1.1 Problems in Amount, Development Speed and Percentage

In 2006, the added value in Shandong's service industry reached 697.88 billion yuan, ranking third in China. Compared with that in the year before last, its amount, accounting for 7.8% of the country's total, increased by 0.2%. Besides, with its increase speed of 14.2%, it ranked third in China. In addition, its contribution rate for GDP was 30.7% and caused GDP to increase by 4.5%. Horizontally, Shandong achieved more added value in service industry than Zhejiang (Zhejiang: 628.824 billion yuan, Shandong: 697.882 billion yuan) while less than Guangdong and Jiangsu (only accounting for 63.6% and 89.3% of their added value amounts respectively). In the percentage in GDP, Shandong's percentage of 32.0% is lower than Guangdong, Zhejiang and Jiangsu by 10.3%, 8.2% and 4.3% respectively. In the per capita service ownership, there was an even greater gap between Shandong and the above provinces in 2006 with the per capita service ownership in Guangdong, Jiangsu and Zhejiang being 1.58, 1.38 and 1.69 times as large as that in Shandong.

1.2 Low Development Level

Compared with other provinces such as Guangdong and Jiangsu, the structure in Shandong's service industry seems not so reasonable with the great share of traditional industries in its economy. According to statistics in the first half of 2006, traditional service industries took 46.3% of Shandong's total service industry gross, which was 50.72 billion yuan and 27.26 billion yuan less than that of Guangdong and Jiangsu and 7.0% and 3.4% higher than that of Guangdong and Jiangsu respectively. However, some new industries such as finance, real estate had only a small share of 32.0%, 100.65 billion yuan and 15.93 billion yuan less and 10.5% and 3.0% lower than Guangdong and Jiangsu respectively. In the aspect of internal structure, the percentage of traditional service sectors in Shandong was 3.9% lower than that in Jiangsu and 5.1% higher than that in Guangdong while the percentage of its new service sectors was 9.9% and 2.0% lower than Guangdong and Jiangsu respectively. Therefore, it is shown that Shandong's service industry is not strong in its strength and awfully poor in its weakness. Compared with Jiangsu, it is weak in total amount while when compared with Guangdong, its weakness can be displayed not only in total amount but in structure.

1.3 Unbalanced Development in Different Regions

Due to their different economic development and natural environment, there are obvious differences among different cities in Shandong province. First comes the unbalanced amount distribution. Qingdao's added value in service industry in 2006 ranked first in the whole province, taking 18.4% of the total created by the whole province, while Heze and Laiwu ranked last with the share of only 1.7% and 1.0% respectively. The cities of the Shandong Peninsula have created 67.0% of the total added value in Shandong province, decreasing by only 0.7% compared with that in 2001, in which Jinan and Qingdao were the two major carriers of Shandong's development in service industry with their share of 32.6% in the total. Second come the great differences in weight. In 2006, the added value of Jinan's service industry took the highest percentage in GDP (47.5%) while Dongying took the lowest (14.1%). Third come the great differences in the contribution rate for GDP. In 2006, among all the cities in Shandong, only Qingdao and Jinan had a contribution rate over 40% (Jinan: 46.6%, Qingdao: 42.9%). Zibo, Jining, Taian, Weihai, Rizhao, Linyi and Binzhou had a contribution rate ranging from 30% to 40% while others below 30% among which Dongying gave the lowest one, 16.6%.

1.4 Low Market-oriented Degree

Restricted by the traditional planned economy, the tendency of welfare and non-socialization has long existed in Shandong's service industry. At present, except those traditional industries which are relatively high market-oriented, the majority, especially those modern ones suffer from monopoly. In 2004, the share of non-public sectors of the economy in Shandong was only 35.9%, while that in Guangdong, Jiangsu and Zhejiang exceeded 40%, among which Zhejiang's 45.8% share was nearly 10% higher than that of Shandong.

1.5 Poor Competitiveness

Poor competitiveness mainly results from the low degree of opening and market development. In 2005, the direct foreign investment of 0.898 billion dollars in service industry in Shandong only took 10% of the total investment of the whole province, while that in Shanghai and Guangdong took an over 30% share. In the recent years, Shandong's service industry has attracted an increasing number of foreign investors, among which the real estate field has drawn the greatest proportion—51.5% of the actual foreign investment in service industry. Korea and Hong Kong still rank top in investment with their 57.9% share of the total in the whole province. Besides, 26 more projects invested by the world top 500 enterprises have been established, among which Peugeot in France and International Paper in U.S. will have their first try in Shandong. All in all, the leading enterprises and the key regions have no obvious influence on the development of Shandong's service industry, and therefore, no compact district with conspicuous features and influential brands has been formed here.

1.6 Shortage in Professionals

Nowadays, a number of professionals are required in our modern service industry, especially in those knowledge-based fields (such as comprehensive logistics, electronic business, computer software, information technology, research and exploration, technical trials, market service and company management and so on). However, little importance has long been put on personnel training in Shandong's service industry, hence resulting in a severe shortage of advanced professionals. At present, Shandong's service industry suffers from a low proportion of employees, low labor productivity and low added value. Compared with that of some developed countries and even of some developing countries, the proportion of service industry in the whole economy of Shandong (32%) as well as the proportion of employees in service industry (29.6%) seems to be too low. According to statistics in 2006, the proportion of service industry in the whole economy of Shandong was 4.3%, 8.2% and 10.2% lower than that of Jiangsu, Zhejiang and Guangdong respectively; its proportion of employees in service industry was 5.0%, 1.0% and 0.5% lower than that of Jiangsu, Zhejiang and Guangdong respectively. In the aspect of productivity, Shandong's labor productivity in service industry was 40215 yuan/person in 2006, which was only 80% of that of Jiangsu, 77% of that of Zhejiang and 62% of that of Guangdong.

1.7 Poor Ability in Support and Service for Production

As is shown in the global economic development and the global industrial distribution, the development of service industry is characterized by the growth of productive service industry. According to the principle that we should try to promote the development of tertiary industry with that of secondary industry and service is expected to serve production, priority should be given to productive service industry. Currently, U.S. is regarded as a quite good example to follow with its over 70% share of service industry in national economy as well as 70% share of the productive sector in service industry. From 1995 to 2003, the proportion of the productive sector in Shandong's service industry decreased by 5.3% and that of the public sector decreased by 1.7%. In 2004, compared with that of Jiangsu (39.5%), Zhejiang (42.1%) and Guangdong (38.4), the proportion of the productive sector in Shandong's service industry was 9.8%, 12.4%, 8.7% lower than Jiangsu, Zhejiang and Guangdong respectively. When it comes to 2005 and 2006, the proportion of Service industry in Shandong's GDP was 32.1% and 32% respectively.

2. Policy Recommendations for the Development of Shandong's Service Industry

Nowadays, with its efforts to build a well-off society in an all-around way and to facilitate its industrialization, urbanization, internationalization and market-oriented economy, Shandong has been of quite a few preconditions for the sound develop-

ment of economy. In this situation, it is the only way for the adjustment of economic structure and the shift of economic growth methods to increase the proportion of service industry in the whole industrial structure and to develop service industry into the pillar industry of the whole national economy. In addition, it is also an internal request of a harmonious society to establish a complete service industry system and supply rich products to fulfill people's material and cultural needs as well as to form a new channel for employment. At present and even for some time to come, the following points should be emphasized:

2.1 Updating Ideas to Make Ideological Preparations

With Shandong being the hometown of Confucius and Mencius, and consequently influenced by Confucianism, a large proportion of people here are still influenced by the out-of-date idea that it is inferior to serve others. In some areas, industrial projects attract much more attention than service ones. Besides, there are still some people with a prejudice against service industry. Therefore, in order to develop Shandong's service industry, first of all, people's minds should be changed to treat the development of service industry as important as that of industry and agriculture due to the close relationship among the three. Second, ideas about employment should also be changed and service industry should be relied on to form another important channel for employment. Third, consumption ideas should be changed to enlarge the demands for service industry and expand the space for its development.

2.2 Facilitating Reform to Provide Favorable Institutional Foundations

According to the general principles in economics, innovation is a significant source of extra profit. As for service industry, this means not only the innovation of service width and depth, that of service ideas and methods, but also that of management systems and operation institutions. First, the institutional reform in some large and medium state-owned companies in service industry is expected to be facilitated to improve the corporate governance, strengthen the internal reform and form an effective system of input and output. Second, the industrialized process of service industry should be enhanced. Third, we should speed up the reform in institutions to conduct the transition of those profit-winning institutions to enterprises or to enterprise-oriented management and to reduce and gradually cancel government's input in them. Meanwhile, those non-profit institutions should be included in the whole competition system to provide service to the whole market. Fourth, the market-oriented reform in service industry should be strengthened to increase the proportion of non-state-owned economy. The layout of the national economy in service industry should be optimized to strengthen the supporting, guiding and encouraging functions of the state-owned sector.

2.3 Improving the Standard of Living to Increase Effective Demands for Service Industry

Many fields in service industry are closely related to the lives of urban as well as rural residents, hence tending to be influenced by them. The income of the urban and rural residents in Shandong ranks eighth in the whole country. Facing such a situation, the policy of income allocation should be adjusted to improve the residents' income and speed up constructing the social security system. In this way, consumption motives will be stimulated and requests for service industry will be increased, hence stronger motive force for the development of service industry. It should be emphasized that, with 62.3% of Shandong's population being peasants, their income must be increased in order to attract them to consume in service industry. First, we should support agriculture more effectively by investing more in agriculture through different channels, improving the conditions for agricultural production, enhancing their abilities to combat natural disasters and improving the comprehensive agricultural productivity. Second, more channels should be created to increase peasants' income, the structure of their income sources should be perfected and industrialized management should be carried out in rural areas. In addition, the transfer of extra labor force in rural areas into non-agricultural industries should be facilitated. Third, special attention should be paid to how to increase the income of those low and middle income peasants. Fourth, peasants' burdens should be lessened to relieve their worries about the consumption in service.

2.4 Speeding up Urbanization to Open up Larger Space for Service Industry

The level of urbanization influences service industry directly. As is shown in the practice of global economy, service industry, especially the modern one, interacts with urbanization. Only with a relatively intensive population will it be possible to form scalable transaction and transportation. Only with a relatively intensive consumption group will it be possible to form a scalable market. Therefore, urbanization should be facilitated to encourage the development of service industry. At the moment, the following aspects should be covered: first, greater efforts should be exerted in the reform of household registration system in which the policies about population flow and migration should be implemented to promote the reasonable flow of urban and rural labor force. Second, cities and towns should be encouraged to enlarge the scale of the traditional service industry, to speed up developing the new industry, to perfect the public transportation network, to facilitate the construction of basic facilities and to improve the environment for investment and life. Third, enterprises in large and medium cities should be encouraged to set up their processing bases, conduct management activities and establish industrial estates in some central towns to realize the accumulation of industries there. Fourth, the urbanization construction in rural areas should be facilitated. More necessary facilities should be built to improve the ability of industrial accumulation. In addition, more efforts should be exerted to establish agricultural product wholesale markets and other specialized wholesale markets. The industries related to the transportation, storage, transaction and technological introduc-

tion of agricultural products should also be developed.

2.5 Improving the Internal Structure to Make a Scientific Plan for Service Industry

The internal structure of service industry should be adjusted effectively to increase its comprehensive profit. First, the traditional service industry should get revived. With their great aggregates, solid bases and great contributions to economic development and improvement of people's living standard, some traditional industries such as transportation, telecommunication, trades and catering are still the key points in Shandong's service industry. Second, productive service industry should be attached more importance to. Some productive service industries such as finance, insurance, real estate, logistics service have long been the weak links in Shandong. Therefore, based on the reality of Shandong, some key industries should be broken through first to help to establish a productive service industry system with wide coverage, strong impetus and many employment opportunities. Third, new service industries should be facilitated. The new service industry with emphasis on information, knowledge and innovation runs through the whole national economy as not only a new highlight in Shandong's service industry but a growth point in the whole national economy. Therefore, more efforts should be exerted to construct relevant basic facilities, integrate resources, expand the space for development, perfect the platform for development, especially to reform those unreasonable systems, increase capital investment in order to develop the new service industry into the pillar of the whole national economy.

2.6 Opening Wider to the Outsider World to Inject New Energy for Service Industry

Against the global depression of economy, transnational corporations begin the new round of industrial distribution adjustment. With manufacturing industry still the weight of this adjustment, service industry's transfer to other nations has become a new hot issue. In this situation, Shandong should speed up its opening to the outside world to strengthen its cooperation with transnational corporations in modern logistics, finance and insurance, business service and so on. In order to achieve that, first, more efforts should be exerted to speed up shifting government functions, build stronger sense of services, simplify approval procedures and improve efficiency in order to create better environment for investment; second, legal construction should be emphasized, especially that related to intellectual property; third, credit construction should be strengthened to build favorable credit environment and market economy orders. In addition, domestic service enterprises should extend to the outside world. As for those dealing with a lot of imports and exports, purchase centers, distribution centers, logistic distribution centers, financial service centers should be established outside China. As for those items with comparative advantages, such as restaurants, medical treatment, folk arts, national culture and so on, chain operation in other countries should also be encouraged.

2.7 Stepping up Personnel Training to Provide Effective Support for Service Industry

A large number of professional are required in service industry, especially in the knowledge based fields. Despite of its rich labor force, Shandong is short of high-quality professionals in service industry. Therefore, it is a necessary measure for the development of Shandong's service industry to cultivate and introduce talents. In order to achieve that goal, vocational education should be effectively developed by establishing colleges and majors specialized in service; a joint system for talent cultivation should be established and domestic as well as foreign management talents in service should be introduced; on-the-job training should be emphasized by adopting the system of professional qualification credentials and efforts should be made to improve the skills of laid-off workers, peasants in service and so on.

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WTO TRIPS Agreement- Current state of Pharmaceutical Industry and Policy Options for Bangladesh

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Abstract

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) requires adoption of a minimum patent standard for all countries. It is often argued by developing countries that the introduction of a uniform (and minimum) patent standard for all countries irrespective of their level of development would prevent people from access to medicines. Moreover, in developing countries, the drug expenses are being paid out of pockets by the patients unlike developed countries where insurance companies bear the burden. In this regard an empirical study was conducted on pharmaceutical stakeholders consisting of leading pharmaceutical companies, drug administration of Bangladesh (the regulatory authority), leading experts on industrial pharmacy, academics and leaders of Bangladesh Association of Pharmaceutical Industries. The study finds that price of medicines will go up and access to health will be denied once Bangladesh enters the patent regime. The perceived impact on the industry however is mixed. The paper concludes with some policy considerations that the government and the industry should consider to ensuring that the patients have access to medicines at an affordable price.

Keywords: Patent, Compulsory licensing, Drug, Parallel importation, Active pharmaceutical ingredient (API), TRIPS, Bangladesh, Evergreening

1. Introduction

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) entered into force on 1 January 1995. The introduction of the TRIPS Agreement has created immense debate among different stakeholders regarding its perceived consequences on several sectors especially on pharmaceutical and agriculture (Note 1) sector. The agreement has also been a subject of debate because it brought the domestic Intellectual property rights (IPRs) regulations of WTO Members under the jurisdiction of the WTO dispute settlement system (Lanoszka, 2003). However, the debate mostly centred on its perceived severe consequences on people's access to medicines in developing countries (in the WTO parlance developing country also includes LDCs). Although there is a growing literature on the perceived consequences of TRIPS Agreement on access to health and pharmaceutical industry, no study has yet been done on Bangladesh. Bangladesh is a densely populated LDC country with strong pharmaceutical manufacturing base. It is therefore important to assess how the patent regime for medicine is going to impact both the access to health as well as the pharmaceutical industry in Bangladesh. This paper examines how the TRIPS agreement is going to impact people's access to health. This paper also attempts to assess the perceived consequences of the Agreement on the sustainability of the pharmaceutical companies as the sector has been performing reasonably well before the implementation of the patent regime.

This paper is organized in four sections. Section 2 provides a brief description of the TRIPS Agreement. Section 3 details Bangladesh Pharmaceutical Industry. Section 4 explains the methodology. In Section 5 are the findings and suggested policy options. The paper ends with a conclusion in Section 6.

2. Summary of the TRIPS Agreement

The agreement on Trade-Related Aspects of Intellectual Property Rights sets out the *minimum standards* of protection for Intellectual property(IP) areas such as copyrights, patents, trademarks, geographical indications, industrial designs, layout designs, and undisclosed information etc. to be provided by each member. The agreement requires all WTO Members with few exceptions, to provide 20-year patents for any inventions, whether products or processes, in all fields of

technology (including pharmaceuticals) without discrimination as to the place of invention, subject to the normal tests of novelty, inventiveness, and industrial applicability (Agreement on TRIPS: Article 27.1, Article 33). It is a minimum standard agreement as it allows members to provide more extensive protection of intellectual property if they so wish.

The TRIPS Agreement requires Member countries to provide civil as well as criminal remedies (criminal remedy may be necessary in cases of copyright piracy or wilful trademark counterfeiting on a commercial scale) for the infringement of intellectual property rights covered by the Agreement (Articles 45-46, 61). Members are also obligated to provide means so that patent owners can obtain the cooperation of customs authorities to prevent importation of infringing goods as well as release of infringing goods destined for exportation (Articles 51-52).

Before TRIPS Agreement, many countries did provide only process- but not product patents. Product patent provide for absolute protection of the product, whereas process patents provide protection in respect of the technology and the process (method) of manufacture.

2.1 TRIPS - An Uneven Agreement!

Under TRIPS Agreement, both developed and developing countries are required to provide patent protection for all areas of IP although they are not at the similar level of development. The income levels of developing countries are much lower than that of developed countries. For example, (as shown in table 1) the major industrial countries (SL 1-4) adopted strong patent protection at high levels of real income (e.g., Japan's GDP per capita \$24,043, Switzerland \$ 36,965), whereas, developing countries (SL 5-8) will be required to adopt similar standards at much lower income levels (e.g., Pakistan GDP per capita \$ 508) under the said agreement (Subramanian, 2004).

The information in table-1 confirms that TRIPS agreement requires providing patent irrespective of the level of GDP per capita. This creates an uneven playing field for developing countries. Furthermore, a large percentage of developing country population does not have access to medical insurance and more often than not pay for drugs themselves (WHO, 2001 in Cullet, 2003). Mazhar (2005) criticized the TRIPS agreement noting that 'the TRIPS agreement grants monopoly rights without having legislation to bound monopolies.

2.2 The Rationale for Patents

Intellectual property rights are justified on the ground that it would provide necessary incentives for research and technology development. Through patents, the inventor(s) is (are) given time bound monopoly. This time bound monopoly gives the inventor the exclusive right to exploit the invention and prevent others from using the invention without his consent. Rewarding the inventor is the main rationale of patent system. This time bound monopoly is derogation from the concept of free trade. The proponents of the patent system argue that Pharmaceutical industry spends huge expenditures on R & D than any other industry. The patent system allows the inventor firms to charge prices more than the marginal cost of production and distribution of drugs. The monopoly right given by the patent and the scope to charge higher price than the marginal cost allows inventors/inventor firms to recoup the cost of developing the drug. The Orthodox perspective (about IPR) considers protection of intellectual as essential to motivate people to incur costs for innovation and run the risks that outcomes may not succeed. According to this view, both firms and society gain benefits from enforced IPRs (Note 2) (Plahe, 2007).

The developing countries view the patent regime from a different perspective. On public health ground a number of countries provided no patent protection or partial patent protection for pharmaceutical products before the Uruguay Round on the ground that health sector is concerned with basic need and therefore should be protected from full commercialization. India is a glaring example who vehemently endorsed this view. India did not recognize product patents on pharmaceuticals until very recent past (Note 3) (Cullet, 2003).

Hughes, Moore, and Snyder (2002), in their paper titled "Napsterizing" argue that in the short term, consumers would be much better off if patents on drugs are eliminated, thereby allowing drug price to lower by increasing competition with generic products; however, in the long run we would all be worse off. This is because with lower revenues, pharmaceutical companies would not be able to dedicate much money into the research and development that is critical for the development of new products. So gradually the development of new drugs would decline, and fewer new life-saving and life-enhancing treatments would be available to future generations (Hughes, Moore, and Snyder, 2002 in Werhane & Gorman, 2005). Despite all these arguments in favour of intellectual property rights, the TRIPS Agreement has been subjected to severe criticism especially regarding its potential impact on medicine and access to health.

2.3 Concerns with TRIPS Agreement

Before the TRIPS agreement came into being, different countries could implement different systems to protect IP depending on their level of development. This allowed a number of countries not to have patents in any form for drug whereas many others dispensed only with patenting for therapeutic molecules in their IP laws. In this historical context of IP protection, the advent of TRIPS requiring uniform minimum standard for all countries, irrespective of their economic gap, has created antagonisms between developed and developing countries during Uruguay Round of negotiations. The main issue identified that created the debate between industrialized and developing countries was the perceived impact of the TRIPS

Agreement on public health especially access to the generic drugs at low costs in developing countries. Developing countries argue that once they become TRIPS compliant, production of generic drugs will be prohibited and price will go up. The debate, most often centred on the high price of HIV/AIDS treatment (Note 4) thereby rendering HIV treatment impossible in southern countries where no health insurance system exists and patients have to pay out of pocket for medicines. The concerns that were raised about the implications of the TRIPS Agreement on public health were reflected in the adoption, upon the initiative of developing countries, of the “Doha Declaration on the TRIPS Agreement and Public Health” at the Fourth WTO Ministerial Conference (November 9-14, 2001). Recognizing the severity of the public health problems afflicting many developing and least-developed countries (“LDCs”), especially—but not limited to—those resulting from HIV/AIDS, tuberculosis, malaria, and other epidemics, the Declaration clearly states —“ the TRIPS Agreement can and should be interpreted and implemented in a manner supportive of WTO members’ right to protect public health and, in particular, to promote access to medicines for all (Correa, 2004). Another concern with patenting is the attempt by patent holder to “evergreen” the patent. Pharmaceutical companies sometimes apply to patent the new form of an old drug (known as ‘evergreening’ (Note 5)) and thus extending the life of a patent. In 2006, Chennai Patents Office rejected an application of Novartis for patenting a drug (Imatinib Mesylate under the brand name of Glivec) on the ground of evergreening. Novartis also lost the case challenging Chennai Patents Office decision in Chennai High Court (Srinivason, 2007).

2.4 Does Intellectual Property (IP) Stimulate Development of Drugs Related to the Needs of the Poor?

The argument in favour of patent protection is that it provides incentives to inventors/private firms to undertake more Research and Development (R &D) in developing drugs for diseases more common in developing countries (Agarwal & Saibaba, 2001). This rationale of patent is often seen with scepticism on the ground that it is uncertain whether the redistribution of resources to the inventors/private sector firms actually results in development of more drugs for diseases more common in poor countries. This scepticism gets support from historical findings of WHO (World Health Organization) “of the 1223 new chemical entities developed between 1975 and 1996, only 11 were for the treatment of tropical diseases” (Cullet, 2003). In fact, patent does not stimulate R & D for development of drugs for poor people; rather firms concentrate on drugs that have got a big market. There is growing evidence that pharmaceutical companies pay little attention in developing new drugs for diseases that are most prevalent in the poorer countries. Rather they spend a large amount of money in developing and promoting lifestyle drugs that are mainly bought by consumers in the developed countries (Abbott, 2002: 19). In this regard, it is important to cite the observation of the Commission on Intellectual Property Rights (CIPR)- ‘all the evidence examined concerning the role that intellectual property protection plays in stimulating R & D on diseases prevalent in developing countries suggests that it hardly plays any role at all, except for those diseases where there is a large market in the developed world’ (CIPR, 2002).

2.5 Flexibilities and Exceptions to Exclusive Patent Rights

The developing countries argue against TRIPS stating that the agreement is concerned mainly with the interests of IP right holders and ignores the needs of the poor people. A lot of debate was going on regarding the issue of access to medicines at affordable price, especially for the poor countries. On this issue, world renowned NGOs and donor organizations like Oxfam, USAID, TWN etc. started making lot of noise. They came up with arguments that due to TRIPS, price of necessary drugs will go up and access to medicines at affordable price will be at stake (Hasan, 2006). The strong opposition from developing countries as well as the controversies at the theoretical and practical levels regarding TRIPS led the policy makers to think for alternatives. As a result, in Year 2002, after lot of debate, the ‘Doha Declaration’ on TRIPS and Public Health (adopted at the Doha Ministerial meeting of the WTO in November 2001) came in to being.

The Declaration unambiguously states that “the TRIPS Agreement does not and should not prevent Members from taking measures to protect public health”. According to the Paragraph 6 of Doha Declaration, all the LDCs were exempted from ‘Pharmaceutical Patent Protection’ until 1 January 2016. Article 66.1 also provides for the extensions of the transition period for LDCs upon request. Article 1.1 of the Agreement grants Members the freedom to determine the “appropriate method of implementing the provisions of the TRIPS Agreement within their own legal system and practice.”

The Agreement also contains some exceptions to exclusive patent rights. Article 27.2 allows countries to restrict the patentability of inventions, if they pose a threat to human life or health. Article 30 permits Members to limit the exclusive privilege granted through patent rights. These general exceptions provided by article 27.2 and 30 are supplemented by article 31 which sets out regulatory framework to issue compulsory licensing (CL). Member States can allow CL on a case by case basis and subject to other conditions laid down in the agreement. WTO Members have the right to determine the grounds for the grant of compulsory licences (CL). Initially CL was restricted to producing pharmaceuticals ‘predominantly for the supply of the domestic market’ (Article 31f). Members with insufficient or no manufacturing capacities in the pharmaceutical sector could not use CL as import was not permitted under CL and they could not resort to importation. Realizing this difficulty with CL, the General Council, on 30 August, 2003 waived the restrictions on export. After this interim waiver decision, a member is eligible to produce and export to eligible importing member(s) (Note 6). WTO members on 6 December 2005 approved changes to the WTO TRIPS Agreement making permanent the decision (the waiver of Article 31f) on patents and public health originally adopted in 2003. This will now be formally built into the TRIPS Agreement when two thirds of the WTO’s members have accepted the change.

Any WTO members (including the developed countries) may grant a CL to its domestic manufacturer to produce and export to the 'eligible importing country' under the scheme. The issuance of CL thus shall open the door to competition from generic pharmaceutical manufacturers (Fink, 2005). The person or agency obtaining the CL needs to pay compensation to the patent holder.

CL is a good weapon for developing countries to source cheaper generics. Some developing countries have successfully used the threat of resorting to such licence as a negotiating token in view of obtaining significant price cuts on essential drugs or voluntary licences (Eeckhaute, 2002). There are evidences that issuance of CL to import generic drugs (Note 7) resulted in drug price to drop. For example, in February, 2004, the Ministry of Health, Malaysia issued a contract to a local Malaysian company to import generic Zidovudine, Didanosine and a combination of Lamivudine and Zidovudine from Cipla (India). As a result, the average cost of Malaysian Ministry of Health (MOH) treatment per month per patient dropped from USD 315 to USD 58, equivalent to about an 81% reduction, when generic drugs were used. Patent holders also dropped their own prices when the government exercise its right of government use. This is evident from the table 2.

The Agreement also allows Members to authorize use for public non-commercial purposes (government use) without the authorization of the patent owner. WTO Members are also free to establish its own regime of exhaustion (national or international) of IP rights. This means that Members can adopt international exhaustion in their patent act with a view to allowing parallel importation of patented goods that have been put on a third market by the patent holder or with his authorization (Eeckhaute, 2002). These flexibilities and exceptions could be good alternatives for countries that are in need of medicines at affordable price.

To assess the perceived impact/consequences of the TRIPS Agreement on Bangladesh, it is pertinent to present a brief picture of the present state of Bangladesh Pharmaceutical Industry. The next section depicts a brief sketch of Bangladesh Pharmaceutical Industry.

3. Bangladesh Pharmaceutical Industry

Before 1982, Bangladesh was largely dependent on imported raw materials/API and finished products. The local production was dominated mostly by multinational companies (eight MNCs) who produced about 75% of the value of production. The national Drug Policy (NDP) i.e. Drug Control (Ordinance) 1982 aimed to remove medicines considered harmful, useless and unnecessary from the market (by banning 1707 brands) and ensure supply of essential drugs of all levels at affordable price helped national companies increase their market share from 35 in 1981 to 60 percent in 1990 and by 1991 the top three firms in terms of sales were from locally owned (Rovira, 2004; Islam & Faroque, 2007). Pharmaceutical industry has grown in the last two decades at a considerable rate. With an annual growth rate of about 10%, Bangladesh Pharmaceutical Industry is now heading towards self-sufficiency in meeting the local demand. Bangladesh Pharmaceutical industry is now the largest white-collar intensive employment sector of the country (Hassan, 2005). At present 225 registered pharmaceutical companies are operating in the pharmaceutical sector (Smith, 2005; Shafiuzzaman, 2005). Out of this about 200 have their own manufacturing facilities of which 5 are multinationals (Chowdhury, 2005). Pharmaceutical manufacturers in Bangladesh together now produce 95% of the demand for the country (Smith, 2005, Yusuf 2006a). Bangladesh lacks capacity in producing APIs (Yusuf, 2006b) and the industry depends on the imports (of raw materials, API and Machinery) from India, China, UK and few other European countries (Rovira, 2004).

Bangladeshi pharmaceutical companies produce only 15 Active Pharmaceutical Ingredients (API).

The market size mounts to US\$520 million with double digit growth rate. The pharmaceutical manufacturers of Bangladesh exports pharmaceutical products (such as all major therapeutic classes and dosage forms like Tablets, Capsules & Syrups and specialized products like Inhalers, Suppositories, Nasal Sprays, Injectables and Infusions) to 62 countries in the world (Hassan, 2006). The major pharmaceutical companies in Bangladesh comply with WHO cGMP (Current Good Manufacturing Practice). With an aim to enter the regulated markets like US, EU countries, they are putting up manufacturing facilities of US FDA (Food and Drug Administration) and UK MHRA standards (Chowdhury, 2005).

The pharmaceutical industry is however, beset with some problems. The Directorate of Drug Administration is not adequately equipped with expert manpower to carry its monitoring role functions (The Daily Ittefaq, February 2, 2006) effectively. The drug testing laboratories (one in Dhaka and other in Chittagong) are not well equipped to carry out drug testing functions. Moreover there is no independent drug testing laboratory. The most important bottleneck lies in the absence of bio-equivalence test laboratory (Rahman, Drug Administration, 2006). Availability of substandard medicines said to produce by unlicensed companies (*The Daily Inqilab*, 18 February, 2006) is a matter of great concern for the regulatory authority and a threat to human health.

4. Methodology

This paper is based on both primary and secondary data. The primary data is based on interview findings. Pharmaceutical owners and senior level executives of 10 renowned pharmaceutical companies of Bangladesh were selected using the industry database in Bangladesh. In addition to the pharmaceutical owners and executives, the director of the Drug Administration of Bangladesh (the regulator), two academics from the pharmacy department of the University of Dhaka and

two key leaders of the Association of Bangladesh Pharmaceutical Industry were also selected. The academics were selected considering their academic background and linkage with the pharmaceutical industry. The drug regulator has been selected considering his official policy making position and long experience as an academic. Before conducting the interview, the researcher(s) contacted the CEOs/directors of pharmaceutical companies, the drug regulator, concerned academics and industry leaders, explained the study and gained their consent. Timing of interview was fixed by mutual discussion that best suits the interviewee. A face to face interview was conducted using a questionnaire (arranged like a likert scale- table 3) among leading 10 pharmaceutical companies, drug regulator, industry leaders and academics. Table 3 summarizes the responses found through interview survey which focused on the consequences of the TRIPS Agreement, state of Bangladesh pharmaceutical industry and policy options for the industry as well the government. Follow up interviews were conducted over telephone to clarify policy and trade issues. Secondary materials were extensively used to identify critical factors affecting the pharmaceutical industry in developing countries and to use those factors to construct an analytical framework for the study. The sources of secondary data include published articles from various journals, working papers, WTO website, published interviews, TWN (Third World Network) briefing paper, conference papers on the TRIPS Agreement, newspapers and other e-sources.

5. Findings /Perceived Consequences of TRIPS Agreement on access to medicine and on the industry

The situation for Bangladesh pharmaceutical industry as well as for drug consumers is expected to change after 1.1.2016 when Bangladesh would enter the patent regime. In this regard, VanDuzer (2003) told in a seminar that implementation of TRIPS mean that prices will increase, generic drug producers will be hurt, and the access to medicines will be impeded.. Moreover, once TRIPS become mandatory for all countries, export market of Bangladesh pharmaceutical producers will be confined to eligible importing countries only.

Historically, developing country consumers had to pay higher prices for patented goods than generic alternatives. For example, the US price of 3TC (Lamivudine) marketed by Glaxo is USD 3,271 (per patient per year) whilst Indian generic manufacturers, Cipla Ltd. and Hetero Drugs Limited, offer their generic versions for USD190 and USD98, respectively (TWN, 2001). Where alternative medicines are available, a branded product is usually sold at lower price than the price the same brand will sell in countries where there is no competition. The same brand Zantac was sold cheaply in India (\$2 for 100 tablets) as there it faced competition from generics. It was sold \$3 in Nepal, \$9 in Bangladesh, \$30 in Vietnam, \$37 in Thailand, \$61 in Sri Lanka and \$183 in Mongolia, \$ 23 in Australia, \$77 in Canada and \$150 in South Africa (Health Action International 1998). The similar sort of consequences is widely perceived in the case of Bangladesh. 80% of the respondents interviewed told that price of medicines would go up (although they could not tell the extent of price rise precisely) once TRIPS Agreement is implemented. 10% interviewee could not tell what would happen on price once the country would enter the patent regime. It is easy to understand that 20 years of monopoly (article 33) over a pharmaceutical product would enable the right holder to charge higher price for medicines during the patent period as generic equivalents would not be able to come to the market.

Of the respondents, 80% told that the transition period of up to 1 January 2016 (Note 8), for LDCs in providing patent protection for pharmaceuticals comes as a blessing in disguise for Bangladesh. During this time, Bangladesh (as an LDC) would be able to freely manufacture and sell patented drugs (patented elsewhere) in its domestic market as well as export more to 'eligible importing Member' (Note 9) because among LDCs, she has the strongest manufacturing capability to produce drugs. There are as good as 16 LDCs (Annexure 1 List of 16 LDCs) which do not have any pharmaceutical manufacturing capabilities where others have very limited or insufficient manufacturing capabilities (Annex-2 Import based countries). This holds out opportunities for the pharmaceutical manufacturers of Bangladesh to capitalize the post 2005 opportunities through exporting drugs to these countries. Realizing this opportunity, several leading Indian generic drug manufacturers are considering relocating their operations to Bangladesh to take advantage of the least developed country status and benefit from associated longer transitional periods that Bangladesh enjoys (Matthews, 2004). It is reasonably expected that in the absence of any competition from India and China, Bangladesh Pharmaceutical Industry will be able to sell the patented products to the LDCs at a price which could be 50% of the originator brand (Hassan, 2005) and strengthen its foothold in LDC markets.

This export potential is not without uncertainty. In Hassan's view, "post 2004 scenario is not at all that clear. We are still not sure which products India cannot produce after 2004. Moreover, a lot will depend on their capability to produce bulk drugs for products which will be under patent regime during that time" (Hassan, 2004). However, one important risk is associated with this transition process. If Bangladesh is graduated from LDC to developing country group before 2016, all the TRIPS flexibilities allowed for LDCs will disappear. Most respondents stated that Bangladesh does not have research capacity and ability to produce raw materials/molecules for drugs.

Most respondents opine that Bangladesh lacks R & D to produce raw materials for medicines and therefore, the industry should invest in R & D. Although, Bangladesh manufactures 95 percent of its total demand for formulation products, its bulk industry (also known as molecules/API) is still in its infancy. For API and excipients, Bangladesh heavily depends on imported ones. It is estimated that at least 80 percent of total demand for pharmaceutical raw materials come from abroad.

Bangladesh source most of its raw materials/API mostly from India and China. With the introduction of patent for pharmaceutical product in these source countries (developing countries were to put patent regime in place since 2005), the price of these bulk drugs/raw materials will naturally go up as royalty for patent use adds up to the cost of molecules/APIs. This will enhance the manufacturing cost of pharmaceutical producers leading to an erosion of their competitiveness in the world market. This might also result in reduced turnover resulting from enhanced price of drugs.

The majority (90%) respondents opined that the patent regime would especially put the smaller pharmaceutical companies in great disadvantageous position who are unable to conform to the cGMP standards and depend mostly on generic drugs. They are not expected to get toll or licence manufacturing order from renowned drug companies which has been allowed in the Bangladesh National Drug Policy, 2005.

The perceived impact from the empirical study shows that access to medicines would be expensive and be somehow impeded. The perceived impact on the industry is however mixed. The pharmaceutical companies have got the unique opportunity to increase their exports to eligible importing countries during the transition period of up to January 1, 2016. However, the small pharmaceutical companies might face difficult situation once the country enters the mandatory patent regime under WTO TRIPS agreement. The study also reveals that the pharmaceutical companies should form joint collaboration with global companies to benefit from their skills and technology. One concern for the industry is that Bangladesh lacks enough preparation to face the post- 2016 challenges.

5.1 Policy Options to Facilitate Better Access to Medicines

There is important rationale behind TRIPS Agreement. It is also largely held view that the patent regime would result in increased drug price. To strike a balance between access to medicine and incentives for innovators, TRIPS Agreement contains some alternatives and exceptions that Members are allowed to exploit. The following are some important policy options for Bangladesh to ensure access to health at affordable price.

5.1.1 Amendment of the Patent Law

Although, Bangladesh has been exempted from pharmaceutical patent up to 2016, its existing patent act provides provision for pharmaceutical patents. It is therefore necessary to amend the national patent law to make it WTO compliant incorporating all TRIPS agreement flexibilities and safeguards. The patent laws should enable the country to provide CL, government use orders and parallel importing in simple and effective ways. The existing Patent Act provides for compulsory licensing but it needs to be amended in line with the TRIPS conditions. The flexibilities allowed and associated requirements to exploit them are shown Table 4.

5.1.2 Investment in R & D

In Bangladesh, universities lack R & D facility to support for pharmaceutical industry. In India and China, some selected universities are involved in pharmaceutical R & D. Bangladesh needs to invest in R & D for reverse-engineering of patented drugs. Investment in R & D facilities would also enable the pharmaceutical sector to develop its own molecule/API once the transition period is over. Leading pharmaceutical companies could explore this R & D facility. However research process for new drugs is not advisable for smaller companies as it is very expensive to develop new drugs. The estimated total capitalized R & D costs per new drug is US \$802 million to develop (and the out of pocket cost per approved new drug is US\$403 million) while the corresponding generic costs less than \$2 million (DiMasi, Hansen & Grabowski, 2003; Rahim, 2006). Development time for a new drug averages over 15 years (Rahim, 2006). The smaller companies could explore the possibility of forming consortium with the leading pharmaceutical companies to exploit the R & D result of renowned big companies and gain synergy from the joint collaboration (Rahman, 2006 personal interview).

5.1.3 Upgrade of the Pharmaceutical Sector

The pharmaceutical industry of Bangladesh needs to be upgraded in all respects including proper documentation, bioequivalence laboratory facility, strict compliance with the requirement of the cGMP, capacity building to produce API, quality control and proper supervision by regulatory authority. Establishment of bio-equivalence facility and conforming to cGMP would help the industry to enter into more regulated drug markets abroad (Rahman in an interview on January 1, 2006). Other developing countries with inadequate or no manufacturing capacities could resort to CL and Parallel Importation to provide access to medicines at reasonable price.

6. Conclusion

The Doha Declaration and the subsequent amendment of the TRIPS agreement has made the Agreement more balanced and acceptable. Bringing the amendment to article 31(f) of the Agreement and through Doha Declaration, the TRIPS Council has done a paramount job (Eeckhaute, 2002). Now it is up to Bangladesh and other developing countries to make use of the flexibilities and exceptions to their advantage to help access to medicine in the short term. This would require necessary regulatory changes to make the national patent Act WTO compliant. Moreover, Bangladesh needs to make long term strategic decisions to develop pharmaceutical manufacturing base through drug discovery/R&D. The other option is to make strategic alliance with renowned pharmaceutical companies as CL and parallel importations are not permanent solutions.

As the pharmaceutical sector of Bangladesh suffers from some structural weaknesses (such as inability to produce drug molecules/API) and resource constraints to invest in R&D to develop new drugs, there is no substitute but to strengthen the technological, economic and commercial development of the sector through transfer of technology in alliance with highly technology driven successful companies.

Since the study has mainly focused on the stakeholders' perception in regard to the access to medicine and sustainability of the pharmaceutical sector after 2016, the actual consequences will depend on how the government formulates policy to face the challenges of patent regime. In this context it can also be said that the sustainability of the pharmaceutical industry will depend, to a large extent on how competition under the TRIPS conditionality evolves

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Notes

Note 1. In the agriculture sector, there are growing opposition in the developing countries to the granting of IPRs for agricultural crops. Concerns of developing countries include environmental safety and food security (Ganakas, 2002). Moreover, there are also concerns regarding the restrictions on farmers' right to save, use, exchange and sell farm saved seeds (article 27.3b of the TRIPS agreement requires protection of plant variety. There is direct and indirect pressure on the developing and least developed countries (LDCs) to establish UPOV-like plant variety protection regimes that are designed to protect the interest of corporate plant breeders, and not farmers. Since farmers traditionally re-use the seed from their harvests, they are considered direct competitors of breeders who develop plant varieties for commercial interests and then seek legal protection for the exclusive market exploitation of their varieties. Such a regime takes away the traditional and community-centred control over seed conservation and use, which has been the regular practice of farming communities in developing countries (*the Hindu Business Line*, March 12, 2004). As a legal agreement, TRIPS creates a system of proprietary knowledge enforceable to a greater or lesser degree worldwide, expanding the site of surplus extraction in agriculture by restricting the traditional right of farmers to save seed. As a result of the dual nature of seed/grain as both means of production and product, after purchasing one generation of seed, farmers are subsequently able to propagate open-pollinated seed for many seasons without any significant loss of yield potential or characteristics. The restrictions on the use of seeds(although modern varieties of seeds are built upon the efforts of farmers whose knowledge and work is embodied in the seed) and the commodification of seeds thereof through TRIPS (27.3b) would invariably undermine the informal seed networks, the most important source of seed for small-scale farmers who produce the majority of food consumed in the region, by making it more difficult and expensive for farmers to save seed, and making it illegal to trade seed with neighbours. Given the importance of informal seed networks in southern Africa, any attempt to undermine traditional practices of saving and exchanging seed therefore represents a serious threat to regional, national and local food security (Zerbe,2001)

Note 2. There is another perspective called Heterodox perspective. This perspective views that people often pursue knowledge for its own sake and innovators can enjoy 'natural' protective measures such as imitation lag due to the cost of absorbing new knowledge, and head start along learning curve.

Note 3. See India Patents Act, 1970.

Note 4. For example, before generic antiretroviral (ARVs) came into the market, the price of highly active ARV therapy was around US \$ 10,000 to US \$ 12,000 per person per year.

Note 5. 'Evergreening' is the process of interminably extending the life of a patent- 20 years as per Indian Patent law for drugs - by inventing new uses, indications or even dosages and/or by trivially modifying the structure of the drug' (Srinivas, 2007 p.3688)

Note 6. "eligible importing Member" means any least-developed country Member, and any other Member that has made a notification to the Council for TRIPS of its intention to use the system as an importer (WTO website)

Note 7. A generic drug is a non-branded copy of a branded drug, and is supposed to be an identical, or 'bio-equivalent' copy. It is allowed to be produced and marketed after the brand name drug's patent expired or in circumstances where the drug patent does not apply (e.g. the exception to exclusive rights via a compulsory licence), or has been waived by the patent holder.

Note 8. After the inclusion of Doha Declaration in TRIPS Agreement (Article 66 and the associated extension of the deadline in the Doha Declaration on the TRIPS Agreement and public Health), LDC countries now under no obligation to provide for pharmaceutical product patent until 1.1.2016.

Note 9. 'Eligible Importing Member' means any least-developed country Member, and any other Member that has made a notification to the Council for TRIPS of its intention to use the system as an importer.

Note 10. Parallel importation refers to the importation and resale in a country, without the consent of the patent holder, of a patented product that has been legally marketed in the exporting country, thus allowing one to "shop around" for a good price and enabling competition (Reinhardt, 2006).

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Annexure 1. LDCs with no pharmaceutical Manufacturing Base

1. Bhutan 2. Burkina-Faso 3. Burundi 4. Central African Rep 5. Chad 6. Comoros 7. Djibouti 8. Equatorial Guinea 9. Guinea 10. Guinea-Bissau 11. Maldives 12. Mauritania 13. Rwanda 14. Sao Tome & Principe 15. Senegal 16. Togo

Annexure 2. Pharmaceutical Import based Countries (with very limited or insufficient manufacturing capabilities)

1. Afghanistan 2. Benin 3. Cambodia 4. Ethiopia 5. Lao People's DR 6. Liberia 7. Malawi 8. Mozambique 9. Myanmar 10. Nepal 11. Sierra Leone 12. Somalia 13. Sudan 14. Uganda 15. Yemen 16. Zambia 17. Kenya (Non LDC) 18. Sri Lanka (Non LDC) 19. Tanzania (Non LDC) 20. Vietnam (Non LDC) (Source; Hassan, 2006)

Table 1. Development level on adoption of pharmaceutical product patents

	Year of adoption	GDP per capita
Japan	1976	24043
Switzerland	1977	36965
Denmark	1983	28010
Sweden	1978	21896
Canada	1983	16296
Brazil	1996	4482
Pakistan	2005	508
India	2005	450
China	1992/93	\$424
Bangladesh	Future	\$435

Source: Lanjouw, J. (2002), "Intellectual Property and the Availability of pharmaceuticals in Poor Countries," *Centre for Global Development Working*

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Table 2. Price Reduction Resulting from Issuance of Compulsory Licensing

	2001 prices(USD)	2004 prices(USD)	% drop in price
Combivir (60 tablets)	286.28	57.99	80%
AZT(100 tablets)	77.58	36.08	53%
3TC(60 tablets)	141.75	46.39	67%

(Source: Ling, 2005 cited in Smith, 2005)

Table 3. Stakeholders' Perception about impact of TRIPS Agreement on Bangladesh

	Strongly agree %	Agree %	Not sure %	Disagree %	Strongly disagree %
a. Implementation of TRIPS agreement will result in significant price increase of medicine	10	70	10	10	0
b. TRIPS gives Bangladesh a unique opportunity to capitalize by exporting medicines to eligible importing countries during the transition period of upto 1.1.2016	10	70	10	10	0
c. Small pharmaceutical companies will face difficult situation in the patent regime	20	70	10	0	0
d. Bangladesh does have the research capacity to produce raw materials for drugs	0	20	0	70	10
e. Bangladesh Pharmaceutical industry needs to invest in R &D	70	30	0	0	0
f. Pharmaceutical companies should form joint collaboration with global companies to benefit from their skills, R & D and enjoy synergy	10	50	20	20	0
g. To face the challenge of post 2016 challenge i.e. patent regime Challenge, Bangladesh have enough preparation	0	10	0	30	60

Table 4. TRIPS Flexibilities and Associated Requirements

Policy measure		Requirements
<i>1.Importing the drug</i>		
a. Compulsory licensing (CL)	A country can import generic version of the patented product by issuing a CL. Member states have the freedom to determine the grounds(except in the case of semi-conductor technology) upon which such licences are given. The imported drug can be from a country where the drug is not patented or in which the drug is patented(in which case the exporting country has also to issue a CL) (Srinivas,2003)	The applicant has to firstly negotiate to obtain a voluntary licence from the patent holder, and if that fails, then a CL can be granted. Adequate compensation has to be paid to the patent holder.
b. Government use	A generic version of the patented drug can also be imported for 'public, non-commercial use' by the government. This is designed and facilitating the government to use the imported drug.	Under this 'government use' procedure, the prior consent of or negotiations with the patent holder are not required, but adequate compensation has to be paid.
c. Parallel importation (Note10)	Patented product (not the generic version) can be imported form another country where the same patented product is being sold at a lower price than in the importing country. This is allowed under Article 6 of the TRIPS Agreement on exhaustion of rights. Doha declaration affirms this by stating that each WTO member is 'free to establish its own regime for such exhaustion without challenge.'	There is no need for an importer to obtain a CL or pay compensation to the patent holder.
<i>Local Manufacture of Generics</i>		
a. Compulsory licensing	If a drug is patented in a country, generic version of the drug can be locally manufactured by a local company or by an agency (including government agency) that has been granted CL by the government.	The applicant has to negotiate to obtain a voluntary licence from the patent holder, and if that fails, then a CL can be granted. This requirement, however, does not apply if the CL is issued on grounds of public non commercial use, for national emergency or to remedy anticompetitive practices. Compensation has to be paid.

b. Government use	The government can assign to a public or private agency the right to locally manufacture a patented product without the consent of the patent holder, provided the drugs are used for a public non-commercial purpose	The prior consent or negotiation with the patent holder is not required. Compensation has to be paid.
<i>Exporting</i>	A local producer of generic version of patented drugs under a CL or government-use provision may export of its output to countries with no or inadequate manufacturing capacity.	The importing country has to notify the WTO of the quantities of the drug required, confirm it has insufficient or no manufacturing capacities and that it intends to grant a CL. It also has to prevent re-exportation of the patented products.

(Adapted from Smith, 2005)



Profiles, Knowledge, Skills, Abilities, and Other Characteristics

A Case of Malaysian Government Retirees

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Abstract

By the year 2020, Malaysia will be an ageing society ignited by the expected increase of senior citizens to 2.71 million. This group consists mainly of the government retirees, who have reached their mandatory retirement age of 56 years old. The objectives of this study are twofold. First, this paper examines the profiles of the Malaysian government retirees and second, to identify the current knowledge, skills, abilities, and other characteristics (KSAOs) they have. To elicit findings, a total of 1609 questionnaires were compiled and analyzed using SPSS. Findings indicate that most of the retirees have acquired numerous KSAOs throughout their years of service, especially in the area that relates to their tasks and responsibilities. However, once they have retired, these retirees are unable to harness their invaluable KSAOs for the country's development. It is therefore of paramount importance for the government to develop a proper means for these retirees to utilize their KSAOs. Recommendations emphasize several policy guidelines and activities that can be undertaken by the relevant authorities to help the government retirees transfer their KSAOs appropriately.

Keywords: Government retirees, Knowledge, Skills, Abilities, Other characteristics, KSAOs, Malaysia

1. Introduction

Malaysia has the population of 24.53 million people with an increase of 2.4 percent per year since 1995 (Department of Statistics Malaysia, 2005). Further, it has been forecasted that the number of people in the age group of 0-14 years old will decrease to 32.6 percent while the population of people in the age group of 65 and above will increase to 4.3 percent. This signifies the increase of senior citizens in Malaysia over time. Based on the trend, the Department of Statistics Malaysia (2005) also reports that 6.48 per cent or 1.66 million out of 24.53 million population in Malaysia are senior citizens, who are in the age group of 60 years old and above. The population of senior citizens is expected to rise to 2.71 million by the year 2020, which will mainly comprise of government retirees. The graying of the population demands for a considerable attention from the Malaysian Government as this trend may engender many challenges to the country. In essence, greater number of retirees will result in less robust economic growth. The retirement of the senior citizens has inexorably entailed labor shortages, which will affect the productivity of the nation in the long run. To mitigate the deleterious effect of labor

shortages, opportunity should be created for the retirees to remain in their respective employment if they choose to do so. In fact, retirees are the resourceful and resilient human capital, based on the premise that people who are reaching 55 years old are still healthy, active, efficient, and dynamic in performing their tasks (Lum, 1992).

In a parallel fashion, the Eighth Malaysia Plan has brought to light the principle thrust of human resource development. This plan calls for the creation of a strong human resource base to support the development of knowledge-based economy and to enhance the country's productivity and competitiveness. Given this, efforts have been taken to develop an efficient and responsive education and training system to fulfill the demand for a knowledgeable and highly skilled workforce (Economic Planning Unit, 2005). Not only that, the workforce has to be equipped with positive values to ensure Malaysia becomes a developed nation by the year 2020. Nevertheless, the ageing population increase may hamper the process of developing a highly skilled workforce prerequisite in achieving Malaysia's 2020 Vision. This is due to the reduced number of capable workforce attributed to the mandatory retirement age, which is 56 years old. Compared to most developed countries where the retirement age is 65 years old, Malaysia's civil servants retired 5-10 years earlier. Hence, their contributions to the country have come to halt and their invaluable KSAOs are put to waste. These situations prompted the need to examine the Malaysian government retirees' profiles and KSAOs. Further, this study will identify how the respondents' KSAOs can be useful to the country's national development.

2. Literature Review

2.1 Retirees in National Development

The term retirement has been defined in different ways but it conveys the similar idea. For instance, Whitbourne (2001) described retirement as a withdrawal from the work force altogether or the end of a person's active working life. In a similar vein, Feldman (1994) defined retirement as the exit from an organizational position or career path of considerable duration, taken by individuals after middle age with the intention of reduced psychological commitment to work thereafter. Sterns and Gray (1998) explicated that retirement is a gradual process that includes at least five phases - an anticipatory period that may last for decades, the decision itself, the act of retirement, continual adjustment following the actual event, and further decisions regarding the structuring of the individual's life and activity patterns. This study adopts a more concise definition in which government retirees are operationalized as employees who used to work as the civil servants, consisting of those who have undergone mandatory or optional retirement. There are 513 689 government's retirees in Malaysia that had served in various organizations or local governments departments (*"Retiree extension"*, 2005). According to the Public Service Department (2005), a total of 22 000 civil servants retire every year with 12,000 undergo mandatory retirement, an average of 5 000 take up optional retirement, and another 5 000 retire because of privatization. Only a small portion retires for health and other reasons. A study by Singh (2001) shows that every year, more than 18 000 government servants have retired from the civil service throughout Malaysia. The study also indicates there are 295 224 pensioners and 111 247 pension recipients in the first quarter of the year 2001. It is estimated that by the end of 2005, there will be more than 513 689 government retirees in Malaysia.

To date, the issue of retirement impacting the labor force has received much attention among scholars. According to Carter (2004), there has been some concern in the US about the impact of the upcoming baby boomers retirement era, which may engender labor shortage. Carter (2004) also noted retirees are the important source of intellectual capital due to vast KSAOs acquired during their previous employment. Thus, rehiring retirees on a contract basis appears to be necessary in ensuring continuous availability of human resources (Carter, 2004). This supposition corroborates to Lim's (2002) empirical study that found 75 percent of the Singaporean retirees are willing to work part-time in the same occupation or in the same industry. This implies that retirees are still interested to rejoin the workforce so as to enhance their KSAOs in the new employment.

Drawing on the above statistics, it is evident that the number of retirees is increasing. Nonetheless, their crucial role in developing the nation should bear continued attention from the relevant authorities so as to ensure that retirees' KSAOs can be appropriately and adequately used after retirement.

2.2 Knowledge, Skills, Abilities, and Other Characteristics

Knowledge, skills, abilities, and other characteristics are the key to efficacious organizational outcomes. Knowledge refers to the facts that people learn and strategies they learn by using the fact (Blanchard and Thacker, 1999). Bloom (1984) defined knowledge as the recall of information including methodology, principles and theories. Krager, Ford and Salas (1993) defined knowledge as the information someone acquire and place into memory, how it is organized into the structure of what one already know, and understanding of how and when to use the information.

According to Dunnette (1976), skill is the capacities needed to perform a set of tasks, which are acquired from training and job-related experience. Skill is reflected on the extent a person is able to carry out a specific action, for instance effective communication. Further, skill is dependent on knowledge whereby a person must know 'what' to do and 'when' to do it. However, knowing 'what' and 'when' to do something is different from actually 'able' to do it. Henderson (2000) added that skill refers to dexterity, accuracy, and alertness required in understanding the workflow or levels of complexity in the use of

and interaction with both human and nonhuman resources in performing assignments. Interaction with human requires individuals to be accurate and alert in managing mental, situation, and creativity (Ivancevich, 2003). Skills also require individual to be accurate or alert in use of precision and non-precision tools, such as advance operating equipment and technological systems, advance keyboard devices, simple settings, and so forth. Likewise Dunnette (1976), Desimone, Werner, and Harris (2002) believed that skills can be developed over time by attending training programs. Lim's (2002) study reports that almost 67 percent of the retirees in Singapore are willing to undergo training to keep themselves abreast with the current KSAOs. Nonetheless, Steinberg, Najman, Donald, McChesney-Clark, and Mahon (1994), revealed that training is more frequently given to the younger employees compared to their older counterparts.

Even though Blanchard and Thacker (1999) argued that ability can hardly be distinguished from knowledge and skill, Fleishman (1972) defined abilities as the general capacities related to performing a set of tasks. Abilities, which originates from hereditary and experience, can be developed over time (Fleishman, 1972). Similarly, Henderson (2000) described ability as a general trait or quality acquired by an individual, which is useful in performing a range of tasks. Unlike skills, ability is less likely to change over time because it is applicable across various tasks of different jobs. Abilities can be categorized into cognitive abilities, psychomotor abilities, physical abilities, and sensory abilities (Henderson, 2000).

Other characteristics are all other aspects, besides knowledge, skills, and abilities, which are crucial to the job. It is crucial for employees to have other characteristics before entering employment relationships. For instance, employers have to make sure that the selected employees possess values that are consistent with the organizational culture and values (Heneman & Judge, 2003). According to Heneman and Judge (2003), other characteristics can be categorized into three main groups: (i) legal requirements, for example possession of license, citizens or legal alien, geographic residency, security clearance, etc.; (ii) availability requirements, such as for instance starting date, worksite locations, travel, attendance and tardiness, etc. and (iii) character requirements, for example moral, work ethic, background, honesty, and integrity. In this study, other characteristics are gauged in terms of work styles and job values. Work styles are further subdivided into achievement orientation, social influence, practical intelligence, conscientiousness, adjustment, and interpersonal orientation. Job values are measured in the aspects of achievement, status, autonomy, and altruism.

Based on the above conceptualizations of KSAOs, this study intends to examine the profiles of the Malaysian government retirees and to identify the current knowledge, skills, abilities, and other characteristics (KSAOs) that the government retirees have.

3. Methodology

In Malaysia, there are about 513 689 government retirees ("*Retirees extension*", 2005). Nonetheless, only 15 519 retirees have registered as members of the Malaysian Government Retirees Association (MGRA). Questionnaires were designed to examine the profiles, KSAOs and contributions of retirees. Items in the questionnaire were adapted from Martocchio (2002). A total of 3000 questionnaires were distributed to MGRA members and 1 633 questionnaires or 53.37 percent were collected. However, only 1 609 questionnaires were used for further analysis. Data in this study was analyzed using Statistical Package for Social Sciences (SPSS) version 13.0.

4. Findings

4.1 Demographic Characteristics

This section presents the demographic profiles of the respondents. It is divided into three sub-sections, namely demographic characteristics, retirement profile, and income status. Findings reveal that 1 277 respondents of the study are male, while 332 respondents are female. From 1 609 respondents, 561 of respondent are above 65 years old and most of them, i.e. 1 407 respondents, are Malay and Muslim. These respondents are from 14 states of Malaysia i.e. 16.6 percent from Pahang, 14 percent from Kedah, 11.4 percent from Selangor, 9.9 percent from Perak 8.4 percent from Negeri Sembilan, 6.6 percent from Sarawak, 6.1 percent from Johor, 5.7 percent from Pulau Pinang, 5.3 percent from Perlis, 4.7 percent from Terengganu, 3.5 percent from Kelantan, 3.2 percent from Melaka, 2.9 percent from Sabah, and 1.8 percent from Wilayah Persekutuan. Based on the education level, majority of the respondents (1265 respondents) possess SPM/MCE or O-Level equivalence, SRP or lower certificate education (LCE), or standard six or primary education (refer Table 1).

Additionally, finding depicts that 1 447 respondents have undergone mandatory retirement between the year 1984 and 2005. Additionally, 538 respondents (33.4 percent) were in the education service while 483 respondents or 30.0 percent were teachers. Results also show that 1240 respondents (77.1 percent) are living with their spouses and 82 respondents (5.1 percent) are living alone. Only 6 respondents are residing in senior citizens homes and welfare homes (refer Table 2). Further, findings show that 87.3 percent of the respondents' main source of income is pension, 4.3 percent are from children or family, 3.9 percent are from business sources, 1.4 percent are from investment, and 2.8 percent are from other sources. Additionally, 87.6 percent receive pension amount of RM1 500 or more, 79.2 percent receive monthly income less than RM1 500, and 28.3 percent have to pay their housing loan installments (refer Table 3).

4.2 Knowledge, Skills, Abilities, and Other Characteristics of the Government Retirees

This section highlights the KSAOs of the government retirees. Findings on the types of knowledge possessed by the

retirees show that 31.8 percent and 21.4 percent of retirees have acquired knowledge in administration and clerical respectively. Further, 19.1 percent and 8.7 percent of the respondents have knowledge in finance and sales and marketing. In terms of customer service, only 10.4 of the retirees have knowledge in this area. 13.0 percent of retirees have knowledge in human resource management while 1.4 percent have knowledge of other areas. 2.5 percent of the respondents have knowledge in production and manufacturing and 1.1 percent have knowledge in other related aspects in this field. Furthermore, 4.4 percent, 2.4 percent and 1.4 percent of the retirees have knowledge in computer and electronic, engineering and technology and plan design respectively. 3.3 percent of the respondents have knowledge in building and construction while 2.4 percent have knowledge in machine and mechanical. 7.9 percent of the retirees have knowledge in carpentering and 2.2 percent have knowledge in other aspects in this area (refer Table 4).

In this vein, government retirees also have knowledge in health services among. In terms of medicine and dentistry, 3.5 percent of the respondents have knowledge in this area while 1.9 percent have knowledge in therapy and counseling. 1.8 percent of the respondents have knowledge in nursing and 2.1 percent have knowledge in other related aspects in this area. Table 4 presents types of knowledge among retirees in arts and humanities whereby 25 percent of the respondents have knowledge in English language, 36.7 percent have knowledge in Malay language, and 3.8 percent have knowledge in foreign language. 1.4 percent of the respondents have knowledge in fine arts while 0.7 percent have knowledge in other aspects in this field. Knowledge in law and security among government retirees is also presented in Table 4. This also study found that 11.2 percent, 4.1 percent, and 1.4 percent of the respondents have knowledge in public safety and security, law, government and jurisprudence, and other related aspects in this area (refer Table 4).

In terms of knowledge in communications, 9.8 percent, 8.4 percent, and 0.4 percent of the respondents have knowledge in telecommunications, mass media, and other related aspects in this area. Further, 21.1 percent and 0.5 percent of the respondents have knowledge in transportation and other related aspects in this field. It was also found that 6.2 percent of the respondents have knowledge in technical education and 5.5 percent have knowledge in vocational education. 2.9 percent, 11.7 percent and 26.4 percent of the respondents have knowledge in English, Malay and oral language. In terms of fundamental and additional mathematics, 40.5 percent and 21.9 percent of the retirees have knowledge in these fields. 16.5 percent and 1.7 percent of the respondents have knowledge in engineering and computer. Additionally, 1.7 percent, 5.4 percent and 1.4 percent of the respondents have knowledge in biology, science, and arts. 6.0 percent, 8.9 percent and 1.2 percent of the respondents have knowledge in living skills, physical education, and sign language respectively. Findings also indicate that 1.1 percent and 1.0 percent of the respondents have knowledge in home science and industrial science. Finally, 4.2 percent of the respondents have knowledge in other aspects in the area of education (refer Table 4).

In addition, it was found that 51.5 percent of the retirees have skills in language, 22.1 percent have skills in mathematics, and 32.2 percent have skills in religion. Findings also show that 11.5 percent of the respondents have skills in arts, 4.7 percent have skills in music, 16.5 percent have skills in cooking and 8.8 percent have skills in sewing. In terms of agriculture and counseling, 24.2 percent and 16.5 percent of the respondents have skills in these areas. 27.5 percent and 10.8 percent of the respondents possess advisory and care service skills respectively. Findings indicate that 28.2 percent of the respondents have skills to involve in charitable organizations, 28.7 percent have voluntary skills, and 25.2 percent have public speaking skills. Findings also show that 20.6 percent of the respondents have decision-making skills, 27.3 percent have time management skills, and 30.3 percent have leading skills. Additionally, 37.7 percent of the respondents have meeting skills and 27.3 percent have task delegation skills. 20.9 of the respondents have basic computer skills while 1.8 percent have advanced computer skills. Findings also indicate that 3.1 percent of the respondents have transport repairing skills, 7.5 percent have machine repairing skills, and 10.8 percent have carpentering skills. 36.9 percent of the respondents have skills in stress control, while 37.8 percent of the respondents have self-adjustment skills. It was also found that 20.4 percent of the respondents have clerical skills, 15.1 percent have skills in health management and 17.3 percent have financial management skills. 5.0 percent of the respondents have handicraft skills, 3.0 percent have crafting skills and 9.6 percent have swimming skills (refer Table 5).

Besides that, it was found that 57.7 percent of the respondents have abilities in oral expression while 50.2 percent have abilities in written expression. In terms of fluency of ideas and generation of good ideas, 40.4 percent and 38.2 percent of the respondents have abilities in these areas respectively. It was also found that 43.8 percent of the respondents are sensitive towards problems and 43.8 percent are accountable. 29.6 percent of the respondents have abilities in organizing information while 37.8 percent have abilities in comprehending problems. Findings indicate that 42.4 percent of the respondents have abilities in basic calculation, 50.2 percent have abilities in memorizing tasks, and 38.1 percent have abilities in completing tasks efficiently. 35.2 percent of the respondents have problem solving abilities while 42.9 percent have change awareness abilities. It was found that 37.5 percent of the respondents are able to visualize, 36.3 percent are able to pay attention, and 35.7 percent are able to do multi-tasking.

On top of that, 56.4 percent of the respondents are able to utilize their abilities in performing tasks and responsibilities while 44.3 percent have obtained good achievements in their prior job performance. Findings also indicated that 44.9 percent of the respondents have had the opportunity for self-development and 32.9 percent have received recognition during their

tenure of employment. Additionally, 33.5 percent of the respondents have authority in while 40.8 percent have positive social values in task performance. As for autonomy, 33.7 percent of the respondents are creative in performing their job, 53.7 percent are responsible for the tasks they carried out, and 20.8 percent have autonomy in tasks they performed. It was also found that 43.3 percent of the respondents are self-sacrificing while 52.3 percent are involved in social services (refer Table 7).

Additionally, 32.1 percent of the respondents have obtained good job achievement, which is attributed to their efforts. Likewise, 30.6 percent are able to maintain good task performance and 29.5 percent have initiative in striving for their best achievements. On top of that, 34.6 percent of the government retirees have the ability to lead, 38.5 were highly cooperative with others, 48.2 percent were always care for others, and 48.5 percent were able to interact effectively with others. It was also found that 48.7 percent of the respondents are able manage stress and 49.5 percent are able to adapt to changes in any given situations. In terms of conscientiousness, 39.3 percent of the government retirees are independent, 45.4 percent are able to pay attention to details, and 44.3 percent have integrity in performing tasks and responsibilities. Finally, as for pragmatic intelligence, 55.7 percent of the respondents are innovative and 28.1 percent have good analytical thinking ability.

5. Discussions

Overall, this study has discovered that Malaysian government retirees have acquired various functional knowledge, skills, abilities, and other characteristics required in performing their respective tasks. Where knowledge is concerned, findings suggest that 31.8 percent of the respondents have knowledge in administration and 36.7 percent have knowledge in Malay Language education. A plausible explanation for this finding is that all respondents were government servants, who have involved mainly in the administrative works, and majority of the respondents are Malays, which comprised of about 87.4 percent. Further, the highest percentage of the respondents have knowledge in the area of education, for instance 40.2 percent of the respondents have knowledge in Fundamental Mathematics. This is parallel to the fact that 33.4 percent of respondents have knowledge in education. Given that many of the respondents have knowledge in Fundamental Mathematics, they should be given the opportunity to teach related subjects in schools. The implementation of teaching Mathematics in English by the Ministry of Education calls for more capable teachers to teach this critical subject. Hence, retired teachers who are interested should be allowed to teach on a full-time or part-time basis. This is because according to Lim (2002), 75 percent of retirees are willing to work part-time in the same occupation or in the same industry. Butters (2002) corroborated to the preceding idea by stating that retirees, who resume working, are better able to manage their emotional and mental health. Therefore, by engaging themselves in the society through employment, retirees can stay healthy.

Finding also suggests that 3.6 percent of the retirees have knowledge in production and manufacturing. As many organizations nowadays are trying to gain competitive advantage through cost effective and quality improvement approach, the idea of re-employing retirees seems very strategic. This can be attributed to Taylor's (2001) assertion that older workers can assist in monitoring the quality of production through their accrued experience and "know how". Additionally, McNaught and Barth (1992) reported that the employment costs for both older and younger workers are about the same. However, rehiring older workers seems more worthwhile because they have the tendency stay longer (McNaught & Barth, 1992). As indicated in the findings, 3.5 percent and 1.8 percent of the retirees have knowledge in medical, dentistry, and nursing respectively. Currently, Malaysia is experiencing an acute shortage of labor in the area of medicine Public Service Department, 2005). Thus, retirees, who used to work in the related industry, should be given the employment opportunity. Barth, McNaught, and Rizzi. (1993) reported that in the European Union countries, retirees have become the main source in offsetting the shortage of specialized staff in certain fields, such as nursing. Malaysia has in fact adopted the same approach, for instance the Klang City Council has introduced a voluntary program named the 'Work Force Recycle Systems.' This program is designed specifically for retirees who are interested in becoming part of the workforce (Daud, 2005). Apparently, this institution concurs to the notion that retirees are the source of labor supply, especially in critical areas of employment. This is due to the fact that labor shortage may hamper the nation's economic development at large.

In terms of skills, 51.5 percent of the respondents have teaching skills, specifically language. This is consistent with the findings on demography and knowledge, which suggested that 30.0 percent of the respondents were teachers and 33.4 percent of the government retirees have knowledge in teaching. Findings also indicate that 36.9 percent and 37.8 percent of the government retirees are flexible, specifically in stress control and self-adjustment. This finding is consistent with previous studies by Patrickson (1994), Arrowsmith and Goldrick (1997), and Lim (2002), which reveal that retirees are more flexible to change as well as to learn. Further, 27.3 percent and 20.6 percent of the retirees have skills in time management and decision making respectively. As noted in the findings, 20.9 percent of the retirees have basic computer skill and 1.8 percent of the respondents have advanced computer skills. Drawing on the appropriate attributes and relevant computer skills, retirees can engage in teleworking. Dooley (1996) asserted that teleworking requires self-managed employees and organizations with an established supportive system so that both parties can thoroughly understand and approve the communication structure. In this vein, Patrickson (2002) contended that teleworking is a good potential employment opportunities for the retirees because this type of employment depends highly on the incumbent's capabilities. On top of that, teleworking

can be source of income to the retirees, which subsequently contributes to the nation's economy (Yeatts, Folts, & Knapp 1999). This underpins the supposition by Lim (2002) that retirees are willing to work because of financial constraints. It is also noteworthy that retirees are involved in social service such as counseling, care service, advisory service, etc. This is plausible because 32.2 percent of the retirees have skills in teaching religion, which can be applied in many social service activities. Additionally, Lim (2002) contended that retirees will not experience loneliness after retirement if they are engaged in various social services activities, for instance counseling, advisory service, motivational workshops, and so forth.

In the aspects of other skills, only 17.3 percent of the retirees have skills in finance, which is consistent with a study by Lim (2002), which reports that only 19 percent of retirees in Singapore have financial skills. In contrast, Turner, Bailey, and Scott (1994) highlighted that most retirees in the West have financial skills, even among those whom their previous jobs are not related to finance. Where verbal abilities are concerned, 57.7 percent and 50.2 percent of the retirees have oral expression and written expression respectively. This is consistent with the findings that show 26.4 percent of respondents have oral communication skills. This finding is congruent to the fact that most retirees possess leadership skills and they are engaged in social services. This finding is also in agreement with the findings on retirees' idea generation and reasoning abilities. Specifically, 40.4 percent and 43.8 percent of the retirees have abilities in fluency of ideas and problem sensitivity respectively. These findings can be attributed to the fact that 25.2 percent and 37.7 percent of the respondents have public speaking and meeting skills. Interestingly, 29.6 percent of respondents have the organizing information ability while 50.2 percent of the retirees possess the task memorizing ability. These abilities are crucial in teleworking as suggested by Patrickson (2002).

As for perceptual abilities, 42.9 percent of the retirees have the change awareness ability. Apparently, this finding supports the previous studies by Patrickson (1994), Arrowsmith and Goldrick (1997), and Lim (2002), which report that there is no significant difference in change awareness between younger and older employees. Additionally, as noted by Patrickson (1994), Arrowsmith and Goldrick (1997), and Lim (2002), ageing factor can never be the hindrance to learn. This study agrees with the report because 37.3 percent of the retirees have visualizing abilities, 36.3 percent are attentive, and 35.7 percent are multi-tasked. Findings also show that in terms of quantitative abilities, 37.8 percent and 42.4 percent of the respondents have abilities in problem comprehension and basic calculation. This is evident since 40.5 percent and 21.9 percent of the retirees have knowledge in Fundamental Mathematics and Additional Mathematics respectively.

Other characteristics are twofold- job values and work styles. In terms of achievement, 56.4 percent of the retirees are willing to harness their abilities in performing tasks. This particular finding underpins the study by Lim (2002), which reports that most retirees are willing to continue working upon retirement. In fact, almost 67 percent retirees in Lim's (2002) study are willing to undergo skill retraining and upgrading to enable them to work, whether on a part-time or full-time basis. Surprisingly, Lim (2002) also found that 57 percent of the retirees are willing to undergo training to resume working in a different job or in a different industry. Finding by Lim (2002) is also consistent to the fact that 44.9 percent of the respondents have undergone self-development phase in their working-life so as to improve the social status. Besides that, 40.8 percent of the retirees possess positive social values, 33.5 percent have received recognition, and 33.5 percent of the retirees have authority in performing their jobs. In essence, 53.7 percent of the respondents have responsibility in performing their jobs, 33.7 percent of the retirees have creativity in task performance, and 20.8 percent of the respondents have autonomy in doing their jobs. Where altruism is concerned, 43.3 percent of the retirees are willing to sacrifice for their friends in need and 52.3 percent of the retirees are more likely to join social service. This is consistent with the findings on skills whereby quite a significant percentage of the retirees are engaged in social service activities.

Findings in this study also show that in terms of achievement orientation, 32.1 percent of the retirees can work independently, 30.6 percent are persistent in getting their job done, and 29.5 percent of the respondents have initiative to attain the best achievement in their jobs. This finding is congruent to several prior studies on retirees by Patrickson (1994), Arrowsmith and Goldrick (1997), and Lim (2002). As for social influence, 34.6 percent of the retirees have the ability to lead, which explains why 30.3 percent of the respondents have skills in leading associations as well as other activities. In addition, quite a percentage of the retirees have good interpersonal orientation, i.e. they are cooperative, concern for others, and able to interact with other people. This also supports the fact that these retirees are very much interested in social service activities. Retirees are also found to be flexible, especially in terms of stress tolerance and adaptability. This underpins the studies by Patrickson (1994), Arrowsmith and Goldrick (1997), and Lim (2002), which state that retirees as well as older workers are more flexible to change compared to their younger counterparts. In terms of conscientiousness, retirees are found to be independent and attentive in performing their jobs. Patrickson (1994) pointed out that these criteria are suitable for teleworking. Where practical intelligence is concerned, 55.7 percent of the retirees are innovative while 28.1 percent of the respondents have analytical thinking. These are also important aspects in performing jobs, such as teleworking and volunteering in social services activities.

Another objective of this study is to determine the retirees' contribution to society based on their involvement in various associations. Results of this study reveal that 85.5 percent of the retirees are actively involved (by holding various important positions) in many associations. Their involvement varies in terms of position held at the district, state, and/or national level (refer to Table 1). It was found that 49.2 percent are actively involved at least in 1-2 associations (refer to Table 1). This finding indicates that the majority of the retirees are still actively contributing to the society, which is consistent to

Atchley's theory on the continuity in aging (as cited in Kim & Feldman, 2000) that contends senior citizens, who are capable and interested, can participate in the activities of their choice so as to keep themselves occupied. The Atchley's theory also purports that retirees who have high career identification are likely to seek continuity through some form of work involvement, such as in professional associations. Hence, these activities will consistently keep them self-occupied. Moreover, these results are in line with Broderick and Glazer's (1983) and Lachman's (2001) findings that suggest most socially active retirees participated in various associations and voluntary activities. Through these means, retirees can improve their mental and social health to the fullest.

The findings also report that 52.3 percent of the retirees are actively involved in social services. There are five social activities examined - counseling, advisory services, care service, charity organization, and voluntary work. Research by Freedman (1997) indicates that older adults in the United States are looking for opportunity to participate in voluntary activities. Similarly, Malaysian retirees are also actively contributing to social activities given the aforementioned figure. According to Atchley's theory (as cited in Kim & Feldman, 2000), older adults attempt to preserve and maintain their existing daily life structure by participating in various activities at the community level. Such activities allow the retirees to share their knowledge and work experience with others. It was found that 1 381 of the respondents are involved in social services in spite of their health problem. This shows that they are aware of their role responsibility in nation building. Freedman (1997) explained that senior citizens are experienced workers and family members; therefore, they are the rich repository of the social capital required by society. Engaging seniors in social services can contribute to preserving the essential feature of the civil society. In this context, the idea of employing retirees seems compelling, as a way to restore a sense of community, knowledge of the past, and a sense of the future.

Additionally, the present study shows that 15.66 per cent of the respondents are willing to allocate time to get involved in various associations, despite their deteriorating health condition. This phenomenon is in agreement with Atchley's theory on the continuity in aging (as cited in Kim & Feldman, 2000), which contends individuals who have been deeply involved in voluntary work, hobbies, or leisure pursuits, can continue their involvement in such activities after retirement. However, individuals with high career identification can resume working to maintain their daily life structure. Taken together, Atchley's theory suggests that individuals need to sustain levels of satisfying social contract in old age roughly comparable to their earlier levels. These elaborations on Atchley's theory of continuity in aging can postulate the reasons why retirees are still involved in social services even though they are not fully healthy.

The present research also found that teachers, clerks, administrative officers, administrative assistants, general workers, and technicians contribute to the highest percentage of participation in social services involvement after retirement. In essence, Cytrynbaum and Crites (as cited in Kim & Feldman, 2000) explained that individuals, who have high career identification and high job satisfaction, would be disconcerted by an abrupt end to work because they value participation in work and contact with co-workers and clientele. Based on the last position the retirees held before retirement, it can be concluded that teachers, administrative staff, general employees, and technician were always in contact with their co-workers and client, which is congruent to the nature of their job. Furthermore, government servants, such teachers and administrative staff, were active in employee union such as National Union of Bank Employees (NUBE) and Congress of Unions of Employees in the Public and Civil Service (CUEPACS).

The third retirees' contribution is in term of leadership skills, whereby 37.7 per cent of the respondents possess meeting skills. This indicates that this skill is developed from the previous jobs. Cross tabulation result also shows that retirees possess leadership skills which commensurate their education level, post held before retirement, job classification and age. These factors indirectly influence the type of leadership skills they have. Hence, retirees' wide experience, skills, abilities and knowledge can be shared with others at the society level. They can be hired advisors, mentors, and counselors in associations or activities which subsequently benefits the nation as a whole. In term of societal involvement, result of this study shows that 1 415 retirees are involved in social activities. This finding is congruent to propositions suggested in Atchley's theory on the continuity in aging. Similarly, Melanie and Marie (2004) highlighted that retirees, who are actively involved in various activities, are potentially able to achieve high level of satisfaction in life.

The present study also found that four retirees, who are above 60 years old, are involved in more than 10 associations. Retirees who are between 55 and 60 less are found to be less active in associations and activities. This may be because they are in a process of adapting to the new life as a retiree.

Retirees participate in the workforce in a variety of ways. Some retirees who have experienced a high level of satisfaction in their pre-retirement work will continue working part-time for their pre-retirement employer or seek similar employment from a new employer (Melanie & Marie, 2004). Teachers, who are used to get involved in various associations during their employment period, are not alien in contributing in community services. Their former job and responsibilities require them to continuously contribute to the students' development. In this study, 32.5 per cent of retired teachers were involved in society. In fact, in *Berita Persara* (2005) the June issue, it has been stated that retired teachers can act as consultant and advisor in community services. Finding also show that retirees, who have only SPM (or lower), contributed up to 76.68 per cent from total society involvement by retirees. This is congruent to Freedman's (1997) notion that low-income senior

citizens play significant role in the community services.

6. Conclusion and Recommendations

To recapitulate, this study has revealed various types of knowledge, skills, abilities, and other characteristics possessed by the retirees. Additionally, this paper has examined activities or associations that retirees can participate at the community and national levels. Given the KSAOs that retirees have, several recommendations are deemed feasible. First, some policy guidelines and activities should be formulated for the better utilization of the most valuable intangible assets that being developed and accumulated throughout years of their service. For instance, retirees should be given the opportunity to apply for New Entrepreneurs Fund (NEP) and to get involved in franchising, retailing, and small or medium businesses. Through these means, retirees can enhance and utilize their skills and expertise more meaningfully in assisting their organization, society, and the nation as a whole. Apart from that, Public Service Department should also consider allowing the retirees to join the workforce, especially on the part-time basis. They can be mentors, advisors, and counselor to young employees. Retirees should also be given the opportunity to utilize their knowledge, skills, and other characteristics in the existing nation programs, such as national service or youth activities. They can be the facilitators, counselors, or speakers in activities undertaken in these programs. Finally, retirees, particularly with relevant knowledge and skills in education, can provide tuition classes especially for students with financial constraints in the rural areas. Besides enhancing their knowledge, skills, and other characteristics, retirees can contribute to the students' as well as the nation development as a whole.

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Table 1. Demographic characteristics of the government retirees

		Frequency	Percent
Gender	Male	1277	79.4
	Female	332	20.6
Age	Below 55 Years	72	4.5
	55-60 Years	461	28.7
	61-65 Years	515	32.0
	Above 65 Years	561	34.9
Ethnic Group	Malay	1407	87.4
	Chinese	69	4.3
	Indian	81	5.0

	Others	52	3.2
Religion	Muslim	1413	87.8
	Buddha	38	2.4
	Christian	104	6.5
	Hindu	49	3.0
	Others	5	0.3
Education Level	Standard 6	395	24.5
	SRP/LCE	252	15.7
	SPM/MCE (O-Level)	618	38.4
	STP/HSC (A-Level)	76	4.7
	Technical Certificate	30	1.9
	Diploma	122	7.6
	Bachelor Degree	74	4.6
	Masters Degree	16	1.0
	Doctor of Philosophy	4	0.2
	Others	22	1.4

Table 2. Retirement profile of the respondents

Retirement Profile		Frequency	Percent
Retired	Mandatory	1447	89.9
	Optional	141	8.8
	Health factor	5	0.3
	Others	16	1.0
Job Classification	Transportation	81	5.0
	Talent and Art	7	0.4
	Science	2	0.1
	Education	538	33.4
	Agriculture	68	4.2
	Engineering	29	1.8
	Security and Armed Force	133	8.3
	Law	2	0.1
	Administration and Support	454	28.2
	Technical	100	6.2
	Finance	15	0.9
	Sosial	18	1.1
	Medical	144	8.9

	Others	18	1.1
Last Position	Officer Assistant	55	3.4
	Nurse	58	3.6
	General Employees	179	11.1
	Teacher	483	30.0
	Director	27	1.7
	Development Assistant	3	0.2
	Admin Assistant	195	12.1
	Officer	58	3.6
	Admin Officer	24	1.5
	Medical Instructor	1	0.1
	Clerk	31	1.9
	Matron	9	0.6
	Supervisor	33	2.1
	Hospital Assistant	42	2.6
	Policeman	41	2.5
	Technician	117	7.3
	Operator	9	0.6
	Driver	59	3.7
	Attendant	37	2.3
	Army	65	4.0
	KEMAS Officer	1	0.1
	State Assembly (ADUN)	3	0.2
	Media Officer	2	0.1
	Health	1	0.1
	Fireman	11	0.7
	Social Welfare Officer	1	0.1
	Deputy Director	7	0.4
	Forestry	21	1.3
	Custom	10	0.6
	Lecturer	14	0.9
	Auditor	4	0.2
	Prison Officer	6	0.4
	RELA	2	0.1

Living with	Spouse (Husband/Wife)	1240	77.1
	Children	104	6.5
	Family/Extended	183	11.4
	Alone	76	4.7
	Senior citizen homes	5	0.3
	Welfare homes	1	0.1

Table 3. Income status of the respondents

Income Status		Frequency	Percent
Income Sources	Pension only	1405	87.3
	Children/Family	73	4.5
	Business	63	3.9
	Investment: ASN/ASB/Saham	23	1.4
	Others	45	2.8
Pension Income	Less than RM 500	382	23.7
	RM 501-1,000	581	36.1
	RM1,001-1500	448	27.8
	RM1,5001-2000	102	6.3
	RM2,001-2,500	62	3.9
	RM2,501-3000	24	1.5
	More than RM3,000	10	0.6
Monthly Income	Below RM500	390	24.2
	RM501-1,000	505	31.4
	RM1,001-1,500	379	23.6
	RM1,501-2,000	157	9.8
	RM2,001-2500	79	4.9
	RM2,501-3,000	42	2.6
	Above RM3,000	57	3.5
Financial Responsibility	Housing loan	456	28.3
	Car loan	143	8.9
	Children Education Fees	255	15.8
	Others	74	4.6
	None	681	42.3

Table 4. Knowledge possessed by the government retirees

Management and Business	Frequency	Percent
Administration	511	31.8
Clerical	344	21.4
Finance	308	19.1
Sales and Marketing	140	8.7
Customer Service	167	10.4
Human Resource Management	209	13.0
Other related knowledge	23	1.4
Production and Manufacturing	Frequency	Percent
Production and product Processing	40	2.5
Other related knowledge	17	1.1
Technology and Engineering	Frequency	Percent
Electronic and Computer	71	4.4
Technology and Engineering	38	2.4
Plan Design	22	1.4
Building and Construction	53	3.3
Mechanical and Machine	39	2.4
Carpentering	127	7.9
Other related knowledge	36	2.2
Health Services	Frequency	Percent
Medicine and Dentistry	57	3.5
Therapy and Counseling	31	1.9
Nursing	29	1.8
Other related knowledge	34	2.1
Arts and Humanities	Frequency	Percent
English Language	402	25.0
Malay Language	591	36.7
Foreign Language	61	3.8
Fine Arts	22	1.4
Other related knowledge	12	0.7
Law and Public Safety	Frequency	Percent
Public Safety and Security	180	11.2
Law, Government and Jurisprudence	66	4.1

Other related knowledge	23	1.4
Communications	Frequency	Percent
Telecommunications	158	9.8
Mass Media	135	8.4
Other related knowledge	7	0.4
Transportation	Frequency	Percent
Knowledge on Transportation	339	21.1
Other related knowledge	8	0.5
Education	Frequency	Percent
Technical	99	6.2
Vocational	88	5.5
English Language	46	2.9
Malay Language	188	11.7
Oral Communication	424	26.4
Mathematics	1004	62.4
Engineering	265	16.5
Computer	28	1.7
Sciences	114	7.1
Arts	23	1.4
Living Skills	96	6.0
Physical Education	143	8.9
Sign Language	20	1.2
Home Science	40	2.5
Agricultural Science	17	1.1
Industrial Arts	16	1.0
Other related knowledge	67	4.2

Table 5. Skills possessed by the government retirees

Teaching	Frequency	Percentage
Language	828	51.5
Mathematics	355	22.1
Religion	518	32.2
Arts	185	11.5
Music	76	4.7

Cooking	265	16.5
Sewing	142	8.8
Agriculture	389	24.2
Social Services	Frequency	Percentage
Counseling	266	16.5
Advisory Service	442	27.5
Care Service	174	10.8
Charitable Organizations	454	28.2
Volunteer Service	461	28.7
Leadership Skills	Frequency	Percentage
Public Speaking	406	25.2
Decision Making	332	20.6
Time Management	439	27.3
Leading Skills	487	30.3
Meeting	606	37.7
Task Delegation	439	27.3
Technical Skills	Frequency	Percentage
Basic Computer	337	20.9
Advanced Computer	29	1.8
Transport Repairing	50	3.1
Machine Repairing	121	7.5
Carpentering	173	10.8
Flexibility	Frequency	Percentage
Stress Control	593	36.9
Self-Adjustment	608	37.8
Other Skills	Frequency	Percentage
Clerical	329	20.4
Health	243	15.1
Finance	279	17.3
Handicrafts	81	5.0
Crafting	48	3.0
Swimming	155	9.6

Table 6. Abilities possessed by the government retirees

Cognitive Abilities	Frequency	Percentage
Verbal Abilities		
Oral Expression	928	57.7
Written Expression	808	50.2
Idea Generation and Reasoning Abilities		
Fluency of Ideas	650	40.4
Good Ideas	614	38.2
Problem Sensitivity	704	43.8
Accountability	563	35.0
Organizing Information	476	29.6
Quantitative Abilities		
Problem Comprehension	609	37.8
Basic Calculation	682	42.4
Memorizing Abilities		
Task Memorization	807	50.2
Perceptual Abilities		
Efficient Task Completion	613	38.1
Problem Solving	566	35.2
Change Awareness	691	42.9
Spatial Abilities		
Visualizing	600	37.3
Attentiveness		
Pay Attention	584	36.3
Multi-tasking	574	35.7

Table 7. Other characteristics possessed by the government retirees

Job Values	Frequency	Percentage
Achievement		
Utilize Abilities	907	56.4
Good Achievement	712	44.3
Status		
Self-Development	722	44.9

Recognition	529	32.9
Authority	539	33.5
Social Values	657	40.8
Autonomy		
Creativity	542	33.7
Responsibility	864	53.7
Autonomy	335	20.8
Altruism		
Sacrifice	696	43.3
Social Service	841	52.3
Work Styles	Frequency	Percentage
Achievement Orientation		
Independent	517	32.1
Persistent	492	30.6
Initiative	475	29.5
Social Influence		
Leadership Orientation	556	34.6
Interpersonal Orientation		
Cooperation	941	58.5
Concern for Others	776	48.2
Social Orientation	780	48.5
Adjustment		
Stress Tolerance	784	48.7
Adaptability	797	49.5
Conscientiousness		
In dependability	633	39.3
Attention to Details	731	45.4
Integrity	712	44.3
Practical Intelligence		
Innovation	413	55.7
Analytical Thinking	452	28.1

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