CROSS CULTURAL DIFFERENCES IN LOCUS OF CONTROL, FIELD DEPENDENCE-INDEPENDENCE AND UNCERTAINTY ORIENTATION AMONG CANADIANS AND CHINESE

by

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A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES

Educational Psychology & Special Education

We accept this thesis as conforming to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

5 June 1989

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ABSTRACT

The present study is a cross cultural study comparing North Americans and Chinese on field dependence-independence, locus of control and uncertainty orientation. The relationships among these constructs and cultural based differences in those relationships were also explored. Chinese were speculated to be more field dependent, external locus of control and certainty-oriented than North Americans. This study was the first exploratory investigation of a suggested model, which provided a perspective of how field dependence-independence, locus of control, uncertainty orientation, moral judgement and learned helplessness interact. The study may also have some contribution to broadening our view on how Chinese express themselves on the three cognitive constructs mentioned above.

A sample of 39 Hong Kong Chinese and 41 Canadian college students were selected according to their cultural backgrounds. The results partially supported cultural differences in locus of control and uncertainty orientation. A strong cultural difference was found on the two subscales of the locus of control instrument and the two component measures for uncertainty orientation. Cultural differences for field dependence-independence was not confirmed. Results concerning the interrelationships among these cognitive constructs suggested a moderate association between locus of control and uncertainty orientation for Canadian subjects, but not for Chinese subjects. No other significant correlations among these constructs was obtained in this study. Because of the methodological problems inherent in the instruments, it is difficult to interpret the obtained
results unambiguously, especially for the Hong Kong group. Further empirical work should be done before any firm conclusion can be drawn from the current results. Some implications for future cross-cultural studies were also discussed.
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ACKNOWLEDGEMENTS

I would like to express my appreciation to my committee members, Dr. R. Conry, Dr. V. D'Oyley and Dr. J. W. Kehoe, for their guidance and assistance during the preparation of this thesis.

I would also like to thank the teachers and the students who participated in this study. Without their help, I could not finish this thesis. My grateful thanks are also extended to Bernice Yam and Carmen Rida who scored the projective test for me.

Last of all, my sincere thanks also go to my friends for their sharing when I was down. From them, I am learning to accept things that I can never change.
Cognitive functioning is a research area that currently demands a great deal of attention in the fields of psychology and education. Thousands of studies examining cognitive functioning have been conducted over the past three decades. The present study was undertaken to investigate three related cognitive constructs in a cross cultural perspective. The constructs chosen are: field dependence-independence (FD-I) (Witkin, Dyk, Paterson, Goodenough & Karp, 1962; Witkin & Goodenough, 1981), locus of control (LOC) (Rotter, 1966) and uncertainty orientation (UNCERT) (Sorrentino, Short & Raynor, 1984). FD-I and LOC are two popular constructs which have stimulated a wide range of research studies in social and behavioral science. FD-I, defined by Witkin et. al. (1962), is a bipolar dimension reflecting characteristic styles of intellectual functioning. Field independent (FI) persons tend to use internal referents as their primary guides in information processing, whereas field dependent (FD) persons are more likely to use external referents. Similarly, Rotter (1966) proposed LOC construct. Internal-external LOC was proposed as generalized beliefs or perceptions about how positive and negative reinforcements are obtained. An internal individual perceives outcomes or events to be based on his own personal actions. On the other hand, an external person perceives outcomes to be randomly controlled by outside forces such as chance, fate, luck, powerful others or social systems. UNCERT, proposed by Sorrentino et. al. (1984), is a recently developed construct. It was portrayed as a cognitive dimension with "uncertainty orientation" and "certainty orientation" at the two extremes. Uncertainty oriented individuals are hypothesized to be dominated by a cognitive need to maintain clarity by...
discovering the unknown, while certainty oriented individuals try to maintain clarity by avoiding confusion.

Close examination of past studies in these areas discloses that most have been conducted in North America, an uncomfortably narrow cultural context, given the generality of some of the inferences drawn. Little information is available about how people in the other cultures function in these cognitive domains. (Cross cultural studies in these areas are discussed in the following sections.) As a consequence, the generalizability of these psychological constructs may be ethnocentrically limited to North Americans. North American samples are perhaps not entirely representative of humankind; having different cultural values and world views, people in the other cultures may function differently from North Americans.

The present study was undertaken to examine how Chinese and North Americans express themselves in the domains of FD-I, LOC and UNCERT. The relationships among these constructs and culturally based differences in those relationships were also explored. Finally, this study was the first exploratory investigation of the model suggested below.

This paper is organized into two parts. The first part presents a tentative model of inter-relationship among field dependence-independence (FD-I) (Witkin, Dyk, Paterson, Goodenough & Karp, 1962; Witkin & Goodenough, 1981), locus of control (LOC) (Rotter, 1966), uncertainty orientation (UNCERT) (Sorrentino, Short & Raynor, 1984), moral judgement (MJ) and learned helplessness (LH) (Seligman,
A. A MODEL OF THE RELATIONSHIPS AMONG FIELD DEPENDENCE-INDEPENDENCE, LOCUS OF CONTROL, UNCERTAINTY ORIENTATION, MORAL JUDGEMENT AND LEARNED HELPLESSNESS

This section portrays a model of the relationships among the five cognitive constructs identified above. Previously, these constructs have been treated in isolation or, at best, in groups of two or three. Here, they are treated as essential components of a comprehensive model. In the model, the variable "cultural values", generally defined as cultural conceptions about what are desirable goals to pursue and what are appropriate standards for judging actions, is another essential component. All the constructs in the model are considered as pertaining to different cultures, --- in this instance, to Chinese and North American populations. (Characteristics of Chinese and North American cultural values are elaborated later in this chapter.) All of these constructs interact, and the model posits that each is understood only when examining the influence of culture. The listed "propositions" are consistent with the logic of the model showed; the following chapter addressed the scarcity of empirical findings which might be used to make the propositions more specific. For example, in the face of present knowledge, it is difficult to predict whether Proposition 2 or 4 is true in the same way for both Chinese and Western cultures.
Figure 1. A model of the inter-relationship among field dependence-independence, locus of control, uncertainty-orientation, moral judgement and learned helplessness.

NOTE.
FD-I: Field Dependence-Independence
LOC: Locus of Control
MJ: Moral Judgement
LH: Learned Helplessness
UNCERT: Uncertainty Orientation
The solid arrows indicate that there are causal relationships between the corresponding constructs.
The dotted arrows indicate that there may not be a direct causal relationships between the corresponding constructs.
The dotted rectangular in the model represents the hypotheses of the present study.
Propositions

1a Chinese are more FD than North Americans.
1b Chinese are more external LOC than North Americans.
1c Chinese are more certainty-oriented than North Americans.
2a Individuals with FD are more conventional in MJ than those with FI.
2b Individuals with external LOC are more conventional in MJ than those with internal LOC.
2c Certainty-oriented individuals are more conventional in MJ than uncertainty-oriented individuals.
3 Chinese are less susceptible to LH than North Americans.
4 Individuals with conventional MJ are less susceptible to LH than those with autonomous MJ.

In this study, Chinese people refers to those who are born and educated in Hong Kong, Taiwan or Mainland China.

B. LITERATURE REVIEW

1. Proposition 1a - 1c: Chinese are more field dependence, external locus of control & certainty-oriented than North Americans

a. Field dependence-independence and cross cultural studies comparing Chinese and North Americans

FD-I is a name given to a cognitive style defined by Witkin and his colleagues
as an integral part of his broader concept of psychological differentiation (see Witkin & Goodenough, 1981). Psychological differentiation involves the development of specialization and articulation of psychological functions. The more differentiated the individual is, the more autonomy he has in his psychological functionings. Differentiation theory emphasizes that articulation and specialization are characteristic of the development of the organism as a whole. That means, greater differentiation in one psychological domain is indicative of a similar tendency in another domain, making for "self consistency" (Witkin & Berry, 1975). If an individual easily differentiated figures hidden or "embedded" in an organized background, the individual would also easily carry out an intellectual differentiation task. The basic assumption of self-consistency across all domains allows psychologists to make inferences about an individual's 'cognitive style' on the basis of his/her 'perceptual style'.

FD-I, one of a number of cognitive styles, is a bipolar dimension reflecting characteristic styles of intellectual functioning. Field independent (FI) individuals would be those whose cognitive styles reflect more differentiation while field dependent (FD) individuals are those with relatively less differentiation. It is proposed that FI persons are more likely to use internal referents as primary guides in information processing, whereas FD persons use more external referents.

A number of studies have demonstrated differences in behaviors as a function of FD-I (see Witkin & Goodenough, 1977; Witkin & Goodenough, 1981), those which are most relevant to this study indicate that FI persons have an ability to restructure a perceptual situation or impose a structure by ignoring the irrelevant
context (e.g., Fineley, Solla & Cowan, 1977; Messick & French, 1975). Because FI persons use internal referents to solve a problem, they are not easily disturbed by irrelevant external information. On the other hand, FD individuals find it more difficult to ignore irrelevant information and to impose a structure on unstructured situations. Progressing a more articulated experience of self, the FI person is also found to have a more developed sense of separate identity; such persons recognize their own needs, feelings, attributes as being separate from those of others. This means that FI persons are guided more by their own feelings, thoughts and needs than by those of others in their actions and self-definition. As a consequence, they are less likely sensitive to social cues provided by others, less concerned with people, show both physically and emotionally distancing from people and prefer nonsocial situations. Conversely, FD persons tend to rely more an external referents for a definiton of their feelings, attitudes, thoughts and sentiments. They are also more attentive to social cues, more interested in others and prefer interpersonal situations. Many studies have found association between FD-I and the way the individual deals with social environment (e.g., Birnbaum, 1975; Holley, 1972). It seems that FD and FI people are different in an array of characteristics that make FD people have a set of social skills that are less evident in FI people. On the other hand, FI people have greater skill in cognitive analysis and structuring. Thus, each of these cognitive styles has characteristics that are adaptive to particular situations.

With respect to origins of differences in FD-I, Berry (1966) and Berry & Witkin (1975) suggested an eco-cultural perspective to Witkin's psychological differentiation theory and provided researchers interested in other cultures with a very useful
guide for investigation. According to the Berry's perspective, social, cultural and ecological factors are three interactive factors that directly influence the development of FD-I orientation. Only social and cultural factors are discussed here since these are the two relevant factors in the present study.

The work of socialization as a social antecedent of FD-I focuses mainly on child-rearing practices. By and large, childrearing practices which foster the development of FD are those which encourage conformity to parental and social norms, and do not allow for flexibility in parental authority (e.g., Baran, 1971; Dawson et. al., 1974). "Culture" has been conceived to affect the development of FD-I through influencing the choice of preferred ideology and mode of socialization. In the literature of psychological differentiation, types of culture are classified by the criteria of "social tightness". "Tight" cultures are those with many roles in a structured hierarchy and conformity as their positive cultural values. On the other hand, "loose" cultures are those have fewer rigidly assigned roles and a less rigidly structured hierarchy. Training for autonomy is emphasized in these cultures. Many studies have showed that "tight" cultures are associated with FD and "loose" cultures are associated with FI (e.g., Amir, 1972; Okonji, 1969; Witkin et. al, 1974).

Since Berry's work (Berry, 1966; Berry & Witkin, 1975), cross cultural studies in FD-I have proliferated. However, only two studies have involved Chinese subjects and neither of these directly examined the influence of Chinese culture on FD-I. Dawson et. al. (1974), in their study of 11- to 13-year old Hong Kong Chinese, found that severity of upbringing, as assessed by Dawson's Chinese
Socialization Scale completed by the children, was linked to performance on Rod-and-Frame Test, Embedded Figure Test and Block Design (three different measures of FD-I). The more severe the child's upbringing, the more likely that he/she would develop FD orientation.

To investigate the ecological influence in FD-I development, Dawson (1970) also conducted a study to examine differences between Hong Kong Boat People and Hong Kong Hakka agriculturalists. As expected, he found that Hong Kong Boat People were more FI on Embedded Figure Test and Pre-school Embedded Figure Test than Hong Kong Hakka agriculturalists.

b. Locus of control and cross cultural studies comparing Chinese and North Americans

Based on social learning theory, Rotter (1966) proposed that an internal-external (I-E) locus of control construct moderates the effects of reinforcement and expectancy. Under the assumption that everyone seeks to account for and to explain his own behavior, LOC is hypothesized as generalized beliefs or perceptions about how positive and negative reinforcements are obtained. Such perceptions, in turn, directly influence the expectancy that a particular reinforcement will reoccur. Once an expectancy for a particular reinforcement is built up, it tends to generalize from a specific situation to a series of situations which are perceived as related or similar. This generalized expectancy or belief becomes a stable characteristic of the personality, and might affect a variety of behavioral choices in a broad spectrum of life situations. Generalized expectancies
in two different persons will result in characteristic differences in behavior in a particular situation. At one extreme is internality in which a person has a general expectancy that he/she can obtain reinforcements by his/her own action. At the opposite extreme is externality in which a person has a general expectancy that reinforcements depend on such uncontrollable outside forces as chance, fate, luck or the behavior of those more powerful. According to Rotter's theoretical conception (1975), the I-E LOC construct is not a clear-cut good-bad dichotomy. Rather, it is a continuum with no inherent value judgement imposed on either internal or external control. It would be incorrect to assume that internals have all good traits or that externals have all bad traits.

Concerning the origins of different LOC orientations, interestingly, LOC and FD-I have similar social and cultural antecedents (see Lefcourt, 1982). Parents' rejecting and dominating behaviors are reported to encourage their children to believe that factors outside their own control are responsible for their action, and that fosters the development of an external LOC. The role of culture has also been examined. The research in this area suggests that external LOC is found in those cultures with social emphases on authoritarian submission, obedience to tradition and conformity to group norms. Conversely, internal LOC is associated with cultures stressing autonomy, self-determination and individualism as positive cultural values.

These postulations have stimulated a considerable number of cross cultural studies on LOC. The application of the LOC concept to cross-cultural comparison has resulted in theoretical and psychometric refinements of the construct. As
originally conceptualized by Rotter (1966), the Internal-External (I-E) Scale, the first measure of LOC orientation, was thought to be unidimensional. However, the issue of the dimensionality of the scale was raised by Gurin et. al., (1969), who found that a three-factor structure best accounted for the responses of U.S. black college students. These factors were labelled: academic performance, self confidence and aspiration. Independently, Mirels (1970) also obtained two factors, one pertaining to the personal control and the other to the political system control. This two-factor structure has been successfully replicated in several studies (Bond & Tornatsky, 1973; Cherlin & Bourque, 1974; Joe & Jahn, 1973). In their comparative study of Denmark and U.S. students, Schneider and Parsons (1970) also conceptualized five factors (i.e., luck-fate, personal respect, politics, leadership-success and academics) on the basis of a content analysis of the I-E Scale. Taken together, these results required a re-evaluation of the dimensionality of the LOC construct.

The LOC studies between Chinese and North Americans further suggest the multidimensionality of the LOC construct. A review of research revealed five cross cultural research studies involving Chinese in the area of LOC prior to 1987. Hsieh et. al. (1969) performed the first cross cultural study between American and Chinese on LOC. He and his associates administered the Rotter's I-E Scale to three groups of high school students (Hong Kong Chinese, U.S.-born Chinese and U.S. Caucasians), matched on age and statistically controlled for SES. As expected, Hong Kong Chinese students were the most external; whereas U.S.-born Chinese were in between Hong Kong Chinese and the more internal U.S. Caucasians in their control orientation. However, Tsui's study (1977)
partially contradicted what Hsieh et. al. found by demonstrating that Hong Kong Chinese college women were more internal than American-Chinese women on the Rotter’s I-E Scale.

Using a different LOC instrument — Lefcourt’s Multi-dimensional Multi-attributional Causality Scales (1979) — Chan (1981) compared different cultural groups (Anglo-Canadian, Hong Kong Chinese, and Hong Kong Chinese foreign students in Canada) and different age level (college students), and found that Hong Kong Chinese students were more externally controlled than Canadian students on the overall I-E scores. Subscale analysis indicated that this difference was mainly due to differences in an achievement domain, where Hong Kong Chinese students were more external than the Canadian students. Foreign students were in the middle between Hong Kong and Canadian students. No significant difference was obtained in an affiliation scores.

A similar result was also obtained by Lao (1977), who compared Taiwan Chinese and American college students. She found that Taiwan Chinese (females, but not males) to be more external on the 'Internal' subscale of the Levenson IPC Scale. However, the relationship was reversed on the 'Powerful Others' subscale, where U.S. subjects (males and females) appeared to be more external than Taiwan subjects. No significant difference was reported on the 'Chance' subscale. These inconsistent findings on the 'Powerful others' and the 'Chance' subscales may be due to the unusual external orientation of the Lao’s white sample (see Dyal, 1984, p.226).
Using Crandall's IAR Scale (Crandall, Katkovsky & Crandall, 1965), Chiu (1986) conducted another study comparing Taiwan Chinese and U.S. Caucasians. His subjects were 6th and 8th graders and they were matched on SES, age and grade. Results indicated that American children were more internally controlled for success than their Chinese counterparts; however, they were more externally controlled for failure than Chinese children. All these studies clearly showed that multidimensional LOC instruments (e.g., Levenson's IPC Scale, Lefcourt's MMCS) have provided greater insight into differences between cultural groups than unidimensional instruments (e.g., Rotter's I-E Scale) wherein only total scores are compared.

c. Uncertainty orientation and cross cultural studies comparing Chinese and North Americans

UNCERT is a recently developed construct. To date, little information is available about the characteristics of this construct, or its relationship with other phenomena. Sorrentino et. al. (1984) and Raynor and Zubek (1984) proposed UNCERT as a cognitive construct. At one end of the hypothesized dimensions, uncertainty-oriented individuals are dominated by a cognitive need to attain clarity by discovering the unknown. They are more likely to integrate new events or beliefs into already existing belief systems, changing the new or old belief accordingly. Logically, they are more rational and have a 'need to know'. Uncertainty-oriented persons can exhibit negative as well as positive behaviors in order to attain clarity about themselves or their environment. At the other end of the dimension, certainty-oriented individuals are characterized by a cognitive
need to maintain clarity by avoiding confusion. In order to avoid confusion, certainty-oriented individuals are thought to adhere to familiar events and traditional beliefs, to be dependent, and to have a low sense of autonomy in an unfamiliar environment.

Research in this area has been restricted to the North American cultural context; no cross cultural research has been done except one unpublished study (Lau, 1985). To investigate cultural differences in learned helplessness as a function of uncertainty orientation, Lau (1985) conducted an experiment on approximate 41 Hong Kong foreign students and 43 Canadian Caucasians at the University of Western Ontario, Canada. As predicted, Hong Kong foreign students were found to be more certainty-oriented than the Canadian counterparts; however, no cultural difference was found in learned helplessness. The cross cultural study in this area is so sparse that further cross-cultural investigation is required to clarify the role of cultural influence on UNCERT.

d. Chinese Cultural Characteristics

Literature reviewed earlier in this chapter indicated that the social and cultural environment are very important to the individual's development of FD-I, LOC and UNCERT orientations. Chinese culture, with more than 4,000 years of civilization, is one of the ancient cultures. As the literature showed, Chinese culture with its emphasis on collectivism and harmony is quite different from North American culture, which emphasizes individualism and competitiveness (see Hofstede, 1980; Hsu, 1970, 1981; Needham, 1956; Yang, 1981). Such broad differences in
cultural values may well lead to an alternative cognitive structures or processes.

In the next section, an attempt is made to employ ecocultural perspective to illustrate some major Chinese cultural qualities. According to this perspective, different ecologies make different kinds of demands on the psychological and physical resources of the individuals who inhabit them. In the process of adaptation to given ecologies, members of successive generations of an ethnic group develop a special type of economy which in turn necessitates establishment of an appropriate social structure. A unique socialization pattern then evolves to train members of subsequent generations in a set of personality and behavior traits that will make them compatible with the particular social structure and function.

Approximately 4,000 years ago, Chinese began to establish their society along the Yellow River which was an ideal place for the development of a self-subsisting agricultural economy. This agricultural economy had particular features which led directly to the socialization of certain behavioral characteristics. For example, a traditional agricultural economy requires a large group of people working on the farm. To maintain the effectiveness of group effort, harmony and cooperation among some collective, which is usually a stable ingroup (e.g., family) are more important than the individual’s needs and goals. Individuals are induced to sacrifice their personal goals for attaining collective goals, and much of the behavior of individuals is directed toward the goals of this ingroup. In other words, the individual sublimates collective goals as personal goals. Thus, collectivism, with the family as its basic unit developed gradually in China. The
main feature of this social structure is its hierarchical network. In this hierarchical system, each individual has his defined roles and social power according to his/her gender, age, birth order and position in a group. Those in higher positions in the hierarchy are given more social power in controlling economic resources. In order to share these economic resources and obtain social support, those in lower positions are required to respect and obey those in higher positions. For this reason, socialization practices which emphasize obedience to constituted authority and conformity come to be valued. Consequently, individual autonomy and independence are reduced through socialization. In response to this agricultural ecology, Chinese, as a whole, are therefore relatively more passive, dependent, collective and extremely subject to group influence. These eco-cultural qualities, interacting with certain dominant moral and religious thoughts and doctrines (e.g., Confucianism, Taoism and Buddhism), would lead to a special mode of socialization through which a traditional Chinese learns how to live effectively in the social network of this agricultural society.

A detailed discussion of Chinese thought is not possible here; and any such analysis would be complicated by the enormous diversity of Chinese thought in different places and times. Therefore, the following discussion is limited to Confucianism, which has dominated Chinese thought for the past twenty-five centuries. Confucianism was advocated by most rulers throughout the history of China not only because it emphasized the loyalty of officers, but also because its ideology was congruent with the cultural system of traditional China, basically an agrarian state. Being a theory of society and the individual, Confucianism is tremendously rich and complex. Numerous English-language publications are
available for those wishing to pursue the philosophy of Confucius in detail (e.g., Fung, 1948; Needham, 1956; Wright, 1962). Only Confucian themes which have immediate implications for the daily functioning of Chinese people are highlighted here.

The concept of the universe is an essential concept in Chinese thought. In Confucianism, the concept of the universe is captured in its conception of *Tien* (Heaven, 天). *Tien* is a total cosmic process; whatever is in the universe must be good, simply because it is. Confucians perceive the universe as a harmoniously functioning organism consisting of an orderly hierarchy of interrelated parts and forces, which though unequal in their status, are all equally essential for the whole. In other words, the world of man and the world of nature constitute one great indivisible unity. Man is a part, but a vital part, of the universe as a whole. This belief is further strengthened by the philosophy of Taoism, the basic principle of which is that Man must subordinate himself to *Tao* (Nature 道). In the West, happiness is to be found by harnessing the forces of nature to the will of man. For the Chinese, on the contrary, when one integrates oneself into the universe as one finds it, one gains the happiness of contentment in *Ching* (simplicity, quiescence 靜).

At the social level, society is, or at least should be, a reflection of this universal harmony. An ideal society should be an ordered hierarchy of individuals with unequal status, all of whom, however, have essential roles to perform. As a result, cooperation and harmonious relationship are developed among people. According to Confucianism, social harmony would be realized when man practices
and perfects virtues such as $li$ (propriety, rules of correct behavior, 礼), $yi$ (righteousness, 義), $chi$ (moral self, wisdom in a moral sense, 智) and $jen$ (human-heartedness, love, benovolence, 仁).

$Li$, which can be conceptualized as the guidelines for performing the various roles, entails both rights and responsibilities of a man toward another man in a situation. Each individual is expected to perform his role according to the norms prescribed by $li$. Consequently, a harmonious society would be achieved. Failure to follow $li$ would jeopardize the relationships between/among individuals and disrupt the harmony of society.

Among these relationships, certain relationships are of paramount importance. These are called the $wu$ $lun$ (five cardinal relations, 五倫), namely: those between sovereign and subordinate, father and son, elder brother and younger brother, husband and wife, and friend and friend. As showed in this order, these relationships, even those between friends, are constructed in a hierarchical pattern. In this hierarchical structure, sovereign, father, elder brother, husband and older friend were given a wide range of privileges and authority with respect to subordinate, son, younger brother, wife and younger friend. It should be emphasized that this hierarchical structure is maintained by the inter-dependence of both parties in each relationship. Each party in the relation is speculated to follow his role requirement on the basis of $li$. For example, the sovereign is required to rule justly; otherwise, his subordinates would not serve loyally.
As seen above, in the Confucian paradigm man is regarded as a relational being. Each individual is required to follow *li* in order to maintain a smooth relationship with others. However, relations alone do not totally define the man. Confucians also recognize great importance of *chi*, which can be conceptualized as wisdom in a moral sense. In the Confucian perspective, the individual is more than a role-player mechanically performing the role-related behavior prescribed by *li*; he is an active and reflective entity. *Chi* provides the individual self the capacity to adhere to what is right according to *yi*, which is the principle of conferring the propriety on the behavior pattern in question. In this sense, Confucianism not only emphasizes interpersonal relationships, it also stresses personal integrity and righteousness. This aspect of Confucianism justifies rebellion against tyrannical authorities even though the consequence is disobedience to one's superior.

In Confucianism, *chi* is embodied in the Confucian conception of *jen*, which is the natural desire for accomplishing *li* in the spirit of *yi*. *Jen* was to be identified with both the totality of all virtues and the essence of all virtues. It is the most fundamental for making a man a moral being. According to Confucianism, if one is in the practice of *jen*, he would seek to fulfill others in order to fulfill himself, as well as to fulfill himself in order to fulfill others. It is clearly showed that helping others to fulfill themselves is a corollary of one's self-realization. In other words, to involve the other in one's self-realization is not only altruistic; it is required for one's own self-development. Therefore, being the natural desire to consider the others in one's self-realization, *jen* is the basis that a man relates to others and
to become himself.

As a summary, the essential aspect of Confucianism is the construction of a harmonious society according to *li*, *yi*, *chi* and *jen*. In the practice of these virtues, an individual is encouraged to maintain hierarchial order and harmonious interpersonal relationships in a relatively stable and permanent social structure. Such Confucian socialization teaches Chinese to accept hierarchy in which people in higher positions are given more privileges and authority to control resources. Consensual acceptance of this differential access to resources prevents conflict and competitiveness which would directly jeopardize the effectiveness of group effort and the harmony of the agricultural society. To maintain such interpersonal harmony, Chinese psychologically tend to act in accordance with social expectations or social norms, rather than according to the individual’s needs and goals. They are more concerned about cooperativeness, social conformity, harmony maintenance, social acceptance and avoidance of conflict (Yang, 1981). As such, they would be able to function as an integral part of the social network.

c. Empirical Findings on Chinese Cultural Characteristics

The eco-cultural demands and Confucian philosophy just discussed are two major historical genesis of Chinese cultural characteristics. This section review some empirical findings in the study of these cultural characteristics. Among these studies, most of them are cross-cultural in nature, mainly contrasting Chinese and American cultures. Before reviewing the relevant literature, one point should be clarified. For ideological and political reasons, almost no empirical research
was conducted in Mainland China in the last two decades. Because of numerous restrictions of the flow of information from Mainland China, most of the work to be discussed in this section used samples of Chinese people drawn from Taiwan and Hong Kong as subjects or respondents. Special caution should be taken when the results are generalized from one Chinese society to the other.

As mentioned, collectivism and hierarchical social structure are two fundamental aspects of Chinese culture; however, there are only a few empirical studies in the literature examining these two cultural dimensions. In their comparative study on authoritarianism, Singh, Huang and Thompson (1962) provided information about the collective nature of Chinese culture. Compared with the local university students at a large American university, the Indian and the Chinese foreign students are found to be more society-oriented. They gave high ratings to group participation and showing more concern for other people on the Edwards' Personal Preference Scale (Edwards, 1954).

More direct evidence was collected by Hofstede (1980) in his survey of work-related values. Working for a large multinational organization, Hofstede and his associates conducted a survey of 100,000 employees in 40 nations around the world. Three were Chinese nations: Hong Kong, Singapore and Taiwan. Using factor analysis to simplify the mass of data, Hofstede derived four dimensions of cultural variation along which his nations could be located. Two of these dimensions are of special importance for the present discussion.

The first dimension is collectivism-individualism. In the Hofstede's conception,
collectivism-individualism refers to the degree of interdependence that a society maintains among individuals. Individualism stands for a preference for a loosely knit social structure in which individuals are supposed to take care of themselves and their immediate families only. Its extreme, collectivism, refers to a preference for a tightly knit social framework in which individuals can expect their relatives or other in-groups to look after and support them in exchange for unquestioning loyalty. The second cultural dimension is power distance which Hofstede defined as the extent to which the members of a society accept that power in institutions and organizations is distributed unequally. People in large power distance societies accept a hierarchical order in which everybody has a defined power and resources which needs no further justification. People in small power distance societies seek equalization of power and demand justification for power inequalities.

These two dimensions are important for the present discussion, because Hofstede's study provided the first piece of direct empirical evidence on the collectivism and the hierarchical social structure of Chinese culture. Compared with the other western countries, all three Chinese samples were located in similar positions on these two dimensions. That is, they all scored considerably lower in individualism and moderately high in power distance. In contrast, American and Canadian employees obtained the top scores in individualism and moderately low in power distance.

Similarity in position among Chinese societies was also obtained in a more recent research study (Chong, Cragin & Scherling, 1983). Replicating Hofstede's study,
Chong and his associates administered a similar value survey to a wide variety of managerial employees in Mainland China. Comparing their results with those of Hofstede (1980), they found a close correspondence among all four Chinese samples on the dimensions of collectivism-individualism and power distance. These two studies reveal an important point: collectivism and hierarchical social structure, as two fundamental Chinese values, have remained intact among modern Chinese societies.

To maintain group integrity and interpersonal harmony, Chinese people are required to cooperate with each other and try to avoid competition and conflict with their in-group members. Consequently, the Chinese shift their position on an issue toward the majority position or toward the authority’s position more frequently than people in more individualistic cultures like those in North America. Surprisingly, only very few empirical studies have examined this aspect of Chinese behavior. For example, Li, Cheung and Kau (1979), who presented their subjects with Madsen’s game board (1971), found that schoolchildren in Hong Kong and Taiwan continued to cooperate even when the reward structure was changed to reinforce competitiveness. Similarly, Cook and Chi (1984) found American-Chinese boys to be more cooperative than American boys on their modified Madsen’s game board.

Authoritarianism and social conformity are two Chinese cultural characteristics which have received relatively more attention from social scientists. Numerous empirical studies have showed that Chinese people exhibit more authoritarianism and social conformity. Huang and Harris (1973) found that Chinese college
students from Taiwan imitated a college professor to a greater extent than did American counterparts. Along the same line, Chu (1966) also found that Chinese subjects from Taiwan were more affected by the mass media than were American subjects in a similar study performed earlier by Janis and Field (1959). Using different populations (i.e., Chinese secondary school students in Hong Kong versus similar British students), Lai (1981) obtained similar results.

The first set of Chinese data on authoritarianism was collected by Singh, Huang and Thompson (1962) in their comparative study of Taiwan Chinese, American and Indian university students. The Chinese scored slightly lower than Indians, but much higher than their American counterparts on authoritarianism as measured by Sanford and Older's Authoritarian Scale (1950). In another study, Meade and Whittaker (1967) gave the English version of the California Fascism Scale (F Scale) (Adorno et. al., 1950) to Chinese university students from Hong Kong and five other groups of students from India, Brazil, Arabia, Rhodesia and the United States. Indian and Rhodesians showed the highest level of authoritarianism. Chinese came next, followed by Arabian, Bralizian and the American students. Relevant data were also reported by Domino and Mo (1987). In this study, a set of 701 stories generated by 80 Beijing Chinese and 80 American children was content analyzed. The results showed that Chinese stories clearly reflected social orientation, greater concern with authority, containing more affective elements and fewer instances of physical aggression than the stories generated by American children.

Conclusively, the foregoing discussion and empirical findings revealed that Chinese
culture is a typical collective culture with its emphasis on harmony, inter-dependence, loyalty to the group and submission to authority. With such cultural characteristics, it is reasonable to speculate that in China people are socialized to be more FD, external LOC and certainty-oriented than in North America where the culture stresses individualism and competitiveness.

f. Relationships among field dependence-independence, locus of control and uncertainty orientation

The other interesting field of research on FD-I, LOC and UNCER is their inter-relationships. Conceptually, FD-I, LOC and UNCERT are three similar constructs; they should be correlated. FD-I and LOC have similar conceptual frameworks; both describe individuals on the basis of whether they will rely on their own internally or externally derived frame of reference to guide their behaviors (Lefcourt, 1976, p.11; Witkin & Berry, 1975, p.9). Also, as discussed previously, both have similar hypothesized soico-cultural antecedents. Those cultures which place positive values on social conformity and submission to authority are speculated to socialize individuals with FD and external LOC orientations, while those which emphasize individualism and self-reliance are expected to socialize individuals with FI and internal LOC orientations. There is also empirical evidence which suggests that a number of psycho-social phenomena associated with LOC orientation bear a similar relationship with FD-I orientation. These psycho-social phenomena include: conformity, creativity and achievement behavior (e.g., Phares, 1976; Witkin & Goodenough, 1977), reliance on one’s own reinforcement history as opposed to others’ norms (e.g., Deever, 1967), the
response to autonomy in reaction time task (e.g., Bachrach, Huesmann & Peterson, 1977; Caring, 1970; Mas, 1984; Schleifer, 1972). Some researchers (e.g., Bloomberg & Soneson, 1976; Guthrie, 1985; Lefcourt & Telegdi, 1971; Panda, 1971) have also reported that the combination of LOC and FD-I will yield greater precision in predicting cognitive activity, verbal productivity and moral judgement than using just one of them.

A number of studies (Chance & Goldstein, 1971; Feather, 1967; Lefcourt & Telegdi, 1971; McIntire & Dreyer, 1973; Rotter, 1966) have indicated no direct relationship between the LOC and FD-I constructs despite the logical soundness. Among these studies, Rotter's I-E Scale which has been criticized for its unidimensionality was usually employed as the instrument for assessing LOC. Therefore, it is fruitful to investigate further the relationship between FD-I and LOC constructs by employing other multi-dimensional LOC measures.

Conceptually, the construct UNCERT should also correlate with the constructs LOC and FD-I. As defined, certainty-oriented individuals are dominated by a cognitive need to maintain clarity by avoiding confusion. Such persons are more comfortable with those situations with a high degree of certainty. External referents, such as social norms, traditional beliefs or standards defined by authority (e.g., family or the law), are very powerful in providing this kind of certainty to certainty-oriented individuals. Logically, certainty-oriented individuals should rely more on well-established external referents. Interestingly, all of these behavioral characteristics are also hypothesized to be associated with FD and external LOC individuals (see Lefcourt, 1982; Witkin & Goodenough, 1981 for
review). On the other hand, uncertainty-oriented persons are more likely to attain clarity by discovering the unknown. Logically, they are more rational, analytical, and challenge-seeking and less likely be persuaded by external information. Again, these behavioral characteristics of uncertainty-oriented persons are similar to those of FI and internal LOC individuals. As showed in the foregoing discussion, it seems that FD-I, LOC and UNCERT are three related constructs, at least at the conceptual level.

2. Proposition 2a - 2c: Field dependent, external controlled and certainty-oriented individuals are more conventional in moral judgement than field independent, internal controlled and uncertainty-oriented individuals

a. Conventional versus autonomous moral judgement

Adapted from Kohlberg’s three levels of moral development (1976), MJ is classified into two categories in this study. (Kohlberg’s three levels of moral development are: the postconventional level, the conventional level, and the preconventional level. These levels of moral development are presented in an ascending order; higher levels of moral development represent greater maturity in MJ.) Similar to Kohlberg’s conventional level of moral development, conventional MJ refers to those who maintain, support and justify the expectations of the family, group or nation as their own individual’s moral standards. On the other hand, autonomous MJ, which is analogous to Kohlberg’s postconventional level of moral development, refers to those who have their own subjective values and
expectations that may or may not correspond to expectations of the family, group or nation. Although in the Kohlberg’s perspective, a higher level of moral development represents more maturity in MJ, no such value judgement should be applied to the present classification. Here, differences in MJ reflect only different orientations individuals have in dealing with moral issues. There is intended no implication that autonomous MJ is inherently better than conventional MJ; each orientation can be adaptive in a particular eco-cultural context. In addition, the possible motives for developing conventional MJ are manifold, including the desires to pursue collective goals, to avoid conflict, to be correct, to be dependent on authority, to ingratiate oneself with the source of influence and so forth. Thus, it would be short-sighted simply to predict that people with conventional MJ are more dependent and passive than those with autonomous MJ.

b. Relationships among field dependence-independence, locus of control and moral judgement

As the theoretical definitions imply, FI and internal LOC individuals are those who rely on an internally derived frame of reference to guide their behaviors, while FD and external LOC individuals rely more on an externally frame of reference (Lefcourt, 1976, p.11; Berry, 1975, p.9). Logically, FD and external LOC individuals are more likely to have conventional MJ which, to a certain extent, requires reliance on some powerful external sources of information -- such as norms defined by the authority. However, at present, research in this area is sparse and there is no conclusive evidence to support this relationship empirically.
Several lines of research seem to provide evidence of the relationship among FD-I, LOC and MJ. In investigating social conformity as a function of FD-I and LOC, a number of studies reported that FI and internal LOC individuals are relatively autonomous and independent from conformity influence than FD and external LOC individuals (c.f. Lefcourt, 1976, 1982; Witkin & Goodenough, 1977, 1981 for review). These studies seems to support that FD and external LOC persons tend to have conventional MJ which, to some extent, requires conformity to authority. To date, only a few studies have examined directly the relationships among FD-I, LOC and MJ. Only three studies have attempted to relate MJ to FD-I; Kohlberg’s Test of Moral Development was the common measure used to assess the subjects’ moral maturity. All of these studies reported that FI are associated with more mature MJ and FD with less mature MJ (Caring, 1971; Guthrie, 1985; Schleifer, 1972). Although a positive correlation between FD-I and MJ was obtained in these three studies, more research is definitely needed to explore such a relationship. Cross cultural studies would be required to examine whether such a relationship exists in other cultures.

The singular relationship between MJ and LOC has been explored more thoroughly. Among such studies, four reported moderate positive correlations between LOC and MJ (Adams-Webber, 1969; Bachrach, Huesman & Peterson, 1977; Guthrie, 1985; Penk, 1969) and three showed no correlation (Alker & Poppen, 1973; Guttman, Bar-Zohar & Statter, 1981; Janzen & Boersma, 1976). Again, Kohberg’s Test of Moral Development was the most common measure used in these studies. Regarding the complex relationship among FD-I, LOC and MJ, Arbuthnot (1971), using the Kohlberg’s moral judgement interview, the
Rotter's I-E Scale, the Rod-and-Frame Test, and the Guilford-Zimmerman M-F Scale as a measure of relative masculinity, found that MJ was not associated with LOC and could only predict FD-I in masculine men. Females, however, were not included in Arbuthnot's study. On the other hand, Bloomberg and Soneson (1976) found that among female college students, those with post-conventional MJ are also both field independent and internally controlled. Additionally, the results indicated that neither of these variables alone adequately predicted levels of MJ; rather, a combination of both was required. However, males were not included in Bloomberg and Soneson's sample.

Guthrie (1985) suggested one possible explanation for the lack of unequivocal evidence in the study of the relationship between LOC and MJ. She suggested that lack of a standardized method for evaluating LOC may lead to difference between samples as to which subjects are classified as 'internal' and which are classified as 'external'. This factor becomes quite critical when the results of various studies are compared. This problem will affect studies of LOC and MJ until a common method for evaluating LOC is developed. The other possible explanation for inconclusive evidence in this area may be that there is, indeed, no direct causal relationship between LOC and MJ. Perhaps, there are important mediators in between LOC and MJ, which have not been included in previous studies. Further investigations are necessary to resolve this issue.
c. Relationship between uncertainty orientation and moral judgement

It is expected that certainty-orientation, which is characterized by a cognitive need to maintain clarity by avoiding confusion, will correlate negatively with autonomous MJ. Autonomous MJ, defined as the establishment of one’s own value system and expectations which may or may not correspond to the values of one’s family and nation, provide uncertainty. Thus an individual who is oriented toward certainty will likely avoid autonomous thinking. Such individuals may avoid confusion in the moral realm by following convention and stressing duty as defined by such authorities as the family or the law. Consequently, certainty-oriented persons tend to have conventional MJ which, to a certain extent, requires reliance upon authority; such reliance enables the certainty-oriented individual to maintain clarity with respect to moral issues. Following the same logic, uncertainty orientation is hypothesized to be associated with autonomous MJ.

3. Proposition 3: Chinese have less learned helplessness experience than North Americans

Seligman and his associates (Overmier & Seligman, 1967; Seligman, 1975) have proposed that LH occurs when organisms learn that their responses are independent of desired outcomes, and that they are therefore helpless to initiate a change in their later circumstances. These researchers have stressed that a perceived lack of control over circumstances is the crucial factor in producing LH. One could argue that the underlying assumption of LH is the perception that an
An individual, as a self-reliant creature, can control his environment. An individual who perceives that he can control his environment will have stronger negative psychological responses when he encounters uncontrollable experiences than one who perceives that he cannot control his environment. It is reasonable to speculate that the former group of individuals is more susceptible to LH. Expanding this argument to the cultural level, it can be hypothesized that people in a particular culture may be more likely to experience LH than those in other cultures due to their different perceptions about themselves imposed by their cultures.

As the foregoing discussion revealed, Chinese culture is a typical collective culture with positive values on harmony, interdependence and conformity to group norms. With these cultural characteristics, Chinese people are used to coping with most of their life events collectively, especially in consort with their ingroup members. Unlike North Americans, Chinese people do not perceive themselves as totally self-reliant individuals; rather, they are interdependent members of groups. Such intensive self-ingroup relationship and collective coping make it easier for Chinese people to cope with the uncontrollable experiences in their everyday lives. Following this line of argument, Chinese people, with an emphasis on harmony and collective coping, are expected to be less susceptible to LH than North Americans whose culture stresses individualism and competitiveness.
4. Proposition 4: Individuals with conventional moral judgement are less susceptible to learned helplessness than those with autonomous moral judgement

The derivation of Proposition 4 is completely based on logical deduction of the first three propositions. Once the first three propositions are confirmed empirically, Proposition 4 can be deduced. At present, no empirical evidence has been obtained to directly support this proposition.

C. CHAPTER SUMMARY

This literature review addressed the logical reasoning and empirical evidence relating to each hypothesis derived from the suggested model. As the review indicated, these hypotheses are based more on logical reasoning than on empirical evidence. At present, available research data in the related areas are so sparse and insufficiently clear that it is not yet possible to support any hypotheses about the inter-relationships among FD-I, LOC, UNCERT, MJ and LH. Therefore, much more empirical work should be done to modify and to confirm the suggested model. In the next chapters, an empirical study is designed and presented as a test of Proposition 1 in the model. Note that the other propositions are not tested in the present study. For a master thesis, testing all the propositions is not manageable. Also, a relatively cultural-free moral judgement instrument has not yet be developed for testing Proposition 2.
II. NATURE OF THE STUDY

A. RESEARCH OBJECTIVES

The present study is a cross cultural study comparing North Americans and Hong Kong Chinese on FD-I, LOC and UNCERT. The purpose of this study is two-fold: to investigate American-Chinese differences on FD-I, LOC and UNCERT and to examine cultural differences in the inter-relationships among these cognitive constructs. The study was designed as an empirical test of Proposition 1 in the model elaborated in the previous chapter. Besides being the first step in confirmation of the suggested model, this study may have some contributions to filling the gaps in research on FD-I, LOC and UNCERT.

Although there is increasing interest in cross cultural studies, very few investigations can be found in the literature dealing with comparisons between North American and Chinese cultures on FD-I, LOC or UNCERT. The literature review in Chapter I indicated that only one study has examined the cultural difference on UNCERT and only two studies have investigated the influence of Chinese culture on FD-I --- more precisely, the influence of Hong Kong culture on FD-I. Even though the cross cultural differences in LOC has been explored more thoroughly, it is difficult to compare studies in this area because of sample variations in age, cultural background and in the LOC instruments used. Among these five studies, three (Chan, 1981; Hsieh et. al., 1969; Tsui, 1977) have used Hong Kong students as their subjects. However, their results were inconclusive regarding the LOC orientation of Hong Kong Chinese. In summary, the number
of FD-I, LOC and UNCERT studies involving Chinese are so few and so inconclusive that it is not yet possible to describe the expression of FD-I, LOC or UNCERT in Chinese culture. As a result, little information is available about how the Chinese, as a whole, occupy a quarter of the world population, function in these cognitive domains. Do Chinese function differently from North Americans in these domains? The present study addresses this question.

The second question regarding FD-I, LOC and UNCERT constructs relates to their inter-relationships. The present study is not only the first to examine the inter-relationships among these cognitive constructs, but also the first investigation to address the comparability of these relationship across cultures. As the foregoing discussion shows, these three constructs are inter-related conceptually. They have similar patterns of correlation with certain personality and cognitive phenomena. A combination of FD-I and LOC has also been reported to yield a greater precision in predicting some behavioral characteristics. However, most of the past studies have showed no direct relationship between FD-I and LOC. Such results may be due to methodological flaws. Most of these studies have employed Rotter's I-E Scale, which has been criticized for its unidimensionality, to assess subjects' LOC orientation. Thus, it is necessary to explore further the relationship of FD-I and LOC constructs by using multidimensional instruments. Levenson's IPC Scale (1972), which measures the LOC construct in three dimensions, was used in the present study to explore the relationship of FD-I and LOC. The other advantage of employing Levenson's IPC Scale is that it should provide more detail about domains in which North Americans and Hong Kong Chinese differ in their control perceptions.
Practically, this study may also have some implications for acculturation and for achieving constructive communication between North American and Chinese cultures. In this era of free trade and high technology, the active interchanges of human resources, merchandise and information between different nations has increased. When different cultures encounter each other, it is not uncommon for one try to assimilate or reject the other. Through the processes of conflicts and resolutions, constructive communication between different cultures develops. Information about how the people in the other culture function in certain cognitive domains would promote communication and mutual understanding between different cultures. In addition, this kind of information would help to establish a broader views and more open attitudes toward the other culture without being pre-occupied with biases or impeded by rivalry. This is especially valuable in a multicultural country such as Canada. It is also with this concern that the present study was undertaken.

B. RESEARCH QUESTIONS

The general objective of this study is to investigate American-Chinese differences in FD-I, LOC and UNCERT, as well as the inter-relationships among them. In pursuit of this objective, four specific research questions were formulated:

1. Are Hong Kong Chinese more FD than Canadians?
2. Are Hong Kong Chinese more external LOC than Canadians?
3. Are Hong Kong Chinese more certainty-oriented than Canadians?
4. How does the pattern of inter-correlations among FD-I, LOC and UNCERT differ between Hong Kong Chinese and Canadians?
C. CHAPTER SUMMARY

This chapter introduced the objective and the specific research questions of the study. A cross-cultural study comparing North Americans and Hong Kong Chinese was posited as a test of Proposition 1 in the suggested model (see Chapter 1). Other theoretical and practical implications of the research questions were also discussed. This study has potential for increasing the understanding of how Chinese function in these cognitive domains and the inter-relationships among these constructs. Also, it may stimulate further cross-cultural studies in these areas and therefore increase the likelihood of communication between different cultures.
III. METHOD

A. SUBJECTS & SAMPLING PROCEDURES

The subjects used in this study were drawn from two groups of College students: 1. Canadians taking an introductory psychology course at Langara Community College in Vancouver, Canada, and 2. Hong Kong Chinese in Business Studies at Caritas Vocational College in Hong Kong

On the initial design, two groups of Chinese subjects (i.e., Hong Kong Chinese and Mainland Chinese) were planned to determine whether there is any differential cognitive functioning among Chinese in different social and cultural contexts. However, due to delays in acquiring approval from corresponding universities in Mainland China, only the Hong Kong group of Chinese subjects was ultimately selected. The two sample groups were selected as convenience samples; recognizing that they may not be precisely representative of their corresponding populations, results should be interpreted cautiously.

Subject Selection Criteria. Students were selected on the basis of their cultural background and their consent to participate in the study. A student was recruited if he/she met all the following criteria:

1. Must have lived in the homeland for minimum 10 years.
2. Must be a native speaker of the language of his/her culture. In other words, Hong Kong Chinese speak Cantonese in their home communication whereas
Canadians speak English in their home communication.

3. Must have been educated in the respective culture.
4. Must have attended class on the day that the test was administered.
5. Must have agreed to participate in the study. (The consent form is presented in Appendix A.)

Of the students approached (39 Chinese students and 58 Canadian students), all the Chinese students were recruited as they all met the selection criteria. In the Canadian group, 41 students were eligible. Of the ineligible students, 11 were classified into other cultural groups according to the first three criteria, while the cultural background of the remainders could not be identified because these students supplied no demographic information.

B. INSTRUMENTS

Instruments employed in this study included: a sentence interpretation test as a projective measure of need for uncertainty; a "general attitude survey", which consisted of Levenson's IPC Scale and Byrne and Lamberth's measure of authoritarianism; a figure test which was employed to assess the subjects' FD-I orientation and a demographic questionnaire. All instruments are presented in Appendix B. Descriptions of the instruments are given as follows.
1. Field Dependence-Independence Instrument

To assess subject’s FD-I, the Group Embedded Figure Test (GEFT) (Witkin, Oltman, Raskin & Karp, 1971) was employed. The GEFT was selected because it is one of the common FD-I measures used in cross-cultural studies. The GEFT was designed to allow group testing of the original individually administered Embedded Figure Test (EFT). It contains 18 complex figures, 17 of which were taken from the EFT while the other one was originally designed for the GEFT. The test contains three sections: the first contains 7 very simple items and is basically for practice, and the second and the third sections, each of which contains 9 more difficult figures. Subjects are required to trace a simple form (which is given on the back page) on the corresponding complex figure in a certain time limit. The score is the total number of simple forms correctly traced in the second and third sections combined. Omitted items are scored as incorrect. The items in the first section are not included in the total score. The more correct simple forms that the subject traces, the more FI he/she is.

According to the GEFT manual (Witkin et. al., 1971, p.27-28), it indicates that GEFT is a very reliable test. The split-half reliability coefficient is .82 for both males (N=80) and females (N=97) at an eastern liberal art college. In addition, a high correlation has been obtained between scores on GEFT and EFT, with a correlation of .82 for male undergraduates and .63 for female undergraduates. The combined evidence suggests that the GEFT is a useful test for assessing FD-I orientation.
2. Locus of Control Instrument

Levenson's IPC Scale (1972) was chosen as the measure of LOC in the present study because of its multidimensional nature. For the purpose of cross-cultural study, multidimensional instruments are more desirable than unidimensional instruments, because they offer a more detailed picture about dimensions in which cultural groups may differ. Also, it was judged that Levenson's IPC Scale would be easier to translate into Chinese language than other common multidimensional LOC instruments, (e.g., Lefcourt's MMCS, 1979).

Levenson's IPC Scale was designed to measure the I-E concept more accurately, through utilizing three dimensions of control -- belief in personal control (I subscale), powerful others (P subscale), and chance (C subscale). The I subscale is scored in the internal direction, whereas the P and C subscales are scored in the external direction. Thus, a high score on the I subscale means higher internality, and a high score on the P and C subscales means higher externality. The I subscale measures the extent to which people believe that they have control over their own lives; the P subscale deals with control by powerful others; and the C subscale is concerned with perceptions of chance control. Each subscale consists of 8 items on a 6-point Likert format ranging from strongly disagree to strongly agree (see Appendix B). To obtain the score of each subscale, the subject's response to each item is added to a constant of 24 in order to eliminate negative values. Thus, the range on each subscale is from 0 - 48. A word of caution about interpretation is necessary. High scores on each subscale reflect only a tendency to believe in that particular locus of control,
with no implication for beliefs about the other dimensions. It is possible then, for
a person to obtain a high score on the I subscale yet also obtain low scores on
the P or C subscale.

Various reliability indices showed that Levenson's IPC Scale is a quite reliable
instrument. Split-half reliabilities (Spearman-Brown) was: $r = .62, .66$ and .64 for
the I, P and C subscales respectively. Test-retest reliability for a one-week period
were in the .60 - .79 range (Levenson, 1973). Even though the overall internal
consistency estimates are only moderately high, Levenson (1981) noted that this
is expected since the IPC items were selected from a wide variety of situations.
For a student sample ($n=152$), Kuder-Richardson reliability estimates were .64
for the I subscale, .77 for the P subscale and .78 for the C subscale (Levenson,
1974). Wallston, Wallston and DeVellis (1978) reported similar estimates for their
adult sample ($n=115$). In this study, the alpha reliabilities for the three
subscales were: .51, .72, .73 respectively. For a hospitalized psychiatric sample,
Levenson (1973) obtained a Kuder-Richardson's reliability index of .67, .82, .79
for the I, P and C subscales respectively. The above evidence suggest that the
internal structure of the I subscale is relatively weak than that of the other two
subscales. In regard of validity, the P and C subscales were usually correlated
significantly with each other (in the range of .41 - .60) and they were usually
unrelated to the I subscale (ranging form -.25 to .19).
3. Assessment of Uncertainty Orientation

A composite measure of uncertainty orientation consists of a projective measure of need for uncertainty (Frederick, Sorrentino & Hewitt, 1987), and Byrne and Lamberth’s measure of authoritarianism (1971).

To develop measures from which to infer uncertainty orientation, Sorrentino and his associates followed procedures similar to those used in the development of measures for assessing achievement motives. In the achievement area, projective test of achievement (McClelland, Atkinson, Clark & Lowell, 1958) was used to infer the motive to succeed, and Self-Report Test Anxiety Scale (Mandler & Sarason, 1952) was used to infer the motive to avoid failure. Similarly, Frederick, Sorrentino and Hewitt (1987) developed a projective measure of need for uncertainty (n Uncertainty) from which to infer need for uncertainty, and used Byrne and Lamberth’s measure of authoritarianism (1971) to infer need for certainty.

The n Uncertainty test contains four ambiguous sentences. Subjects are required to make up their own story elicited by each of these sentences. The scorer then interprets the subjects’ story in regard of expressions of need for uncertainty. The sentences were presented in the following order: (1) Two people are working in a laboratory on a piece of equipment. (2) A person is sitting, wondering about what may happen. (3) A young person is standing: A vague operation scene is in the background. (4) An older person is talking to a younger person. To obtain higher interrater reliability, the original scoring system has been slightly modified.
in this study (see Frederick, Sorrentino & Hewitt, 1987 for the original scoring system). Stories which contain n uncertainty imagery were scored 2, doubtful stories were scored 1, and stories that show no n uncertainty imagery were scored 0. In addition, those stories which contain n uncertainty imagery were scored for the presence of 5 subcategories (there are 10 subcategories according to the original system), 1 for each. These subcategories are: need, instrumental activity, anticipatory goal, obstacles and nurturant press (see Frederick, Sorrentino & Hewitt, 1987, for detailed scoring instructions). This yielded possible scores ranging from 0 to 7 for each story. The total score of this projective test was obtained by summing up the score of each story. A high score on this measure indicates that the subject has higher need for uncertainty.

Byrne and Lamberth's authoritarianism measure (F Scale) was used to infer need for certainty. Based on research findings, Sorrentino and his associates presumed that authoritarianism parallels need for certainty. Past studies indicated that compared with low authoritarians, high authoritarians were found to be more intolerant of ambiguity (Kirscht & Dillehay, 1967), have less experience with novel or uncertainty situations (Kelman & Barclay, 1963), and show lower levels of integrative complexity for uncertain situations (Schroder, Driver & Streufert, 1967). It appears that the phenomena of need for certainty and authoritarianism have some common characteristics.

Byrne and Lamberth's measure of authoritarianism consists of 22 items measured on a 6-point Likert format, ranging from strongly disagree to strongly agree. Four original items (i.e., item 16, 17, 21 & 22) were excluded from the present
investigation because some terminologies in these items may have different meanings to Chinese people, such as the term "religion". The total score was obtained by summing up the subject's response to each item. The higher score that the subject obtains on this scale, the more authoritarian he/she is.

Untilizing two measures to infer the opposite elements of uncertainty orientation is exactly analogous to the formulation of a composite measure of achievement motivation whereby two uncorrelated measures, \( n \) Ach and test anxiety measures, independently assess the opposite tendencies. To calculate the composite score for uncertainty orientation, F scores and \( n \) Uncertainty scores were first transformed into z scores, and then the standardized F scores were multiplied by a constant -1 in order to reverse the direction of scoring. Finally, the composite score was obtained by summing up the standardized F scores and the standardized \( n \) Uncertainty scores. The higher composite score that the subject obtains, the more uncertainty-oriented he/she is.

4. Demographic Questionnaire

This questionnaire was designed to collect subjects' personal information like gender, age, cultural background, educational level and their parents' socioeconomic status (SES) which all were found to be confounded with the development of LOC and FD-I orientations. It is believed that such demographic variables would also have an influence on the individual's UNCERT. The information collected from this demographic questionnaire would assist to explain the cultural differences, if any, in LOC, FD-I and UNCERT.
For testing Chinese subjects, all questionnaires were translated into Chinese language by three bilinguals, two of them have no knowledge in psychology and have no idea about the purpose of the present investigation. Differences in translation were finally resolved by the third bilingual. The wordings of some items of the original instruments were slightly modified to produce smooth and natural-sounding statements in the Chinese language. The Chinese version of all questionnaires was then submitted to a pretest with 12 Chinese 11-graders. Minimal changes were required after the pretest. The final copy of these questionnaires is given in Appendix C.

C. PROCEDURE

In one group testing session, the subjects from both cultural groups were given the questionnaires from which FD-I, LOC and UNCERT were assessed. Hong Kong subjects were tested by one of their teachers in Hong Kong while Canadian subjects were tested by the researcher and her supervisor in Vancouver, Canada. All the subjects were told that they were participating in a study of the relationship between visual perception and different opinions on certain personal and social issues. The Sentence Interpretation Test from which Uncertainty was assessed were administered first, following standard procedures prescribed for projective measures of motives (Atkinson, 1958, Appendix 3). The subjects were required to generate their own stories on the basis of the corresponding sentence in five minutes. These stories were then scored by two teams of scorers. For the Chinese group, all the stories were scored by two bilingual graduate students and the stories generated by the Canadian students
were scored by one bilingual student and one Canadian graduate student. Differences in scores were resolved through the discussion between the scorers on each team.

According to the standardized procedures (Witkin et. al., 1971, p.27-28), the GEFT was administered next, followed by the "General Attitude Survey" which embraced Levenson's IPC Scale and Byrne and Lamberth's measure of authoritarianism. For the "General Attitude Survey", the subjects were required to indicate their opinions on certain personal and social issues by selecting a response on a 6-point Likert format, ranging from strongly disagree to strongly agree. No time limit was set for completing this survey; the subjects were asked to finish the survey at their own pace. After that, the subjects were asked to fill out a demographic questionnaire which was designed to collect their personal information like age, gender, SES, cultural background and educational level. Finally, the subjects were given a detailed debriefing message which explained the real purpose of the study. The possible negative feelings that the subjects might have were also concerned. The debriefing message is given in Appendix D. Total testing time was approximately one hour and ten minutes.

D. CHAPTER SUMMARY

Presented in this chapter were the criteria of selecting the subjects and the descriptions of all the questionnaires used in the study. The procedure of administering the study was also depicted. The following chapter outlines the demographic characteristics of the subjects and their cultural background. The
cultural differences in the FD-I, LOC and UNCERT would be investigated using the combination of multivariate Hotelling's $T^2$ and univariate Student's t-test. The relationships among FD-I, LOC and UNCERT would be examined by Pearson correlation, multiple regression analysis and canonical correlation analysis. Finally, such relationships would explore further by computing internal consistency estimates.

When interpreting the results, it should be recalled that the I subscale was scored in the internal direction whereas the P and C subscales were scored in the external direction; a high score on F Scale indicates more authoritarian whereas a high score on $n$ Uncertainty measure indicates higher need for uncertainty. The significance level was assigned to be .05 in all the analyses.
IV. RESULTS

A. DEMOGRAPHIC CHARACTERISTICS OF SUBJECTS

Demographic characteristics of the subjects described below are: cultural background, age, gender, place of birth, educational level, and SES. These data were collected from the Demographic Questionnaire (see Appendix B).

1. Cultural Background

The subject in this study was selected according to cultural background, utilizing three criteria:

1. Minimum 10-year-residence in the respective culture;
2. Cantonese/English as the primary language spoken by the subject and his/her family members at home.
3. Previous education must have been completed in the respective home country/city.

Table 1 summarizes these characteristics.

Length of Residence. The average length of residence was 17.54 for Hong Kong students and 21.45 for Canadian students; the mean was higher for Canadian students mainly because they are somewhat older than Hong Kong students. The minimum length of residence was 10 years for the Hong Kong group and 13 years for the Canadian group.

Language Spoken by The Subjects and Their Family Members. As showed in Table 1, Cantonese was the only language spoken by Hong Kong students and
Table 1.
Cultural Background of the Subjects

<table>
<thead>
<tr>
<th>Cultural Variables</th>
<th>Hong Kong (n=39)</th>
<th>Vancouver (n=41)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LENGTH OF RESIDENCE (Years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>17.54</td>
<td>21.45</td>
</tr>
<tr>
<td>S.D.</td>
<td>2.35</td>
<td>6.58</td>
</tr>
<tr>
<td>Min. Value</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Max. Value</td>
<td>21</td>
<td>48</td>
</tr>
<tr>
<td>No. of Responses Obtained</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>LANGUAGES SPOKEN BY THE SUBJECTS (n)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cantonese</td>
<td>39</td>
<td>34</td>
</tr>
<tr>
<td>English</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaking Two Different Languages</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>No. of Responses Obtained</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>LANGUAGES SPOKEN BY THE FAMILY MEMBERS (n)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cantonese</td>
<td>38</td>
<td>30</td>
</tr>
<tr>
<td>English</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandarin</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Other Language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaking Two Different Languages</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>No. of Responses Obtained</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>CULTURE IN WHICH ELEMENTARY SCHOOL WAS RECEIVED (n)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>38</td>
<td>41</td>
</tr>
<tr>
<td>Canada</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of Responses Obtained</td>
<td>38</td>
<td>41</td>
</tr>
<tr>
<td>CULTURE IN WHICH SECONDARY EDU. WAS RECEIVED (n)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>38</td>
<td>40</td>
</tr>
<tr>
<td>Canada</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Did Not Completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of Responses Obtained</td>
<td>38</td>
<td>41</td>
</tr>
</tbody>
</table>
their family members, except for one student whose family spoke Mandarin. Most Canadian students' families (n=30) spoke English as their primary language. Among Canadian students who were biliguals, five other languages were spoken: Cantonese, Korean, French, Italian or Spanish. It reflects the multicultural nature of Canada.

Culture In Which Education Was Received. All the subjects completed their elementary and high school education in their respective "home" cultures.

2. Gender, Age and Educational Background

As showed in Table 2, a total of 80 subjects were tested; 39 (6 males and 32 females) were Chinese whereas 41 (27 males and 12 females) were Canadians. The average age of Hong Kong students was 19.16, approximately three years younger than Canadian students whose average age was 22.03. Age and gender were tested for significance of cultural difference: both variables were found to differ significantly. In regard of place of birth, 32 of 39 Chinese students and 33 of 41 Canadian students were born in their respective home country/city. Among those who were born in other countries, one Chinese student was born in Singapore, three Canadian students were born in Korea, and one Canadian student was born in Philippines and the other one was born in France. With respect to the highest educational level completed, the data indicated that the two groups of students had a similar educational backgrounds. Most (39 Chinese students and 32 Canadian students) were high school graduates.
Table 2. Demographic Characteristics of the Subjects

<table>
<thead>
<tr>
<th></th>
<th>Hong Kong (n=39)</th>
<th>Vancouver (n=41)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENDER</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>6</td>
<td>27</td>
</tr>
<tr>
<td>Females</td>
<td>32</td>
<td>12</td>
</tr>
<tr>
<td>No. of Responses Obtained</td>
<td>38</td>
<td>39</td>
</tr>
<tr>
<td><strong>AGE</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>19.16</td>
<td>22.03</td>
</tr>
<tr>
<td>S.D.</td>
<td>1.13</td>
<td>5.98</td>
</tr>
<tr>
<td>No. of Responses Obtained</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td><strong>PLACE OF BIRTH</strong> (n)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>32</td>
<td>2</td>
</tr>
<tr>
<td>China</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Canada</td>
<td>0</td>
<td>33</td>
</tr>
<tr>
<td>Other Country</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>No. of Responses Obtained</td>
<td>39</td>
<td>41</td>
</tr>
<tr>
<td><strong>EDUCATIONAL LEVEL</strong> (n)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary School Graduation</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>High School Graduation</td>
<td>39</td>
<td>32</td>
</tr>
<tr>
<td>College/Technical School Graduation</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Some University Training</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>No. of Responses Obtained</td>
<td>39</td>
<td>41</td>
</tr>
</tbody>
</table>

<sup>a</sup>  \(X^2(1)=2.03, \ p<.001\)

<sup>b</sup>  \(t(75)=-3.03, \ p<.005\)

3. Socioeconomic Status

Table 3 presents the SES of subjects' parents, which was measured by three indices: highest educational level, employment status and the nature of their occupations. The parents of the two cultural groups were found to be significantly different in their highest educational level (Father: \(t(75)=-5.26, \ p<\)
Table 3. Socioeconomic Status by Cultural Group

<table>
<thead>
<tr>
<th>SES Index &amp; Level</th>
<th>Hong Kong Father %</th>
<th>Hong Kong Mother %</th>
<th>Vancouver Father %</th>
<th>Vancouver Mother %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EDUCATIONAL LEVEL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less Than Elementary School Grad.</td>
<td>36.8</td>
<td>41.0</td>
<td>10.3</td>
<td>5.1</td>
</tr>
<tr>
<td>Elementary School Graduation</td>
<td>23.7</td>
<td>20.5</td>
<td>7.7</td>
<td>5.1</td>
</tr>
<tr>
<td>Some High School Education</td>
<td>13.2</td>
<td>15.4</td>
<td>12.8</td>
<td>20.5</td>
</tr>
<tr>
<td>High School Graduation</td>
<td>15.8</td>
<td>17.9</td>
<td>23.1</td>
<td>25.6</td>
</tr>
<tr>
<td>Some College/Technical School Edu.</td>
<td>2.6</td>
<td>2.6</td>
<td>2.6</td>
<td>12.8</td>
</tr>
<tr>
<td>College/Technical School Graduation</td>
<td>2.6</td>
<td>2.6</td>
<td>5.1</td>
<td>5.1</td>
</tr>
<tr>
<td>Some University Training</td>
<td>5.3</td>
<td>2.6</td>
<td>2.6</td>
<td>7.7</td>
</tr>
<tr>
<td>University Degree</td>
<td>7.7</td>
<td>10.0</td>
<td>7.5</td>
<td>10.3</td>
</tr>
<tr>
<td>Some Postgraduate Training</td>
<td></td>
<td></td>
<td>23.1</td>
<td>7.7</td>
</tr>
<tr>
<td>Postgraduate Degree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of Responses Obtained</td>
<td>38</td>
<td>39</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td><strong>EMPLOYMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self Employed</td>
<td>23.1</td>
<td>7.7</td>
<td>42.5</td>
<td>15.0</td>
</tr>
<tr>
<td>Full Time</td>
<td>69.2</td>
<td>23.0</td>
<td>40.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Part Time</td>
<td>10.3</td>
<td></td>
<td>20.0</td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>7.7</td>
<td>10.0</td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td></td>
<td></td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>Homemaker</td>
<td>59.0</td>
<td></td>
<td>15.0</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td>No. of Responses Obtained</td>
<td>39</td>
<td>39</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td><strong>OCCUPATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homemaker/Retired</td>
<td>8.1</td>
<td>64.9</td>
<td>10.5</td>
<td>26.3</td>
</tr>
<tr>
<td>Labourer</td>
<td>5.4</td>
<td>21.6</td>
<td>10.5</td>
<td>7.9</td>
</tr>
<tr>
<td>Farm, Farm Manager</td>
<td></td>
<td></td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Craftsman</td>
<td>8.1</td>
<td>2.7</td>
<td>7.9</td>
<td>2.6</td>
</tr>
<tr>
<td>Clerical</td>
<td>13.5</td>
<td></td>
<td>2.6</td>
<td>18.4</td>
</tr>
<tr>
<td>Proprietor, Owner of a Small Business</td>
<td>5.3</td>
<td></td>
<td>5.3</td>
<td>2.6</td>
</tr>
<tr>
<td>Service</td>
<td>13.5</td>
<td>8.1</td>
<td>5.3</td>
<td>7.9</td>
</tr>
<tr>
<td>Operative</td>
<td>8.1</td>
<td></td>
<td>10.5</td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>5.4</td>
<td>5.3</td>
<td>5.3</td>
<td></td>
</tr>
<tr>
<td>Technician</td>
<td>2.7</td>
<td></td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Manager, Administrator, Govt. Official</td>
<td>8.1</td>
<td></td>
<td>5.3</td>
<td>2.6</td>
</tr>
<tr>
<td>Owner of a Larger Business</td>
<td>18.4</td>
<td>2.7</td>
<td>15.8</td>
<td>7.9</td>
</tr>
<tr>
<td>Professional I</td>
<td>2.7</td>
<td></td>
<td>2.6</td>
<td>13.2</td>
</tr>
<tr>
<td>Professional II</td>
<td></td>
<td></td>
<td>10.5</td>
<td>2.6</td>
</tr>
<tr>
<td>Not Classified Elsewhere</td>
<td>2.6</td>
<td></td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>No. of Responses Obtained</td>
<td>38</td>
<td>37</td>
<td>38</td>
<td>38</td>
</tr>
</tbody>
</table>
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.001; Mother: t(76) = -6.14, p < .001) and in their employment status (Father: \( X^2(5) = 8.407, p < .05; \) Mother: \( X^2(5) = 18.249, p < .005 \)). With 36.8% of the Chinese fathers and 41% of the Chinese mothers reported to have less than elementary school graduation, it made the Hong Kong group a relatively less educated sample than the Canadian group where most of the subjects’ parents had graduated from high school (69.3% of the Canadian fathers and 69.2% of the Canadian mothers). Although the Chinese fathers were less educated, more of them were employed (91.3% of the Chinese fathers versus 82.5% of the Canadian fathers). On the other hand, the data showed that a large proportion of Canadian mothers (75%) were employed than Chinese mothers (41%). Most of the Chinese mothers (59%) were housewives. This is probably a result of more rigid sex stereotyping in Hong Kong society.

The socioeconomic index of occupations used in this study was adapted from Blishen and his associates' socioeconomic index of occupations in Canada (Blishen, Caroll & Moore, 1987). As this index was originally developed for occupations in Canada, it may not be a precise gauge of "natural" SES occupation variations in Hong Kong society. However, due to the fact that the nature of occupations varies substantially across societies, it would be difficult to derive a common index for comparing the SES of respondents in two societies which differ as much as Hong Kong and Canadian. Blishen’s index was employed because it is one of the recognized SES indices of occupations in the literature. The present index was adapted from Blishen’s system by J. D. Willms (personal communication, April, 1989). He coded the SES scores reported in Blishen, Caroll and Moore’s study (1987) for 510 occupations in Canada, and classified each
occupation into 15 categories (see Appendix E). The SES score listed for each category is the average SES score for all occupations classified into that category. Then, the categories were ranked according to their average SES scores. To increase representativeness for occupations in Hong Kong society, one more category, 'owner of a larger business', was added to Willms' categories. The results showed that there was no significant difference between the two cultural groups in father's occupation ($t(72) = -0.71, p > .05$) However, mother's occupation did differ significantly ($t(72) = -4.36, p < .001$). More Canadian mothers than Chinese mothers were employed in high-ranking occupations. (Note that the category of 'Not Classified Elsewhere' was excluded from the present statistical analysis.)

**B. MAIN ANALYSES**

1. Confounding Effects

Before turning to the main analyses, an investigation of the effects of confounding variables is presented. The three demographic variables which appeared in the literature as having some influence on the development of FD-I, LOC and UNCERT are gender, age and SES (see Lefcourt, 1982; Witkin & Goodenough, 1981). Occupations of subjects' parents were used in this study to indicate SES. Table 4 presents the correlation of these three confounding variables with the five criterion measures (i.e., the Group Embedded Figure Test (GEFT), Levenson's I, P, and C subscales, and the composite measure of uncertainty orientation, ZCOMP). Only a few correlations were found to be
Table 4.
Correlation of Gender, Age & SES with Criterion Measures

<table>
<thead>
<tr>
<th></th>
<th>GEFT</th>
<th>I</th>
<th>P</th>
<th>C</th>
<th>ZCOMP(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENDER(^b)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>.2157</td>
<td>-.2563</td>
<td>-.1365</td>
<td>.2253</td>
<td>-.0151</td>
</tr>
<tr>
<td></td>
<td>(.097)</td>
<td>(.060)</td>
<td>(.207)</td>
<td>(.087)</td>
<td>(.465)</td>
</tr>
<tr>
<td>Vancouver</td>
<td>.1367</td>
<td>.4299</td>
<td>.0062</td>
<td>.1209</td>
<td>-.0662</td>
</tr>
<tr>
<td></td>
<td>(.203)</td>
<td>(.003)</td>
<td>(.485)</td>
<td>(.232)</td>
<td>(.345)</td>
</tr>
<tr>
<td><strong>AGE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>-.2178</td>
<td>-.0587</td>
<td>.0022</td>
<td>-.1474</td>
<td>-.1538</td>
</tr>
<tr>
<td></td>
<td>(.094)</td>
<td>(.363)</td>
<td>(.495)</td>
<td>(.189)</td>
<td>(.185)</td>
</tr>
<tr>
<td>Vancouver</td>
<td>-.2205</td>
<td>.1645</td>
<td>-.2758*</td>
<td>-.3185*</td>
<td>.4446*</td>
</tr>
<tr>
<td></td>
<td>(.092)</td>
<td>(.162)</td>
<td>(.047)</td>
<td>(.026)</td>
<td>(.003)</td>
</tr>
<tr>
<td><strong>MOTHER’S OCCUPATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>.0640</td>
<td>-.0577</td>
<td>-.0756</td>
<td>.0682</td>
<td>-.0742</td>
</tr>
<tr>
<td></td>
<td>(.353)</td>
<td>(.367)</td>
<td>(.328)</td>
<td>(.344)</td>
<td>(.336)</td>
</tr>
<tr>
<td>Vancouver</td>
<td>.3062*</td>
<td>-.1789</td>
<td>.1107</td>
<td>.1091</td>
<td>-.1894</td>
</tr>
<tr>
<td></td>
<td>(.033)</td>
<td>(.145)</td>
<td>(.257)</td>
<td>(.260)</td>
<td>(.131)</td>
</tr>
<tr>
<td><strong>FATHER’S OCCUPATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>.0524</td>
<td>.2528</td>
<td>.0370</td>
<td>.0977</td>
<td>-.0115</td>
</tr>
<tr>
<td></td>
<td>(.379)</td>
<td>(.066)</td>
<td>(.414)</td>
<td>(.283)</td>
<td>(.474)</td>
</tr>
<tr>
<td>Vancouver</td>
<td>.1592</td>
<td>-.2839*</td>
<td>.2931*</td>
<td>.0544</td>
<td>-.0426</td>
</tr>
<tr>
<td></td>
<td>(.173)</td>
<td>(.044)</td>
<td>(.039)</td>
<td>(.375)</td>
<td>(.401)</td>
</tr>
</tbody>
</table>

\(^a\) ZCOMP: the composite score for UNCERT

b. Coding for gender: M=1, F=2

Significance levels are presented in parentheses

* significant at \(\alpha=.05\)

significant at the .05 level using a one-tailed test. Gender was not significantly correlated with the criterion measures, except for one coefficient which attained statistical significance. Inconsistent with the past findings, which showed that
females tend to be more external, Vancouver female students demonstrated high internal scores. Age was negatively associated with most of the criterion measures in both groups; three of these coefficients were significant. Among the correlations with occupation, only three in the Canadian group were significant. The magnitude of these few significant correlations, ranging from .4446 to -.3185, were so moderately low as to lack practical significance. This suggests that the influence of the three confounding variables on the criterion measures is so trivial that statistical control for them is not necessary in the subsequent analyses. The other feature of examining confounding effects on the criterion measures is comparing the "confounding correlations" between the two cultural groups. Only a few "confounding correlations" appear to be significant. They are: Gender-I, Father's Occupation-I and Age-ZCOMP correlations. Such a few potential significant correlations seem to have little influence on the criterion measures. Future studies should explore further confounding effects between different cultural groups.

2. Cultural Differences in Field Dependence-Independence, locus of control and uncertainty-orientation

As discussed in the literature review, Hong Kong students are expected to be more FD, external LOC and certainty-oriented than their Canadian counterparts. A summary of results for group differences of FD-I, LOC and UNCERT is displayed in Table 5. Since multiple criterion measures were involved, Hotelling's $T^2$ test was first performed to test for differences between the two cultural groups on the composite set of measures, using the centroids of the criterion
measures as the basis of comparison. Then, one-tailed Student's t tests were computed to evaluate group differences on the individual criterion measures. This procedure follows an approach suggested by Hummel and Sligo (1970). In their study, they compared three analysis of variance approaches analyzing group differences in multivariate normal data. These approaches are: completely univariate Student's t-test, completely multivariate Hotelling's $T^2$ approach, and the combination of univariate Student's t-test and multivariate Hotelling's $T^2$ procedure. The researchers recommended that the combination approach is more desirable to analyze the multivariate data than the other approaches. The use of the univariate approach with multivariate data should be discouraged due to its inflated Type I error. The completely multivariate procedure is also not a desirable approach because of its extreme conservativeness which makes it difficult to observe possible group differences on individual criterion measures.

As expected, the two cultural groups were found to differ significantly on the centroid of the criterion measures ($T^2(5, 74)=16.39, p<.05$). Univariate t-tests showed that it was clearly significant group differences on the P and C subscales ($t(78)=2.88, p<.005; t(78)=3.33, p<.005$). Hong Kong students were found to be more external in the domains of 'Powerful Others' and 'Chance'. Even though no significant difference was reported on the composite measure of uncertainty orientation, closer examination of the component scores for uncertainty orientation revealed that the two cultural groups were significantly different on both authoritarianism and n Uncertainty measures ($t(78)=4.42, p<.001; t(78)=2.14, p<.05$). Hong Kong students were more authoritarian than Canadian students. However, the group difference for n Uncertainty was in the opposite
Table 5.  
Means, Standard Deviation and Significance Tests of Cultural Group Differences

<table>
<thead>
<tr>
<th></th>
<th>Hong Kong Mean</th>
<th>S.D.</th>
<th>Vancouver Mean</th>
<th>S.D.</th>
<th>Lower C.I.</th>
<th>Upper C.I.</th>
<th>t^a</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEFT</td>
<td>13.51</td>
<td>4.30</td>
<td>12.63</td>
<td>5.22</td>
<td>-4.64</td>
<td>2.89</td>
<td>0.82</td>
</tr>
<tr>
<td>I</td>
<td>35.80</td>
<td>3.68</td>
<td>35.52</td>
<td>4.52</td>
<td>-3.52</td>
<td>2.96</td>
<td>0.23*</td>
</tr>
<tr>
<td>P</td>
<td>26.49</td>
<td>5.29</td>
<td>22.93</td>
<td>5.74</td>
<td>-7.90</td>
<td>0.78</td>
<td>2.88*</td>
</tr>
<tr>
<td>C</td>
<td>27.18</td>
<td>4.33</td>
<td>23.20</td>
<td>6.15</td>
<td>-8.18</td>
<td>0.21</td>
<td>3.33</td>
</tr>
<tr>
<td>ZCOMP</td>
<td>-0.20</td>
<td>1.23</td>
<td>0.21</td>
<td>1.50</td>
<td>-0.67</td>
<td>1.46</td>
<td>-1.31</td>
</tr>
</tbody>
</table>

a. Chinese students was assigned to be group 1; Canadian students was assigned to be group 2
* Degree of Freedom for the t-tests = 78
* significant at α = .05

Direction. That is, Hong Kong students, unexpectedly, were found to have higher need for uncertainty.

3. Correlations among Field Dependence-Independence, locus of control and uncertainty-orientation

To examine whether FD-I, LOC and UNCERT were inter-related, Pearson correlations were computed among them. The summary of these results is presented in Table 6, where correlation coefficients for Hong Kong students are reported in the upper triangle of the matrix and those for Canadian students are in the lower triangle. Although there were some significant correlations, their typical magnitude is not so high as to challenge seriously the proposition of relative independence among the constructs. Given that only two significant
correlations involving GEFT were found and none of them explained more than 14.8% of shared variance, it seems that FD-I is unrelated to LOC and UNCERT. This proposition was tested further by conducting standard multiple regression analyses on GEFT using the Levenson's subscales and the component measures for UNCERT as two sets of predictor variables. Results of standard multiple regression analyses are summarized in Table 7. Neither LOC nor UNCERT was showed to be a good predictor of FD-I.

Considering the relationship between LOC and UNCERT, weak and irregular
Table 7. Summary of Multiple Regression Analyses on GEFT

<table>
<thead>
<tr>
<th>Predictors</th>
<th>R</th>
<th>R^2</th>
<th>MS_{reg}</th>
<th>MS_{res}</th>
<th>F-Ratio</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hong Kong</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C, I, P</td>
<td>0.15</td>
<td>0.02</td>
<td>5.07</td>
<td>19.62</td>
<td>0.26</td>
<td>.850</td>
</tr>
<tr>
<td>NUN, F</td>
<td>0.27</td>
<td>0.07</td>
<td>18.52</td>
<td>13.79</td>
<td>1.34</td>
<td>.275</td>
</tr>
<tr>
<td><strong>Vancouver</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C, I, P</td>
<td>0.41</td>
<td>0.17</td>
<td>60.91</td>
<td>24.56</td>
<td>2.48</td>
<td>.076</td>
</tr>
<tr>
<td>NUN, F</td>
<td>0.14</td>
<td>0.02</td>
<td>-0.03</td>
<td>5.31</td>
<td>0.36</td>
<td>.702</td>
</tr>
</tbody>
</table>

Associations were found, as reported in Table 6. Significant correlations included: positive C-F correlation (10% of common variance) and negative I-NUN correlation (8.2% of common variance) for Hong Kong students; positive I-F correlation (13.4% of common variance), negative P-NUN correlation (9% of common variance) and negative C-NUN correlation (10.5% of common variance) for Canadian students. It appears that the two cultural groups have different patterns of correlation. Since the I-E control and UNCERT scores collected from the subjects were derived from Levenson's three subscales and two component measures for UNCERT, canonical analysis would provide a more pertinent statistical analysis for the pattern of relationship under study. In addition, canonical analysis provides a method of determining the relative importance of the separate subtests within each instrument. Canonical analysis was performed using the BMDP6M program (Dixon, 1983), with Levenson's I, P, and C subscales as the first set of variables and the UNCERT component measures as the second set of variables.
Since one of the requirements for canonical analysis is that none of the variables in each set should be too highly correlated with, or near linear combinations of, others in the set, an investigation of the correlation between/among the subtests in each set is necessary. Intercorrelations between/among the subtests are displayed in Table 6. Consistent with the conceptual definition of the UNCERT construct, which was assessed by two uncorrelated measures (i.e., the F Scale and the n Uncertainty measure), the magnitude of F-NUN correlation was found to be very low and insignificant in both groups. Considering the association among I, P and C subscales, all the significant correlations were consistently weak; the highest correlation explained only 19.8% of variance. Again, the two cultural groups seem to have different patterns of realtionship among I, P and C. For Canadian students, although the correlations were consistently weak, the magnitude of P-C correlation was larger than the other correlations, thereby suggesting that P and C may have more overlapping variance than either P and I or C and I. This was expected since both P and C subscales were designed to measure different aspects of externality. A different pattern of association was found for Hong Kong students. Only one significant correlation, P-I correlation, was noted and it was unexpectedly positive in direction. The remaining correlations were insignificant. The correlation matrix indicated that relationship between/among subtests in each set were low enough to allow the canonical analysis to proceed. (Different patterns of relationship among I, P and C subscales are discussed further in the "Additional Analyses" section.)

Two canonical correlations were generated and evaluated for significance in each group. For Hong Kong students, the first canonical correlation was .45 (20% of
variance); the second was .14 (2% of variance). Neither was significant ($X^2(6)=8, p>.2$; $X^2(2)=.65, p>.7$). For Canadian students, the first canonical correlation was .55 (30% of variance); the second was .28 (8.2% of variance). Only the first canonical correlation was significant ($X^2(6)=16.46, p<.02$) and useful for interpretation of the relationship between the two sets of variables. The second canonical correlation did not attain statistical significance ($X^2(2)=3.22, p>.1$).

Therefore, a significant relationship between the two sets of variables explained by the first canonical correlation was found in the Canadian group, but not in the Hong Kong group. The following discussion, therefore, focuses mainly on an interpretation for Canadian students.

Analysis relevant to the first (and only significant) canonical correlation for Canadian students is summarized in Table 8, which shows correlations (loadings) between the variables and the respective canonical variates, squared multiple correlations of each variable in the set with all variables in the other set (i.e., multiple $R^2$) and canonical correlations. Correlations between variables and variates in excess of .3 are eligible for interpretation in the present study. As seen in the table, all variable-variate correlations exceeded .3 level. It is evident that those Canadian subjects who were internal in their personal life (.48) and external in the domains of 'Powerful Others' (.54) and 'Chance' (.59) also tended to be more authoritarian (.87) and have low need for uncertainty (-.50).

In regard of the relative importance of each variable in the canonical relationship, the F Scale, with a variable-variate correlation of .87 and a significant multiple $R^2$ ($R^2 = .25, p<.05$), contributed more strongly than the
### Table 8.
Summary of Canonical Correlation Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>Within-Set Variable-Canonical Correlation</th>
<th>Standardized Coefficient</th>
<th>Multiple R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOC SET</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>0.48</td>
<td>0.82</td>
<td>0.13**</td>
</tr>
<tr>
<td>P</td>
<td>0.54</td>
<td>0.68</td>
<td>0.12**</td>
</tr>
<tr>
<td>C</td>
<td>0.59</td>
<td>0.41</td>
<td>0.14</td>
</tr>
<tr>
<td>UNCERT SET</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>0.87</td>
<td>0.87</td>
<td>0.25</td>
</tr>
<tr>
<td>NUN</td>
<td>-0.50</td>
<td>-0.49</td>
<td>0.14</td>
</tr>
<tr>
<td>Canonical R²</td>
<td></td>
<td></td>
<td>0.55</td>
</tr>
<tr>
<td>Canonical R</td>
<td></td>
<td></td>
<td>0.30</td>
</tr>
</tbody>
</table>

* p<.05  
** p<.1

Uncertainty measure to the canonical equation. Among the LOC variables, I, P and C subscales made approximately equal contribution to the equation.

### C. ADDITIONAL ANALYSES

Different patterns of inter-correlation of I, P and C subscales were found between the two cultural groups. As mentioned before, Levenson's IPC Scale was developed to tap the I-E control in three different dimensions. The I subscale is scored in the internal direction whereas the P and C subscales are scored in the external direction. Therefore, the I subscale should relate negatively to the P and C subscales, while the P and C subscales should associate positively with each
other. This general pattern of correlation among I, P and C was found for Canadian students; however, a different pattern of correlation was observed for Hong Kong students. For the Hong Kong group, the P and I subscales were unexpectedly related in a positive direction while the other two correlations were very low and insignificant. This pattern suggested that the three subscales, which were originally designed for the North American population, might not assess the I-E construct in the same way for Hong Kong students.

To investigate further the functioning of the IPC Scale, internal consistency was computed using the LERTAP program (Nelson, 1974). Internal consistency is an estimate of the extent to which the subjects' responses are consistent across the items within a test (or subtest). When the responses are consistent, items are interpreted as measuring the same construct, and the test (or subtest) is said to have strong internal consistency. The LERTAP program also provides an internal consistency estimate for the composite test. In order to compute the internal consistency estimates for the composite test, all the subtests should be scored in the same direction. Thus, the scoring direction of the P and C subscales was reversed for the present analysis. Hoyt's coefficient and Cronbach's alpha are used to estimate internal consistency in the LERTAP program. A summary of internal consistency estimates of the IPC Scale is displayed in Table 9.

For Canadian subjects, given that the IPC items were selected from a wide variety of situations, the data showed that except for the I subscale, the overall internal consistencies of Levenson's subscales were moderately high. Cronbach's alpha reliability of .60 further suggested that Levenson's Scale is a quite reliable
Table 9.
Summary of Item Statistics by I, P and C subscales

<table>
<thead>
<tr>
<th>Subscales</th>
<th>Mean</th>
<th>S.D.</th>
<th>Hoyt</th>
<th>Cronbach</th>
</tr>
</thead>
<tbody>
<tr>
<td>HONG KONG</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>35.79</td>
<td>3.68</td>
<td>.48</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>29.51</td>
<td>5.29</td>
<td>.69</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>28.85</td>
<td>4.37</td>
<td>.53</td>
<td></td>
</tr>
<tr>
<td>The Composite Test</td>
<td>94.5</td>
<td>7.54</td>
<td>.51</td>
<td>-.10</td>
</tr>
<tr>
<td>VANCOUVER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>35.51</td>
<td>4.52</td>
<td>.51</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>33.07</td>
<td>5.74</td>
<td>.63</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>32.80</td>
<td>6.15</td>
<td>.69</td>
<td></td>
</tr>
<tr>
<td>The Composite Test</td>
<td>101.39</td>
<td>12.34</td>
<td>.76</td>
<td>.60</td>
</tr>
</tbody>
</table>

composite instrument for Canadian subjects. On the other hand, the subscale Hoyt's coefficients of .48 and .53 indicated that the items of the I and C subscales were not homogeneous for Hong Kong subjects. In other words, besides assessing the I-E construct, these items might also assess some other constructs or traits. This finding at least partially explained why for the Hong Kong group, low and unexpected correlations were found among the I, P and C subscales. One effect of having heterogeneous I and C items was that the Hoyt's coefficient for the composite test was low even though internal consistency of the P subscale remained moderately high for Hong Kong subjects. This, accompanied by the Cronbach's alpha of -.10, indicated that Levenson's Scale is an unreliable
D. CHAPTER SUMMARY

This chapter described the demographic characteristics of the subjects, including cultural background, age, gender, place of birth, educational level and their parents' SES. Potential confounding effects of age, gender and SES were also investigated. Pearson correlations showed that the influence of these confounding variables was trivial. A combination of multivariate Hotelling's $T^2$ and univariate Student's $t$ test was employed to examine cultural differences in FD-I, LOC and UNCERT. Significant differences were found in two of the Levenson's subscales (i.e., the P and C subscales) and in the two separate component measures of UNCERT. However, the direction of the group difference for the *n* Uncertainty measure opposite to that predicted.

Interrelationships among FD-I, LOC and UNCERT were analyzed using standard multiple regression and canonical analyses. The results showed FD-I was unrelated to LOC and UNCERT, for both cultural groups. With respect to the relationship between LOC and UNCERT, a moderate association (30% of overlapping variance) was found between LOC and UNCERT for the Canadian sample, but not for the Hong Kong group.

Finally, subscale internal consistencies were evaluated for the I, P and C subscales. Different patterns of estimates emerged between the two cultural groups: for Canadian subjects, internal consistencies were moderately high, except
for the I subscale. For Hong Kong subjects, results showed that the I and C items might assess more than one construct.
V. DISCUSSION

The primary objective of the present study was to investigate cultural differences in FD-I, LOC and UNCERT, and the differences in the inter-relationships among these cognitive constructs. The results partially supported the propositions of 1b and 1c: the cultural differences in LOC and UNCERT. Proposition 1a, in which cultural differences in FD-I was speculated, was not confirmed. Results concerning the interrelationships among these cognitive domains suggested a moderate association between LOC and UNCERT for Western subjects, but not for Chinese subjects. No other significant correlations among these constructs was obtained in this study. The confounding effects of age, gender and SES were also assessed; their influence was trivial and deemed not to have contaminated the current results.

A. CULTURAL DIFFERENCES IN FIELD DEPENDENCE-INDEPENDENCE, LOCUS OF CONTROL & UNCERTAINTY-ORIENTATION

As discussed in the literature review, it was speculated that Hong Kong students would be more FD than their Canadian counterparts. Result of this study did not support this expectation; no cultural difference was found for FD-I. Students from both cultural groups obtained similar score levels on the GEFT. One probable explanation of this result is that the GEFT is not a good instrument for differentiating college students in the FD-I domain. The test may be too simple for college students who have little difficulty in finishing the whole test within the time limit. To demonstrate whether the current result is due to the
inappropriate use of the GEFT for the present samples, more extensive adult
norms are needed for the GEFT.

A strong cultural difference was reported on the two separate component
measures of UNCERT, but not on the composite score. Consistent with the
theoretical expectation, and with Lau's (1985) earlier findings, Hong Kong
students scored higher on the F Scale. In other words, Hong Kong students were
more authoritarian than Canadian students. On the other hand, in conflict with
Lau's finding, Hong Kong students scored higher on the n Uncertainty measure,
displaying a higher need for uncertainty. The composite score showed no cultural
difference.

The question of why inconsistent findings were obtained in two similar studies
remains unanswered. More empirical work should be done to explore the cultural
dynamics of UNCERT. Pitfalls of projective techniques may at least partially
explain the inconsistent findings. One limitation of projective techniques is the
lack of objectivity in scoring. The n Uncertainty measure, like other projective
tests, depends extensively on the scorers to evaluate and integrate the meaning
of the responses as signs of the traits being studied --- need for uncertainty, in
this instance. Different scorers' interpretations of the responses may not be
comparable. In the present case, the n Uncertainty measure was scored by two
teams of scorers. The first team, consisting of two bilingual graduate students,
scored the stories generated by the Chinese students; the second team, composed
of one bilingual graduate student and one Canadian graduate student, scored the
Canadian students' stories. Even though differences in interpretation of the
responses were resolved through discussion between scorers on each team, variations in interpretation may still have occurred between two teams of scorers. Therefore, variation in interpretation of the responses, not just the cultural influence per se, may explain the current results.

The proposition of a cultural difference in LOC was partially supported in this study. Statistical differences were observed on the P and C subscales, but not on the I subscale. As expected, Hong Kong students obtained higher scores on the P and C subscales than their Canadian counterparts. Before a firm conclusion can be drawn to state that Hong Kong students are more external in the domains of 'Powerful Other' and 'Chance', the comparability of Levenson's IPC Scale for the two cultural groups of subjects should be established. Careful translation of the English IPC Scale into Chinese does not necessarily guarantee that all items have the same psychological meaning for the two groups of subjects. Because of different cultural values and perceptions, it is possible that some of the IPC items may not have the same meaning for Chinese subjects as it does for those from North American cultures.

In this study, equivalency in operationalization was tested by comparing the internal structure of the IPC Scale for the two cultural groups of subjects. Internal consistency estimates suggest that the internal structure of the IPC Scale is not congruent for the two culture groups. The IPC Scale, originally developed in North American culture, appears to function more effectively for Canadian subjects than for Hong Kong subjects. Given that the IPC items were selected from a wide variety of situations, the overall internal consistency of the
IPC Scale is moderately high for Canadian subjects. As the previous findings showed (see Chapter III), the internal structure of the I subscale is relatively weaker than that of the other two subscales. Results showed that the IPC items, especially the P and C items, are homogeneous for Canadian subjects; they all were designed to assess the I-E construct in their specific sub-domains.

On the other hand, when the scale was applied to Hong Kong subjects, the data showed that the P subscale is the only subscale which seems to have similar psychological meaning for the two cultural groups of subjects. For the I subscale, its internal structure is still weak. Accompanied by the past evidence, low internal consistency of the I subscale for both cultural groups clearly suggests that this subscale needs to be revised in order to improve the quality of the IPC Scale. Internal consistency analysis of the C subscale indicated that, for Hong Kong subjects, other constructs or traits which are not operationally defined as a part of the LOC construct may contaminate the 'Chance' domain. This finding raises questions regarding the construct validity of the C subscale as an indicator of the I-E control for Chinese subjects.

Different internal consistency estimates of the C subscale were obtained for the two cultural groups. It implies that subjects from the two cultures may perceive the C items differently, and the C items seems to be more appropriate for Canadian subjects than for Hong Kong subjects. Therefore, to measure the I-E control more accurate in the context of Chinese culture, it would be advantageous to examine the Chinese concept of chance. Further work in this direction would be useful to develop a more valid LOC instrument for the Chinese population.
Until there is more empirical work investigating what the IPC Scale really measures in Chinese cultures, extreme caution should be taken in interpreting cross-cultural comparisons with the IPC Scale, including the present study.

B. RELATIONSHIPS AMONG FIELD DEPENDENCE-INDEPENDENCE, LOCUS OF CONTROL & UNCERTAINTY ORIENTATION

Consistent with past findings (see Chapter I), no association between FD-I and LOC was reported in this study, among either Canadian subjects or Hong Kong subjects. It seems that FD-I and LOC are two separate psychological constructs. However, the methodological problems inherent in the instruments make it difficult to interpret the obtained association unambiguously, especially for the Hong Kong sample. Further research should be done on the validation of instruments.

An moderate association were found between LOC and UNCERT for Canadian subjects, but not for Hong Kong subjects. This study provides tentative evidence that UNCERT and LOC are two related constructs, at least for Canadian subjects. The lack of correlation for Hong Kong subjects may be due to the invalidity of the IPC Scale in Chinese culture. The correlation might have been much higher, if the IPC Scale had been more valid and more reliable for Hong Kong subjects. (The internal consistency estimates and the Cronbach's alpha for the scale were low in the Hong Kong group). The relationship between UNCERT and FD-I was also examined in this study. Interestingly, no association between UNCERT and FD-I was obtained, for either Canadian or Hong Kong subjects. At this stage, no sufficient evidence has been obtained to allow clear interpretation
of these associations. Independent replications of the current results are encouraged.

C. IMPLICATIONS FOR CROSS-CULTURAL RESEARCH STUDIES

The main implications for further cross-cultural research arise largely out of the limitations in the present study.

A shortcoming of the present study is the use of Hong Kong Chinese as a group of Chinese subjects. Being a highly industrialized British colony for a long time, Hong Kong is a melting pot of Western and Eastern cultures. Many of its values, social norms and expectations are a blend of both Chinese and Western traditions. Therefore, it is reasonable to expect that Hong Kong Chinese may have different social values and perceptions as compared with the Chinese in the other societies, like Mainland China and Taiwan. For a better understanding of the dynamics and the effects of Chinese culture, it would be highly desirable to extend the present study to more 'typical' Chinese societies and to investigate how Chinese in different social and cultural contexts function in cognitive domains. Perhaps Chinese people who settle into differing Western sub-cultures adapt by developing differential patterns of cognitive abilities, much as they have been showed to develop differential socio-economic patterns of adaptation in Jamaica and Guyana (Patterson, 1975).

Equally important is the question of the representativeness of the college samples. In making cross-cultural comparisons, the samples upon which the comparisons
are based must be comparable, such as in educational level, age, and family background, so that the observed cognitive differences cannot be attributed simply to these confounding variables. College/University students become a natural choice not only because of their availability, but also because of their comparability (many potential confounding variables are naturally matched by using college/university students in different cultures). However, the use of college students always poses another question: the external validity of the findings. A sample of college/university students in many countries usually represents a group of middle-class people who are relatively young and well-educated. Certainly, this group of people does not represent the general population, which is composed of persons from all walks of life. As a result, findings obtained from college students do not readily generalize to others. To increase the generalizability of the current results, further research should be performed by using different samples of subjects.

The lack of equivalency of measuring instruments used in different cultures is one of the major methodological problems in cross-cultural research. The present study further highlights the importance of evaluating cross-cultural construct validity for measuring instruments. In most previous cross-cultural studies, researchers have neglected the importance of cross-cultural construct validity. They have assumed that once the instruments have been accurately translated, a direct cross-cultural comparison of test scores can be made. By estimating internal consistency, the current results indicated that translation does not guarantee that the instruments have the same psychological meaning to subjects from different cultural backgrounds. A psychological test which lacks cross-cultural construct
validity is in effect two separate measures, one for each culture being studied. A direct cross-cultural comparison of these test scores could therefore be quite likely misleading. Only by establishing cross-cultural construct validity, we can confidently make meaningful comparisons across cultures.

The other area that is in need of empirical attention is the interscorer reliability for the $n$ Uncertainty measure. As mentioned before, the interpretation of the stories on the $n$ Uncertainty measure largely depends on scorers' subjective judgements. The variation in interpretation may lead to a great difference in test scores. Because of this, the obtained findings on UNCERT may be attributed to the low interscorer reliability. In order to interpret results clearly, interscorer reliability must be demonstrated in future studies.

D. CONCLUSION

This study was exploratory and speculative in nature. Independent replications are needed before any firm conclusion can be drawn from the current results. The discussion in this chapter is some suggestive directions for future research. Despite its limitations, the present study represents the first step of a potentially exciting line of research. Further cross-cultural studies in this area should be encouraged, especially in such multicultural countries as Canada and probably Australia. Such studies could be most relevant and valuable for fostering intercultural communication, understanding and acceptance.
REFERENCES


APPENDIX A.

CONSENT FORM
Bonita Lau  
University of British Columbia,  
Dept. of Educational Psychology  
& Special Education,  
Faculty of Education,  
2125 Main Mall, University Campus,  
Vancouver, B.C., Canada, V6T 1Z5.

Re: Consent Form  
Dear Participant,

I am seeking your participation in a study being carried out by myself and Dr. R. Conry of the Department of Educational Psychology & Special Education at the University of British Columbia, Canada. The research investigates the relationship between visual perception and different opinions about certain personal and social issues. Your participation will involve answering three questionnaires and a figure test; it will take about one hour of your time. The information we gather will be helpful to researchers working in the area of visual perception. In addition, you may discover some interesting things about yourself as you complete the questionnaires.

Your assistance in this study would be greatly appreciated. However, your participation is totally voluntary. You may withdraw at any time or refuse to answer any specific question that you object to. All information will be kept confidential; it is to be used for research only. You are not required to write your name on any of the forms. Furthermore, all the obtained data will be destroyed when the study is completed.

Please detach the consent form from this letter and complete the consent form. REMEMBER TO SUBMIT THE CONSENT FORM WITH THE ENCLOSED QUESTIONNAIRES. If you have any questions, please feel free to contact Bonita Lau or Dr. R. Conry at UBC, Canada (Telephone: the mailing address is shown as the above). Thank you very much for your assistance.

Yours sincerely,

(Bonita LAU)
Consent Form

I (consent/do not consent) to participate in the research investigated by Bonita Lau and Dr. R. Conry at the University of British Columbia, Canada. I am aware that about one hour will be required to finish the study, and that the questionnaires will be returned anonymously to the University of British Columbia, Canada for scoring. I understand that the results of this study will be kept confidential. Also, I realize that my participation in this study is totally voluntary and it may be terminated at any time I like. As a participant, I will complete the enclosed questionnaires and submit them with this consent form.

__________________________
(signature)

__________________________
(Date)
附录：同意参与书

敬爱者：

我本人及Dr. R. Gong 位于加拿大英属哥伦比亚大学
（University of British Columbia, Canada）正在进行一项教育心理学上
的研究。这项研究旨在收集不同文化背景的人对一些重要的教
育及个人的问题上的意见及理解力的意识。我们需要你的参与。
从这项研究中获得的数据将会增加我们对理解力的意识。
而且，你也可能在作答这些问题中增加对自我的了解，但
如你同意参与的话，你将不会被邀请作答任何问卷及一份图
形测试，整个测试的过程大约需一小时的时间。

我们非常感激你的参与，但这完全是你自愿作出的决定。你
的参与所承担的一切义务及风险，都完全是你自己的。如你
不愿意参与，你可以拒绝回答任何问题。我们也会以保密方
式处理所有数据。为了加强保密的程度，我们将不会在任
何一问卷上署名，除此之外，当这项研究完成时，我们
会将一切的资料销毁。

最后，请将下一页的同意参与书撕下，并将其剪出。您签
名后，切记将它与其他的问卷一并交回负责该项研究的监
察员。假如您有任何疑问，请联络我或Dr. R. Gong。联
络电邮为：（加入邮箱），联络地址为本研究所注册
的那一个。多谢合作。

Bonita Law
（研究者）
同意參與書

我本人（同意/不同意）參與由 Bonita Lau 及 Dr. R. Conry
所進行的研究。我清楚知道這項研究大約需要我一小時
的時間，而我作答的所有問卷將會以匿名的方式寄回加
拿大英屬哥倫比亞大學 (UNIVERSITY OF BRITISH COLUMBIA)
寄出。我並且明白在一切關於我個人的資料將會以保密的
方式處理。同時，我知道這次的參與是否，純粹出自自願參
加的，即使參與了，我也可以隨時退出。當我同意參加時，
我將會把附上的所有問卷填妥，並交給負責進行這項研究的
答覆員。

（簽署）

（日期）
APPENDIX B.

ENGLISH VERSION OF QUESTIONNAIRES
SENTENCE INTERPRETATION TEST

NOTE: THIS QUESTIONNAIRE HAS BEEN REDUCED FROM 8.5" X 14" LEGAL-SIZED PAPER. IT MUST BE REPRODUCED ON 8.5" X 14" PAPER WHEN USING FOR RESEARCH PURPOSES.

REPRODUCED BY SPECIAL PERMISSION OF SORRENTINO, R.M.. FURTHER REPRODUCTION IS PROHIBITED WITHOUT SORRENTINO'S CONSENT.
You are going to see a series of sentences, and your task is to tell a story that is suggested to you by each sentence. Try to imagine what is going on. Then tell what the situation is, what led up to the situation, what the people are thinking and feeling, and what they will do. In other words, write as complete a story as you can --- a story with plot and characters.

You will have twenty (20) seconds to look at a sentence and then 5 minutes to write your story about it. Write your first impressions and work rapidly. I will keep time and tell you when it is time to finish your story and to get ready for the next sentence.

There are no right or wrong stories or kinds of stories, so you may feel free to write whatever story is suggested to you when you look at a sentence. Spelling, punctuation, and grammar are not important. What is important is to write out as fully and as quickly as possible the story that comes into your mind as you imagine what is going on.

Notice that there is one page for writing each story. If you need more space for writing any story, use the reverse side of the page.
1. TWO PEOPLE ARE WORKING IN A LABORATORY ON A PIECE OF EQUIPMENT.
1. What is happening? Who is(are) the person(s)?

2. What has led up to this situation? That is, what has happened in the past?

3. What is being thought? What is wanted? By whom?

4. What will happen? What will be done?
2. A PERSON IS SITTING, WONDERING ABOUT WHAT MAY HAPPEN.
1. What is happening? Who is(are) the person(s)?

2. What has led up to this situation? That is, what has happened in the past?

3. What is being thought? What is wanted? By whom?

4. What will happen? What will be done?
3. A YOUNG PERSON IS STANDING; A VAGUE OPERATION SCENE IS IN THE BACKGROUND.
1. What is happening? Who is(are) the person(s)?

2. What has led up to this situation? That is, what has happened in the past?

3. What is being thought? What is wanted? By whom?

4. What will happen? What will be done?
4. AN OLDER PERSON IS TALKING TO A YOUNGER PERSON.
1. What is happening? Who is(are) the person(s)?

2. What has led up to this situation? That is, what has happened in the past?

3. What is being thought? What is wanted? By whom?

4. What will happen? What will be done?
GROUP EMBEDDED FIGURE TEST

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CONSULTING PSYCHOLOGISTS PRESS, INC., PALO ALTO CA94306, FROM
REPRODUCTION IS PROHIBITED WITHOUT THE PUBLISHER'S CONSENT.
INSTRUCTIONS: This is a test of your ability to find a simple form when it is hidden within a complex pattern.

Here is a simple form which we have labeled "X":

This simple form, named "X", is hidden within the more complex figure below:

Try to find the simple form in the complex figure and trace it in pencil directly over the lines of the complex figure. It is the SAME SIZE, in the SAME PROPORTIONS, and FACES IN THE SAME DIRECTION within the complex figure as when it appeared alone.

When you finish, check your solution.

This is the correct solution, with the simple form traced over the lines of the complex figure:
Note that the top right-hand practice problem. Find and trace the simple form named "Y" in the complex figure:

\[ Y \]

Solution:

\[ \]

In the following pages, problems like the ones above will appear. On each page you will see a complex figure, and under it will be a letter corresponding to the simple form which is hidden in it. For each problem, look at the BACK Cover of this booklet to see which simple form to find. Then try to trace it in pencil over the lines of the complex figure. Note these points:

1. Look back at the simple forms as often as necessary.
2. ERASE ALL MISTAKES
3. Do the problems in order. Don't skip a problem unless you are absolutely "stuck" on it.
4. Trace ONLY ONE SIMPLE FORM IN EACH PROBLEM. You may see more than one, but just trace one of them.
5. The simple form is always present in the complex figure in the SAME SIZE, the SAME PROPORTIONS, and FACING IN THE SAME DIRECTION as it appears on the back cover of this booklet.
Examples of the complex figures:

Find Simple Form "B"  Find Simple Form "G"  Find Simple Form "D"

Find Simple Form "E"  Find Simple Form "A"  Find Simple Form "C"

Examples of the simple figures on the back cover:

A  B  C

D  E  G
GENERAL ATTITUDE SURVEY

NOTE: THIS QUESTIONNAIRE CONSISTS OF LEVENSON’S IPC SCALE AND
BYRNE AND LAMBERTH’S MEASURE OF AUTHORITARIANISM. ALL THE
ORIGINAL ITEMS ARE RANDOMLY DISTRIBUTED IN THIS
QUESTIONNAIRE.

THE FOLLOWING ITEMS ARE SCORED REVERSELY: ITEM 7, 8, 14, 16, 19,
21, 24, 33, & 35.

REPRODUCED BY SPECIAL PERMISSION OF ACADEMIC PRESS, INC. AND
SORRENTINO, R.M.. FURTHER REPRODUCTION IS PROHIBITED WITHOUT
THEIR CONSENT.
The following is a study of what the general public thinks and feels about a
counter of important social and personal questions. The best answer to each
statement below is your personal opinion. We have tried to cover many different
and opposing points of view; you may find yourself agreeing strongly with some
of the statements, disagreeing just as strongly with others, and perhaps uncertain
about others, whether you agree or disagree with any statement, you can be
sure than many people feel the same as you do.

On the answer sheet, circle a number of each statement to show how much you
agree or disagree with it. The numbers and their meanings are indicated belows:
Circle +3, +2, +1, or -1, -2, -3, depending on how you feel in each case.

+1: I AGREE SLIGHTLY
+2: I AGREE ON THE WHOLE
+3: I AGREE VERY MUCH
-1: I DISAGREE SLIGHTLY
-2: I DISAGREE ON THE WHOLE
-3: I DISAGREE VERY MUCH

First impressions are usually best. Read each statement, decide if you agree or
disagree and the strength of your opinion, and then circle the appropriate
number. If you find that the numbers to be used in answering do not
adequately reflect your own opinion, use the one that is closest to the way you
feel. Thank you.
1. Whether or not I get into a car accident depends mostly on how good a driver I am.

2. There is hardly anything lower than a person who does not feel a great love, gratitude, and respect for his parents.

3. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.

4. Whether or not I get into a car accident is almost a matter of luck.

5. To a great extent my life is controlled by accidental happenings.

6. I have often found that what is going to happen will happen.

7. It's all right for people to raise questions about even the most sacred matters.

8. People ought to pay more attention to new ideas, even if they seem to go against the Canadian (the Hong-Kong) style of life.

9. I can pretty much determine what will happen in my life.

10. Obedience and respect for authority are the most important virtues children should learn.

11. Whether or not I get to be a leader depends mostly on my ability.

12. What the youth needs most is strict discipline, rugged determination and the will to work and fight for family and country.

13. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.

14. It is highly unlikely that astrology will ever be able to explain anything.

15. When I get what I want, it's usually because I'm lucky.

16. The findings of science may some day show that many of our most cherished beliefs are wrong.
17. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.

18. An insult to our honor should always be punished.

19. It is possible that creatures on other planets have founded a better society than ours.

20. Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power.

21. When they are little, kids sometimes think about doing harm to one or both of their parents.

22. Young people sometimes get rebellious ideas, but as they grow up they ought to get over them and settle down.

23. I am usually able to protect my personal interests.

24. Insults to our honor are not always important enough to bother about.

25. If important people were to decide they didn’t like me, I probably wouldn’t make many friends.

26. How many friends I have depends on how nice a person I am.

27. When I make plans, I am almost certain to make them work.

28. If people would talk less and work more, everybody would be better off.

29. It’s chiefly a matter of fate whether or not I have a few friends or many friends.

30. Often there is no chance of protecting my personal interests from bad luck happenings.

31. When I get what I want, it’s usually because I worked hard for it.

32. My life is chiefly controlled by powerful others.

33. There is no reason to punish any crime with the death penalty.
34. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.

35. The prisoners in our corrective institutions, regardless of the nature of their crime, should be humanely treated.

36. No sane, normal, decent person could ever think of hurting a close friend or relative.

37. Getting what I want requires pleasing those people above me.

38. A person who has bad manners, habits, and breeding can hardly expect to get along with decent people.

39. My life is determined by my own actions.

40. Books and movies ought not to deal so much with the unpleasant and seamy side of life; they ought to concentrate on themes that are entertaining or uplifting.

41. I feel like what happens in my life is mostly determined by powerful people.

42. Whether or not I get into a car accident depends mostly on the other driver.
Code: 

Answer Sheet For General Attitude Survey

Circle +3, +2, +1, or -1, -2, -3, depending on how you feel in each statement.

+1: I AGREE SLIGHTLY
+2: I AGREE ON THE WHOLE
+3: I AGREE VERY MUCH
−1: I DISAGREE SLIGHTLY
−2: I DISAGREE ON THE WHOLE
−3: I DISAGREE VERY MUCH

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DEMOGRAPHIC QUESTIONNAIRE

Please answer the following questions about yourself and your family. Some questions require you to CIRCLE the correct answer(s) while the other require you to FILL IN the answer(s). Remember that the completion of this questionnaire is voluntary, and if you object to any particular question, you may skip over it.

1. Gender:  
a/ Male  
b/ Female

2. Year of Birth:  

3. In which country were you born?  

4. How many years have you lived in Canada?  

5. What language(s) do you usually use in speaking to others at home?  
a/ Cantonese  
b/ English  
c/ Mandarin  
d/ other (specify: )

6. What language(s) are you usually spoken to at home?  
a/ Cantonese  
b/ English  
c/ Mandarin  
d/ other (specify: )

7. What is the highest level of formal education you have completed?  
a/ no formal schooling  
b/ some elementary schooling  
c/ finished elementary school  
d/ some high school education  
e/ finished high school
f/ some college or technical school training

g/ finished college or technical school

h/ some university undergraduate training

i/ finished university undergraduate degree

8. Where did you complete your elementary school education?
   a/ I did not complete elementary school education
   b/ I completed my elementary school education in ____________

9. Where did you complete your high school education?
   a/ I did not complete high school education
   b/ I completed my high school education in ____________

10. What is the highest level of formal education your parents have completed? (tick the most appropriate choice for each parent)

   MOTHER          FATHER
   ___________   ___________  no formal schooling
   ___________   ___________  some elementary schooling
   ___________   ___________  finished elementary school
   ___________   ___________  some high school education
   ___________   ___________  finished high school education
   ___________   ___________  some college/technical schooling
   ___________   ___________  finished college/technical school
   ___________   ___________  some university undergraduate training
   ___________   ___________  finished university undergraduate degree
   ___________   ___________  some postgraduate training
   ___________   ___________  finished postgraduate degree
11. What is your parents' current employment status?

MOTHER:
- a/ self employed
- b/ employed full time
- c/ employed part time
- d/ retired
- e/ student
- f/ other (specify: ________________________)

FATHER:
- a/ self employed
- b/ employed full time
- c/ employed part time
- d/ retired
- e/ student
- f/ other (specify: ________________________)

12. Please describe briefly the type of work each does.

MOTHER: __________________________________________

_________________________________________________

FATHER: __________________________________________

_________________________________________________
句子演譯

注意：这是一份缩影本，在进行研究时，这行问题应移到至8.5" x 14"
句子演練

在這個小小測驗內，你將會看到四句不同的句子，我希望你能以這四句句子作出四個故事來。請依次回答以下的問題來構想你的故事。

1. 該時的情況怎樣？
2. 甚麽事情引致著這樣的情形？
3. 故事中的人物正在想些甚麽？他們的感受又是如何？
4. 他們將會做些甚麽？

當你回答了這四個問題後，一個完整的故事便會呈現出來。每一句話都需有著人物及完整的佈局。你會有廿一秒的時間看一句話及五分鐘時間去作每一個故事。請盡快寫出每一句話所給你的第一個印象，因你只有五分鐘去作每一個故事。我會計時，當時間夠了，我會請你翻往下頁準備作另一個故事。

這個測驗看看你如何演繹每一句句子，故此沒有所謂對或錯的故事。請自由發揮。練習號碼的運用、句子的順序或否寫出字詞不重要。最重要的事盡快將你腦海中所構思的故事完整地寫出來。

在每一句句子的下一個你將會有一頁紙的地方作每一個故事。若不夠用，請用背面。
1. 在实验室里，两个人正利用着一件仪器进行他们的工作。
句子號數: __________

1. 當時正發生些什麼？故事中的人物是誰？

2. 什麼事情引致有這樣的情況？(即是大事件發生了些什麼？)

3. 故事中的人物正在做些什麼？他們想得到些什麼？

4. 將會有什麼事情發生？故事中的人物想做些什麼？
2. 某人坐着：他正猜想着将会发生什么事情
1. 當時正發生些什麼？故事中的人物是誰？

2. 什麼事情引致有這樣的情況？（即，先前發生了些什麼？）

3. 故事中的人物正在想些什麼？他們想得到些什麼？

4. 將會有什麼事情發生？故事中的人物想做些什麼？
3. 一個年輕人正在站立着，其背景為一個模糊的手術景象。
1. 當時正發生了什麼？故事中的人物是誰？

2. 什麼事情引致有這樣的情況？(即，故事發生了些什麼？)

3. 故事中的人物正在想些什麼？他們想得到些什麼？

4. 將會有什麼事情發生？故事中的人物想做些什麼？
A. 一個較年長的人正與一個比他/她年輕的人談話。
1. 当前正在发生些什么？故事中的人物是哪位？

2. 什么事情引发了这样的情况？（即，过去发生了些什么？）

3. 故事中的人物正在想些什么？他们想要得到些什么？

4. 将会发生什么事情？故事中的人物想做些什么？
這個測試目的是看看你有多少能力去從一個複雜的圖案裏找出一個簡單的圖形來。
例題 1：以下的一個簡單圖形被繪為 "X"。

"X" 是藏在以下這個複雜的圖案內。

現在請你用紅筆在這個複雜的圖案上劃出 "X" 來。
它必須與以上的圖形 "X" 有着相同的大小、形狀及方向。
做完後，可往下頁檢查答案。

以下是例題 1 的答案。圖中左上角那個三角形才是正確圖形。其左面那個相似的三角是不正確的，因為它與圖 "X" 有着不同的方向。
嘗試找出一個圖形，左右邊圖案裡試找出左邊的圖 “Y” 從

\[ \text{圖案如下：} \]

這個測驗的題目與以上的案例圖類似，你將會看到不同的複雜圖案。每一個複雜圖案下印有相同英文字母，每一字母代表一個簡單圖形。請翻至最後一頁查看不同字母所代表的簡單圖形；接着嘗試用紙筆在每一個複雜圖案上模擬出其指定的圖形。

注記如下：
1. 你可隨時翻看最後一頁來查看每一題題目所指定的圖形，查看的次數是沒有限制的。
2. 請擦去一切錯誤的模擬。
3. 請順序作答，不要留空任何一題，除非你還沒找出指定的圖形。
4. 在一些題目裡，你可能會找到多個一個圖形，你只需模擬其中一個。
5. 被模擬出來的圖形必須與指定的圖形有着相同的大小，形状及方向。
複雜圖案的例子:

試找出圖形 "B"  試找出圖形 "G"  試找出圖形 "D"

試找出圖形 "E"  試找出圖形 "H"  試找出圖形 "C"

簡單圖形的例子:

試找出圖形 "A"  試找出圖形 "B"  試找出圖形 "C"
意見調查

以下的問卷是調查一般人對某些重要社會及個人問題的意見，反映你個人見解便是一個很好的答案。我們嘗試提出多個不同的看法，也許你會發現你對某些題目非常同意，對一些極力反對，而對其他的則猶豫不決。無論你對這些題目贊成或否，我相信許多人會與你有同感。

請在最後的頁面的答案紙上圈出一個號碼來表示你對每一題贊成或不贊成的強度。顯示方式如下：

+1. 我略為贊同
+2. 我基本上贊同
+3. 我十分享受
-1. 我略為不贊同
-2. 我基本上不贊同
-3. 我十分不贊同

每一題所給你的第一個反應通常是最好的，請閱讀每一題後，決定你贊同或不贊同該題的程度，然後圈出一個適當號碼。假使你發現沒有一個號碼能適當的顯示出你的意見，請圈出一個最接近你意見的號碼。

請將最後兩頁的答案紙撕下出來以便作答這封信函。切記將你的編號填寫在答案紙上，當你完成這份問卷後，你只需將你兩頁答案紙放入公文袋內。
1. 我是否会把汽车失事大部份要归于我的驾驶技术。
2. 没有人比不敬父母、不感恩长者及不尊重自己父母的人更差。
3. 我能否成为一个领袖要归于我是否处于适当的时机。
4. 我是否能把汽车失事大部份要归于我的运气。
5. 我的生命大部份是被突发的事件所支配。
6. 我常常发觉会发生的事情终究会发生。
7. 人人皆可发问，即使对极神圣的事情。
8. 人需更新新观念的发展，即使这些新观念似乎与我们一惯的生活方式有抵触。
9. 在我生命中所发生的事情差不多全由我去做决断的。
10. 学会如何服从和尊敬长者及权威（如父母、法律等）是小孩应学会的两种最重要的美德。
11. 我能否成为领袖大部份要归于我的才气有多强。
12. 年青人最需要的是勇敢纪律、果断决断、努力苦干及愿意为家庭及国家挺身而出。
13. 为了实现我的计划，我曾设法把它们去迎合比我有权力的人的胃口。
14. 星相学是极不可能对事物作出正确的解释的。
15. 我之所以能如願以償通常是由於我辛勤之故。
16. 科學的發明也許有一天會顯出很多我們曾經奉勸的信念是錯誤的。
17. 常有人斤斤計較利益與利益有所衝突時，像我這類的人能維護到個人利益的機會是很微的。
18. 侮辱我們尊敬的人應該受到責罰的。
19. 他星球上的生物可能已經建立了一個比我們更好的社會。
20. 若我不去迎合比我有權勢的人即使我有才幹，我也未必會被重用。
21. 當孩子們年幼時，有時他們會想做一些事情傷及他們的父親或母親，甚至親親的。
22. 年輕人有時會有友好的念頭，若待他們長大後，他們應該擺脫這種念頭而也顧下來。
23. 通常我是能維護到我個人利益的。
24. 別人對我們敬重的人的侮辱並不是經常重要到去值得我們理會的。
25. 倘若重要人物決定不喜欢我，我可能不受歡迎交到很多朋友。
26. 我有多少朋友要視乎我是個多可親的人。
27. 在我製定計劃時我差不多已有很大的把握把這些計劃貫徹出來。
28. 若人人都能說實話，做實事，那個人的生活也會好過一些。
27. 我有很多朋友主要是由命运安排的。
28. 我经常无法避免突发事件对我个人利益。
29. 我之所以能得到我想得到的东西通常是由于我努力之效。
30. 我的生命主要是被一些有权力的人所控制。
31. 以死刑来惩罚任何罪犯都是不合理的。
32. 为未来而未雨绸缪并不一定是明智的，因为很多事情的发主
   机是要视乎我们当时的运气是好还是坏。
33. 养成在教导所的囚犯犯了什么罪，我们应以人道对待他们。
34. 没有一个理智、清醒、正直又正直的人会想及伤害其朋友的。
35. 若我要得到我想要的任何，我是需要讨好上司的。
36. 一个没有礼貌、教养及有坏习惯的人很难期望能与常人合得来。
37. 我的生命是由我自身所操纵的。
38. 电影和书籍不应带着重人生存不愉快及灰暗的一面，相反地，
   它们的主题应集中于快乐及振奋人心那一方间。
39. 我觉得我生命中所经历的事情大多数是由一些有权势的人所定断的。
40. 我是否有因车失事大都份是取决于其他驾车人士。
以下是一些關於你自己本人及你的家庭的問題。這些問題大致分兩大類：有一類是需要你圈出適合的答案；另一類則需要你將自己的答案填寫出來。有一題我要說明，作答這個問卷是純粹出自自願性的，你可以不作答那些不便回答的問題。

1. 性別
A. 男
B. 女

2. 出生年份：

3. 在那兒出生：

4. 你在香港居住了幾年？

5. 你通常在家是以那種語言與別人溝通的？
   a) 簡體中文
   b) 英語
   c) 國語/普通話
   d) 其他（請別註明那一種：

6. 在家中通常與別人是以那種語言與你溝通的？
   a) 簡體中文
   b) 英語
   c) 國語/普通話
   d) 其他（請別註明那一種：

7. 你已完成了的最高教育程度為：
   a) 沒有接受過正規教育
   b) 一些小學教育
   c) 完成了小學教育
   d) 一些中學教育
   e) 完成了中學教育
9. 你在哪裡完成了你的小學教育？
   a1. 沒有接受過小學教育
      b1. 我在_________ 接受我的小學教育

9. 你在哪裡完成了你的中學教育？
   a1. 沒有接受過中學教育
      b1. 我在_________ 接受我的中學教育

10. 你父母已經完成的最高教育程度為：(選出一個最合適你父母的答案)
    母親    父親
    _______ _______ 沒有接受過正規教育
    _______ _______ 一些小學教育
    _______ _______ 完成了小學教育
    _______ _______ 一些中學教育
    _______ _______ 完成了中學教育
    _______ _______ 一些專上教育或技術訓練
    _______ _______ 完成了專上教育或技術訓練
    _______ _______ 一些大學學士教育
    _______ _______ 完成了大學學士學位
    _______ _______ 一些研究學位
    _______ _______ 完成了研究院學位(碩士或博士學位)
11. 你父母现时的就職情况：

父親：
a) 退休 b) 就職 c) 半職 d) 退休 e) 学生
f) 其他（請特別說明：_______________）

母親：
a) 退休 b) 就職 c) 半職 d) 退休 e) 学生
f) 其他（請特別說明：_______________）

12. 請簡述你父母的工作性質：

父親：________________________________________

母親：________________________________________
APPENDIX D.
DEBRIEFING MESSAGE

PROJECT:
Cultural differences in 3 cognitive constructs

STUDENT INVESTIGATOR:
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Special Education
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The purpose of this study is two-fold: One is to investigate the possible cultural differences between American and Chinese cultures in 3 cognitive areas: locus of control (LOC), field dependence-independence (FD-I) and uncertainty-oriented (U/O). The other is to examine the inter-relationship among these three cognitive functioning.

Rotter (1966) proposed that LOC as a set of generalized perceptions about how the individuals attribute their behaviors. He hypothesized that those who attribute their behaviors to internal causes, such as ability, effort or intelligence, have "internal" control orientation whereas those attribute their behaviors to external causes as having "external" control. Witkin (1962) proposed a similar construct, FD-I. FD-I is a bipolar dimension reflecting characteristic styles of intellectual functioning. At one extreme, field independent (FI) persons are proposed to be more likely to use internal referents as primary guides in information processing; whereas field dependent (FD) persons, at the other extreme, use more external referents. FI persons are also found to have an ability to restructure a perceptual situation or impose a structure by ignoring the irrelevant context. The
FD persons are found to be more likely to accept what a perceptual situation appears to be. Therefore, it is more difficult for them to restructure a perceptual situation by ignoring the irrelevant context. Uncertainty orientation is a recently developed construct. It is also proposed as a continuum variable with two extremes. According to Sorrentino et. al. (1984), uncertainty-oriented persons are dominated by a cognitive need to attain clarity by discovering the unknown; whereas certainty-oriented persons are characterized by a cognitive need to maintain clarity by avoiding confusion.

Based on past studies, there is evidence to suggest cultural environment is essential to the individual's development of LOC, FD-I and U/O orientation. Although there is an increasing interest in cross cultural studies in these 3 cognitive areas, very few investigations have been carried out to examine these characteristics in Chinese culture. Consequently, we have no idea about how the Chinese process in these 3 cognitive functioning, or whether the Chinese and the Americans function differently in these domains. It is with these concern that the present study is undertaken.

Here, I would like to stress the point that LOC, FD-I and U/O are 3 "value-free" constructs. No value judgements should be applied to any orientation of functioning in these cognitive areas. So, if you were to find that you are more external LOC, FD and/or certainty-oriented, it does not mean that you are inferior to those with internal LOC, FI and/or uncertainty-oriented. Such a judgement would depend upon the individual's cultural setting.

For those of you who would like to have further information about this study, please feel free to contact Bonita Lau at UBC. She will be happy to discuss the study with you, or to send you a summary of the results.
研究目的

研究范围：研究不同文化背景下三种不同控制点的范畴的影响

研究者：Bonita Kau
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这项研究的目的是分两部分进行：第一，我们主要研究中国、欧美文化下 International vs. External Locus of Control, Field Dependence-Independence 和 Uncertainty-Oriented 这三种控制点的范畴上的影响；第二，我们也同时研究这三种控制点的范畴上的逆向影响。

Rotter 在1966年发表了他理论，“控制点”被定义为一个人相信其行为是由他人的控制时，而“控制点”是由环境、机会、力量或有权力的人所控制的。相反地，Internal Control 是指一个人相信其行为是由他们自身的能力、个性或特质所决定的。他自己能控制、预测或掌握得到的。Within 在1972年也发表了另一套相似的理论。他将一些人分为内在控制者和外在控制者，他们认为内在控制者在未受外在的影响下决定他们的行为的取向，而外在控制者则会以外在的指标来决定他们的行为的取向。前者被称之为 Field Independence，而被称之为 Field Dependence。过往的研究发现指出有 Field Independence 取向的人是较容易从一个模仿者那里学到视觉画面上的一个熟练的框架；相反地，有 Field Dependence 取向的人是较困难从熟练视觉画面向重新组织化。我这项研究中的第七个假设是说，比如 Sorrentino 等人在1984年所指出的 Uncertainty Orientation，他们指出一些人在高刺激情况下是较喜欢面对“破走或留”这样的状况；为了这个假设是，这些人会采取一切对他们觉
種狀況有成績的事物。猶抱薪救火的人會比較保守、不願意接受新事物，更不易主動去找尋在髒污的層面上新しい領域。而另外一些人則比較喜歡在髒污的層面上找尋新領域，他們比較開放，接受挑戰且較容易接受新事物。前者稱為Certain-Oriented，後者稱為Uncertainty-Oriented。依據过往的研究報告指出文化背景對個人的Locus of Control，Field Dependence-Independence，和Uncertainty-Orientiation的取向有決定性影響。雖然在過去的研究中有不少的調查是探討不同文化對這些態度的取向的影響，但這些研究是基於調査中國文化對這些態度有著大的影響。因此，我們希望藉此研究加深我們對中國人在這三個範疇上的認識。

在這裡，我們希望強調的是：Locus of Control，Field Dependence-Independence，和Uncertainty-Orientiation是三個沒有價值取向的態度範疇。假如你感覺你自己的效用是比較Internal Control，Field Dependence，和Certain-Oriented，那並不表示你是比那些有Internal Control，Field Independence，或Uncertainty-Oriented取向的人差。況且，這些「價值取向」是視乎你生活在那個文化背景之下的。

假如閣下對這項研究有任何疑問，歡迎你向我聯絡。我非常感謝你對對你的問題，也許我會將這次研究的報告寄給你。
### APPENDIX E.

**THE SOCIOECONOMIC INDEX OF OCCUPATIONS**

<table>
<thead>
<tr>
<th>CATEGORIES</th>
<th>SES SCORE</th>
<th>TYPICAL EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homemaker/Retired</td>
<td>22.08</td>
<td>construction worker, car washer, farm labourer</td>
</tr>
<tr>
<td>Labourer</td>
<td>28.82</td>
<td></td>
</tr>
<tr>
<td>Farm, Farm Manager</td>
<td>31.97</td>
<td></td>
</tr>
<tr>
<td>Craftsman</td>
<td>34.90</td>
<td>automobile mechanic, machinist, painter, plumber, carpenter</td>
</tr>
<tr>
<td>Clerical</td>
<td>35.57</td>
<td>bank teller, bookkeeper, secretary, typist, mail carrier</td>
</tr>
<tr>
<td>Proprietor or Owner of a Small Business</td>
<td>36.35</td>
<td>contractor, owner of a corner store</td>
</tr>
<tr>
<td>Service</td>
<td>37.27</td>
<td>barber, beautician, practical nurse, janitor, waiter/waitress</td>
</tr>
<tr>
<td>Operative</td>
<td>38.62</td>
<td>meat cutter, machine operator, welder, taxi/bus/truck driver</td>
</tr>
<tr>
<td>Sales</td>
<td>44.62</td>
<td>salesperson, advertising/insurance agent, real estate broker</td>
</tr>
<tr>
<td>Technician</td>
<td>45.72</td>
<td>draftsman, medical/dental technician, computer programmer</td>
</tr>
<tr>
<td>Manager, Administrator, Official</td>
<td>50.88</td>
<td>office/restaurant/sales manager, school administrator, buyer, government official</td>
</tr>
<tr>
<td>Owner of a Larger Business</td>
<td>54.00</td>
<td>owner of a supermarket, owner of a factory, owner of a restaurant</td>
</tr>
<tr>
<td>Professional I</td>
<td>58.18</td>
<td>accountant, artist, registred nurse, engineer, librarian, writer, social worker, actor/actress</td>
</tr>
<tr>
<td>Professional II</td>
<td>62.63</td>
<td>clergymen, dentist, physician, lawyer, scientist, college teacher</td>
</tr>
</tbody>
</table>