**CITY UNIVERSITY OF HONG KONG**

# Relationship of Perceived Instrumentality, Future Time Orientation and Students' Motivation to Learn - A Study of the Associate Degree Students in Hong Kong

by

Chak Hau Yee

SS5790 Research Paper

Submitted to Department of Applied Social Studies

in Partial Fulfillment of the Requirements for the

Post Graduate Diploma in Psychology

June 2007

## Acknowledgement

I would like to take this opportunity to express my genuine appreciation and gratitude to those who have helped in completing this report. First of all, I would like to thank my supervisor, Dr. David Lok, for his kind guidance throughout this project. He has contributed a lot of valuable advices to my project idea, research methodology and questionnaire design. This research would not have completed without his continual guidance and patience.

Second, I would like to thank Prof. Raymond B. Miller, Prof. Torgrim Gjesme and The University of Michigan for giving me the permissions to use their scales of perceived instrumentality, future time orientation (FTO) and motivated strategies for learning questionnaires (MSLQ) respectively in my research.

Last but not least, thanks go to all respondents who have devoted their time and efforts in the questionnaire survey.

## Abstract

***Objective.*** This study is aimed to examine the relationship of perceived instrumentality and future time orientation (FTO) with motivation of the Associate Degree students in Hong Kong.

***Method.*** The present study was a cross-sectional research based on data collected from a self-administered questionnaire survey. Three hundreds and sixty-eight Associate Degree students from a community college of a local university participated in this study.

***Results.*** Findings indicated that students' perceived instrumentality and future time orientation were significantly and positively correlated with their motivation to learn. However, there was no significant interaction effect of the future time orientation and perceived instrumentality on motivation. Besides, male students were reported to have higher level of FTO Involvement and motivation to learn. Regression analysis showed that the THREE MOST IMPORTANT variables in explaining students' motivation were (1) perceived instrumentality; (2) FTO Speed; and (3) gender.

***Discussion.*** It is confirmed with the hypothesis that Associate Degree students will have higher motivation to learn, if they have higher FTO and perceive stronger instrumentality in the program they studied. Among all the factors, perceived

instrumentality was the most critical factor for motivation of the Associate Degree students. Nevertheless, it is recommend that government and educators should not limit in positioning the Associate Degree program as instrumental for university placement only. More importantly, it should be positioned as instrumental for future academic/career success and the “whole-person development”.

Table of Contents

Page

# List of Tables

List of Figure

# Chapter 1 Introduction and Literature Review

## 1.1 Background

**"Associate Degree Program"** was introduced in Hong Kong after the sovereign handover in 1997. Facing the burst of bubble economy and increasing unemployment problems, graduates of secondary school were difficult to find a job. Helping the teenage to enhance their values on the one hand and reducing the unemployment problems on the other, the former Chief Executive Mr. Tung Chee Wah proposed to increase the proportion of total students accepting tertiary education from 30% to 60% within 10 years in his policy address in 2000. In addition to increasing the university degree intakes, Associate Degree program was widely provided by different tertiary institutions on self-financing basis. As a result, the number of tertiary students was sharply increased from 9,397 in 2001 to 25,246 in 2005, an increase of 2.7 times (Anonymous, 2005).

Unfortunately, many societal concerns about the Associate Degree programs were aroused in these few years. Most of them are related to (1) articulation to university degree; (2) academic qualification recognition; (3) teaching quality and (4) government financial subsidy. Facing the public pressures, the government decided to invest 1.7 billions in 2007 to extend grants and loans services to Associate Degree students and to subsidize the institutions' construction of libraries and hostels for the

Associate Degree students (Cheung, 2007).

The abovementioned shows that government and legislative councilors are mainly concern about the “infrastructure” of the Associate Degree program. Nevertheless, it is argued that one should first understand more about the **psychological needs**, **academic goals and motivation of the Associate Degree students**, as well as **their perceptions of the studying programs** before formulating the educational plan. Only in this way, one can ensure that the adequate resources are really invested in the right way and addressing to the real needs of the students. From the review of the western literature, it is found that **perceived instrumentality** and **future time orientation** are significantly related to **students’ motivation**. Therefore, this research is aimed at studying motivation of Associate Degree students in Hong Kong and its relationship with students’ future time orientations and perceived instrumentality of the program.

## 1.2 Objectives of the Research

This research is an exploratory study of the Associate Degree students in Hong Kong. There are several objectives in this study and they are:

First of all, to identify the level of perceived instrumentality, future time orientation and the level of motivation of Associate Degree students in Hong Kong.

Second, to examine whether Associate Degree students with future time

orientation have stronger motivation to learn, given they have perceived or can perceive the instrumentality of the programs they studied for their desired future goals.

Third, to study if there are demographic differences (e.g. gender and socio-economic status) of the Associate Degree students in different levels of future time orientation, perceived instrumentality on the studying programs and motivation.

Fourth, to recommend ways to enhance the motivation of Associate Degree students in learning.

Fifth, to evaluate the cultural applicability of the western theories about perceived instrumentality, future time orientation and motivation in Hong Kong.

## 1.3 Significance of the Research

This research is **significant** and has potential contribution both **academically** and **practically**. **Academically**, FTO and perceived instrumentality are western concepts used to study motivation. As discussed by McInerney (2004), the extension of research on these concepts to non-Western societies is important, rather than assuming that thinking about the future is universally important for and valued. This study is significant at evaluating the cultural implication of the western theories about perceived instrumentality, future time orientation and motivation in Hong Kong, a non-western society.

**Practically**, this research has potential contribution to the educational planners, teachers and student counselors in the tertiary education. Since there are few or even no systematic psychological research about the Associate Degree students in Hong Kong, this research is thus significant at providing insights for curriculum planning and intervention programs design in enhancing students' motivation.

## 1.4 Literature Review

### *1.41 Overall Relationship among Perceived Instrumentality, Future Time Orientation and Motivation*

Research indicates that **perceived instrumentality** has been shown to influence educational achievement, self-regulation and cognitive engagement (Husman & Lens, 1999). On the other hand, **future time orientation (FTO)** can be a powerful motivator of current behavior. (Gjesme, 1979 and Husman & Lens, 1999). Both FTO and perceived instrumentality are positively correlated with students' motivation to learn, i.e. their academic motivation (Husman & Lens, 1999).

**Motivation** is an essential mechanism in the learning process. It is a series of processes that energize and direct an individual's behavior toward certain goals (Fox, 1993). A student's total **motivation to learn** is most often a combination of intrinsic and extrinsic motivation (Husman & Lens, 1999). Motivational components include students' perceptions of the classroom environment as well as their self-related beliefs,

such as personal goals, self-efficacy, interest, and value beliefs (Garcia & Pintrich, 1996). Apart from **intrinsic motivation** to learn, such as curiosity, interest, need for competence and autonomy, most students work hard because of **extrinsic motivation**. They may perceive education as a preparation for schooling, for the future professional life, and for life in general. Learning and doing well in tests and examinations are then instrumental activities to earn rewards or to avoid punishment (Lens & Tsuzuki, 2005).

According to the **Motivated Strategies for Learning Questionnaire (MSLQ)**, a self-reported instrument designed to assess college students' motivational orientation and their use of different learning strategies for a college course, there are three general motivational constructs: **expectancy**, **value** and **affect** (Garcia & Pintrich, 1996).

**Expectancy** refers to students' beliefs that they can accomplish a task. There are two components in expectancy. **Self-efficacy** is both expectancy for success and judgments of one's ability to accomplish a task and confidence in one's skills to perform a task. **Control beliefs for learning** refer to students' beliefs that outcomes are contingent upon their own effort, rather than external factors such as the teacher or luck.

**Value** focuses on the reasons why students engage in an academic task. There are

three components in value: **intrinsic goal orientation** (a focus on learning and mastery), **extrinsic goal orientation** (a focus on grades and approval from others), and **task value** beliefs (judgments of how interesting, useful, and important the course content is to the student).

**Affect** is operationalized in terms of responses to the **test anxiety**, which taps into students' worry and concern over taking examinations (Garcia & Pintrich, 1996).

Atkinson's original theory of **achievement motivation** does not include the future as a motivational variable. The strength of the resultant intrinsic achievement motivation to strive for success is a function of the individual need for achievement or motive to succeed and motive to avoid failure (Husman & Lens, 1999).

Raynor (1981) elaborated Atkinson's theory to incorporate the concept of instrumentality, utility or FTO in the research on achievement motivation. Raynor elaborated on **Expectancy x Value theory** by adding the concept of **contingent paths**. Each immediate achievement task in front of a person can be seen as a step (instrumental) in a long motivational path or series of achievement tasks. Within Raynor's model, perceptions of both expectancy and value for each step are dependent upon the individual's understanding of the contingent nature of each of the steps and the perceived value of the long-term goal and the steps leading to that goal. Within this conception of motivation, each step toward a goal may have two types of

value, which are additive: the immediate value a step may have, and the value of the long-term goal. Raynor described the value that resulted from the perceived connection between a current task and a future goal as “instrumentality” (Husman, et al. 2004). The longer a contingent path is (the more achievement tasks it includes), the stronger the resultant total achievement motivation will be in the first task of that contingent path (Husman & Lens, 1999). Instrumentality has traditionally focused on the connection between the utility of a present act for some future goal. It is argued that many students are not only motivated by immediate intrinsic goals and extrinsic rewards, but also by future goals. Parents and teachers very often try to motivate children for school by referring to its utility or instrumentality for their future (Husman, et al. 2004). Therefore, perceiving the instrumentality of a present task for future goals enhance the motivation for that task.

All in all, the **overall relationship** among perceived instrumentality, future time orientation and motivation, as shown in Figure 1, is that when students **have long future time orientation** and when they can **perceive the instrumentality or utility value of the current task** for the achievement of future goal, students will **have higher motivation**. Therefore, it is interested to study if the Associate Degree students will be more motivated in the Associate Degree programs they study, if they have higher future time orientation and perceive the instrumental value of their

Associate Degree programs to their articulation to university degree and future success.

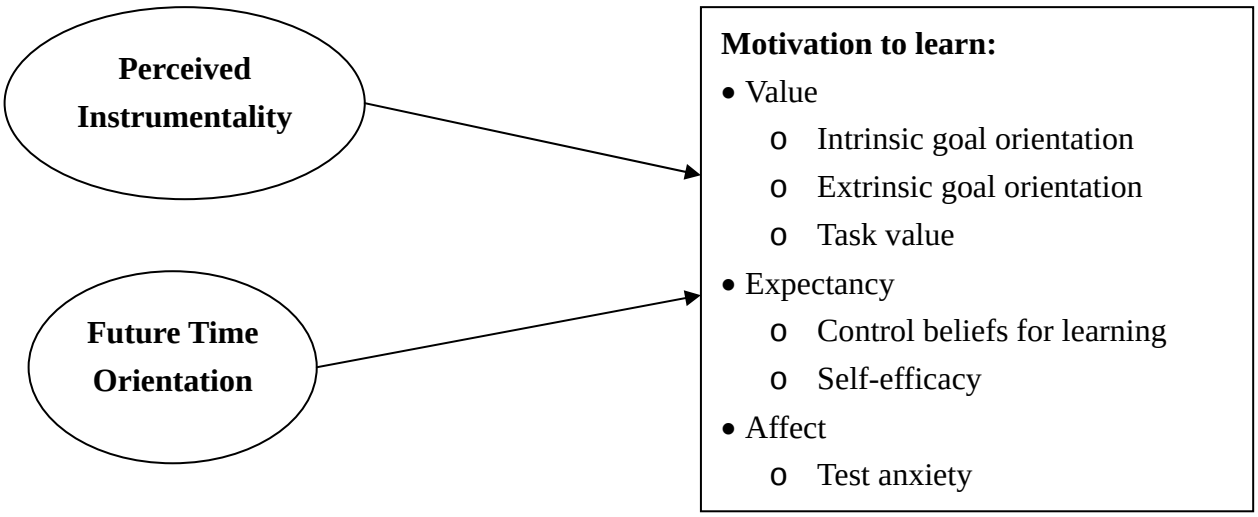


*Figure 1.* Conceptual Framework for the Research

### *1.42 Perceived Instrumentality and its Relationship with Motivation*

**Perceived instrumentality** is an individual's understanding of the instrumental / utility value of a present behavior. Learning and getting good grades have utility value when they are perceived as instrumental for achieving goals in the near or distant future (Lens & Tsuzuki, 2005). The perceived instrumentality of any task is dependent on the long-term goals of the individual, the specifics of the task itself, and the more general FTO of the individual (Husman & Lens, 1999).

There are FOUR types of instrumentality, which can be categorized by the

dimensions of **“utility”** and **“regulation”**. (1) Low utility – external regulation: The present task is compulsory and the individual is only driven by external regulation (i.e. extrinsic reasons). Students are studying simply because they ought to, because they want to have good grades. (2) Low utility – internal regulation: There is no direct relationship between the present and future task (low utility), but the present activity is no longer motivated by external pressure. It is internally regulated because learning and performing well are goals in themselves (i.e. internal regulation). (3) High utility – external regulation: One strives for future goals but extrinsic rewards are the center. (4) High utility – internal regulation: One strives for future goals that internally regulate the present action (i.e. internal regulation) (Simons, et al., 2004). It is interested to study whether students have higher level of motivation, when he/she perceived high instrumentality at the current task for his/her future.

Students who perceive their education as important for their future (high instrumentality) are significantly more motivated than their peers who score low for perceived instrumentality (Husman & Lens, 1999). This discussion is supported by different theories: According to Atkinson’s theory, the resultant achievement motivation is the algebraic sum of a positive tendency to strive for success and a negative, inhibitory tendency to avoid failure, the perceived difficulty of the achievement task or the probability of success, and the incentive value of success

(Atkinson, 1964). According to Vroom's model (1964), total motivation is a sum of motivational components that are based on the anticipated positive and negative consequences.

Van Calster and colleagues (1987) also found a significant effect of perceived instrumentality on motivation. Students in Grades 11 and 12 (ages 17 to 19) who perceive their education as instrumentality are significantly more motivated than their peers who score low for perceived instrumentality.

Perceived instrumentality has positive relationship with the different components of motivation as well. **Perceived instrumentality enhances the value component of motivation** (i.e. intrinsic and extrinsic goal orientations and task values).

First of all, perceived instrumentality **enhances students' extrinsic goal orientations**. It can be reflected by the concepts of **exogenous instrumentality**. Students can have extrinsic motivation in studying a course but is still internally regulated. Lens (2001) illustrated this with an example. A high school girl has courses such as history, biology, etc. that are not related to her educational and professional goal but that are compulsory. She is still positively motivated in the courses, because she decided for herself to be an engineer from a top university. Getting good grade in those subjects are important for her life goal. So she is willing to internally regulate to study hard. Heyman and Dweck (1992) would probably call this "adaptive or optimal

motivation". If the above student only studies courses that she is intrinsically interested in, she would probably never get into a top university and become an engineer.

The relationship between **perceived instrumentality and intrinsic goal orientation is controversial**. There is argument that perceived instrumentality will undermine one's intrinsic goal orientation. It is argued that the extrinsic reward / perceived instrumentality produce an "over-justification effect". Purely intrinsically motivated individuals see their own interest in the subject matter or the task as their sole reason for doing it. When they then repeatedly receive extrinsic rewards, those rewards are progressively perceived as the external reasons for learning or performing. Not the intrinsic interest but the extrinsic rewards are from then on controlling the activities. The intrinsic interest will then disappear (Lens, 2001)

Nevertheless, it is argued that the above relationship is not sound. Extrinsic rewards do not have this negative effect on intrinsic motivation when they are given in such a way that their controlling aspect is much less salient than their informative aspect. Extrinsic rewards can be given in the way that they tell students how good they are at the tasks for which the rewards are given. They then strengthen perceptions and feelings of competence, enhancing the intrinsic motivation. Therefore, extrinsic rewards can sometimes complement or increase intrinsic motivation, when people can

stay “self-determined” even when offered extrinsic motivators (Lens, 2001).

Relationship between perceived instrumentality and task value is also positive. Instrumentality has traditionally focused on the connection between the utility of a present act for some future goal. The subjective task value of achievement tasks represents an important incentive for task engagement. The perceptions of instrumentality influence student cognitive engagement because of the incentive value of personally valued future goals (Greene, et al., 2004).

On the other hand, it is found that **perceived instrumentality enhances the expectancy component of motivation** (i.e. control beliefs for learning and self-efficacy).

Perceived instrumentality enhances one’s **control beliefs for learning**. Perceived instrumentality is found to be a significant predictor of both self-regulation and meaningful strategy use, even when controlling for the influences of mastery goals and perceived ability. It is found to have moderate, positive correlations between perceived instrumentality and meaningful strategy use (Greene, et al., 2004).

Besides, perceived instrumentality has an impact on **self-efficacy**. People’s cognitive interpretations of success and failures influence subsequent self-efficacy beliefs (Greene, et al., 2004).

Last of all, it is found that **perceived instrumentality is related to test anxiety,**

**the affective component of motivation**. Research indicates that students low in test anxiety received higher grades when they conceive a good grade in a particular college course to be related to their own future career success (high perceived instrumentality) than when they do not (i.e. low perceived instrumentality) (Raynor, 1970).

*1.43. Future Time Orientation and its Relationship with Motivation*

**Future Time orientation (FTO)** refers to a general tendency to focus on and to value the future. It is the degree to which and the way in which the chronological future is integrated into the present life-space of an individual through motivational goal-setting processes (Husman & Lens, 1999). Gjesme believed that FTO was a uni-dimensional trait that was not situation specific and it affected the way individuals interact with, make plans for, and think about the futures (Gjesme, 1979). FTO has four interacting components: involvement, anticipation, occupation, and speed. **Involvement** is the degree to which an individual focuses on future events. **Anticipation** is how well an individual prepares for future events. **Occupation** is the amount of time an individual thinks about the future. **Speed** is the rate at which an individual perceives the future approaching (Gjesme, 1975 & 1979).

The future time orientation (FTO) can be a **powerful motivator** of current behavior. There is evidence that FTO can be detrimental to motivation when people

are highly anxious about a future event (Greene & DeBacker, 2004). A research about the nurse students indicates that students who find the course not only useful for their training (as a student) but also for their future job (as a nurse) are more excited, are more task-oriented, show more motivated behavior, and have better examination results (Simons, et al, 2004).

There are several elements interplay between future time orientation and motivation, such as students' **goals** and **possible selves**. Cognitive goal theory holds that much of student behavior, mastery and performance are the outcome of the desire to attain individual goal. Increasingly, academic motivation seems to be directly related to the pursuit of meaningful and specific goals (Hock, et al., 2006). Markus & Nurius (1986) reported that ideas about one's future could be very motivating. Individuals with clear ideas and goals about what they want to do, be and be like seem more willing to put forth the effort needed to attain these hoped-for ideals, and work just as hard to avoid the future they fear. The degree to which individuals value the future seems to be positively related to mastery goals (Husman, et al. 2004). Individuals with longer FTO are more able to articulate future goals and hence see more value in activities in which they may be currently engaged and have higher motivation (McInerney, 2004).

On the other hand, **possible self** is cognitive representations of an individual's

perceived current and future potential and serves as important motivators in learning processes. Possible self is particularly important self-belief because it serves as catalysts for future behavior (Anderman, et al., 1999). Individual's possible selves help inspiring one's learning motivation. Possible selves can increase one's motivation to work hard to attain specific goals because possible selves are an essential link between self-concept and individual motivation (Hock, et al., 2006). Inglehart, et al (1989) indicated that the first function of possible selves in the motivation process was to serve as the structuring or focusing aspect, i.e. focusing on specific domain, such as academic. The second function was the influence of the emotions one experiences when thinking about a possible self.

Some researchers have begun to examine the roles of present and possible academic selves and motivation of students in adolescence to learn. Anderman, et al. (1999) indicated a future good-student self-concept was related positively to performance goals – wanting to do schoolwork in order to prove one's competence or to appear more able or competent than other students.

In another study, Lips (1995) found that college students who were math / science schematic took and planned to take more math and science courses than their peers. Female college students with a positive math / science self-schema performed better on a math test than those who had negative math / science self-schemas.

From the above, it is concluded that future time orientation relates to higher level of motivation. Besides, it is found that FTO has positive relationship with the different components of motivation.

**FTO enhances the value component of motivation** (i.e. intrinsic and extrinsic goal orientations and task values). First of all, FTO is related positively with **extrinsic goal orientation**. FTO is the impact on motivation for some present activity of perceiving its instrumental relationship, as a step in a longer path, to more distant future goals and consequences (Husman & Lens, 1999). Schooling is future-oriented. Many students are motivated to do their best and to do well because they want to follow a particular type of education in high school, college or graduate school and to have a particular profession in adult life (Lens & Tsuzuki, 2005).

As for the relationship between FTO and **intrinsic goal orientation**, a large body of self-determination theory research supports the notion that internalization enhances intrinsic motivation. Based on these propositions, it is reasoned that the relation between students' future time orientation and academic goal-setting would be mediated by the level of internalization of the specific academic behaviors that the students use (Terell, et al, 1999).

Relationship between both FTO and task value is also positive. Utility value seems to be the only aspect of task value to carry a future orientation.

On the other hand, it is found that **FTO enhances the expectancy component of motivation** (i.e. control beliefs for learning and self-efficacy).

Students with longer FTO are effective at academic goal setting by utilizing proximal sub-goals to gauge the effectiveness of present behaviors on influencing their long-term outcomes and thus having a stronger **control belief**. Future time oriented students who engage in self-regulated academic goal-setting are more likely to make internal attribution for success (effort and ability) than external attributions (luck, task characteristics). Therefore, it is found that time orientation would be related to academic goal-setting through the mediating effects of **internal locus of control** precepts (Terell, et al., 1999).

Besides, FTO is also positively related with **self-efficacy**. Students with strong FTO report that the behaviors identified as academic sub-goals increase their confidence to accomplish personal goals, help them to gauge strengths and weaknesses, and increase their confidence to accomplish what they set out to do. In the process of self-regulated learning, successful performance attainments in specific efficacy domains leads to repeated utilization proximal sub-goals in a manner that becomes self-fulfilling (Terell, et al., 1999).

Last of all, it is found that **FTO is related to test anxiety, the affective component of motivation**. Research indicates that low anxious students are

significantly higher on FTO and its dimensions (except for FTO Speed) than high anxious students (Gjesme, 1980).

### *1.44 Differences of Perceived Instrumentality and Future Time Orientation between Students with High and Low Level of Motivation*

From the above literature review, it is found that BOTH perceived instrumentality and future time orientation (FTO) are positively correlated with motivation. Research indicates that highly motivated students in grade 11 (17-18 years old) attach significantly more value to goals in the rather **distant future** than less motivated students do (Husman & Lens, 1999).

Highly motivated students also attach significantly more instrumental value to their schoolwork for reaching goals in the near and the distant future (Lens, 2001). Lens and Decruyenaere (1991) measured the instrumental value of studying for success in later life in general as the difference between the probability of such a success as a consequence of “doing your best in school” and the probability of being successful without doing one’s best or working hard for school. They found that high, medium and low motivated subgroups of students significantly differed in the instrumentality value or utility of “doing your best in school” for success in life in general. The highly motivated students had the highest perceived instrumentality among the three subgroups.

### *1.45 Interaction Effects of Perceived Instrumentality and Future Time Orientation on Motivation*

Van Calster, Lens, and Nuttin (1987) found a significant **main effect of perceived instrumentality on motivation**: Students in grade 11 and 12 (age 17-19) who perceived their education as important for their future (high instrumentality) were significantly more motivated than their peers scoring low for perceived instrumentality. They did, however, also find an **interaction effect** of instrumentality and affective attitude towards the individual future. Perceived instrumentality did enhance student motivation, but only for those students who had a positive attitude towards their individual future. Attaching high utility to school results had the opposite effect on the motivation to study for students with a negative outlook on their future. The combination of high instrumentality of doing one's best in school for one's own personal future and a high positive affective attitude towards the personal future had a positive effect on motivation and school grades. A very bleak outlook on the future seems to be a de-motivating variable.

From the above literature review, it shows that there are FOUR combination of students, which can be categorized by the dimensions of future time orientation (FTO) and perceived instrumentality (PI): (1) High in BOTH PI and FTO; (2) High in PI but low in FTO; (3) Low in PI but high in FTO; and (4) Low in BOTH PI and FTO. The

first group, High in BOTH PI and FTO should have higher level of motivation than the others.

*1.46 Gender Differences on Future Time Orientation, Perceived Instrumentality and Motivation*

Gjesme (1979) found that girls were higher than boys on **total future time orientation (FTO), FTO Anticipation and FTO Occupation**. Furthermore, for girls the highest FTO scores were associated with high scores on motive for success and with low scores on motive to avoid failure. For female students with an orientation toward success, achievement motivation was enhanced by the perception of instrumentality of current schoolwork. In general, the motivation of girls was more affected by differences in ability and perceived instrumentality than was the motivation of boys.

Regarding to **perceived instrumentality**, Gjesme (1983) found that perceived instrumentality of an activity was more salient to female students as a motivator than it was for male students.

Earlier research reviewed by Greene and DeBacker (2004) supported the stereotypical belief that women had different **achievement motivation** than men, depending on the relevance of the specific achievement task to females and the element of competitiveness-social orientation embedded in tasks (McInerney, 2004).

Nevertheless, it is argued that there is an increasing convergence in the values of men and women, as a result of increasing female participation in the workforce (and in the managerial level) and the increasing female enrolment in the tertiary education. Fiorentine (1988) examined trends based on college freshmen sampled from 350 schools from 1969 to 1984. Data showed that the educational and career goals of women changed to match their changing values. The longitudinal data additionally showed **increased congruity over time** between the values and plans of both men and women.

*1.47 Socio-economic Status Differences on Future Time Orientation, Perceived Instrumentality and Motivation*

Socio-economic status of students can be reflected in students' **monthly household income** and the **level of education obtained by their parents**. Research indicates that mother's involvement increases with high socioeconomic status (SES). Parental involvement affects pupils' attitudes towards learning, especially as regards as parent care for their achievement (Alomar, 2006). There is a link between parental involvement and children's educational attainment, while low parental involvement should be positively associated with children's psychological problems, which are, in turn, associated with poor educational outcomes (Flouri and Buchanan, 2004).

On the other hand, research also indicates that parental education level appears to

be very effective in predicting academic achievement of children, since a highly educated parent could set a model and rules for achievement for their children (Alomar, 2006).

Above literature show that students with higher socio-economic status may have positive impacts on students' academic achievement.

*1.5 Formulation of Hypotheses and Research Questions*

Based on the literature review and previous researches on perceived instrumentality, future time orientation and motivation, **SIX hypotheses** are formulated for this present study.

H1. Students' perceived instrumentality is positively correlated with their total motivation, intrinsic & extrinsic goal orientation, task value, control belief for learning and self-efficacy.

H2. Students' perceived instrumentality is negatively correlated with their test anxiety.

H3. Students' future time orientation (FTO) is positively correlated with their total motivation, intrinsic & extrinsic goal orientation, task value, control belief for learning and self-efficacy.

H4. Students' future time orientation (FTO) is negatively correlated with their test anxiety.

H5. Students with higher level of motivation have higher perceived instrumentality and future time orientation than students with lower level of motivation.

H6. Students with high level of perceived instrumentality (PI) and future time orientation (FTO) have higher level of motivation than students who are high in PI and low in FTO, those who are low in PI but high in FTO and those who are low in both PI and FTO.

In addition to the above hypotheses, **FOUR research questions** are formulated to examine how the students' demographic characteristics affect their perceived instrumentality, future time orientation and motivation.

R1. Is there any gender difference in the students' perceived instrumentality, future time orientation and motivation?

R2. Is there any difference of perceived instrumentality, future time orientation and motivation between students with different monthly household income?

R3. Is there any difference of perceived instrumentality, future time orientation and motivation between students with different levels of fathers' education?

R4. Is there any difference of perceived instrumentality, future time orientation and motivation between students with different levels of mothers' education?

# Chapter 2 Methodology

## 2.1 Participants

Participants in this study were three hundred and sixty-eight full-time Associate Degree students in Hong Kong. The background information of these participants is summarized in Table 1.

Among these 368 participants, 153 participants were males (41.6%) and 215 participants were females (58.4%). For the level of study, 311 students (84.5%) were year-one students (freshmen), while 57 students (15.5%) were year-two students (final year students).

Regarding to socio-economic status, 80 participants (21.7%) had monthly household income at HK$10,000 or below. 220 participants (59.8%) had monthly household income at HK$10,001 - HK$30,000; 44 participants (12%) had monthly household income at HK$30,001 - HK$50,000; and 24 participants (6.5%) had monthly household income at HK$50,001 or above.

For the educational level of the participants' parents, fathers of 115 participants (31.3%) had primary school education or below, fathers of 219 participants (59.5%) had secondary school education and fathers of 34 participants (9.2%) had tertiary education or above.

On the other hand, mothers of 113 participants (30.7%) had primary school

education or below, mothers of 234 participants (63.6%) had secondary school education and mothers of 21 participants (5.7%) had tertiary education or above.

*Table 1* Frequency & Percentage of Gender, Level of study, Monthly Household Income, and Educational level of Father and Mother

| | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| **Gender** | | | |
| Male | 153 | 41.60 | 41.60 |
| Female | 215 | 58.40 | 100.00 |
| ***Total*** | ***368*** | ***100.00*** | |
| **Level of Study** | | | |
| Year one (freshmen) | 311 | 84.50 | 84.50 |
| Year two (final year students) | 57 | 15.50 | 100.00 |
| ***Total*** | ***368*** | ***100.00*** | |
| **Monthly Household Income** | | | |
| HK$10,000 or below | 80 | 21.70 | 21.70 |
| HK$10,001 - HK$30,000 | 220 | 59.80 | 81.52 |
| HK$30,001 - HK$50,000 | 44 | 12.00 | 93.48 |
| HK$50,001 or above | 24 | 6.50 | 100.00 |
| ***Total*** | ***368*** | ***100.00*** | |
| **Education Level of Father** | | | |
| Primary school or below | 115 | 31.30 | 31.30 |
| Secondary school | 219 | 59.50 | 90.76 |
| Tertiary or above | 34 | 9.20 | 100.00 |
| ***Total*** | ***368*** | ***100.00*** | |
| **Education Level of Mother** | | | |
| Primary school or below | 113 | 30.70 | 30.70 |
| Secondary school | 234 | 63.60 | 94.29 |
| Tertiary or above | 21 | 5.70 | 100.00 |
| ***Total*** | ***368*** | ***100.00*** | |

## 2.2 Procedure

The data were collected at the end of the first semester of the academic year 2006-7 (from November 27 to Dec 8, 2006). Six lecture classes were visited and a total of three hundred and sixty-eight questionnaires were collected.

The lecturer distributed the self-administered questionnaires and introduced the purpose of data collection to the students during the lecture break. Ten to fifteen minutes were given to students to complete the questionnaire. It was emphasized to the students that the all data were only used for academic purpose and students should feel free to express their judgments.

## 2.3 Measurement

This research design was a questionnaire survey. In the questionnaire, three different scales were used to measure three key variables: perceived instrumentality, future time orientation and motivation.

### *2.31 Perceived Instrumentality Scale*

**Perceived instrumentality** items were adopted from the Approaches to Learning Survey developed by Miller et al. (1999). Perceived instrumentality subscale is not a measure of the future goal per se, rather it is a measure of the participants' perceptions of the extent to which class performance or achievement is a step along a path to a valued future goal.

There are five items measuring the perceived instrumentality and all items are measured on a five-point Likert-Type scale anchored with 1 = “strongly disagree” to 5 = “strongly agree”. The alpha reliability score for the five perceived instrumentality items was 0.91 (Miller et al., 1999).

*2.32 Future Time Orientation (FTO) Scale*

The **Future Time Orientation** Scale includes Gjesme’s (1975) six-item questionnaires, which intend to tap the degree of general concern, engagement, and involvement in the future; and Heimberg’s Future Time Perspective Inventory. There are altogether fourteen items. All items are rated on a four-point scale with 4 = “is very true of me”; 3 = “is fairly true of me”, 2 = “is not too true of me”; 1 = “is not at all true to me” (Gjesme, 1979).

The fourteen questions were categorized into four factors by **factor analysis**:

Factor one is **FTO Involvement**. It includes item 2 (0.48), 6 (0.60), 7(0.46), 8 (0.40), 9 (0.48), and 13 (0.36). All the items indicate a kind of involvement and structure of future time.

Factor 2 is **FTO Anticipation**. Factor 2 (11.1% of total variance) consists of items 1 (-0.57), 3 (-0.46) and 4 (-0.58). All items deal with the ability to anticipate the future.

Factor 3 is **FTO Occupation**. Factor 3 (9.4% of total variance) consists of items

5 (0.31), 11 (0.72), and 12 (0.40). These items are related to duration and degree of occupation.

Factor 4 is **FTO Speed**. Factor 4 (7.5% of total variance) consists of items 10 (0.65), and 14 (0.30), which both focus on speed of time.

The correlations between item scores and total test score ranged from 0.26 to 0.52 ($p$<0.005). The reliability in terms of the alpha coefficient was 0.62 (Gjesme, 1979).

*2.33 Motivation Scale*

**Motivation** is measured by Motivated Strategies for Learning Questionnaire (MSLQ). It is a self-report instrument based on a general cognitive view of motivation and learning strategies. There are two sections, a motivation section and a learning strategies section. In this study, only the motivation section is used.

There are 31 items in the motivational scale and are fit into six correlated latent factors: (1) intrinsic goal orientation, (2) extrinsic goal orientation, (3) task value, (4) control beliefs about learning, (5) self-efficacy and (6) test anxiety. Students rate themselves on a seven-point Likert Scale from 1 = “not at all true to me” to 7 = “very true of me”. Chi-square to degree of freedom was calculated to be 3.41; goodness of fit index was 1.000; and root mean residual was 0.04. The coefficient alphas were acceptable to high, ranging from 0.62 to 0.90, demonstrating good internal consistency (Birenbaum & Dochy, 1996 and Campbell, 2001).

The first three scales in the area of **value** (intrinsic and extrinsic goal orientation and task value) are measures of how interested students are in the material being covered in the course. A high score means you like the subject matter and are very interested in the content area of this class.

The two scales in the area of **expectancy** (control beliefs about learning and self-efficacy) are measures of students' perceptions of potential success in this course and students' self-confidence for understanding the course content. A high score means that you think you will do well in the course, and feel confident that you will be able to master the course material.

The test anxiety scale in the area of **affect** is a measure of how much students worry about tests and how often they have distracting thoughts during examinations. In contrast to the other scales, a high score here means that you are anxious in testing situations (Pintrich et al., 1991).

**Correlations** among the MSLQ scales suggest that the scales are valid measures of the motivational and cognitive constructs. The value and expectancy scales, intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, and self-efficacy, were all positively correlated with one another, with *r*s ranging from 0.14 to 0.68. Test anxiety was **negatively correlated** with the intrinsic goal orientation, task value, control of learning beliefs, and self-efficacy as would be

expected theoretically. It was **positively correlated** with extrinsic goal orientation, a motivational belief that focuses on getting good grades and performing well. So it is not surprising that students who are concerned about grades would show more test anxiety (Birenbaum & Dochy, 1996).

# Chapter 3 Results and Findings

There are THREE main groups of findings to be presented in this chapter. The first group of findings is related to relationship among perceived instrumentality, future time orientation (FTO) and motivation of the Associate Degree students in Hong Kong. The second group of findings is related to demographic characteristics differences among students with different levels of perceived instrumentality, future time orientation (FTO) and motivation. Last but not least, the third group of findings is about the key factors influencing the Associate Degree students' motivation in Hong Kong.

## 3.1 Relationship between Perceived Instrumentality and Motivation

To examine the relationship between perceived instrumentality, future time orientation and total motivation and the different dimensions of motivation, correlation coefficient were calculated and shown in Table 2.

First of all, correlation coefficients were computerized to examine the relationship between perceived instrumentality and total motivation and the different dimensions of motivation (Table 2). Correlation revealed that positive relationship between perceived instrumentality and total motivation was significant ($r$ =0.39, $p$<0.001).

Moreover, perceived instrumentality was also positively correlated with different

dimensions of motivation. Perceived instrumentality had significant positive correlation with extrinsic goal orientation ($r = 0.41$, $p<0.001$), intrinsic goal orientation ($r = 0.16$, $p<0.01$), task value ($r = 0.40$, $p<0.001$), control beliefs for learning ($r = 0.22$, $p<0.001$) and self-efficacy ($r = 0.28$, $p<0.001$). Therefore, the **first hypothesis** hypothesizing that students' perceived instrumentality is positively correlated with their total motivation, intrinsic & extrinsic goal orientation, task value, control belief for learning and self-efficacy is **confirmed**.

However, correlation between perceived instrumentality and test anxiety was NOT significant ($r = 0.08$, *n.s.*). It is concluded that the **second hypothesis** that students' perceived instrumentality is negatively correlated with their test anxiety is **rejected**.

*Table 2.* Correlations of Perceived Instrumentality and Future Time Orientation (FTO) with Motivation

| | Motivation Total | Ext. Goal Orientation | Int. Goal Orientation | Task Value | Control | Self Efficacy | Test Anxiety |
|---|---|---|---|---|---|---|---|
| Perceived Instrumentality | 0.39*** | 0.41*** | 0.16** | 0.40*** | 0.22*** | 0.28*** | 0.83 |
| FTO Total | 0.16** | 0.12* | 0.14** | 0.10* | 0.12* | 0.21*** | -0.07 |
| FTO Involvement | 0.16** | 0.11* | 0.14** | 0.09 | 0.09 | 0.22*** | -0.03 |
| FTO Anticipation | 0.02 | 0.05 | 0.03 | 0.02 | -0.05 | 0.09 | -0.09 |
| FTO Occupation | -0.04 | -0.03 | 0.02 | -0.02 | 0.04 | 0.04 | -0.18** |
| FTO Speed | 0.31*** | 0.24*** | 0.17** | 0.24*** | 0.28*** | 0.17** | 0.20*** |

*n = 368*

** Correlation is significant at the 0.05 level (2-tailed).*

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

****Correlation is significant at the 0.001 level (2-tailed).*

3.2 Relationship between Future Time Orientation and Motivation

Correlation revealed a significant positive relationship between FTO and total motivation ($r$=0.16, $p$<0.01). Besides, FTO Involvement and FTO Speed were also significantly positively correlated with total motivation ($r$ = 0.16, $p$<0.01 and at $r$ = 0.31, $p$<0.001, respectively).

Second, correlation between FTO and extrinsic goal orientation was significant ($r$ = 0.12, $p$<0.05). FTO Involvement and FTO Speed were also significantly positively correlated with extrinsic goal orientation ($r$ = 0.11, $p$<0.05 and $r$ = 0.24,

$p<0.001$, respectively).

Third, correlation between FTO and intrinsic goal orientation was significant ($r = 0.14$, $p<0.01$). FTO Involvement and FTO Speed were also significantly positively correlated with intrinsic goal orientation ($r= 0.14$, $p<0.01$ and at $r = 0.17$, $p<0.01$ respectively).

Fourth, correlation between FTO and task value was significant ($r = 0.10$, $p<0.05$). FTO Speed was also significantly positively correlated with task value ($r = 0.24$, $p<0.001$).

Fifth, correlation between FTO and control beliefs for learning was significant ($r = 0.12$, $p<0.05$). FTO Speed was also significantly positively correlated with control beliefs for learning ($r = 0.24$, $p<0.001$).

Sixth, correlation between FTO and self-efficacy was significant ($r = 0.21$, $p<0.001$). FTO Involvement and FTO Speed were also significantly positively correlated with self-efficacy ($r = 0.22$, $p<0.001$ and $r = 0.17$, $p<0.01$, respectively).

From the above, the **third hypothesis** that students' future time orientation (FTO) is positively correlated with their total motivation, intrinsic & extrinsic goal orientation, task value, control belief for learning and self-efficacy is **confirmed**.

On the other hand, correlation between FTO and test anxiety was not significant ($r = -0.68$, *n.s.*). Therefore, the **fourth hypothesis** stating that students' future time

orientation (FTO) is negatively correlated with their test anxiety is **rejected**. However, test anxiety was significantly negatively correlated with FTO Occupation ($r$ = -0.18, $p$<0.001) and significantly positively correlated with FTO Speed ($r$ = 0.20, $p$<0.001).

Among all the dimensions of FTO, **FTO Speed** was positively correlated with all the six dimensions of motivation. Therefore, it is concluded that if students perceive the rate the future approaching is fast, they will have higher level of motivation to learn**.**

3.3 Differences of Perceived Instrumentality and Future Time Orientation (FTO) between Students with High and Low level of Motivation

To study the difference of perceived instrumentality and FTO between students with high and low level of motivation, students from the **top 20%** and **bottom 20%** of the **total motivation scores** were drawn for analysis. There were seventy-four students from each portion the total number of students was 148. Independent samples t-tests were used to compare and the results are shown in Table 3.

Regarding to **perceived instrumentality**, students with higher level of motivation were significantly having higher perceived instrumentality than students with lower level of motivation. Means scores of the high and low level of motivation students were 23.75 and 18.85 respectively (Mean difference = 4.87, $SD$= 0.81, $t$(146) = 5.98, $p$<0.001).

Regarding to **future time orientation (FTO)**, students with higher level of motivation were significantly having higher future time orientation than students with lower level of motivation. (Mean difference = 2.26, *SD*= 0.85, *t*(146) = 2.66, *p*<0.01). Moreover, there were significant differences in **FTO Involvement** and **FTO Speed** between the two groups of students. Students with higher level of motivation were significantly having **higher FTO Involvement** than students with lower level of motivation. Means scores of the high and low level of motivation students were 17.36 and 15.95 respectively. (Mean difference = 1.42, *SD*= 0.48, *t*(146) = 2.96, *p*<0.01). It indicates that students having higher level of motivation are having higher degree of focuses on future events.

Also, students with higher level of motivation were significantly having **higher FTO Speed** than students with lower level of motivation. Means scores of the high and low level of motivation students were 6.65 and 5.76 respectively (Mean difference = 0.89, *SD*= 0.19, *t*(146) = 4.68**,** *p*<0.001). It indicates that students having higher level of motivation perceive the future is approaching more quickly.

From the above analysis, it is concluded that students with high (top 20%) and low (bottom 20%) level of motivation are also having significant differences. Therefore, the **fifth hypothesis** that students with higher level of motivation have higher future time orientation and perceived instrumentality than students with lower

level of motivation **is confirmed**.

*Table 3* Differences in Perceived Instrumentality and Future Time Orientation (FTO) between Students with Higher and Lower Level of Motivation

| | Level of Students' Motivation | | | | |
|---|---|---|---|---|---|
| | High (N = 74) | | Low (N = 74) | | |
| | M | SD | M | SD | t |
| Perceived Instrumentality | 23.72 | 4.79 | 18.85 | 5.09 | 5.98*** |
| FTO Total | 39.00 | 5.49 | 36.74 | 4.80 | 2.66** |
| FTO Involvement | 17.36 | 2.74 | 15.95 | 3.08 | 2.96** |
| FTO Anticipation | 5.93 | 1.98 | 5.85 | 1.76 | 0.26 |
| FTO Occupation | 9.05 | 2.00 | 9.19 | 1.72 | -0.44 |
| FTO Speed | 6.65 | 1.01 | 5.76 | 1.29 | 4.68*** |

** Significant at the 0.05 level (2-tailed).*

*** Significant at the 0.01 level (2-tailed).*

**** Significant at the 0.001 level (2-tailed).*

3.4 Interaction Effects of Perceived Instrumentality and Future Time Orientation on Motivation

It is aimed to study if students with BOTH high at Perceived Instrumentality and high at FTO will get higher motivation scores than other students. First of all, only those students who were extremely high (with 42-56 scores) and extremely low (with 14-28 scores) in the total scores of future orientation scale and those who were

extremely high (with 25-30 scores) and extremely low (with 5-10 scores) in the total scores of the perceived instrumentality scale were drawn. There were altogether 154 students selected.

Second, among these 154 students, they were further classified into four groups: (1) high in BOTH perceived instrumentality and FTO; (2) high in perceived instrumentality and low in FTO; (3) low in perceived instrumentality and high in FTO; and (4) low in BOTH perceived instrumentality and FTO are drawn. As a result, only 31 students were drawn and the distribution of them was:

(1) High in BOTH perceived instrumentality and FTO: 23 students

(2) High in perceived instrumentality and low in FTO: 6 students

(3) Low in perceived instrumentality and high in FTO: 2 students

(4) Low in BOTH perceived instrumentality and FTO: 0 student

Since the number of students drawn in each category was small, non-parametric test, **Kruskal-Wallis Test** was used. Results are shown in Table 4 and there was no significant difference in total motivation ($\chi^2 = 4.83$, *n.s.*) among the three groups. Also, there was no significant difference in intrinsic goal orientation ($\chi^2 = 5.94$, *n.s.*), extrinsic goal orientation ($\chi^2 = 4.03$, *n.s.*), task value ($\chi^2 = 4.07$, *n.s.*), control beliefs of learning ($\chi^2 = 0.18$, *n.s.*), self-efficacy ($\chi^2 = 5.49$, *n.s.*) and test anxiety ($\chi^2 = 1.59$, *n.s.*).

This result indicates that students who are high in BOTH future time orientation and perceived instrumentality do not have higher motivation to learn than other students. Therefore, it is concluded that **hypothesis six**, students with high level of perceived instrumentality (PI) and Future Time Orientation (FTO) have higher level of motivation than students who are high in PI and low in FTO, those who are low in PI but high in FTO and those who are low in both PI and FTO is **rejected**.

*Table 4* Differences in Motivation between Three Groups of Students with Different Levels of Perceived Instrumentality (PI) and Future Time Orientation (FTO)

| | Groups for Comparison | | | |
|---|---|---|---|---|
| | (1) PI-High; FTO- High (*N*=23) Mean Rank | (2) PI-High; FTO- Low (*N*=6) Mean Rank | (3) PI-Low; FTO- High (*N*=2) Mean Rank | $\chi^2$ |
| Motivation Total | 17.22 | 9.17 | 22.50 | 4.83 |
| Int. Goal Orientation | 16.50 | 10.17 | 27.75 | 5.94 |
| Ext. Goal Orientation | 16.72 | 10.50 | 24.25 | 4.03 |
| Task Value | 17.11 | 9.75 | 22.00 | 4.07 |
| Control | 16.33 | 14.58 | 16.50 | 0.18 |
| Self Efficacy | 17.17 | 8.92 | 23.75 | 5.49 |
| Test Anxiety | 16.67 | 16.00 | 8.25 | 1.59 |

In addition to the above findings, the gender and socio-economic status differences of students with different levels in future time orientation, perceived instrumentality and motivation are also examined.

### 3.5 Gender Differences in Perceived Instrumentality, Future Time Orientation and Motivation

Independent samples t-tests were used to study the gender differences on perceived instrumentality, future time orientation (FTO) and motivation.

As shown in Table 5, gender difference on **perceived instrumentality** was not significant (Mean difference = -0.48, *SD*= 0.51, *t*(366) = -0.95, *n.s.*). Gender difference on total **future time orientation (FTO)** was also not significant (Mean difference = 0.93, *SD*= 0.53, *t*(366) = 1.77, *n.s.*). Nevertheless, gender difference on **FTO Involvement** was significant (Mean difference = 0.82, *SD*= 0.30, *t*(366) = 2.72, $p<0.05$). The mean scores of FTO involvement for male and female were 16.69 and 15.87 respectively. This result indicates that male students focus higher degree on future events than female students do.

Gender difference on **total motivation** was significant. Mean scores of male and female students were 147.34 and 142.06 respectively. (Mean difference = 5.28, *SD*= 2.08, *t*(366) = 2.54, $p<0.05$). Moreover, there were significant gender differences on **intrinsic goal orientation**. Mean scores of male and female students were 18.76 and

17.68 respectively. (Mean difference = 1.07, *SD*= 0.42, *t*(366) = 2.53, *p*<0.05). It indicates that male students are having higher focus on learning and mastery. There were also significant gender differences on **control beliefs for learning.** Mean scores of male and female students were 20.67 and 19.92 respectively. (Mean difference = 7.52, *SD*= 0.36, *t*(366) = 2.11, *p*<0.05). It indicates that male students are having stronger beliefs that outcomes are contingent upon their own efforts, rather than external factors such as the teacher or luck. There were also significant gender differences on **self-efficacy.** Mean scores of male and female students are 36.96 and 34.43 respectively. (Mean difference = 2.53, SD= 0.78, *t*(366) = 3.24, *p*<0.05). It indicates that male students are having stronger expectancy for success and judgments of their abilities to accomplish the tasks and confidence in their skills to perform the tasks.

Referring to research question one, it is concluded that there is only significant gender difference on FTO Involvement, total motivation, intrinsic goal orientation, control belief for learning and self-efficacy.

*Table 5* Differences in Perceived Instrumentality, Future Time Orientation (FTO) and Motivation between Male and Female Students

| | Gender | | | | |
|---|---|---|---|---|---|
| | Male (N = 153) | | Female (N = 215) | | |
| | M | SD | M | SD | t |
| Perceived Instrumentality | 21.15 | 4.84 | 21.63 | 4.79 | -0.95 |
| FTO Total | 37.92 | 5.05 | 36.98 | 4.87 | 1.77 |
| FTO Involvement | 16.69 | 2.90 | 15.87 | 2.81 | 2.72** |
| FTO Anticipation | 5.88 | 1.84 | 6.12 | 1.86 | -1.20 |
| FTO Occupation | 9.08 | 1.77 | 8.93 | 1.75 | 0.80 |
| FTO Speed | 6.27 | 1.07 | 6.07 | 1.14 | 1.70 |
| Motivation Total | 147.34 | 19.80 | 142.06 | 19.52 | 2.54* |
| Int. Goal Orientation | 18.76 | 4.21 | 17.68 | 3.70 | 2.53* |
| Ext. Goal Orientation | 21.22 | 3.95 | 21.06 | 4.07 | 0.38 |
| Task Value | 27.93 | 5.64 | 26.98 | 5.24 | 1.63 |
| Control Belief | 20.67 | 3.45 | 19.92 | 3.27 | 2.11* |
| Self-efficacy | 36.96 | 7.86 | 34.43 | 6.67 | 3.33** |
| Test Anxiety | 21.79 | 5.56 | 21.98 | 5.08 | - 0.32 |

** Significant at the 0.05 level (2-tailed).*

*** Significant at the 0.01 level (2-tailed).*

**** Significant at the 0.001 level (2-tailed).*

### 3.6 Socio-economic Status Differences in Perceived Instrumentality, Future Time Orientation and Motivation

**Socio-economic status** differences in this research are referring to differences in **monthly household income** and **parental educational level**. First of all, students in different monthly household income groups were compared. One-way Analysis of Variance (ANOVA) was used and the results are shown in Table 6.

Regarding to the ANOVA result on **monthly household income**, first of all, there was no significant difference of **future time orientation** in students with different levels of monthly household income. [$F(3, 364) = 1.50$, *n.s*]. However, significant difference was found in **FTO Anticipation** among the four monthly household income groups. [$F(3, 364) = 2.84$, $p<0.05$]. Post Hoc Test (Turkey HSD) indicates that there is significant difference in FTO Anticipation between the monthly household income groups of “HK$10,000 or below” and “HK$30,001 – HK$ 50,000”. The mean FTO Anticipation scores of these two groups were 5.68 and 6.68 respectively. (Mean Difference = -1.01, $p<0.05$).

On the other hand, there was no significant difference in **perceived instrumentality** [$F(3, 364) = 0.34$, *n.s*] and **motivation** [$F(3, 364) = 0.63$, *n.s*] in students with different levels of monthly household income. Moreover, there was no significant difference in all the six dimensions of motivation by the four monthly household income groups.

*Table 6* Differences in Perceived Instrumentality, Future Time Orientation (FTO) and Motivation among Students of Four Monthly Household Income Groups

| | Monthly Household Income Groups | | | | |
|---|---|---|---|---|---|
| | $10,000 or below (N = 80) | $10,001 - $30,000 (N = 220) | $30,001 - $50,000 (N = 44) | $50,001 or above (N = 24) | F |
| Perceived Instrumentality | 21.01 | 21.63 | 21.32 | 21.25 | 0.34 |
| FTO Total | 36.85 | 37.36 | 38.71 | 36.71 | 1.50 |
| FTO Involvement | 16.01 | 16.21 | 16.70 | 15.87 | 0.67 |
| FTO Anticipation | 5.68 | 6.01 | 6.68 | 6.04 | 2.84* |
| FTO Occupation | 9.05 | 8.98 | 9.18 | 8.58 | 0.64 |
| FTO Speed | 6.11 | 6.16 | 6.14 | 6.21 | 0.06 |
| Motivation Total | 142.51 | 144.26 | 147.61 | 143.83 | 0.63 |
| Int. Goal Orientation | 18.81 | 17.9 | 18.23 | 17.91 | 1.11 |
| Ext. Goal Orientation | 20.54 | 21.29 | 21.80 | 20.38 | 1.39 |
| Task Value | 26.73 | 27.65 | 27.57 | 26.63 | 0.75 |
| Control Belief | 20.03 | 20.38 | 20.16 | 19.75 | 0.41 |
| Self-efficacy | 35.25 | 35.25 | 36.52 | 36.45 | 0.54 |
| Test Anxiety | 21.16 | 21.79 | 23.34 | 22.83 | 1.91 |

** Significant at the 0.05 level (2-tailed).*

*** Significant at the 0.01 level (2-tailed).*

**** Significant at the 0.001 level (2-tailed).*

Apart from monthly household income, students with different levels of parent education were also compared. Regarding to the ANOVA result on **educational level of students' fathers** in Table 7, there was no significant difference of **future time orientation** in students with different educational levels of father. [$F(3, 364) = 0.26$, *n.s.*]. Moreover, there was no significant difference in all the four dimensions of future

time orientation by the three educational levels of students' father.

Besides, there was no significant difference of **perceived instrumentality** [$F(3, 364) = 0.17$, *n.s.*] and **motivation** [$F(3, 364) = 0.27$, *n.s*] in students with different educational levels of father. Moreover, there was no significant difference in all the six dimensions of motivation by the three educational levels of students' father.

*Table 7* Differences in Perceived Instrumentality, Future Time Orientation (FTO) and Motivation among Students with Different Paternal Educational Levels

| | Educational Levels of Students' Fathers | | | |
|---|---|---|---|---|
| | Primary Education or below (N = 115) | Secondary Education (N = 219) | Tertiary Education or above (N = 34) | F |
| Perceived Instrumentality | 21.22 | 21.54 | 21.44 | 0.17 |
| FTO Total | 37.10 | 37.51 | 37.38 | 0.26 |
| FTO Involvement | 16.16 | 16.27 | 15.97 | 0.18 |
| FTO Anticipation | 5.78 | 6.05 | 6.65 | 2.94 |
| FTO Occupation | 8.95 | 9.01 | 9.00 | 0.05 |
| FTO Speed | 6.21 | 6.18 | 5.76 | 2.29 |
| Motivation Total | 145.27 | 143.94 | 142.82 | 0.27 |
| Int. Goal Orientation | 18.57 | 18.00 | 17.47 | 1.28 |
| Ext. Goal Orientation | 21.03 | 21.28 | 20.50 | 0.60 |
| Task Value | 27.62 | 27.34 | 26.76 | 0.33 |
| Control Belief | 20.28 | 20.19 | 20.38 | 0.06 |
| Self-efficacy | 35.87 | 35.22 | 35.82 | 0.34 |
| Test Anxiety | 21.91 | 21.90 | 21.88 | 0.00 |

Regarding to the ANOVA result on **educational level of students' mother** in Table 8, there was also no significant difference of **future time orientation** in

students with different educational levels of mother. [$F(3, 364) = 0.32$, *n.s*]. Moreover, there was no significant difference in all the four dimensions of future time orientation by the three educational levels of students' mother.

Furthermore, there was also no significant difference of **perceived instrumentality** [$F(3, 364) = 0.22$, *n.s*] and **motivation** [$F(3, 364) = 0.79$, *n.s*] in students with different educational levels of mother. Moreover, there was no significant difference in all the six dimensions of motivation as well.

*Table 8* Differences in Perceived Instrumentality, Future Time Orientation (FTO) and Motivation among Students with Different Maternal Educational Levels

| | Educational Levels of Students' Mothers | | | |
|---|---|---|---|---|
| | Primary Education or below (N =113) | Secondary Education (N =234) | Tertiary Education or above (N =21) | F |
| Perceived Instrumentality | 21.21 | 21.50 | 21.86 | 0.22 |
| FTO Total | 37.40 | 37.42 | 36.52 | 0.32 |
| FTO Involvement | 16.40 | 16.19 | 15.28 | 1.34 |
| FTO Anticipation | 5.82 | 6.05 | 6.71 | 2.16 |
| FTO Occupation | 8.99 | 9.03 | 8.62 | 0.52 |
| FTO Speed | 6.19 | 6.15 | 5.90 | 0.60 |
| Motivation Total | 143.05 | 145.15 | 140.67 | 0.79 |
| Int. Goal Orientation | 18.03 | 18.30 | 16.76 | 1.53 |
| Ext. Goal Orientation | 20.89 | 21.35 | 20.00 | 1.38 |
| Task Value | 27.23 | 27.53 | 26.48 | 0.42 |
| Control Belief | 19.92 | 20.38 | 20.29 | 0.71 |
| Self-efficacy | 34.92 | 35.80 | 34.95 | 0.61 |
| Test Anxiety | 22.07 | 21.80 | 22.19 | 0.13 |

All in all, referring to research questions 2 to 4, there is **no significant difference** in perceived instrumentality, FTO and motivation by the students' socio-economic status, **except on FTO Anticipation**. Therefore, the only socio-economic status difference is on how well the participants prepared for the future events. Results on Post Hoc test indicated that students in the monthly household income group of "HK$30,001 – HK$50,000" were better in preparing for the future events than students in the monthly household income group of "HK$10,000 or below".

## 3.7 Regression Analysis – Key Variables for Students' Motivation

Last but not least, in order to examine which variable(s) contribute more significantly to the motivation of the Associate Degree students, regression analysis was carried out. All the variables were **categorized into three blocks**: Block One was background of the participants. It included gender and level of study of the students, their monthly household income and the educational level of their fathers and mothers. Block Two included future time orientation and its four dimensions, namely FTO Involvement, FTO Anticipation, FTO Occupation and FTO Speed. Block Three included perceived instrumentality.

### *3.7.1 Evaluating the Whole Linear Model*

In Table 9, the background variables in Block 1 (included gender and level of

study of the students, their monthly household income and the educational level of their fathers and mothers) were not significant in explaining the variance. [$F(5,362)=2.06$, *n.s.*]. Nevertheless, after Block 2 variables (future time orientation and its four dimensions, FTO Involvement, FTO Anticipation, FTO Occupation and FTO Speed) had also been included, the model as a whole explained 12.5% of the variance. [$F(4, 358) = 5.67$, $p<0.001$]. It was important to note that this second R square value included all the variables from both blocks, not just those included in the second step. More importantly, after Block 3 variable (perceived instrumentality) had also been included, the model as a whole explained 24.1% of the variance. [$F(1, 357) = 11.37$, $p<0.001$].

R Square change indicates how much of this overall variance is explained by each block of variables. Results showed that Block 2, FTO and its four dimensions was significant in explaining an additional 9.7% of the variance in motivation, while Block 3, perceived instrumentality was significant in explaining another additional 11.7% of the variance in motivation. This result showed that Block 3, perceived instrumentality was the most significant in explaining students' motivation to learn.

*Table 9* Regression Analysis on Students' Motivation to Learn

| | | | | | Change Statistics | |
|---|---|---|---|---|---|---|
| | Block | R Square | Std. Error of Estimate | F | R Square Change | F Change |
| 1 | Background Variables | 0.03 | 19.64 | 2.06 | 0.03 | 2.06 |
| 2 | FTO & its Four Dimensions | 0.13 | 18.74 | 5.67 | 0.10 | 9.94 *** |
| 3 | Perceived Instrumentality | 0.24 | 17.47 | 11.37 | 0.12 | 54.92 *** |

** Significant at the 0.05 level (2-tailed).*

*** Significant at the 0.01 level (2-tailed).*

**** Significant at the 0.001 level (2-tailed).*

### *3.72 Evaluating Each of the Independent Variables*

In Table 10, results in the Step 3 row showed how well each of the variables contributes to the variance. This summarized the results, with ALL the variables entered into the equation. There were three variables that make statistically significant contributions and they were gender ($p$<0.05), FTO Speed ($p$<0.001) and perceived instrumentality ($p$<0.001).

According to the order of importance, perceived instrumentality was the most important (beta= 0.35). The second most important variable was FTO Speed (beta = 0.23) while the third most important variable was gender (beta = -0.12).

*Table 10* Summary of Hierarchical Regression Analysis for Variables Predicting Students' Motivation to Learn (N = 368)

| | Unstandardized Coefficients | | Standardized Coefficients | |
|---|---|---|---|---|
| Variable | B | Std. Error | Beta | t |
| Step 1 | | | | |
| Gender | -5.51 | 2.09 | -0.14 | -2.64** |
| Level of study | -3.64 | 2.84 | -0.07 | -1.28 |
| Monthly Household Income | 1.45 | 1.38 | 0.06 | 1.05 |
| Education Level of Father | -1.93 | 1.96 | -0.06 | -0.98 |
| Education Level of Mother | 1.37 | 2.13 | 0.04 | 0.64 |
| **R-square = 0.028 *(n.s.)*** | | | | |
| Step 2 | | | | |
| Gender | -4.05 | 2.03 | -0.10 | -2.00* |
| Level of study | -2.08 | 2.73 | -0.04 | -0.76 |
| Monthly Household Income | 0.99 | 1.32 | 0.04 | 0.75 |
| Education Level of Father | -1.31 | 1.88 | -0.04 | -0.69 |
| Education Level of Mother | 1.78 | 2.04 | 0.05 | 0.87 |
| FTO Involvement | 0.76 | 0.38 | 0.11 | 1.99* |
| FTO Anticipation | 0.02 | 0.56 | 0.00 | 0.03 |
| FTO Occupation | -0.87 | 0.59 | -0.08 | -1.47 |
| FTO Speed | 4.83 | 0.91 | 0.27 | 5.32*** |
| **Change in R-square = 0.097 ($p$<0.001)** | | | | |
| Step 3 | | | | |
| Gender | -4.86 | 1.89 | -0.12 | -2.57* |
| Level of study | -0.60 | 2.55 | -0.01 | -0.24 |
| Monthly Household Income | 1.09 | 1.23 | 0.04 | 0.88 |
| Education Level of Father | -1.51 | 1.76 | -0.05 | -0.86 |
| Education Level of Mother | 1.43 | 1.90 | 0.04 | 0.75 |

| | | | | |
|---|---|---|---|---|
| FTO Involvement | 0.51 | 0.36 | 0.07 | 1.42 |
| FTO Anticipation | -0.20 | 0.52 | -0.02 | -0.39 |
| FTO Occupation | -0.48 | 0.55 | -0.04 | -0.87 |
| FTO Speed | 4.14 | 0.85 | 0.23 | 4.86*** |
| Perceived Instrumentality | 1.44 | 0.19 | 0.35 | 7.41*** |
| **Change in R-square = 0.117 ($p$<0.001)** | | | | |

** Significant at the 0.05 level (2-tailed).*

*** Significant at the 0.01 level (2-tailed).*

**** Significant at the 0.001 level (2-tailed).*

3.8 Summary of Findings

The key findings in this research study are summarized below:

For the **relationship among perceived instrumentality, FTO and motivation**, FTO was significantly and positively correlated with motivation total, as well as its different dimensions, except test anxiety. Among all the four dimensions of FTO, **FTO Speed** was positively correlated with total motivation, as well as ALL six dimensions of motivation, (i.e. intrinsic goal orientation, extrinsic goal orientation, task value, control beliefs for learning, self-efficacy and test anxiety). On the other hand, perceived instrumentality was found to be significantly and positively correlated with motivation total, as well as its different dimensions, except test anxiety.

For the **comparison of perceived instrumentality and FTO of the high motivation students (Top 20%) and the low motivation students (Bottom 20%)**, there were significant differences in their perceived instrumentality, FTO total, FTO Involvement and FTO Speed. Students with higher motivation had significantly higher scores in the above variables.

For the **interaction effects of perceived instrumentality and FTO on motivation**, no significant interaction effect was revealed and students who were high in BOTH FTO and perceived instrumentality did not significantly have higher motivation than other students.

For the **gender differences in perceived instrumentality, FTO and motivation**, male students had significant higher scores in FTO Involvement, total motivation, intrinsic goal orientation, control beliefs for learning, as well as self-efficacy than female students.

For the **socio-economic status differences in perceived instrumentality, FTO and motivation**, no significant socio-economic status difference was found, except the effects of students' monthly household income on their **FTO Anticipation**. Results indicate that students in the monthly household income group of "HK$30,001 – HK$50,000" are better in preparing for the future events than students in the monthly household income group of "HK$10,000 or below".

Last but not least, results from regression analysis indicate that the **three MOST IMPORTANT variables**, according to their degree of importance in explaining students' motivation were **(1) perceived instrumentality, (2) FTO Speed** and **(3) gender**.

# Chapter 4 Discussion

In this chapter, key findings about the relationship among perceived instrumentality, future time orientation, and Associate Degree students' motivation to learn are reviewed and explained. Sensitivity to cross-cultural issues is demonstrated. More importantly, implications of key findings are discussed and recommendations are also provide for educational planners, teachers and student counselors to raise the academic motivation of the Associate Degree students. Limitations of the study are also discussed.

## 4.1 Overall Relationship among Perceived Instrumentality, Future Time Orientation and Students' Motivation

The results of this research proved that future time orientation and perceived instrumentality were **positively correlated** with the Associate Degree students' motivation to learn. It confirms the hypothesis that Associate Degree students would have higher motivation in the program they are studying, if they concern and prepare more about the future; feel that the future is approaching very quickly and perceive the instrumental value of the Associate Degree program for the achievement of the their future goals (e.g. getting a place in university and having future academic and career success). This supports Raynor's elaboration of Atkinson's theory of academic motivation that perceptions of both expectancy and value for each step instrumental to

achieve the desired goal can motivate students to learn (Raynor, 1981).

Results also prove that students who have extremely high level of motivation (Top 20%) had higher FTO and perceived instrumentality than those with extremely low level of motivation (Bottom 20%). This is consistent with the findings of previous research that students with higher level of motivation will also have higher level of perceived instrumentality and future orientation than students with lower level of motivation (Husman & Lens, 1999 and Lens, 2001).

4.2 Perceived Instrumentality and Motivation

Regression analysis showed that **perceived instrumentality was the most significant factor accounting for the Associate Degree students' motivation**. Moreover, perceived instrumentality was significantly and positively correlated with the students' total motivation to learn, as well as their intrinsic and extrinsic goal orientation, task value, self-efficacy, control beliefs for learning. This is consistent with the previous research of perceived instrumentality on motivation. It supports the previous research that perceived instrumentality is not limited in enhancing extrinsic but also intrinsic goal orientation (Lens, 2001). This research proves that extrinsic rewards (articulation to university degree and future academic or career success) do strengthen students' perceptions and feelings of competence and then enhance their intrinsic motivation. Nevertheless, there was no significant correlation between

perceived instrumentality and test anxiety. It shows that the Associate Degree students will have test anxiety, no matter they can perceive instrumental value in the program or not.

As discussed in Chapter 1, the government increased the proportion of total students accepting tertiary education as a mean to solve the problems of teenage unemployment and social unrest, after the burst of bubble economy. To most of the Associate Degree students, the Associate Degree is only **"their stepping stone"** for the degree articulation and the Associate Degree itself is never their ultimate goal for achievement. Most of the students are GPA conscious for the articulation. They will select those courses easier to get higher GPA. For those bright and smart students, they are struggling to get higher GPA at 3.5 or above for local university placement. For those students with average performance, they are evaluating the articulation arrangement of their studying institution with the overseas universities or local universities on self-financing basis. To conclude, most of the Associate Degree students only concern the instrumental value of the Associate Degree program in helping them to get a university degree. Only when they can perceive this instrumental value, they are motivated to learn / invest effort to learn. Under this particular context, it is thus not surprising that perceived instrumentality is the most powerful variable accounting for Associate Degree students' motivation to learn.

## 4.3 Future Time Orientation and Motivation

Regression analysis showed that **the second more critical factors** contributing to Associate Degree students' motivation to learn was **FTO Speed**. It implies that students will have higher motivation to learn if they perceive the future is approaching more quickly. As students have **a sense of urgency**, they will alert that they have to work hard and well prepared for the future immediately. This implies that the importance of **"if not now, then when?"** can motivate students to work harder. No wonder, FTO Speed was positively correlated with all the six dimensions of motivation in the research. Students who perceive that future is approaching quickly will have higher intrinsic and extrinsic motivation to learn, perceive the utility value in the task, and have self-efficacy and a stronger sense of control belief. Moreover, it is found that FTO Speed is also positively correlated with test anxiety. It supports Gjesme's research (1980) that higher test anxious students are having higher FTO Speed. It is understandable as students will be more anxious once time is short for test preparation and when the test will be come very soon.

On the other hand, **total FTO score was also positively correlated with total motivation score, as well as all its dimensions, except test anxiety**. It supports the previous research that FTO is a powerful motivator of current behavior and can be detrimental to motivation when people are more concerning about a future event

(Greene & DeBacker, 2004). Moreover, it is consistent to Gjesme's research (1980) that students having higher **FTO Occupation having lower level of test anxiety**. It implies that students who have used up greater amount of time to think about the future and have better planning, will experience lower test anxiety. However, contrary to Gjesme's research (1980), students who were having higher FTO as a whole were not less test anxious in this study. It shows that students who are concerning more about future in general do not help reducing their test anxiety. There may be other underlying factors, such as personality traits, more contributing to test anxiety.

Among all the dimensions of FTO, **FTO Involvement** was significantly and positively correlated with total motivation, intrinsic and extrinsic goal orientation and self-efficacy in the study. It implies that the higher the degree students focusing on the future events, the higher motivation they would have. The higher degree of focus on the future events enhances students' commitment on the current tasks and thus increasing their level of motivation. More importantly, **in addition to FTO Speed** (having a sense of urgency), students **have higher FTO Involvement** (higher degree of focus on future events) can also **enhance their self-efficacy**, i.e. students' expectancy for success; judgments of their abilities to accomplish the task and their self-confidence in performing the task. Therefore, it provides us insights that involving student' in future events and giving them a sense of urgency is critical to

raise students' self-confidence for task accomplishment.

4.4 Interaction Effect of FTO and Perceived Instrumentality on Motivation

Contrary to the previous research of Van Calster, Lens & Nuttin (1987), **no significant interaction effect** was found between future time orientation (FTO) and perceived instrumentality (PI) on the Associate Degree students' motivation to learn. One of the main reasons was that there were **too few students with low level of FTO and perceived instrumentality** in this study: There were only 14 out of 368 students having "14-28 scores" in the FTO scale and only 13 out of 368 students having "5-10 scores" in the PI scale. As a result, there were only six and two students in the groups of "high in PI & low in FTO" and "low in PI & high in FTO" respectively. There was even no student falling into the category of "low in BOTH PI and FTO".

It is understandable as most of the students are **using the Associate Degree as a stepping stone** for the university degree. Therefore, the FTO and perceived instrumentality of the Associate Degree students will be higher than other students in general. This is the underlying rationale why there are too few students having low level of perceived instrumentality and future time orientation. The small number of students in the categories of "high in PI & low in FTO" and "low in PI & high in FTO" may contribute to the insignificant differences of motivation among the groups.

## 4.5 Gender and Motivation

Regression analysis indicated that **the third most significant factor accounting for Associate Degree students' motivation to learn is gender**. Contrary to the western research that there is converging values between male and female (Fiorentine, 1988), Independent t-test results showed that male Associate Degree students were having significantly higher degree of focus on future events (FTO Involvement). Besides, male students had higher level of total motivation, a greater focus on learning and mastery (intrinsic goal orientation), a stronger belief that outcomes were contingent upon their own efforts (control belief) and stronger expectancy for success and self-confidence for task accomplishment (self-efficacy). However, there was no significant gender difference on perceived instrumentality.

This finding is worth to discuss and explore. Female participation rate in tertiary education and labor force keeps on increasing in Hong Kong in the recent years. For example, the female labor force participation rate was increasing from 49.2% in 1996 to 52.4% in 2006; while the male labor force participation rate is decreasing from 76.6% in 1996 to 69.2% in 2006 (Hong Kong Census and Statistics Department, 2006). Moreover, a recent survey on female social status found that 68.2% of the female respondents aged 25-45 ranked "career success" as the chief criteria of social status, 59.4% and 55.1% of female respondents ranked "high educational level" and

“having professional skills” respectively as chief criteria of social status” (Mak, 2007). All these show that female in Hong Kong are more independent and will take career and educational success as key achievements in life.

Nevertheless, results showed that male Associate Degree students still had a higher level of FTO Involvement and motivation to learn in Hong Kong. It may due to the traditional gender role stereotype and socialization in Hong Kong, an Asian context. A study conducted by Y.W.C.A in Hong Kong found that the traditional gender role stereotype (it is the men’s responsibility to work outside but women’s responsibility to look after the family) was still apparent and influencing people in Hong Kong (Young Women’s Christian Association, 2005). Boys are still socialized for the importance of having career success and achievement, as they will be the key breadwinners in the families.

It is worth to explore by further study why male Associate Degree students will have higher level of motivation and FTO Involvement in Hong Kong. Is this really due to the impacts of traditional gender role stereotype? It is worth to explore if it is the general situation in Hong Kong as a whole or only the situation for Associate Degree students in Hong Kong.

4.6 Socio-economic Status and Motivation

In this study, students’ socio-economic status is referring to their **monthly**

**household income** and the **level of education of their parents**. Overall speaking, there was no significant socio-economic status difference on the future time orientation, perceived instrumentality and motivation of the Associate Degree students in Hong Kong. It did not support the findings of previous researches that socio-economic status can influence students' attitudes towards learning and educational attainment (Alomar, 2006 and Flouri, 2004).

However, results showed that students in the monthly household income group of **"HK$30,001 – HK$50,000"** were **having higher FTO Anticipation** (better in preparing for the future events) than students in the monthly household income group of **"HK$10,000 or below"**. One of the possible reasons is that families with higher monthly household income are having more knowledge and resources to support children for their future. Parents can also serve as **role models** for the children. Nevertheless, this study did not find a relationship of **higher the monthly household income, higher the FTO Anticipation**. There was no significant differences in FTO Anticipation between the students in those monthly household income groups **below HK$50,000** and the highest income group **"HK$50,001 or above"**. One possible reason may be parents /guardians in this high-income group help their children to set most of the future planning. Thus, students from affluent families are less capable to prepare their own future by themselves. Nevertheless, future research should be

conducted to investigate this situation and explore the applicability of this explanation.

## 4.7 Cultural Applicability of Western Concepts in Hong Kong

FTO and perceived instrumentality are western concepts used to study motivation. As discussed by McInerney (2004), the extension of research on these concepts to non-Western groups is important, rather than assuming that thinking about the future is universally important for and valued. Therefore, it is worth to study if these western concepts are relevant and applicable in Hong Kong, an Asian context.

Same as the western studies, there was positive relationship among perceived instrumentality, FTO and motivation in the Hong Kong Associate Degree students. As explained by McInerney (2004), schooling is an international phenomenon and if one goes from classroom to classroom in countries as diverse as Japan, Norway and Australia, one would notice that the similarities are more striking than the differences. As schooling is a future-oriented investment, there is a common focus on preparing children for the future in all these diverse communities. It is further argued that whether this common focus is on the base of culture or economic development of the society. As the economic development of Hong Kong is similar to those in the modern western countries, such as U.S.A and U.K. and Hong Kong is a westernized society, the situation of future time orientation, perceived instrumentality of schooling and

motivation to learn in Hong Kong will also be similar to those in the West.

On the other hand, there was no gender convergence of values in future time orientation and motivation, as in the western context. Male students had higher FTO Involvement and motivation to learn in Hong Kong. It may due to the different gender role stereotype rooted in the Asian society from the West, as discussed in the previous section.

4.8 Recommendations for Raising Students' Motivation

The findings in the study indicate that perceived instrumentality and FTO Speed are the two most critical factors contributing to motivation of the Associate Degree students in Hong Kong. Therefore, one can raise students' motivation by introducing strategies relating to students' perceived instrumentality, perceived speed of the future approaching and the future time orientation as a whole.

**Perceived instrumentality** is dependent upon recognition of the contingent relationships between current school tasks and valued future goals. Teachers and educators can help students see instrumental connections between current schoolwork and future occupations to enhance their motivation to learn. Educators can enhance the possibility that students identify with academic tasks by helping them to **develop clear and realistic future goals** across a variety of domains, to **clearly envision pathways to goal attainment**, and to **see that current tasks bear an instrumental**

**relationship to one or more future goals**. In this way, more students will more often make the self-determined choice to strive toward academic achievement (Greene & DeBacker, 2004).

To do so, government and educators should not limit to position Associate Degree program as a stepping-stone for degree articulation only (though many students perceive in this way). Otherwise, students will only be motivated to get higher GPA for university placement. Rather, government and educators should also position the Associate Degree Program as a tool for students' future academic and career success, and even for the whole-person development. More value-added extracurricular activities, such as company visit, study tour, summer internship & job placement with external organizations, mentorship and exchange activities should be organized. More promotion and communication should be made to enable students understand the importance of these extracurricular activities to their future success as a whole, but not limited to university placement. These make students perceive that the Associate Degree Program is **not only instrumental for a place in university**, but more importantly, **instrumental in enriching their lives and widening their horizon**. This is particularly important today as the government is keeping on expanding the tertiary education. Facing the **"3-3-4 education reform"**, more university intakes will be resulted. Therefore, simply articulate to the degree

education and have the title of “degree holder” is no longer a guarantee of future success. Therefore, instrumental value for the **“whole-life development”** is more important.

In addition, government and educators should enhance the perceived instrumentality of the Associate Degree Program by **having more promotion to the public**. One of the reasons that people fail to perceive the instrumentality of the program is that many people are not clear what Associate Degree Program is, what its benefits are and how it differs from other sub-degree program, such as Higher Diploma programs. Many students voiced out that their parents do not know / clear what Associate Degree program is and their parents do not understand why they need to pay HK$40,000 or above per year (Associate Degree Program is running on self-financing basis). Also, many employers prefer recruiting graduates of Higher Diploma program to graduates of Associate Degree program, as the former is more vocational oriented. Therefore, it is recommended that government should continue to have more promotion of Associate Degree Program to the pubic, as well as **more relationship building to the employers** in recruiting more Associate Degree graduates.

The above promotion and relationship building can help to raise the image and recognition of Associate Degree program in Hong Kong. It can also **enhance the**

**Associate Degree students' identification with the program**. As a result, a sense of belonging and commitment will be cultivated and increased and all these help to raise students' motivation.

Regarding to the future time orientation, teachers and student counselors should help students develop clear and realistic **academic possible selves** and develop **challenging yet realistic future goals**. More importantly, teachers and student counselors should cultivate students the **sense of urgency**, make them feel that future is coming very quickly and we should well prepared for it NOW.

4.9 Limitation of the Study

This study does have limitation for further improvement: All the samples are coming from the same community college of a local university of Hong Kong. Though the community college selected is one of the most popular community colleges in Hong Kong, the sample may not fully representative of all Associate Degree students in Hong Kong. Therefore, it is suggested that samples for future research should be recruited from different institutions organizing the Associate Degree program in Hong Kong. Associate Degree students from the institutions not affiliating with university should also be invited, because they may have different future time orientations, perceived instrumentality and motivation in their studying program, from those in the community college, affiliating with the university.

## 4.10 Conclusions

All in all, this study confirms the hypothesis that future time orientation and perceived instrumentality are positively correlated with motivation of the Associate Degree students in Hong Kong. Therefore, it is concluded that **perceived instrumentality** and **future time orientation** are **significant factors influencing the Associate Degree students' motivation to learn**. In view of this, government, education planners, teachers and student counselors should develop strategies in raising students' motivation to learn through modifying students' perceived instrumentality and future time orientation.

Though **perceived instrumentality is the most critical factor contributing to students' motivation**, one should not limit the Associate Degree program as a tool for university placement. Instrumental value for whole-person development should also be emphasized and broadly communicate this value to the students.

To motivate the Associate Degree students, one should also emphasize that the program can be **instrumental for their future success** by enriching their lives and widening their horizons through the value-added extracurricular activities. Therefore, in addition to quality guarantee of the curriculum, **educators and college staff** should organize more value-added activities to the students. **Teachers and student counselors** should motivate students by intervention programs, helping students to set

challenging yet realistic future goals and build up paths to achieve these goals. They should also cultivate students the **sense of urgency** for achievement. Last but not least, the **government** should widely increase the recognition of the Associate Degree program to the public and employers.

References

Alomar, B. O. (2006). Personal and family paths to pupil achievement. *Social Behavior and Personality. 34 (8)*, 907 – 922.

Anderman, E.M., Anderman, L.H. & Griesinger, T. (1999). The relation of present and possible academic selves during early adolescence to grade point average and achievement goals. *The Elementary School Journal, 100, number 1*, 3-17.

Anonymous (2005). Associate degree students in Hong Kong. *Oriental Daily*, October 24, 2005. (In Chinese).

Atkinson, J. W. (1964). *An introduction to motivation.* Princeton, NJ: Van Nostrand.

Birenbaum, M. & Dochy, F.J.R.C. (1996). *Alternatives in Assessment of Achievements, Learning Process and Prior Knowledge*. Kluwer Academic Publishers. Boston/Dordrecht/London.

Campbell, M. M. (2001). *Motivational strategies, learning strategies and the academic performance of African-American students in a college business environment: A correlational study*. Thesis (D.I.B.A.). Nova Southeastern University.

Cheung, M.B. (2007). Hong Kong government spend 1.7 billions to save associate degree students. *Apple Daily*, March 20, 2007. (In Chinese).

Fiorentine, R. (1988). Increasing similarity in the values and life plans of male and

female college students? Evidence and implications. *Sex Roles, 18*, 143-158.

Flouri, E. & Buchanan, A. (2004). Early father's and mother's involvement and child's later educational outcomes. *British Journal of Educational Psychology, 74*, 141-153.

Fox, M. (1993). Psychological Perspectives in Education. New York: Cassell.

Garcia, T & Pintrich, P.R. (1996). Assessing students' motivation and learning strategies in the classroom context: The motivated strategies for learning questionnaire. in Birenbaum, M. & Dochy, F.J.R.C., e.d. *Alternatives in Assessment of Achievements, Learning Process and Prior Knowledge*. Kluwer Academic Publishers. Boston/Dordrecht/London.

Gjesme, T. (1975). Slope of gradients for performance as a function of achievement motive, goal distance in time, and future time orientation. J*ournal of Psychology, 91*, 143-160.

Gjesme, T. (1979). Future time orientation as a function of achievement motives, ability, delay of gratification, and sex. *The Journal of Psychology, 101*, 173-188.

Gjesme, T. (1980). Dimensions of future time orientation in test anxious individuals. *Archiv fur Psychologie, 133(4)*, 277-291.

Gjesme, T. (1983). Motivation to approach success (Ts) and motivation to avoid failure (Tf). *Scandinavian Journal of Education, 27*, 145-164.

Greene, B.A. & DeBacker, T.K. (2004). Gender and orientations toward the future: Links to motivation. *Educational Psychology Review, 16, no. 2,* 91-120.

Greene, B. A., Miller, R. B., Crowson, M., Duke, B.L. and Akey, K. L. (2004). Predicting high school students' cognitive engagement and achievement: Contributions of classroom perceptions and motivation. *Contemporary Educational Psychology, 29,* 462 – 482.

Heymen, G. D., Dweck, C. S. (1992). Achievement goals and intrinsic motivation: The relation and their role in adaptive motivation. *Motivation and Emotion, 16,* 231-247.

Hock, M.F., Deshler, D.D., & Schumaker, J. B. (2006). Enhancing student motivation through the pursuit of possible selves. In Dunkel, C. & Kerpelman, J. (Eds.). *Possible Selves – Theory, Research and Applications*. 205-222. New York: Nova Science Publishers, Inc.

Hong Kong Census and Statistics Department. (2006). *Hong Kong Population Bi-Census*. Hong Kong.

Husman, J. & Lens, W. (1999). The role of the future in student motivation. *Educational Psychologist, 34(2),* 113-125.

Husman, J., Derryberry, W.P., Crowson, H.M. & Lomax, R. (2004). Instrumentality, task value, and intrinsic motivation: Making sense of their independent

interdependence. *Contemporary Educational Psychology, 29,* 63-76.

Inglehart, M. R., Markus, H., & Brown, D. (1989). The effects of possible selves on academic achievement – a panel study. In J. P. Forgas, & J.M. Innes (Eds.). *Recent advances in social psychology: an international perspective,* 469-477. New York: North Holland.

Lens, W., & Decruyenaere, M. (1991). Motivation and demotivation in secondary education: Student characteristics. *Learning and Instruction, 1,* 145-159.

Lens, W. (2001). How to combine intrinsic task-motivation with the motivational effects of the instrumentality of present tasks for future goals. In Efklides, A. et. al. (eds.). *Trends and Prospects in Motivation Research,* 23 – *26.* Netherlands, Kluwer Academic Publishers.

Lens, W. & Tsuzuki, M. (2005). The role of motivation and future time perspective in educational and career development. Retrieved July 11, 2006, from www.aiospconference2005.pt/full-works/does/simps/s2b.pdf

Lips, H. (1995). Through the lens of mathematical / scientific self-schemas: Images of students' current and possible selves. *Journal of Applied Social Psychology, 25,* 1671-1699.

Mak, C.W. (2007). A study of the female social status in Hong Kong. *Apple Daily*, May 6, 2007. (In Chinese).

Markus, H.R. & Nurius, P. (1986). Possible selves. *American Psychologists, 41*, 954-969.

McInerney, D. M. (2004). A discussion of future time perspective. *Educational Psychology Review, 16 (2),* 141-151.

Miller, R. B., & Brickman, S. J. (2004). A model of future-oriented motivation and self-regulation. *Educational Psychology Review, 16, no. 1*, 9-33.

Miller, R.B., DeBacker, T.K. & Greene, B.A. (1999). Perceived instrumentality and academics: The link to task valuing. Journal of Instructional Psychology, *Journal of Instructional Psychology, 26,* 250-261.

Pintrich, P.R., Smith, D.A., Garcia, T. and McKeachie, W. J. (1991). *A manual for the use of the motivated strategies for learning questionnaire (MSLQ).* MI: The University of Michigan.

Raynor, J. O. (1970). Relationships between achievement-related motives, future orientation and academic performance. *Journal of Personality and Social Psychology, 15(1),* 28-33.

Raynor, J. O. (1981). Future orientation and achievement motivation: Toward a theory of personality functioning and change. In G. d'Ydewalle & W. Lens (Eds.), *Cognition in human motivation and learning*, 199-231. Leuven, Belgium, & Hillsdale, NJ: Leuven University Press & Lawrence Erlbaum Associates, Inc.

Simons, J., Dewitte, S., and Lens, W. (2004). The role of different types of

instrumentality in motivation, study strategies, and performance: Know why you learn, so you'll know what you learn! *British Journal of Educational Psychology, 74*, 343-360.

Terell, L. & James M., J. (1999). Temporal orientation and academic goal-setting: The mediating properties of a motivational self. *Journal of Social Behavior & Personality, 14, issue 1*, 886-1641.

Van Calster, K., Lens, W., & Nuttin, J. (1987). Affective attitude toward the personal future: Impact on motivation in high school boys. *American Journal of Psychology, 100,* 1-13.

Vroom, V. H. (1964). *Work and motivation*. New York: Wiley.

Young Women's Christian Association. (2005). *A study of gender identity and division of labor in family.* Hong Kong. (In Chinese).

Appendix 1: Questionnaire

## Questionnaire Survey 問卷調查

I am a final year student of the Postgraduate Diploma of Psychology from The City University of Hong Kong. I am now conducting a research on learning motivation. There is no right or wrong answer, just answer as accurately as possible. All the data collected is for academic purpose and will be kept in strict confidence. Please help to complete this questionnaire. Many thanks!

您好! 本人是香港城市大學心理學深造文憑的畢業班學生， 現正進行一項有關學習動機的研究，答案並沒有對或錯之分， 請按閣下實際情況去圈出適當的數字。 此問卷調查純作學術用途，所得的統計數據絕對保密，懇請您們協助完成以下問卷, 謝謝!

**Part A: Future Time Orientation Scale (對未來的看法)**

All items were rated on a four-point scale with 4 = "very true of me"; 1 = "not at all true of me".

請圈出你同意的數字:"４"代表"非常適用於我"，"１"代表"絕不適用於我"。

| | | 絕不適用於我 Not at all true of me | | | 非常適用於我 very true of me |
|---|---|---|---|---|---|
| 1 | I always seem to be doing things at the last moment<br>我經常在最後一刻才做事。 | 1 | 2 | 3 | 4 |
| 2 | I have been thinking a lot about what I am going to do in the future.<br>我已經思索了很多關於我將來要做的事情。 | 1 | 2 | 3 | 4 |
| 3 | I find it hard to get things done without a deadline.<br>我覺得沒有期限是很難去完成工作。 | 1 | 2 | 3 | 4 |
| 4 | I need to feel rushed before I can really get going.<br>當我感到匆忙的時候，才能真正開始工作。 | 1 | 2 | 3 | 4 |
| 5 | Half a year seems to me a long time.<br>對我來說，半年已是很長的時間。 | 1 | 2 | 3 | 4 |
| 6 | I think about the future only to a very small extent.<br>我很少想及將來的事。 | 1 | 2 | 3 | 4 |
| 7 | I am most concerned about how I feel now in the present.<br>我最關注的是我現在此刻的感受。 | 1 | 2 | 3 | 4 |

| | | |
|---|---|---|
| 8 | I am not so very much concerned about things a little ahead in time.<br>我不會太關注即將發的事情。 | 1 2 3 4 |
| 9 | It's really no use worrying about the future, because what will be, will be.<br>憂慮將來是無用的，因爲要發生的事情總會發生。 | 1 2 3 4 |
| 10 | I reflect a great deal about the future, and I feel it is rapidly approaching.<br>我對將來有很多反省，我亦感到將來很快來臨。 | 1 2 3 4 |
| 11 | It often seems like the day will never end.<br>每一天彷彿是從不會終結的。 | 1 2 3 4 |
| 12 | I often find myself looking for ways to kill time.<br>我時常要尋覓方法去消磨時間。 | 1 2 3 4 |
| 13 | The future seems very vague and uncertain to me.<br>對我來說，將來是含糊及不明確的。 | 1 2 3 4 |
| 14 | Usually I feel time is going too fast.<br>我經常覺得時間過得太快。 | 1 2 3 4 |

**Part B: Perceived Instrumentality(就讀課程的應用性)**

Use the 6-point scale to indicate your response to the statements. 1 ” = “Strongly disagree” and “6” = “Strongly agree”.
請圈出你對下列各句同意的數字：“ 1”代表“非常不同意”，“6” 代表“非常同意” 。

| | | 非常不同意 Strongly Disagree | | | | | Strongly Agree 非常同意 |
|---|---|---|---|---|---|---|---|
| **I do the work assigned in this class because:**<br>**我完成這副學位課程內的功課是因爲:** | | | | | | | |
| 1 | my achievement plays a role in reaching my future goals.<br>我的成績有助達成我將來的目標。 | 1 | 2 | 3 | 4 | 5 | 6 |
| 2 | my achievement is important for attaining my dreams.<br>我的成績對達成我的夢想是很重要的。 | 1 | 2 | 3 | 4 | 5 | 6 |
| 3 | understanding this content is important for becoming the person I want to be. | 1 | 2 | 3 | 4 | 5 | 6 |

| | | |
|---|---|---|
| | 明白這課程的內容對我成爲未來理想的我是很重要的。 | |
| 4 | learning the content plays a role in reaching my future goals.<br>學習這課程的內容有助達成我將來的目標。 | 1 2 3 4 5 6 |
| 5 | learning this material is important for attaining my dreams.<br>學習這課程的內容對達成我的夢想是很重要的。 | 1 2 3 4 5 6 |

**Part C. Learning Motivation (對就讀課程的學習動機)**

Use the 7-point scale to indicate response. 1 = "not at all true of me" and 7 = "very true of me".

請圈出你對下列各句同意的數字： "1"代表"絕不適用於我" ，"7"代表"這非常適用於我"。

| | | 絕不適用於我 Not at all true of me | | | | | Very true of me 非常適用於我 |
|---|---|---|---|---|---|---|---|
| 1 | In a class like this, I prefer course material that really challenges me so I can learn new things.<br>在班內，我寧願選擇一些富挑戰性的課程內容，去讓我學到新事物。 | 1 | 2 | 3 | 4 | 5 | 6 7 |
| 2 | If I study in appropriate ways, then I will be able to learn the material in this course.<br>若我用恰當的方法去學習，我便能學到這課程的內容。 | 1 | 2 | 3 | 4 | 5 | 6 7 |
| 3 | When I take a test I think about how poorly I am doing compared with other students.<br>測驗時，我會想到自己的表現比其他同學差。 | 1 | 2 | 3 | 4 | 5 | 6 7 |
| 4 | I think I will be able to use what I learn in this course in other courses.<br>我認爲我能將在此課程所學的應用在其他課程上。 | 1 | 2 | 3 | 4 | 5 | 6 7 |
| 5 | I believe I will receive an excellent grade in this class<br>我相信我會在這班中取得卓越的成績。 | 1 | 2 | 3 | 4 | 5 | 6 7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 6 | I'm certain I can understand the most difficult material presented in the readings for this course.<br>我確信我能明白這課程中最困難的閱讀資料。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7 | Getting a good grade in this class is the most satisfying thing for me right now.<br>在這班中取得好成績是我現在最具滿足感的事情。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | When I take a test I think about items on other parts of the test I can't answer.<br>測驗時，我會想到自己在這測驗中不懂回答的部分。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9 | It is my own fault if I don't learn the material in this course.<br>若我未能學到這課程中的內容，這是我的過失。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10 | It is important for me to learn the course material in this class.<br>學習這班中的課程內容對我來說是很重要的。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11 | The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade.<br>改善各科成績的平均積分點（GPA）是我現在最重要的事情，所以在班中取得好成績是我最關心的事。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12 | I'm confident I can learn the basic concepts taught in this course.<br>我有信心我能學到這課程教授的基本概念。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13 | If I can, I want to get better grades in this class than most of the other students.<br>如果可以的話，我希望比其他在班內的同學取得更好的成績。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14 | When I take tests I think of the consequences of failing.<br>測驗時，我會想到不及格的後果。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15 | I'm confident I can understand the most complex material presented by the instructor in this course.<br>我有信心我能明白導師所教授最複雜的課程內容。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16 | In a course like this, I prefer course material that | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | | |
|---|---|---|
| | arouses my curiosity, even if it is difficult to learn.<br>在這課程中，我寧願選擇一些能喚起我的好奇心的課題，即使它們是難於學習。 | |
| 17 | I am very interested in the content area of this course.<br>我對這課程的內容很感興趣。 | 1 2 3 4 5 6 7 |
| 18 | If I try hard enough, then I will understand the course material.<br>如果我付出足夠的努力，我將會能明白課程的資料。 | 1 2 3 4 5 6 7 |
| 19 | I have an uneasy, upset feeling when I take an exam.<br>當參加考試時，我有心神不安及心煩意亂的感覺。 | 1 2 3 4 5 6 7 |
| 20 | I'm confident I can do an excellent job on the assignments and tests in this course.<br>我有信心我在這課程的功課及測驗中有卓越的表現。 | 1 2 3 4 5 6 7 |
| 21 | I expect to do well in this class.<br>我希望在班中做得好。 | 1 2 3 4 5 6 7 |
| 22 | The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible.<br>這課程最具滿足感的地方是我盡量認真仔細地去明白課程的內容。 | 1 2 3 4 5 6 7 |
| 23 | I think the course material in this class is useful for me to learn.<br>我認爲學習這班中的課程內容對我是有用的。 | 1 2 3 4 5 6 7 |
| 24 | When I have the opportunity in this class, I choose course assignment that I can learn from even if they don't guarantee a good grade.<br>當我有機會時，我會選擇一些能令我學到東西的課程作業，即使這不能保證我取得好成績。 | 1 2 3 4 5 6 7 |
| 25 | If I don't understand the course material, it is because I didn't try hard enough.<br>如果我不明白課程的內容，這是因爲我未付出足夠的努力。 | 1 2 3 4 5 6 7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 26 | I like the subject matter of this course.<br>我喜歡這課程的內容。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 27 | Understanding the subject matter of this course is very important to me.<br>對我來說，明白這課程的內容是很重要的。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 28 | I feel my heart beating fast when I take an exam.<br>當參加考試時，我感到心跳加速。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 29 | I'm certain I can master the skills being taught in this class.<br>我確信我能掌握在班中所教授的技巧。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 30 | I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.<br>我想在班中做得好，因爲向家庭，朋友，僱主或其他人去表現我的能力是很重要的。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 31 | Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class.<br>考慮到這課程的困難度，老師，及我的技能，我認爲我將會在班中做得好。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**Part D: Personal Information 個人資料**

1. Sex 性別：
   - ☐ Male, 男
   - ☐ Female, 女

2. Program studied: 就讀課程：
   - ☐ Associate Degree Program, 副學士課程
   - ☐ Higher Diploma Program, 高級文憑課程
   - ☐ Others 其他，Please specify 請註明：_____

3. Class studied: 就讀年級：
   - ☐ Year one student (freshman), 一年級（新生）
   - ☐ Graduating class student, 畢業級學生
   - ☐ Others 其他，Please specify 請註明：_____

4. Household Income: 每月家庭總收入：
   - ☐ $10,000 or below, $10,000 或以下
   - ☐ $10,001 - $30,000
   - ☐ $30,001 - $50,000
   - ☐ $50,001 or above, $50,001 或以上

5. Education of father: ☐ Primary education or below, 小學或以下
父親教育程度： ☐ Secondary education, 中學或預科
☐ Tertiary or above, 大專，大學或以上

6. Education of mother: ☐ Primary education or below, 小學或以下
母親教育程度： ☐ Secondary education, 中學或預科
☐ Tertiary or above, 大專，大學或以上

**~ End of Questionnaire ~**

**~ 問卷完 ~**