

**A Paper for the  
PAQS Conference**

**Evaluating Learning Motives and Strategies of Quantity Surveying  
Students in Hong Kong**

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**21<sup>st</sup> January 2008**

## **EVALUATING LEARNING MOTIVES AND STRATEGIES OF QUANTITY SURVEYING STUDENTS IN HONG KONG**

### **Abstract**

While educationalists can draw up what they believe as a good curriculum for surveying students, the actual performance of students in their studies mainly depends on ones' own learning approaches and attitudes. Knowledge of surveying students' specific learning attitudes can assist educators in preparing appropriate teaching methods for their students, which, in turn, can support students in studying surveying programs in the universities. The learning processes and learning strategies of students in higher education have been widely investigated in the last decade, but there is limited research focusing on surveying education. The paper aims at evaluating the learning motives and strategies of surveying students in higher education in Hong Kong. The preliminary results of investigation indicated that surveying students generally apply surface motive, surface strategy and deep strategy in their 3-year learning process. Female students seriously involved extrinsic motivation (i.e. surface motive) in their study in comparing with the male. Fortunately, the negative learning phenomenon was improved among students studying in the 2<sup>nd</sup> year. Most of the year 2 surveying students applied deep strategy in their learning process, while the students with achieving motive were reduced significantly in the study. Perhaps, the teaching approaches in the 2<sup>nd</sup> year support students with positive learning approach (deep motive and deep strategy). Further research in the impact of various teaching methods is recommended for enhancing the learning approaches of surveying students. We believe that a positive deep learning approach in university life will definitely cultivate their positive working attitudes in the industry in the future.

**Keyword:** Higher education, Hong Kong, Learning motives, Learning strategies and Quantity surveying

### **INTRODUCTION**

To ensure university students equip well for facing challenges in the new century, Hong Kong government has been emphasizing the whole-personal development and life-long learning since 2000. The government steadily increased expenses in education, for instance, from a budget of \$52,676 million in 2001-2002 financial year to \$53,911 million in 2006-2007 financial year (Education Bureau 2008).

Construction is one of the major sectors influencing the economy in Hong Kong. Construction education in terms of knowledge and skills has been investigated in the surveying discipline (Leung et al. 2004a, 2006). The major professional knowledge and skills, including traditional surveying knowledge areas (e.g., cost management, procurement management and contract law)

and various skills (communication teamwork and analytical thinking) were identified as key professional competencies of surveying graduates in Hong Kong. In fact, the curriculum in the university surveying programme is designed, in principally, to match the requirements of surveying practitioners, while the surveying programme is continuously modified in order to achieve the changing environment in Hong Kong (e.g., new courses/topics for law in China, facility management, etc.).

However, the quality of university graduates is still criticized by industrial employers (Apple Daily 2006; WenweiPo 2007). There is still a gap between the current performances of surveying graduates and the expectations of supervisory surveyors in the industry (Leung et al. 2004, 2007). Students often emphasize model answers in their learning processes and concentrate on the degree awarded, rather than the knowledge gained. This induces a lack of initiative, motivation and participation in solving the dynamic practical problems of construction projects (Law 2001). Therefore, it's generally accepted that the learning attitudes of students will largely affect their working attitudes in the industry. To improve the learning attitudes of surveying students, it is necessary to understand the learning motives and strategies of surveying students in higher education.

## **LEARNING MOTIVES AND LEARNING STRATEGIES**

Learning approaches of students influence their learning outcomes (Biggs 1987; Prosser and Trigwell 1999; Leung et al. 2004b), while learning is a relatively permanent change in behavior or in behavioral potentiality resulting from experience and takes place as a result of being engaged in an educational experience (Kimble 1961; Nicholls 2002). It is now widely accepted that learning approaches of students are influenced by various factors in the learning process, such as learning environment (Biggs 1992; Pimparyon et al. 2000) and students' internal characteristics (Matthews 2001). Perceptions about the nature of assessment (Marton et al. 1993), anxiety and fear of failure (Fransson 1977) are all the critical internal characteristics influencing the learning approaches of students.

Biggs and Watkins (Biggs and Watkins 1993) developed a systematic Presage-Process-Product (3P) learning model to describe relationships between factors affect learning, approaches to learning and learning outcome. Approaches to learning comprise two main components: motive and strategy. **Motive** refers to “why does student learn”, while **Strategy** refers to “how does student learn” Biggs (1987). As different students adopt different learning motives and learning strategies, three types of motives (surface, deep and achieving) and the corresponding strategies (surface, deep and achieving) were classified in the psychological education (see Table 1).

**Table 1 Learning Motives and Learning Strategies (Biggs 1979, 1987, 1988, 1992)**

Learning Approaches	Learning Motives	Learning Strategies
Surface Approach	Students carry out the task with surface motive (SM) because of extrinsic motivation. They only want to pass the tasks.	Students with surface strategy (SS) thus mainly focus on the most important topics or elements and reproduce them.
Deep Approach	Students with deep motive (DM) really want to engage tasks properly due to the intrinsic motivation.	Students with deep strategy (DS) thus implement tasks with high cognitive level and logical meaning.
Achieving Approach	Students with achieving motive (AM) usually relates to products (e.g., high grades and winning prizes).	Students with achieving strategy (AS) thus try the best to obtain high marks. There is no fixed learning method in their learning process.

Note: Learning Motive is the reason for learning, while Learning Strategy relates to the method of learning.

Students applying surface motive and surface strategy are considered as *surface learners*. As this type of students carry out their studies based on extrinsic motivation, they only want to get the passing grade and, thus, reproduce the content in the learning process. Students adopting deep motive and deep strategy are named as *deep learners*. This type of students really wants to engage their studies due to intrinsic motivation; therefore, they will implement tasks with logical thinking and cognitive approaches including information searching and problem-solving. The third type of students is classified as *achieving learners* who adopt the motivation of pride and apply the strategy of optimizing their time and effort (Biggs 1992).

Students applying different learning motives and learning strategies directly produce different learning outcomes (academic results and activity performance) (Biggs and Watkins 1993; Leung 2004b). To support surveying educators applying appropriate teaching methods and stimulating students' learning motives, the present paper can be considered as a pilot study to investigate and identify the learning approaches of surveying students in Hong Kong.

## METHODS

### Questionnaire Distribution

An exploratory questionnaire survey was conducted on surveying students studying in a university in Hong Kong between November 2006 and January 2007. In order to increase the respondent rate, a hardcopy of the survey was distributed to the surveying students in a class, after receiving permission from relevant lecturers. It collected information of personal particulars and approaches to learning of respondents.

### Instruments

*Personal Particulars:* Part I of this questionnaire is to collect personal information of the

respondents, including age, gender, university, programs, academic result and year the respondent is studying.

*Approaches to Learning:* Part II is designed to identify the learning approaches of respondents. The questions in the survey were based on the Study Process Questionnaire (SPQ) (Biggs 1992). It comprises 42 items, with each 7 items measuring surface motive, surface strategy, deep motive, deep strategy, achieving motive and achieving strategy. All questions were measured in 7-point scale from 1 (rarely true) to 7 (always true).

### **Samples**

Totally, 87 valid set of questionnaires were received, representing response rates of 64.44%. The majority of respondents (94.3%) are aged between 19 and 24, while the rest 5.7% don't specify their ages. Out of 87 respondents, 59 are male and the rest 28 are female. 23 (26.4%), 24 (27.6%) and 40 (46.0%) were studying in year 1, 2 and 3 respectively. 16.1% and 57.5% of the respondents obtained cumulative GPAs between 1.70 and 2.69 and between 2.70 and 3.69, while the rest 26.4% did not specify their cumulative GPAs. Therefore, the samples in the study cover wide ranges and represent actual geographic patterns of surveying students in Hong Kong.

### **DATA ANALYSIS**

In order to have a clear picture of the learning approaches adopted by surveying students in their learning process, three common statistical methods were used in this study: (1) reliability analysis to measure the internal consistency of the learning scales; (2) the arithmetic mean and the number of students adopting each motive and strategy for identifying the popularity of learning motive and learning strategy; and (3) the percentage of students adopting each learning motive and strategy from the perspective of year and gender for further exploring the type of popularity of learning motives and strategies among surveying students in this university.

#### **Reliabilities of SPQ Subscales**

Alpha analysis is conducted to measure the internal consistency of the SPQ subscales of approaches to learning (see Table 2). All the coefficients are above 0.60, ranging from 0.62 to 0.88. These results are consistent with the alpha coefficients obtained by Biggs (Biggs et al. 2001) in the range from 0.57 to 0.72 with a sample of Hong Kong undergraduates. As the majority of the subscales are approaching or above the cut value of 0.70, it is deemed that the subscales of approaches are internally consistent and reliable.

**Table 2** Alphas, Means and Standard Deviation of SPQ Subscales

Learning Subscale	Alpha	Mean	Standard Deviation	No. of Students	% of Students
Surface Motive	0.68	<b>29.7</b>	5.8	<b>43</b>	<b>49.23%</b>
Deep Motive	0.81	28.8	6.7	23	26.25%
Achieving Motive	0.75	29.1	5.9	21	24.52%
Total no. of students				87	
Surface Strategy	0.62	28.7	5.0	35	40.61%
Deep Strategy	0.88	<b>30.1</b>	6.5	<b>44</b>	<b>50.38%</b>
Achieving Strategy	0.83	26.7	6.3	8	9.00%
Total no. of students				87	

Note: The maximum score of each subscales is 42 (i.e. 6 items x 7-point scales).

### The Most Popular Learning Motives and Learning Strategies

Although the mean scores of the three learning strategies indicated clearly that deep strategy (mean = 30.1) was popularly applied by the surveying students in their learning process, the mean scores of the three learning motives were still not significantly different in a range of 28.8-29.7 (see Table 2). To identify the most popular learning motive /strategy adopted in the particular university, the highest scores of learning motive and strategy for each student were classified as the dominant motive and strategy of the students. The results indicated that surface motive was the most popular learning motive among surveying students in Hong Kong, with 49.23% of the students having this motive as their dominant learning motive. Deep motive and achieving motive were less popular, while there were only 26.25% and 24.52% of the students adopting these two motives respectively. For the learning strategy, the majority of surveying students applied deep strategy (50.38%) and surface strategy (40.61%), while there was only a small fraction of students adopt achieving strategy (9.00%) in this university.

### Distribution of Learners in Different Genders and Years

Table 3 discovered that surface motive (47.83%) and surface strategy (47.83%) were popular motive and strategy amongst year 1 students, while year 2 students mainly adopted surface motive (59.72%) and deep strategy (61.81%) in their learning process. Year 3 students were quite adoptive to surface motive (43.75%), surface strategy (43.75%) and deep strategy (52.50%). The results of *t*-test reveal that the percentage of students with achieving motive in year 2 was significantly lesser than that in year 1 ( $t=-2.46$ ;  $p<0.05$ ), but the figure grows dramatically in year 3 ( $t=1.80$ ;  $p<0.10$ ). The number of students in year 2 employing deep strategy was significantly greater than that in year 1 ( $t=2.03$ ;  $p<0.05$ ), and there was no significant difference of deep strategy between year 2 and year 3.

**Table 3** Distribution of Learning Motives and Strategies among Different Years in Study and Genders

Learning Subscale	Year					Gender		
	Yr1	Yr2	Yr3	t-value		M	F	t-value
				Yr2-Yr1	Yr3-Yr2			
Surface Motive	<b>47.83%</b>	<b>59.72%</b>	<b>43.75%</b>	0.85	-1.32	<b>42.37%</b>	<b>63.69%</b>	<b>1.99**</b>
Deep Motive	15.22%	<b>30.56%</b>	30.00%	1.28	-0.05	32.20%	13.69%	<b>-2.28**</b>
Achieving Motive	36.96%	9.72%	26.25%	<b>-2.46**</b>	<b>1.80*</b>	25.42%	22.62%	-0.30
Surface Strategy	<b>47.83%</b>	28.47%	<b>43.75%</b>	-1.51	1.29	38.98%	44.05%	0.48
Deep Strategy	34.78%	<b>61.81%</b>	<b>52.50%</b>	<b>2.03**</b>	-0.77	<b>49.15%</b>	<b>52.98%</b>	3.50
Achieving Strategy	17.39%	9.72%	3.75%	-0.81	-1.04	11.86%	2.98%	-1.46

Note: \* - significant at the 0.10 level; and \*\* - significant at the 0.05 level.

The study also found that both males and females would like to use surface motive (42.37% and 63.69%) and deep strategy (49.15% and 52.98%). The adoption of surface motive by female students was much higher than male students ( $t=1.99$ ;  $p<0.05$ ), while their adoption of deep motive was significantly lesser than male students ( $t=-2.28$ ;  $p<0.05$ ).

## DISCUSSION

The study revealed that surface motive, surface strategy and deep strategy were the most popular learning motive and strategies among surveying students in Hong Kong. Female surveying students were more likely to adopt surface motive than male students, while male students applied deep motive more often than female students.

Surface motive and surface strategy were the most attractive motive and strategy amongst surveying students in Hong Kong, indicating that the surveying students in Hong Kong are generally motivated by external factors rather than their internal interest in the subjects. Therefore, they mainly applied the strategy of remembering knowledge by rote for passing examinations (Biggs 1987; Biggs 1988; Biggs 1992). In fact, these two learning subscales (surface motive and surface strategy) were distributed evenly between three years of surveying students. It implies that such learning approach is relatively stable and it is not easy to change the superficial extrinsic motivation of surveying students in their learning process. Therefore, it is suggested to insert a course (e.g., learning to learn (Wingate 2007) and pilot course (Haggis and Pouget 2002)) related to learning /working attitudes and values in surveying programme, especially in the 1<sup>st</sup> year programme. It does not only point out the positive learning attitudes to students, but also teach them, especially female surveying students, some learning techniques in the new university lives.

Fortunately, the study also found that there were significant changes of achieving motive and deep strategy subscales between year 1 and year 2 students. Deep strategy was the other popular learning strategy for the year 2 surveying students, while there was more year 2 students studied surveying courses with higher intrinsic motivation through cognitive process (e.g., seeking meaning, information searching and logical thinking) (Biggs 1979; Biggs 1987; Biggs 1992; Biggs and Watkins 1993). As the survey was conducted at the end of semester A, it represented that the surveying courses in the 2<sup>nd</sup> year at this University could support students with positive learning behaviours (deep motive) in their learning process. Out of the four departmental courses in the seminar A in the 2<sup>nd</sup> year, (e.g., surveying studio, construction technology and construction economics), surveying students generally commented that surveying studio course is a useful and applicable subject. In this course, students needed to prepare a whole Tender Documents for a real construction project through a series of assignments. Perhaps, it is valuable to further study the teaching approaches of various surveying courses /subjects, in order to understand the impact of various teaching methods in surveying programmes on our surveying students.

## **CONCLUSION AND RECOMMENDATIONS**

While educators and researchers discussed and investigated professional knowledge and skills widely, the performance of students and graduates are still criticized by practitioners. To enhance the learning attitudes of surveying students, the study investigated the learning motives and learning strategies of surveying students in Hong Kong. The results revealed that surface motive, surface strategy and deep strategy are the most popular learning motive and learning strategies adopted by the surveying students. Female students are most likely to involve surface motive in their studies, while year 2 surveying students apply deep strategy in their learning process. It represents that they implement tasks with logical thinking and information searching.

To cultivate our surveying students with the application of deep learning motive and strategy, a new course related to the learning attitudes and values is suggested to be added in the surveying programme, especially in the 1<sup>st</sup> year programme. As there involves different learning motives and strategies in each year, it is further recommended to investigate the impact of various teaching methods on our surveying students. We believe that both internal motivation and deep learning strategy persistently help our students to handle complicated construction projects in the industry in the future.

## **ACKNOWLEDGEMENT**

The work described in this paper was fully supported by a grant from Hong Kong Institute of Surveyors (Project No. 9230056).



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