

Assessing Training Needs for Building Surveying Practitioners

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Key words: Training needs, building surveying

SUMMARY

Over the past ten years, tertiary education in Hong Kong has changed from elite to mass education system. Each year there will be a large numbers of budding surveying graduates entering the surveying market. A total of more than 80 sub-degree building surveying or building related graduates in Hong Kong would become the new blood of the technical personnel joining this market. Adequate and appropriate training are essential to upkeep their knowledge and skills to meet the changing and competitive market demand. The training participants should have a heightened desire to learn when the training to be provided is a good match to their needs.

This study is initiated with an aim to identify the importance of various training areas from the perception of the Hong Kong building surveying practitioners in technical level. They are selected for this study because they have been graduated from the sub-degree programme for a few years and have become the frontline personnel to ensure quality of works. This study will adopt a self-evaluation approach which consists of a questionnaire survey on the respondents to base on their own experience to assess their level of importance on a list of selected training variables on a seven point scale. These training variables will be selected based on the training requirements for the building surveying practitioners of the Hong Kong Institute of Surveyors (HKIS) and Royal Institution of Chartered Surveyors (RICS). The importance ratings of the responses will help prioritize the training areas which are considered to have the urgent needs.

After statistical analysis, the most important training areas which should obtain prompt attention from the training or education providers will be identified. The expected outcome would serve as a feedback information for either the building surveying companies in Hong Kong to provide suitable on-job training to their employees or for the training and education organizations to formulate training programmes to be more attractive for potential training participants, the building surveying practitioners.

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INTRODUCTION

In recent year, construction professions have been increasingly exposed to competitive pressures through changing markets and rising customer expectations (Burnside and Westcott, 1999). The building construction process employs professionals from several disciplines (e.g. architectural, engineering and surveying etc.). Juran, 1988 emphasized the importance of training at all levels in order to achieve quality control and focus on achieving customer satisfaction.

Since the 1990s, universities in Hong Kong have shifted from elite to mass higher education. This shift has been accompanied by a wider policy context in the education sphere. Students are no longer students but rather clients or customers; admission to the university is about access instead of selection. The curriculum is market driven, and it encompasses practical courses from which students as customers can choose (Mok, 2000). The shift to mass higher education policy induces large influx of building surveying graduates entering the building surveying profession. In Hong Kong, the building surveying practitioners mainly involve in 2 major areas, i.e. maintenance of building and building control. Building surveying practitioners play a major role in the management and maintenance of existing buildings which includes taking the role as a project consultant for the building owners to formulate design proposal, supervise and coordinate building works related to alteration and addition of building, conversion and refurbishment of buildings. Arditi and Gunaydin, 1999 stated that the personnel in charge of building operation and maintenance must be trained to deliver high quality service. One of the goals for the training program is to develop the skills and abilities of the employees to ultimately bring about improvement (Low & Sze, 2005). Provision of relevant training and education contributes to correct performance and continuous improvement of quality throughout the entire organizations (Deming, 1986; Dale et al. 1997; Sohal et al. 1998). In order to explore the relevant areas of training and education for the building surveying practitioners, this study was based on the perceptions of the building surveying practitioners on the importance of training variables to prioritize the areas of training required. The outcome of the study was expected to update the training needs of the building surveying practitioners and help provide information for changing the university curriculum to

be more attractive and meeting the market demand.

TRAINING REQUIREMENTS

The targeted respondents of this study will be the building surveying practitioners at technical level who have been acquiring certain level of practical experience in building surveying after their graduation. They are selected for this study because they have been graduated from the sub-degree programme for a few years and have become the frontline and middle management personnel to ensure quality of works. This study aims to base on the experience of the building surveying practitioners to perceive the importance level of selected 27 training variables

Both the Royal Institution of Chartered Surveyor (RICS) and Hong Kong Institute of Surveyors (HKIS) have provided detailed requirements of training to assess the competencies of their technical members. The required competencies for a building surveying practitioner at technical level are diverse, including the technical, legal, management, financial, personal and interpersonal. The requirements of training as stated in the RICS Assessment of Professional Competence (APC)/ Assessment of Technical Competence (ATC) requirements and competencies, and HKIS Rules and Guide to the Assessment of Technical Competence (ATC) prepared by the Building Surveying Division were compiled and re-phased into 27 statements, which formed the basis of an empirical questionnaire. The 27 training statements were categorised into two major groups of skills, i.e. generic skills and actual job skills. The generic skills are considered as the ingredients for developing a successful building surveying career, such as communication skills, language literacy and computer proficiency etc. The actual job skills are the technical know-how and techniques on finishing specific tasks related to particular streams of building surveying practice.

THE SURVEY

A full questionnaire survey was initially undertaken to a cluster of sub-degree building surveying graduates of City University of Hong Kong. The strategy for data collection was initially to despatch questionnaires through e-mails to the building surveying graduates and request them to help despatch to their past or current classmates or colleagues. A total of 37 questionnaires were received through this channel. In order to enhance the response rate, a website was created after 6 week of this data collection channel with an aim to facilitate the return of the questionnaires. Finally 23 questionnaires were received through the website.

Altogether a total of 60 samples were received, however, the responses to some training variables were missing. Finally only 51 valid samples could be taken out for statistical analysis by using the Statistical Package for Social Science (SPSS). The respondents were asked to rate their perceived importance of the 27 training variables, using the seven-point Likert's scale (i.e., from 1 = least important to 7 = most important). In summary, the widely accepted principles of good practices as stated in Easter-Smith et al. (1991) have been adopted in the preparation of questionnaires in order to maximise the survey responses. These good practices include:

- (a) The questionnaires are so designed to include various ways for ensuring an easy return of questionnaires through either fax, e-mail, website or the collection from past graduates of City University of Hong Kong.
- (b) A short description is provided to
 - (i) explain the purpose and expected benefits of this study;
 - (ii) assure confidentiality and anonymity of the responses.
- (c) Start the questionnaire with brief instructions about how to complete it.
- (d) Start with simpler factual questions on Part 1 regarding the background information about the respondents, then moving on Part 2 to items of opinions on 27 training variables

BACKGROUND INFORMATION ON SURVEY FINDINGS

Questions related to the background information of the respondents are set in the questionnaire with an aim to explore how the survey findings may be influenced by the background information. Among the received samples, more than 90% are the graduates of the sub-degree programme from the City University of Hong Kong (Table 1). All these received samples are the graduates from a building related sub-degree programme which include more than 82% from the graduates of a building surveying sub-degree programme (Table 2). This data indicates that all the respondents are the right persons participating in this questionnaire survey. Table 3 indicates that at the time of conducting the questionnaire survey 92.2% respondents have graduated from the sub-degree study by 1 to 5 years and only 72.5% respondents have graduated by not more than 3 years. This finding supports that the respondents should have the sufficient post-graduation experiences to assess the importance level on the 27 training variables.

Name of University/ College	Frequency	Percent (%)
City University of Hong Kong	46	90.2
Institute of Vocational Education	4	7.8
Hong Kong Polytechnic University	1	2.0
Total	51	100.0

Table 1: List of university/ college the respondents have completed their sub-degree study

Study areas	Frequency	Percent (%)
Building Surveying	42	82.4
Building Construction/ Construction Engineering and Management	8	15.7
Quantity Surveying	1	2.0
Total	51	100.0

Table 2: Area of sub-degree study

Years of graduation	Frequency	Percent (%)	Cumulative
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			Percent (%)
2006	9	17.6	17.6
2005	13	25.5	43.1
2004	15	29.4	72.5
2003	3	5.9	78.4
2002	7	13.7	92.1
2001	1	2.0	94.2
1999	2	3.9	98.0
1996 or before	1	2.0	100.0
Total	51	100.0	

Table 3: Year of graduation from sub-degree

ANALYSIS

Each construct scale for the training variables is tested for inter-item reliability by a Cronbach's alpha test. Reliability is concerned with the internal consistency of the scale, i.e. "Does the scale behave similarly when administered by different people?" (Hoxley, 2000). The Cronbach's alpha reliability coefficient is the most widely used which can range from 0 to 1, with higher figures indicating better reliability (Hoxley, 2000). The Cronbach's alpha for the measurement scale of these training variables ranges from 0.941 to 0.949. The overall scale alpha figure is 0.945. These results show a very good reliability and consistency with reference to Madu and Kuei (1994) that the minimum reliability coefficients should be higher than 0.7. Nunnally also suggests that in exploratory result such as this, reliability coefficients of 0.6 will be sufficient (Black and Porter, 1996). As the reliability of each measurement is high enough, all the measurements could subsequently be taken out for statistically analysis by ranking the mean score of each training variables as shown in Table 4 below.

Item	Training Variables	Mean ¹	Standard	Cronbach's
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			Deviation	alpha²
1.	Communication and coordination skills with your colleagues and supervisors	5.489	1.214	0.943
2.	Communication and coordination skills with contractors	5.468	1.365	0.943
3.	Communication skill on customer (user) care	5.447	1.282	0.943
4.	Communication and coordination skills with client	5.319	1.353	0.943
5.	Ability to diagnose building defects for remedy	5.319	1.304	0.942
6.	Survey report writing skills (in English)	5.192	1.072	0.944
7.	Ability to conduct condition survey independently	5.106	1.220	0.943
8.	Application of building and development control legislations for licensed premises, A&A works and new building works	5.043	1.574	0.942
9.	Understanding and application of Building Regulations to deal with dangerous buildings and unauthorized building works	4.978	1.496	0.943
10.	Supervisory skills for building works	4.936	1.223	0.942
11.	Knowledge and understanding in information technology	4.851	1.251	0.944
12.	Skill in conducting site meeting or coordination meetings	4.809	1.279	0.943
13.	Ability to formulate planned maintenance programme	4.787	1.267	0.942
14.	Understanding building services installations and their application on A&A works	4.766	1.418	0.942
15.	Training for cost estimate and measurement of building works	4.596	1.330	0.942
16.	Training in environmental protection and sustainable construction	4.596	1.210	0.944
17.	Ability to evaluate consultants' or supplier' proposals	4.576	1.229	0.942
18.	Ability to perform contract administration for managing building works	4.532	1.316	0.942
19.	Scrutiny of fitting-out proposal for compliance with relevant regulations and Deed of Mutual Covenant for property management purpose	4.511	1.349	0.943
20.	Training for construction safety	4.468	1.249	0.943
21.	Skills for writing specification and method statement	4.447	1.411	0.942
22.	Ability to perform tender analysis and prepare tender report	4.447	1.380	0.941
23.	Understand and evaluate test results for material selection	4.277	1.228	0.944
24.	Survey report writing skills (in Chinese)	4.255	1.391	0.946
25.	Understanding and application of structural design and analysis on building works proposal	4.213	1.444	0.943
26.	Manual drafting skills	4.149	1.335	0.949
27.	Auto-CAD drawing skills	4.085	1.666	0.947

Valid sample size: 51, ¹Scoring system scale of 1-7: 1 least important, 7 most important, ²Total scale Cronbach's alpha figure: 0.945, Table 4: Ranking of mean scores of training variables

Measuring the variability of the received data is an important factor in determining the

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inferences about the targeted sample of the building surveying graduates. The useful way to measure the variability of a set of data is the standard deviation, which determines the distance from each value in the set of data to the mean of the data. If all the items in the sample distribution are near to the mean then clearly it is a good representative for these items, or the vice versa (Morris, 1993). The general relationship between the standard deviation and the variability is that the greater the standard deviation is, the greater the dispersion of the sample distribution (Heinze, 1980). Therefore the mean and standard deviation of the received sample for the 27 training variables are worked out and illustrated in Table 4 above. Table 4 indicates that the mean and standard deviation of the received sample are ranged between 4.085 and 5.489, and between 1.076 and 1.666 respectively. As the range of the calculated standard deviation is low, the dispersion of the sample distribution rather narrow. Therefore it is a good representative for these items.

RESULTS

This study aims at exploring the perceived level of importance of the training variables. Table 4 above illustrates the complete ranking of responses of this survey in descending order of the mean scores. Table 5 below depicts that there are 8 training variables with level of importance higher than 5.

Item	Training Variables	Mean ¹	Generic or Actual Job Skills
1	Communication and coordination skills with your colleagues and supervisors	5.489	Generic skill
2	Communication and coordination skills with contractors	5.468	Generic skill
3	Communication skill on customer (user) care	5.447	Generic skill
4	Communication and coordination skills with client	5.319	Generic skill
5	Ability to diagnose building defects for remedy	5.319	Actual job skill
6	Survey report writing skills (in English)	5.192	Generic skill
7	Ability to conduct condition survey independently	5.106	Actual job skill
8	Application of building and development control legislations for licensed premises, A&A works and new building works	5.043	Actual job skill

¹Scoring system scale of 1-7: 1 least important, 7 most important

Table 5: Highest mean scores of 8 most important training variables

Among these 8 training variables, 5 variables belong to generic skills while 3 variables belong

to actual job skills. These results reflect that generic skills are considered very important. In particular, all the 4 communication related skills obtain the highest importance ratings. This finding could be explained that the building surveying practices are teamwork in nature which requires greater amount of human interaction. It is not surprising to note that the highest mean scores (i.e. 5.319, 5.106 and 5.043 respectively) of the three actual job skills are

- (a) ability to diagnose building defects for remedy; and
- (b) ability to conduct condition survey independently.
- (c) understanding and application of Building Regulations to deal with dangerous buildings and unauthorized building works;

They are all related to the maintenance of buildings and application of building regulations for the scrutiny or preparation of building works proposal which are the traditional specialism for the building surveying professional in Hong Kong.

Table 6 below illustrates 8 training variables with the lowest mean scores ranging from 4.468 to 4.085.

Item	Training Variables	Mean ¹	Generic or Actual Job Skills
1	Training for construction safety;	4.468	Actual job skill
2	Skills for writing specification and method statement;	4.447	Actual job skill
3	Ability to perform tender analysis and prepare tender report;	4.447	Actual job skill
4	Understand and evaluate test results for material selection;	4.277	Actual job skill
5	Survey report writing skills (in Chinese);	4.255	Generic skill
6	Understanding and application of structural design and analysis on building works proposal;	4.213	Actual job skill
7	Manual drafting skills;	4.149	Generic skill
8	Auto-CAD drawing skills.	4.085	Generic skill

¹Scoring system scale of 1-7: 1 least important, 7 most important

Table 6: 8 training variables with the lowest mean scores.

Among these 8 training variables, 5 variables belong to actual job skills and 3 variables belong

to generic skills. These findings can be explained that the 5 training variables related to actual job skills are greatly concerned by the professional level rather than the technical level. The practitioners at technical level will then comply with the stipulated requirements for carrying out the daily works. For example, the structural design and analysis of building works will usually be dealt with by the structural engineering consultant and assessing the suitability of materials to be selected for the building works will also be handled by the professional building surveyors. When comparing the training variables related to survey report writing skills, it is obvious to note that English writing is still much more important than the Chinese. Traditionally building surveying students are usually trained to equip the necessary writing skill for English survey report while Chinese writing skill is neglected. The two training variables related to drafting skills, no matter manual or computer aid, are considered as the least important. These findings generally match with the traditional building surveying practices that drafting is not the regular duty for the building surveying practitioners.

CONCLUSION

The outcome of this study could well present an answer to the research question, ‘To what level the building surveying practitioners have perceived the importance of the training variables in dealing with the current building surveying practices?’ Overall the building surveying practitioners have perceived the importance level just above the average level, i.e. the neutral figure of 4. The above analysis generally depicts that the building surveying practitioners reckon that selected training variables are important in dealing with the current building surveying practices.

The outcome of this study could serve as an index to formulate the provisions for training and education for building surveying practitioners since they will have the higher interests to participate in the training or educational programmes which they consider to be important for them. As the market is changing all the time and the demand for the building surveying practitioners is also changing, the survey should be regularly reviewed to reflect the updated views of the building surveying practitioners.

Since a large portion of the respondents participating in this questionnaire survey belong to the building surveying sub-degree graduates from the City University of Hong Kong, this study could be viewed as the graduate survey for the programme review purposes.

In summary, this paper has presented and discussed the results of a preliminary assessment on the perceived importance of the training variables from the Hong Kong building surveying practitioners' points of view, which the training and education providers should be aware of in the pursuit of continuously formulating the suitable and relevant programmes for their needs. In particular, focus should be made to the generic skill training as supported in the 8 most important training variables as listed in Table 5 above.

Concurrently, the results of this study could serve as the bench marking for further research on exploring the optimum situation to ensure better allocation of training resources.

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BIOGRAPHICAL NOTES:

Anthony Lai has been qualified as a professional building surveyor in the Hong Kong Institute of Surveyors and Royal Institutions of Chartered Surveyors and has been teaching in the building surveying sub-degree programme for more than 15 years. Currently his research interests focus on quality management, building control, training and various general management issues. His publication details include 4 international conference papers and a book chapter related to building control on existing buildings in Hong Kong.

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