

Students' satisfaction with a dental summer programme and importance of influencing factors for choosing dentistry as their career

Suen RP, Lai SM, Bridges S, Chu CH*

Faculty of Dentistry, The University of Hong Kong

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Corresponding to :

Chun H Chu
Faculty of Dentistry
The University of Hong Kong
1B30 Prince Philip Dental Hospital
34 Hospital Road
Hong Kong SAR, China

Tel: (852) 2859 0287

Fax: (852) 2559-9013

Email: chchu@hku.hk

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Abstract

Aim: *To study the students' satisfaction with the week-long summer programme and the importance of common influencing factors (IFs) for choosing dentistry as their career.*

Methods: *Anonymous questionnaire was given to all 216 participants in July of 2011 and 2012. Demographic information including gender, age, and education level was collected. The students were asked about their satisfaction with the programme with separate ratings for learning experiences, including: hands-on workshops (HOW); clinical observations (CO); problem-based learning tutorials (PBL); and lectures (L). They also rated the relative importance of the ten common IFs. The Friedman test was used to study the order of their preferences of the programme's activities. The Chi-square test was used to study the influence of their demographic factors on the importance of the IFs.*

Results: *A total of 208 students returned their questionnaires. The majority were below the age of 18 (81%), and 44% were studying in an international school. Most of the students (96%) were satisfied with the programme overall. They liked the HOWs and COs more than the PBL tutorials and Ls. 'Altruism' and 'medical/health care career' were the two most important IFs overall. 'Altruism' and 'past experience with dentist' were considered more important by those aged 18 or above. 'Past experience with dentist' and 'working with hands' were considered more important by the international school students.*

Conclusions: *Most participants were satisfied with the summer programme. They preferred practical, skill-based activities to knowledge-based activities. The importance of some IFs was associated with age and education system.*

Introduction

The Faculty of Dentistry at the University of Hong Kong was established in 1982 and remains the sole provider in Hong Kong for undergraduate and postgraduate dental education. Following, territory-wide curriculum reforms in 2012, the duration of the undergraduate degree of Bachelor of Dental Surgery (BDS) changed from five to six years. As in many countries, successful admission to the Faculty of Dentistry is very competitive and is based heavily on individual academic performance. In addition to academic performance and an admission interviews for shortlisted candidates, no other assessments (such as the USA Dental Aptitude Test or the Irish Health Professions Admissions Test) are used. Once the students are conferred a degree of Bachelor of Dental Surgery (BDS (HK)) by the University of Hong Kong, they can practice dentistry in Hong Kong and in some nearby countries, such as Singapore, without an additional dental licensing examination. The dental degree is also widely recognized and a holder of a BDS (HK) is considered eligible to take the local licensing examination in countries such as Australia, Malaysia, Taiwan, New Zealand, and the United Kingdom.

To allow secondary school students to learn more about dentistry, the Faculty of Dentistry began organising an annual, week-long summer programme in Hong Kong that introduces the study of dentistry. The programme is organized by the dental professoriate staff in conjunction with the university's residential halls. It is advertised on the university's website and is reported in some newspapers. Applicants with good academic standings and who are recommended by their school's principal are selected to join the summer programme. The aim of the summer programme is to provide students with a better understanding of the study of dentistry. It is comprised of four main learning experiences: problem-based learning tutorials (PBL); lectures (L); clinic observations (CO) in which students observe dentists treating their patients; and hands-on workshops (HOW) delivered in the areas of restorative dentistry, periodontology, dental imaging, and oral surgery.

Studies that have investigated the factors that influence students' decision to apply to medical and health sciences degree programmes in other countries have found ten common factors (Hawley et al., 2008; McHugh et al., 2011; Stewart et al., 2004). These factors are: i) dentist is a professional, ii) interest in surgery, iii) medical/health care career, iv) helping others/altruism, v)

working with hands, vi) personality fit, vii) past experience with dentists, viii) intellectual challenge, ix) financial reward, and x) advice from family or friends. While work has been undertaken to investigate graduate and employer perceptions (Yiu et al., 2012), there has been no study to date that has investigated the reasons why students apply to the undergraduate dentistry programme in Hong Kong. The purpose of this study is twofold. The first goal is to report the results of an evaluation carried out following the completion of a summer school programme that promoted the study of dentistry. The second goal is to investigate the importance of various influencing factors on secondary school students' decision regarding studying dentistry at university.

Methods

A one-week summer programme is provided by the University of Hong Kong annually to introduce the dental curriculum to interested secondary school seniors in July. An anonymous questionnaire survey given to the 2011 and 2012 programme participants was carried out after the last sessions of the summer programme in both of those years. The questionnaire comprised three sections. In the first section, background demographic information including gender, age (below 18 years-old or 18 years-old or above) as well as education system (local secondary school or international school) was collected. In the second section, the participants were asked to rate their interest in the four learning experiences (i.e. HOW, CO, PBL and L) on Likert scale from 1 (very low) to 5 (very high). An optional open-ended question was provided to allow the students to express their views about the experiences. The students were also asked to rate their overall satisfaction with the programme on a Likert scale from 1 (very poor) to 5 (very good) as well as the program's usefulness in helping them to consider a BDS programme (1-not useful at all, 2-somewhat useful, 3-useful and 4-very useful). In the final section, the participants were asked to rate the importance of the ten common influencing factors of choosing dentistry as their career in Likert scale from 1-unimportant to 5-very important. The influencing factors were ranked according to the percentage of participants who chose '5-very important'.

The data collected were entered into a computer and analysed using the statistical software IBM SPSS Statistics V20.0 (IBM Corporation, Somers, NY, USA). All data were assessed for normal distribution properties using the Shapiro-Wilk test for normality. Non-parametric tests

were employed as the data were not normally distributed. For outcome variables, the statistical test was chosen based on the type of variable; all presented p-values are 2-tailed. A paired Friedman's two-way ANOVA test was used to compare various learning courses (i.e. HOW, RPC, PBL and L); the Chi-square test was used to compare the effects of background information (gender, age and education system) on the importance of the factors influencing the choice of dentistry. The cut-off value for statistical significance was chosen to be 0.05.

Results

A total of 214 students were selected for the summer program based on their academic performance and recommendations from their schools. All 214 participants from the 2011 and 2012 programmes were invited to participate in the study; 208 completed questionnaires were collected. The response rate, then, was 97%. The genders, ages and education systems of the participants are shown in Table 1.

Table 1 Gender, age and education of participants

Demographic Factor	Gender		Age (year)		Education (School)	
	Male	Female	<18	≥18	Local	International
No. (%)	74 (37%)	125 (63%)	163 (81%)	37 (19%)	112 (56%)	88 (44%)
Total no.	199		200		200	

Most (N=198; 96%) were satisfied and half of them (N=103; 50%) were very satisfied with the programme. There were nine students believed that the programme was fair while none of the participants indicated that they were dissatisfied with the programme. The satisfaction with the four learning mode is shown in Table 2. A total of 189 (91%) participants indicated that they would consider a career dentistry after completing the programme. Eighteen students indicated they would not consider dentistry and the reasons were 'maybe I am not suitable to be a dentist', 'don't like looking teeth all day, a pretty tedious job although dentistry is fun generally', 'not my preferred occupation', and 'because my aim is to study medicine and become a general surgeon'.

Table 2 Students' satisfaction with the learning modes

Learning mode	No.	Very poor	Poor	Acceptable	Good	Very good
Hands on workshop	208	0 (0%)	0 (0%)	8 (4%)	91 (44%)	109 (52%)
Clinic observation	197	3 (1%)	5 (3%)	24 (12%)	70 (36%)	95 (48%)
Problem-based learning tutorial	206	1 (1%)	2 (1%)	42 (20%)	113 (55%)	48 (23%)
Lecture	203	3 (1%)	13 (6%)	48 (24%)	93 (46%)	46 (23%)

A total of 170 (86%) participants indicated that the programme was useful to them as they considered studying dentistry in the future. Of these, 62 (31%) participants reported that the programme was very informative in terms of choosing dentistry for their university education. The HOW was the most welcomed learning experience by the participants (Table 2). The HOWs and COs were preferred by the participants and were rated higher than the PBLs and Ls ($p < 0.001$) (Table 3).

Table 3 Comparison between learning modes (Paired Friedman's 2-way ANOVA test)

Learning mode	Learning mode	P-value
Hands on workshop	Problem-based learning tutorial	<0.001
Hands on workshop	Lecture	<0.001
Hands on workshop	Clinic Observation	0.677
Clinic observation	Problem-based learning tutorial	<0.001
Clinic Observation	Lecture	<0.001
Problem-based learning tutorial	Lecture	1.000

Student comments indicated that the HOWs were “fun”, “interesting”, “practical”, “realistic”, and “collaborative activities to participate”. They also commented that the HOWs were generally well organised in terms of time arrangement, instructor support, and take-home souvenirs; however, some participants mentioned that the time and task arrangement of the series of workshops were insufficient for a one-week programme. Despite this, the open-ended comments indicated the participants felt that they knew more about the various aspects of dentistry such as dental technology, professionalism, and the importance of public dental health. Students

also remarked that they understood the roles and responsibilities of dentists and that this was significant in helping them to evaluate their suitability for dentistry.

Students perceived the COs as an “efficient”, “effective”, “interesting”, “interactive”, “realistic” and “practical activity to participate” because they learned more about the settings of dental hospitals. In addition, they commented that the COs enhanced their knowledge of dentistry including professionalism, the variety of dental problems, and dental terminology. Apart from a better understanding of the clinical care given by dentists, the students also found that the COs allowed them to develop empathy by viewing dentistry from a patient’s perspective. Again, students wished to have longer times for the observations.

The PBL ranked third in the preferences of programme activities. The participants’ comments on the PBLs included “good planning” and “good resources.” Students found the PBLs to be “interesting”, “interactive”, “challenging”, “comprehensive”, “effective” and “flexible”. They preferred the tutorial’s problem statement to the lecture notes because it allowed them to brainstorm proactively on realistic cases during the discussion rather than passively receiving knowledge, which encouraged motivation, innovation, inquisition, deep learning and retaining memory of the knowledge. They also commented that the PBLs helped them develop problem-solving skills such as independent thinking, critical analysis, research, presentation, teamwork, and leadership. As many participants were multilingual, students found that the PBLs improved their English. Some commented that the PBLs facilitated their development of life-long learning abilities.

Students welcomed the Ls as an introduction to the various fields of dentistry. They found that the clinical photos were impressive and that the lecture hall had good facilities. The Ls, however, were rated the lowest of the four programme learning experiences. The lack of interaction, in-depth knowledge, and bad time arrangements were considered to be the key reasons of decreasing students’ interest.

Of the participants, 192 (92%) of them would consider choosing dentistry as their career after participating in the summer programme. The three most important factors that influenced this

decision were: the ‘opportunity to help others’ (55.3%), a ‘desire to choose medical/health career’ (53.1%), and an ‘interest in surgery’ (52.8%) (Table 4). There were a few missing responses on the influencing factors, so the number of responses for each factors varied from 181 to 192. The importance of the influencing factors was not associated with gender. However, ‘altruism’ and ‘past experience with dentist’ were considered more important by those aged 18 or above. ‘Past experience with dentist’ and ‘working with hands’ were considered more important by the international school students.

Table 4 Importance of the influencing factors according to age and school education system

Influencing factor (No.)	% (No.) indicated as 'important '	% (No.) indicate d as 'very importa nt'	% (No.) indicated as 'important ' & 'very important'	Age			School education system		
				<18	≥18	P- value	Local	Internati onal	P- value
Medical/health care career (192)	31.6% (60)	55.3% (105)	87% (167)	50%	77%	0.005	50%	62%	0.120
Helping others/Altruism (190)	33.9% (65)	53.1% (102)	86.9% (165)	52%	65%	0.178	51%	59%	0.277
Intellectual challenge (190)	30.6% (59)	52.8% (102)	86.3% (164)	51%	56%	0.605	49%	56%	0.300
Interest in surgery (193)	31.6% (61)	51.3% (99)	83.4% (161)	49%	62%	0.179	46%	58%	0.107
Dentist is a professional (193)	45.8% (87)	40.5% (77)	82.9% (160)	40%	39%	0.915	38%	44%	0.424
Working with hands (192)	39.1% (75)	39.6% (76)	78.7% (151)	39%	47%	0.376	34%	49%	0.031

Personality fit (189)	37.6% (71)	32.8% (62)	70.4% (133)	33%	36%	0.683	32%	35%	0.672
Past experience with dentist (181)	29.8% (54)	24.9% (45)	54.7% (99)	21%	39%	0.028	18%	33%	0.020
Financial reward (189)	31.2% (59)	18.0% (34)	49.2% (93)	17%	19%	0.836	14%	22%	0.143
Advice from family or friends (186)	30.6% (57)	14.5% (27)	45.1% (84)	13%	23%	0.157	10%	20%	0.063

Discussion

This study investigated two aspects of undergraduate admissions in Hong Kong: students' satisfaction with a summer programme and the importance of influencing factors on their choice of dentistry as their career. A number of studies have investigated the main factors that affect students' choice of dentistry as their career (Al-Bitar et al., 2008; Bernabe et al., 2006; Crossley and Mubrik, 2002). The factors identified in all of the studies are very similar. As such, this study evaluated how these identified factors affected the students' choice to study dentistry in Hong Kong. The present study is a study focused on Hong Kong; therefore, the results cannot be generalized or directly applied to other countries. However, students nowadays often apply to both local and overseas universities to study dentistry, and more universities are taking international students. The results, therefore, may be used as a reference in universities in nearby countries or countries with similar education systems. In addition, the findings concerning the students' satisfaction provide useful information to enhance the summer programme.

The results regarding the importance of influencing factors on the choice of dentistry as career offer the admission committee some ideas about the intention of student applicants to study dentistry. The summer programme was designed to attract academically outstanding secondary school students who were interested in pursuing a dental qualification in the Faculty of Dentistry at the University of Hong Kong. In Hong Kong, there are more local secondary schools than international schools; most students studying in these schools are under the age of 18. Therefore, the majority of participants were under 18 years-old and studying in local secondary schools. There

were more female participants than male participants, possibly due to the current Hong Kong demographic statistics (Hong Kong Census and Statistics Department, 2012).

Almost all of the students were satisfied with the programme. They indicated that they preferred the HOWs and COs more than the PBLs and Ls. Lund et al. (2011) found that students favoured simulation techniques in oral and maxillofacial surgery training. The preference of the students concerning the HOWs and COs in our survey suggested that they favoured interactive, practical, and realistic clinical learning. It is possible that these activities increased their interest, motivation, and engagement towards clinical learning. The close-up clinical experience of the COs was valued by the participants because it increased their basic dental knowledge including the diverse disciplines and specific terminology.

The COs gave students a scope of the work found in as well as the function of the dental hospital. The discussions between the students and dentist during the COs increased their understanding of the roles and responsibilities of a dental practitioner. The interactions between students and patients during the COs, allowed the students to learn from the patients' perspective, which may help them to develop empathy. These elements were all considered to be essential by the students when choosing a career in dentistry; this could be because, unlike in Western countries, job shadowing is not common in Hong Kong or many regions in Asia. Therefore, COs can be useful and pragmatic programmes to help students understand dentistry. It must be noted that some students complained that the HOWs and COs were too short for them to learn and practice. As such, an extended programme could be created and carried out for those who indicated their desire to learn more about dentistry. It is noteworthy that PBL received a higher rating than L.

After completing the program, many students expressed their interest in considering dentistry as their choice of tertiary education. Most students found the summer programme to be useful and informative in helping them make the decision to study dentistry and become a dentist in the future. However, there were a few who found that dentistry was not suited to them after getting a 'real taste' of dentistry from the programme. The summer programme also helped students to identify whether they were interested in or their personality fit a career in dentistry.

It is important to identify all of the aspects of a career before one makes the choice to pursue it. Entering an undesired or unsuitable career can lead not only to a lack of motivation towards the study, but also unmet expectations and low satisfaction with the career and life in the long run (Centre of Development and Resources for Students, 2013). At the end of the programme, there were prospective students who had clear objectives about the career they chose; there were also students who were unsure about why they chose a particular direction and career. It is essential, then, to investigate the reasons that influence applicants as they choose dentistry as their occupation. This would ensure that the time and resources invested by the individuals, family, community, and government would be appropriately utilized (McHugh et al., 2011).

The choice of a professional career is often a careful decision made for a number of reasons by potential students (Zadik et al., 1997). The ten reasons for choosing dentistry as a career as well as how students' demographic backgrounds could influence these factors were assessed and analysed in this study. 'Helping others/altruism', 'medical/health care', and 'interest in surgery' were rated as the top three factors that influenced the decision of dentistry as career. These results concur with those found by Tanalp et al. (2011).

In other studies, professional status and financial reward were found to be equally important for potential dental students in their decision to choose dentistry as a career (Crossley and Mubarik, 2002). Interestingly, the financial reward was shown to be relatively unimportant in this study. In fact, the 'dentist as a professional' was considered to be a much more important factor than 'financial reward' (which was ranked as the second least important, just before 'advice from family or friends'). This could be explained by the current job market and economy in Hong Kong, which is one of the most important business centres in the world. Hong Kong is one of the most important global financial centres. Students leaving secondary schools who seek higher-income careers are more likely to be attracted to the financial industries. It is plausible that students who are interested in dentistry are most likely to have an appreciation for professionalism and an aspiration to devote themselves to serve the community from a non-profitable point of view (as opposed to being focused on the financial reward).

It is noteworthy that the students ranked ‘advice from family or friends’ as the least important of the ten influencing factors. This indicated that most of the students choose a career in dentistry on their own, without much influence from their families, relatives, or friends. In fact, young people in Hong Kong tend to choose their career primarily based on their personal will and consideration instead of being influenced by others (Hong Kong Federation of Youth Group, 2010). Additionally, parents are less traditional and more likely to let their children choose what they want to do with their lives. This corresponds with the results of a study about Canadian students. These individuals did not indicate that their families influenced their choice of dentistry as a career. However, a study in Japan found that Japanese students were strongly influenced by their families when choosing a career in dentistry (Karibe et al., 2007). The traditional culture of obedience in Japan and independence under the Westernised identity of the Hong Kong people might have contributed to these findings.

Previous studies reported that male and female students tended to score their consideration of influencing factors differently (Bernabe et al., 2006; Scarbecz et al., 2002). For example, female students scored empathetic reasons, such as caring and helping people, higher than males did. This study, however, showed no significant gender difference in the scores of all ten influencing factors. This could be because Hong Kong promotes gender equality policies and practices through the sex discrimination ordinance (Wu, 2007) and Equal Opportunities Commission. The Faculty of Dentistry at the University of Hong Kong has also admitted more or less the same number of male and female students over the years (Chu et al, 2013).

There are two main pathways of admission entry to study dentistry in Hong Kong. Candidates undertaking the Hong Kong senior qualification can be admitted through the Joint University Programmes Admissions System (JUPAS). The non-JUPAS pathway is taken by international students. These local international school students have completed senior qualifications such as the General Certificate of Education (UK) or the International Baccalaureate (IB) programme. Historically, approximately two thirds of the first year students entering the BDS were admitted through the JUPAS (Chu et al., 2013), with the remainder coming from local international schools or holding a first degree from Hong Kong or overseas. This study suggests that non-JUPAS international qualification students may place a higher importance on the

experiential aspects of dentistry—both as an applied field as well as from their own successful experiences as dental patients—than JUPAS students. Of the influencing factors for becoming a dentist, ‘past experience with dentist’ and ‘working with hands’ were considered more significant by students studying in international schools than those in local schools. Future investigations should focus on why the experiential aspects of dentistry would be more appealing to international students. One last interesting finding is that, with the exception of the slightly higher rating given to ‘intellectual challenge’ by students below the age of 18 (40%) than those above 18 years-old (39%), mature-aged and students in international schools (non-JUPAS) generally tended to put a higher emphasis on the other nine influencing factors.

Conclusions

Most students were satisfied with the summer programme and the majority of them found it useful in assisting their considerations as to whether to take up dentistry as their career. They liked the hands-on workshops and the clinic observations more than the problem-based learning tutorials and lectures. For those who wanted to make dentistry their career, ‘altruism’, ‘medical/health care career’, and ‘interest in surgery’ were the three most important influencing factors. The importance of the influencing factors was not associated with gender. However, ‘altruism’ and ‘past experience with dentist’ were considered to be more important by those aged 18 or above, whereas ‘past experience with dentist’ and ‘working with hands’ were considered more important by the international school students.

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