*Eur J Dent Educ 2006; **10**: 2–9*

EUROPEAN JOURNAL OF
Dental Education

Representations of the dental surgery profession and the motivations given by second-year French students for applying for dental surgery

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Aim: The aim of the present study was to evaluate the representations odontology students had of their career path. Second-year odontology students were questioned about their own motivations and the motivations they attributed to dentists in choosing this profession.

Methods: The students were asked to complete a questionnaire during the first course and again after 5 months. It was thus possible to study the evolution of their motivations after 5 months of interactions with their fellow students and professors.

Results: Whether or not students were able to choose their career path following the selection examination at the end of the first year of the medical programme was an important variable in determining individual motivations and the motivations they attributed to dentists in choosing the dental profession. For example, students who were unable to choose their career path reported that they would like to work in the public health system, while those who were able to choose said they chose odontology as a vocation. The closing of the gap between the two groups during the period between the two questionnaires highlighted the increasing cohesion of the group.

Conclusion: Beyond the differences between the motivations provided, this study showed that students who had not planned to become dentists before the selection examination needed some time to familiarise themselves with the situation and accept the change in their career path.

Key words: odontology; psychology/psychopedagogy; social representation; professional education; motivations.

Accepted for publication, 14 June 2005

In France, the odontology programme lasts 5 years and begins after 1 year of general medical studies. At the end of the year of general studies, a selection examination determines whether students are accepted into dentistry or medicine, each programme being restricted to a certain number of students. The distribution of the students between the medical and the dental faculties is based on the results of the selection examination and varies from year to year. Those with the worst results have no choice but to accept the remaining places, whether in the dental or medical programme.

During group discussions about the best way to teach difficult restorative dental techniques to second-year students, we suspected that the selection process disturbed the equilibrium between the representations and motivations of students and teachers, which is essential to establish an effective training climate (1).

The motivations of students for choosing dentistry as a career has been studied in many countries, as it has effect of social background, race, gender and country (2–8). For example, a recent study showed that motivation depends on race in America. African-American students are more motivated to serve the public while Caucasian-American students are more motivated to become dentists based on factors related to family commitments (9).

There are major changes in professional representations during the course of a programme (10). Student representations and perceptions of the dental surgery profession also tend to change. This is quite clear from a student website (French language; http://odonto.sante.univ-nantes.fr/www.dentaire.sante.univ-nantes.fr/vie_assoc_etud/parole.html): *[The] few students, who begin the year disappointed, come to see their future with enthusiasm; despite an extremely hard second year*' This phenomenon has been studied by many researchers and, with the exception of one (11), all have shown that the attitudes and representations of many students evolve during the course of the programme (12–15). For example, Bourrassa (16) showed that the representations of odontology students of potentially stressful situations evolve over the years. Skelly and

Fleming (17) explored the impressions of final year undergraduate students and potential entrants of the dental profession. They concluded that final year students have a less idealistic view of dentistry because of their increased knowledge of the positive aspects of private practice and job stresses. These changes in student representations are most often correlated with improved technical skills and more practical knowledge.

Odontology faculties as social groups may also influence student representations through integration and differentiation mechanisms (18) (‘*dentists are a bit like a clan*’). Integration into a group is, for individuals, a means of evolving personally, interacting with others and comparing themselves with people they meet. On the contrary, differentiation is the means by which individuals set themselves apart from the group into which they are integrated and demand recognition of their uniqueness.

When incoming students interact with professors and fellow classmates, the social influence leads to the development of a group identity. Individual perceptions of events and others are largely dependent on the group to which they belong (19, 20). Conformism is the mechanism by which individuals gradually or suddenly modify their behaviour, attitudes and opinions to bring them into line with what they perceive are the behaviours, attitudes and opinions of the group they want to integrate. Once the group exists, its members share a social norm that defines positive and negative behaviours, attitudes and values (20). The mechanisms of social influence allow students, when they enter the faculty, to build their self-image both as students and as future dentists based on the models with which they can identify or conform professionally.

This study examined the specificity and evolution of the representations of odontology students. The questions addressed by this study are multiple. What representations do the students have of dental surgeons? How do these representations evolve during their studies? Did the students feel comfortable or uncomfortable with the proposed professional model?

The objective of this study was to evaluate the representations odontology students have with respect to the dental profession and dentists at the beginning of the dental programme and how they evolved during the first 5 months of the programme.

Materials and methods

Two questionnaires were designed by the authors. Both were anonymous and were composed of 50 questions about the programme and the expectations, motivations and opinions of the students as well as about certain educational aspects. The questionnaires used the forced-choice technique. The present article only analyses the answers to three questions regarding the choice of odontology as a career path and professional motivations (Fig. 1).

The first question, which was related to the choice of odontology as a career path, identified two groups, that is, students who answered ‘no’ (‘no choice’ NC group) and students who answered ‘yes’ (‘choice’ C group).

Questions 2 and 3 explored the motivations for entering the profession in order to obtain subjective representations and the personal points of view of the students regarding dentists and the perceived fit between the norms of dentists and their own.

Students were asked to choose two arguments from 10 possible answers. The 10 answers were divided into two categories of arguments: (i) appeal of the medical profession, i.e. ‘meticulous manual work’, ‘vocation’, ‘caring for teeth’, ‘entering the public health system’, ‘teaching dental hygiene’ and (ii) appeal of the social standing of the profession, i.e. ‘money and standard of living’, ‘private practice’, ‘peer and family pressure’, ‘prestige’. The answer ‘length of programme’ did not correspond to the above arguments and was labelled ‘other’.

The questionnaires were distributed to students entering the dental programme (2001—2002). They answered the 15-min questionnaires individually. The first questionnaire (Q1) was distributed during their first restorative dentistry course in October 2001. The second questionnaire (Q2) was distributed 5 months later in February 2002. Seventy-five students completed the two questionnaires.

The results were analysed by the chi-squared test of the Statistica software platform (StatSoft, Maisons-Alfort, France) with $P < 0.05$.

Results

Ranking in the selection examination and choice of odontology

For question 1 (‘Did you choose odontology as your career path?’), 41.3% (Q1) and 45.3% (Q2) of the students answered ‘no’. Two groups were thus identified in the subsequent statistical analysis, that is, students who answered ‘no’ (NC group) and students who answered ‘yes’ (C group). The answers of five students changed between Q1 and Q2.

Q1 (October2001): The purpose of the questionnaire you have just received is to match as closely as possible the second-year practical training courses with your knowledge and expectations. It is totally anonymous and will only be of use to us if you answer the questions as honestly as possible.

Thank you for taking a few minutes to answer the questions.

Q2 (March 2002): The purpose of this second questionnaire is to update your impressions of your second-year practical training courses. It is totally anonymous and will only be of use to us if you answer the questions as honestly as possible.

Thank you for taking a few minutes to answer the questions.

1. Your **choice of odontology**

Did you choose odontology as your career path?

- ❑ Yes
- ❑ No

2. According to you, what are the **two main motivations of dentists** for choosing their profession?

- ❑ a Vocation
- ❑ b Money and standard of living
- ❑ c Private practice
- ❑ d Teach hygiene and disease prevention
- ❑ e Take care of teeth
- ❑ f Prestige
- ❑ g Enter the public health system
- ❑ h Peer and family pressure
- ❑ i Meticulous manual work
- ❑ j Length of programme

3. What are **your two main motivations** for choosing this profession?

- ❑ a Vocation
- ❑ b Money and standard of living
- ❑ c Private practice
- ❑ d Teach hygiene and disease prevention
- ❑ e Take care of teeth
- ❑ f Prestige
- ❑ g Enter the public health system
- ❑ h Peer and family pressure
- ❑ i Meticulous manual work
- ❑ j Length of programme

Fig. 1. Introduction to the two questionnaires distributed to students (Q1 in October 2001 and Q2 in March 2002) and questions that were analysed for the purposes of this article.

Why do dentists become dentists?

Table 1 shows the frequency of the various answers proposed in question 2 for both questionnaires. Fig. 2 is a graph of the results in two categories.

Questionnaire Q1

Groups C and NC differed significantly ($\chi^2 = 79.18$, $P < 0.001$). While the C group prioritised 'standard of living', 'private practice' and 'meticulous manual

TABLE 1. Distribution (%) of answers to question 2 'according to you, what are the two main motivations for dentists in choosing their profession?' as a function of questionnaire (Q1 and Q2) and group (C and NC)

	Questionnaire Q1, October 2001		Questionnaire Q2, March 2002	
	NC group	C group	NC group	C group
Money and standard of living	22.95	24.39	29.41	25.61
Private practice	19.67	26.83	22.06	19.51
Vocation	19.67	10.98	5.88	21.95
Meticulous manual work	14.75	23.17	13.24	15.85
Enter the public health system	9.84	1.22	5.88	1.22
Take care of teeth	6.56	6.10	4.41	4.88
Teach hygiene and prevent disease	4.92	2.44	5.88	3.66
Length of programme	1.64	1.22	7.35	4.88
Prestige	0	1.22	4.41	1.22
Peer and family pressure	0	2.44	1.47	1.22
Total	100	100*	100	100*
Total social standing	42.62	54.88	57.35	47.56
Total medical practice	55.74	43.91	35.29	47.56

C for students who chose odontology and NC for students who did not choose odontology. The difference between the C and NC groups for the two questionnaires was statistically significant. The difference between the two questionnaires was statistically significant for the NC group only.
*$P < 0.01$.

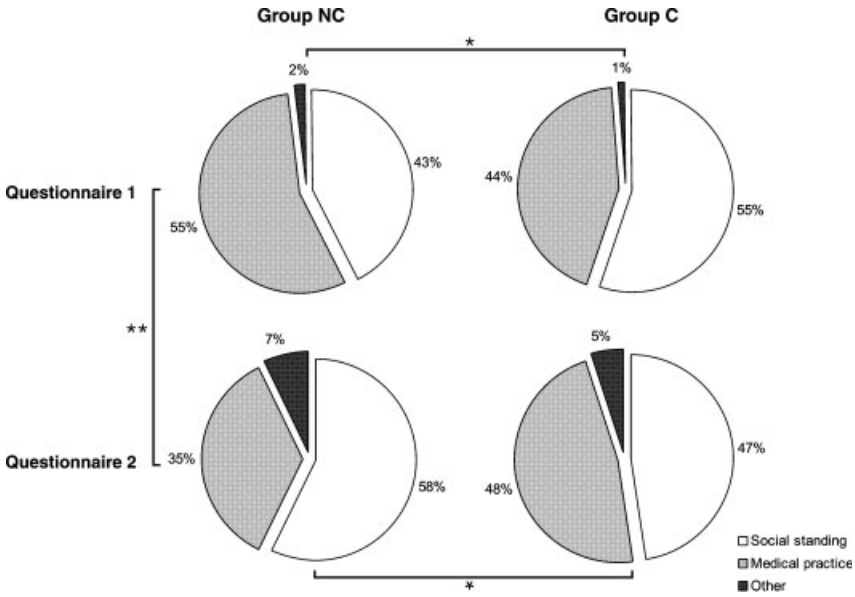

*Fig. 2. Distribution of answers (into three categories) to the question 'according to you, what are the two main motivations of dentists for choosing their profession?' The differences between the choice (C) and no choice (NC) groups with respect to Q1 and Q2 were statistically significant. The difference between Q1 and Q2 was statistically significant for the NC group only. C for students who chose odontology and NC for students who did not choose odontology; *$P < 0.05$ and **$P < 0.001$.*

work', the NC group replaced 'meticulous manual work' by 'vocation'.

The distribution of the two categories of responses varied between the two groups, with the C group citing more arguments with respect to their interest in health than the NC group ($\chi^2 = 6.07$, $P < 0.05$).

Questionnaire Q2

The responses varied according to the group (C vs. NC, $\chi^2 = 83.96$, $P < 0.001$). The C group most often cited 'standard of living', 'vocation' and 'private practice' while the NC group most often cited 'standard of living', 'private practice' and 'meticulous manual work'.

The difference between the groups was significant when the categorial responses were taken into consideration ($\chi^2 = 6.44$, $P < 0.04$). For the NC group, dentists were more motivated by the prestige of their profession, e.g. the appeal of 'social standing'.

Comparison of Q1 and Q2

For the C group, the differences in responses between Q1 and Q2 were not statistically significant. However, 'vocation' was cited more often in Q2. Also, there was no difference between the categorial responses for Q1 and Q2. For the NC group, the difference in responses between Q1 and Q2 was statistically significant ($\chi^2 = 48.36$, $P < 0.001$). The frequency of the 'social

TABLE 2. *Distribution (%) of answers to question 3 'what are your two main motivations for choosing this profession?'*

	Questionnaire Q1, October 2001		Questionnaire Q2, March 2002	
	NC group	C group	NC group	C group
Private practice	26.23	24.42	25	26.83
Meticulous manual work	21.31	29.07	20.59	28.05
Money and standard of living	18.03	20.93	25	19.51
Enter the public health system	18.03	3.49	17.65	0
Teach hygiene and prevent disease	6.56	2.33	2.94	3.66
Vocation	3.28	10.47	1.47	12.20
Take care of teeth	3.28	4.65	1.47	3.66
Prestige	3.28	1.16	1.47	1.22
Peer and family pressure	0	1.16	0	0
Length of programme	0	2.33	4.41	4.88
Total	100	100*	100	100
Total social standing	47.54	47.67	51.47	47.56
Total medical practice	52.46	50.01	44.12	47.57

C for students who chose odontology and NC for students who did not choose odontology. The difference between the C and NC groups was statistically significant for Questionnaire Q1 only. The difference between the two questionnaires was statistically significant for the NC group only.
*$P < 0.01$.

standing' arguments increased significantly, generating an inversion of the proportion of categorial responses ($\chi^2 = 20.1$, $P < 0.001$).

In summary, the response to question 2 depended on whether or not the students had been free to choose their career path (groups C and NC). In addition, the responses for Q1 and Q2 were statistically different for the NC group, which was not the case for the C group.

Motivations of students for becoming dentists

Question 3 asked the students about their motivations for choosing odontology (Fig. 1). Table 2 presents the frequency with which the various motivations were cited.

Questionnaire Q1

The difference between groups C and NC was statistically significant ($\chi^2 = 83.63$, $P < 0.001$). The C group frequently cited 'meticulous manual work', 'private practice' and 'standard of living'. 'Vocation' was in fourth position. The NC group cited 'private practice', 'meticulous manual work', 'entering the public health system' and 'standard of living'. 'Entering the public health system' was only cited by the NC group, while 'vocation' was almost never cited by this group.

Questionnaire Q2

The difference between groups C and NC was somewhat attenuated and was no longer statistically significant. The responses of the C group did not change from Q1 to Q2. The closing of the gap between groups C and NC was thus mainly because of changes in the responses of the NC group ($\chi^2 = 17.56$, $P < 0.03$). In this group, 'standard of living' and 'length of the programme' were cited much more often in Q2 than in Q1.

Motivations of the students and the motivations they attributed to dentists

The responses to questions 2 and 3 provided by groups C and NC were compared. For Q1, the C group gave similar responses to both questions. The difference between the motivations of the students and those they attributed to dentists was not statistically significant. For the NC group, however, the students cited different motivations for themselves than for dentists ($\chi^2 = 97.66$, $P < 0.001$).

For Q2, the difference between the responses to questions 2 and 3 was statistically significant for the two groups (C: $\chi^2 = 17.41$, $P < 0.05$; NC: $\chi^2 = 41.5$, $P < 0.001$). Among the four most commonly cited responses to the two questions, the students attributed the motivations of 'vocation' and 'standard of living' to dentists while they attributed 'meticulous manual work' and 'entering the public health system' to themselves.

Discussion

In this study, the students were questioned about the motivations that they attributed to dentists, i.e. their perceived motivations of practitioners. In a comparable study, Wittemann and Currier (21) reported that good salary and community reputation are often cited. In the present study, whether or not students chose odontology following the first-year selection examination could clearly be linked to distinct representations

of the motivations that lead dentists to choose their profession. While the students who chose to enter the faculty cited 'social standing' as did those in Wittemann and Currier's study (21), they also mentioned arguments related to 'medical practice'. On the contrary, students who had not chosen odontology often attributed 'vocation' to dentists, that is, an abstract notion of attraction, a general inclination for the profession. Arguments related to 'social standing' were less frequently cited. When compared with their peers, these students thus had an idealised view of the motivations of dentists, that is, they attributed an attraction for dentistry to them rather than a desire for a better social standing. After 5 months, the students who had not chosen odontology reversed their representations, which became dominated by a very pragmatic and somewhat mercenary view of the motivations of dentists, abandoning the idea of 'appeal of the medical profession'. The difference between the two groups remained significant, which suggests that the second-year students did not share a common representation.

Student motivations for entering the dental programme have already been studied (2–9). Our goal was to determine whether there were any differences between students who chose dentistry and those who did not. The responses to Q1 differed between the two groups. Those who mentioned that they had chosen their career path cited, by a large majority, arguments that fit perfectly with the dental profession and that indicated a good match between motivations and career path. However, students who did not choose their career path mostly checked answers that were non-specific and that applied to many medical professions ('entering the public health system', 'private practice'). However, the fact that they checked 'meticulous manual work' revealed their willingness to provide motivations that were compatible with odontology. This result indicates that the motivations for entering the odontology programme depended on the students' initial decision, as Romberg et al. (6) observed with students with dentist and non-dentist parents and with Butters and Winter (9), who studied the correlation with race.

Five months after the first questionnaire, the responses of the NC group had changed. Modifications of attitudes and representations are frequent over the course of a programme. For example, Skelly and Fleming (17) showed that representations of the programme and the profession differ between successful dental faculty applicants and senior students. They reported that applicants perceive a dental career as a positive contribution to the society, think learning mathematics is useful and consider manual skills as part of being a 'good dentist'. Wittemann and Currier (13) also observed differences among four classes of dental students with regard to their most important motivations. They reported that the changes occurred with 5 months and only concerned students who had not chosen their career path. The mention of the 'social standing' argument increased while arguments related to 'medical practice' decreased slightly. These changes led to the disappearance of the difference between the two groups. This indicates that a common norm had developed in the 5 months between the two questionnaires (20). The normalisation phenomenon must be praised because sharing the same representations ensures the long-term cohesion of the group (20, 22). For example, one student wrote the following: '*personally, I wanted to be a veterinarian but the idea of dentistry as a vocation came during an internship. I don't regret anything*' (http://www.mediajunior.com/).

The majority of the students adopted material motivations between the two questionnaires. The working conditions and social status of dentists were often given as the reason for choosing dentistry as a career. For instance, Scarbecz and Ross (4) reported that self-employment and business-related motives are frequently cited. Hallissey et al. (8) listed perceived ease-of-employment, being self employed, working regular hours, the chance to earn a good income and the opportunity to help people as reasons for entering the dental profession. Casada et al. (12) also reported that students place greater value on passing the licensing examination and personal satisfaction whereas faculty (instructors) place greater value on patient care. The Vigild and Schwarz (7) study is the only one to our knowledge to attribute altruistic motivations to students entering a dental programme.

Comparing the motivations given by the students for themselves and the motivations they attributed to practitioners allowed us to determine the correlation between the representations students had of themselves and of the reference group, i.e. dentists. Wittemann and Currier (23) reported that the motivation perceived by dental students as important for dentists is 'salary' whereas their self-motivation is 'to learn to develop a full potential'. In the present study, the motivations given by dental students for themselves also differed from those they attributed to dentists. In Q1, the correlation was good for students who had chosen their career path. The dentists were a strong reference group with which the students identified by interiorising its values and representations (19, 24). The students who indicated that they had been forced

to take this career path mentioned, and this is logical, different motivations than those they attributed to practitioners. 'Vocation' was cited more often as a motivation for dentists and non-specific motivations such as 'entering the public health system' for themselves, indicating that these students did not identify with dentists.

After 5 months, both groups gave different motivations for themselves and for dentists. Students who had chosen their career path made a significant distinction between the motivations they gave for themselves and for dentists. This pointed to a differentiation of the students with respect to the 'practitioner membership group'. Students feel that they belong to this social group and can therefore set themselves apart by several nuances (19). Subtle difference can arise from their desire to conserve their uniqueness and freedom with respect to dentists, i.e. the membership group. Students who did not choose their career path gave responses that did not lead to a greater correlation between the motivations students gave to themselves and to dentists. Integration into a dental faculty seems difficult for these students and some continue to have trouble feeling comfortable in the profession and defining the models with which they can identify (19, 25).

Conclusions

Second-year students could, for all intents and purposes, be divided into two groups depending on whether or not they were free to choose odontology following the selection exam. This phenomenon is of major psychological importance insofar as half the students did not choose their curriculum. As Jouquan (25) noted, the outcome of the examination forced the students to accept, in the event of failure, a change in their career path. On the contrary, it is important to limit the number of students who discover too late that clinical dentistry is not for them.

The goal of our research is to make teaching staff aware that they should not ignore the fact that some of their students do not choose the programme and thus do not have a reliable, stable representation of the profession. Professors must thus, in addition to teaching the technical aspects, explain the profession and bring students to appreciate it (26). This does not have to result in a greater workload but does require being attentive to the task of communicating their own passion for the profession. Defining a goal and setting and attaining objectives make it easier for students to succeed and become dentists. To achieve this, we must ensure that the representations of students should match with those of the professors.

Acknowledgements

We would like to thank Dr Nicolas Ferrari and Séverine Dubuc for their valuable assistance and the Cercle Européen de Dentisterie Restauratrice et d'Endodontie for its support.

References

1. Altet M. Les pédagogies de l'apprentissage. Paris: Presses Universitaires de France, Collection Education et Formation, 2003.
2. Chattopadhyay A, Deol RS. Reasons for choice of dentistry as a career in Calcutta: a survey report. Indian J Dent Res 1990: 2: 140–144.
3. Brand AA, Chikte UM. Choosing dentistry as a career – part 1: a comparison of student motives. J Dent S Afr 1992: 47: 469–473.
4. Scarbecz M, Ross JA. Gender differences in first-year dental students' motivation to attend dental school. J Dent Educ 2002: 66: 952–961.
5. Grogono AL, Lancaster DM. Factors influencing dental career choice. A survey of currently-enrolled students and implications for recruitment. J Am Coll Dent 1988: 55: 30–35.
6. Romberg E, Kutcher MJ, Moreland EF. Career decision of pre-dental students: influence of dentist and nondentist parents. J Md State Dent Assoc 1984: 27: 120–124.
7. Vigild M, Schwarz E. Characteristics and study motivation of Danish dental students in a longitudinal perspective. Eur J Dent Educ 2001: 5: 127–133.
8. Hallissey J, Hannigan A, Ray N. Reasons for choosing dentistry as a career – a survey of dental students attending a dental school in Ireland during 1998–99. Eur J Dent Educ 2000: 4: 77–81.
9. Butters JM, Winter PA. Professional motivation and career plan differences between African-American and Caucasian dental students: implications for improving workforce diversity. J Natl Med Assoc 2002: 94: 492–504.
10. Moliner P. Dynamique naturelle des représentations sociales. Cah Int Psychol Soc 1998: 40: 62–70.
11. Reid AE. Dental education and early careers of Canadian dentists: changes in attitudes, aspirations, and behavior. J Dent Educ 1978: 42: 618–622.
12. Casada JP, Willis DO, Butters JM. An investigation of dental student values. J Am Coll Dent 1998: 65: 36–41.
13. Wittemann JK, Currier GF. Professional motivation: a follow-up of student's, practitioner's and dental faculty motives. Va Dent J 1974: 51: 28–36.
14. Sherman JJ, Cramer A. Measurement of changes in empathy during dental school. J Dent Educ 2005: 69: 338–345.
15. McCunniff MD, Holmes LG. Evaluation of attitudes – dental class of 1991: a nine-year longitudinal study. J Am Coll Dent 1999: 66: 20–28.
16. Bourassa M. Dentisterie comportementale: manuel de psychologie appliquée à la médecine dentaire. Paris: Frison-Roche, 1998.

17. Skelly AM, Fleming GJ. Perceptions of a dental career among successful applicants for dentistry compared with those of fifth-year dental students. Prim Dent Care 2002: 9: 41–46.
18. Goode WJ. Community within a community: the professions. Am Sociol Rev 1957: 22: 194–200.
19. Aebischer V, Oberlé D. Le groupe en psychologie sociale. Paris: Dunod, 1990.
20. Hogg M. The social psychology of group cohesiveness: from attraction to social identity. London: Harvester Wheatsheaf, 1992.
21. Wittemann JK, Currier GF. Motives to enter the dental profession: student's, practitioner's, faculty. J Dent Educ 1976: 40: 265–268.
22. Moscovici S, Hewstone M. Social representation and social explanation. In: Hewstone M, ed. Attribution theory. Oxford: Blackwell, 1983: 98–125.
23. Wittemann JK, Currier GF. Professional motivation: a comparison of dental students' self motives and their perceived motives of practitioners. Va Dent J 1973: 50: 15–22.
24. Sherif M, Sherif CW. An outline of social psychology. New York, NY: Harper and Brothers, 1956.
25. Jouquan J. Le choix des étudiants candidats aux études de médecine: enjeux sociaux et pédagogiques d'une décision académique. Pédagog Méd 2003: 4: 5–8.
26. Cromley NL, Haisch MA. Mentoring: a professional responsibility. J Contemp Dent Pract 2002: 3: 1–9.

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