Pairing as an instructional strategy to promote soft skills amongst clinical dental students

N. H. Abu Kasim1,2, N. L. Abu Kassim3, A. A. A. Razak1,2, H. Abdullah1,2, P. Bindal1, Z. A. Che’ Abdul Aziz1, E. Sulaiman1, M. S. Farook1, M. A. G. Gonzalez1,2, Y. L. Thong1, N. A. Ahmad1,2, Z. Naimie1,2, M. Abdullah1, J. L. Lui1 and A. Abdul Aziz1

1 Department of Conservative Dentistry, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia, 2 Dental Education Research Group, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia, 3 Kulliyyah of Dentistry, International Islamic University, Kuantan, Malaysia

Keywords
soft skills; clinical pairing; clinical dental students.

Abstract
Training dentists today is challenging as they are expected to provide a wide range of dental care. In the provision of good dental care, soft skills are equally important as clinical skills. Therefore in dental education the development of soft skills are of prime concern. This study sought to identify the development of soft skills when dental students are paired in their clinical training. In this perception study, four open-ended items were used to elicit students’ feedback on the appropriateness of using clinical pairing as an instructional strategy to promote soft skills. The most frequently cited soft skills were teamwork (70%) and communication (25%) skills. However, both negative and positive behaviours were reported. As for critical thinking and problem solving skills, more positive behaviours were reported for abilities such as to explain, analyze, find ideas and alternative solutions, and make decisions. Leadership among peers was not evident as leading without legitimate authority could be a hindrance to its development. If clinical pairing is to be used as an effective instructional strategy to promote soft skills amongst students, clear guidelines need to be developed to prepare students to work in a dental team and the use of appropriate assessment tools can facilitate the development of these soft skills.

Introduction
Dentists today are sophisticated health professionals who are expected to provide a wide range of dental care contributing to the quality of their patients’ day-to-day lives. It is the common goal of dental programmes to produce graduates who are first, competent in basic and clinical sciences, capable of delivering quality dental care to all sectors of the population, and last but not least, committed to high moral and professional conduct. Whilst it is important for faculty members to bring new discoveries into the daily education, attention must also be given to the development of normative competence or soft skills as these skills are equally critical in ensuring patients’ psychological, physical, social needs and well-being (1, 2).

In balancing the development in these areas, the provision of an appropriate learning environment, especially in the clinical settings, is vital. In the clinics, dental students could be assigned to treat their patients singly or being assisted by a dental nurse or a fellow student. In 1994, Qualtrough (3) reported the implementation of four-handed dentistry, where students work in pairs as operator and assistant in restorative dentistry at pre-clinical and clinical levels at the University of Manchester, England. This change was carried out to address issues of patient safety, cross-infection, limited number of dental nurses and also to lower the staff:student ratio. This approach inevitably places greater emphasis on the importance of teamwork during the provision of dental care and at the same time nurtures the development of other relevant normative competences or soft skills such as communication, leadership and professionalism amongst dental students.

Normative competence or soft skills, according to Bergh et al. (2), are considered to include ‘interpersonal and social skills in a caring, professional doctor–patient relationship, communication skills and professional and ethical attitudes’. Lowther et al. (4) refer to these skills, or what they termed as ‘normative capabilities’, as those skills that are generic and which describe the manner in which technical skills are delivered. These normative capabilities or soft skills are classified as (i) life skills, (ii) interpersonal and communication skills, (iii) business management and (iv) ethical skills. According to these
authors, life skills include the ability to organise, analyse, solve and self-manage; as well as having research skills and the commitment to lifelong learning. Interpersonal communication, on the other hand, involves the ability to resolve conflict, negotiate, listen and defend as well as to work as a team. Business and management pertains to the ability to delegate, motivate, lead, manage people, as well as having the ability for strategic planning, entrepreneurship and business acumen. Those related to ethical skills deal with integrity, objectivity, public interest, social responsibility, professional and legal compliance, to name a few.

Different categories of normative competences or soft skills have been chosen to be included in the graduating dentist profile of different countries depending on the need of their population (5, 6). At the General Assembly of the Association of Dental Education in Europe in 2009, it was agreed that all European Dental Schools must adhere to 17 major competences. Professionalism (Domain I – professional attitude and behaviour, and ethics and jurisprudence), interpersonal, communication and social skills (Domain II), and knowledge base, information and information literacy (Domain III) were amongst the domains identified, which represent the various categories of soft skills within the dental professional activities (5). Embedded within these domains were other soft skills categories including teamwork, critical thinking and problem solving, leadership and practice management. Similarly in 2011, the American Dental Education Association also identified these soft skills as competences for their ‘New General Dentist’ (6).

Cognizant of the importance of soft skills in all fields of study and profession, the education and assessment of soft skills have also become an important element in higher education programmes in Malaysia (7). Based on research data and expert opinion, the Ministry of Higher Education, Malaysia (MOHE) identified seven soft skill areas (Table 1), with several elements to be incorporated into the undergraduate and postgraduate curricula of all institutions of higher education (8).

Although many studies regarding soft skills have been undertaken in medical education (2, 9–11), limited work has been published with regards to dental education and the ones published have mainly focused on interpersonal and communication skills (12, 13). Given the importance of soft skills for effective dental practice and the emphasis placed on these skills by MOHE, this study first aims to examine the use of soft skills by dental students as they are paired in the conservative dentistry clinics and second, to identify the areas of soft skills that have been developed and yet to be developed for successful dental clinical practice. Although other data collection techniques such as observations may provide more objective information, students’ own personal opinion of their experience working in pairs is equally valid and particularly vital when unspoken feelings and thoughts could not be overtly observed.

Methodology

A questionnaire adapted from Qualtrough (14) was used to obtain feedback from dental students on their perception of working in pairs during conservative dentistry’s clinical sessions at the Faculty of Dentistry, University of Malaya. Four open-ended questions were included in the questionnaire to elicit information on the perceived development and use of soft skills during pairing. This strategy was used to obtain responses that are more meaningful based on the students’ own personal experience and feelings. A total of 148 (70 third year and 78 fourth year) dental students participated. Individual responses (n = 443) obtained from the four open-ended questions (Table 2) were analysed. Although, MOHE has outlined seven soft skill areas (Table 1), this study focused only on five soft skills as they were the ones reported on by the students and are therefore considered to be most relevant to clinical pairing. All individual responses were interpreted and coded into the appropriate soft skill areas, matching each of the individual elements, by all lecturers of the department (n ~ 17). The responses were further coded to differentiate between those that represent positive behaviours and those that represent negative behaviours. Positive behaviours are taken to be indicative of successful development of the relevant soft skills, whereas negative behaviours are those that are problematic and have yet to be developed. Some responses were coded into more than one soft skill area as they reflected multiple soft skills. An independent evaluator further validated the judgement process. Data were analysed using SPSS Statistical Package (version 17). The multiple response set procedure was used to calculate the frequencies of each soft skill element/s.

Results

The responses, coded as either positive or negative soft skill-related behaviours (Tables 3 and 4), were tabulated and categorised into five soft skills areas: communication (n = 112), critical thinking and problem solving (n = 17), teamwork (n = 310), ethics and professional moral (n = 1) and leadership (n = 3). As a whole, there were more responses on positive behaviours (n = 233) compared with those related to negative behaviours (n = 210). However, this difference was only marginal. In terms of the distribution of responses across the soft skill areas, the behaviours that were most frequently reported either positively or negatively were those related to teamwork and communication. A small number were related to the other three soft skills, with critical thinking and problem solving having the highest number (n = 17).

The responses were further coded into specific soft skill elements to ascertain if respondents are utilising soft skills within the prescribed elements identified by MOHE when working in pairs during their clinical sessions (Fig. 1). As illustrated in Fig. 1 for teamwork skills, the ability to build good relations, interact with others and work effectively together to achieve the same objectives was seen by many students to be a positive outcome of pairing (n = 107). This was followed by the ability to contribute towards the planning and coordination of the team’s efforts (n = 55). These two skills were also reported by a significant number of students as problematic, particularly, with regards to the ability to plan and coordinate team effort (n = 74). Comments on the negative behaviours related to these two skills (Table 4) include, ‘partner is always late’, ‘partner is not committed’, ‘difficulty in discussion’ and ‘poor time management’. Comments on positive behaviours (Table 3), on the other hand, include ‘enhance operator efficiency’, ‘better patient management’ and ‘less stress on the operator’.

© 2013 John Wiley & Sons A/S. Published by John Wiley & Sons Ltd Eur J Dent Educ 18 (2014) 51–57
For critical thinking and problem solving skills, more positive behaviours were reported for abilities such as to explain, analyse, find ideas and alternative solutions and make decisions. The only skill considered to be lacking was the ability to persevere and fully concentrate on a given task. Examples of negative behaviours in relation to this skill are ‘partner is inattentive’, ‘partner doesn’t concentrate’ and ‘partner is not helpful’.

In general, the skills that were reported to be most lacking were those relating to the ability to negotiate and reach an agreement; the ability to develop interpersonal communication skills; the ability to contribute towards the planning and coordination of the team’s efforts; and the ability to supervise team members. These skills had elicited more negative comments than positive ones.

**Discussion**

Students’ responses on the four open-ended questions leaned more towards positive behaviours than negative behaviours. Although pairing in clinical teaching had been implemented in other dental schools, such as in Belfast, Bristol and Sheffield (3), only Qualtrough reported its implementation based on the Manchester’s experience (14). In her study, she explored students’ acceptance and adaptation (14). In this study, the use and development of soft skills within the context of clinical pairing were investigated. The use of the open-ended questions...
TABLE 3. Representative responses coded as positive behaviours in the soft skill elements

<table>
<thead>
<tr>
<th>Soft skills</th>
<th>Elements</th>
<th>Positive behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication skills</td>
<td>The ability to practise active listening skills</td>
<td>We can share problems together with our partners</td>
</tr>
<tr>
<td></td>
<td>and provide feedback</td>
<td>Sometimes we can use partners experience as a guide</td>
</tr>
<tr>
<td></td>
<td>The ability to present clearly with confidence and appropriate to the level</td>
<td>Learn from partner’s cases and also mistakes from each other</td>
</tr>
<tr>
<td></td>
<td>of the listener</td>
<td>For pairs to share ideas</td>
</tr>
<tr>
<td></td>
<td>The ability to negotiate and reach an agreement</td>
<td>To present better management of patients</td>
</tr>
<tr>
<td></td>
<td>The ability to develop interpersonal communication skills</td>
<td>Enables operator to train assistant in future</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Our work becomes more organised</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To foster cooperation between students</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To enhance operator efficiency</td>
</tr>
<tr>
<td>Critical thinking &amp; Problem solving</td>
<td>The ability to find ideas and alternative solutions</td>
<td>Learn to communicate and work with people</td>
</tr>
<tr>
<td>skills</td>
<td></td>
<td>Improve our relationship with partner, lecturer and other</td>
</tr>
<tr>
<td></td>
<td>The ability to develop and improve thinking skills such as to explain,</td>
<td>Communication with partner makes work more interesting</td>
</tr>
<tr>
<td></td>
<td>analyse, and evaluate discussions</td>
<td>Can share knowledge and experience with partner</td>
</tr>
<tr>
<td></td>
<td>The ability to persevere as well as to fully concentrate on a given task</td>
<td>Get some ideas if there is a problem</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can get advice from partner</td>
</tr>
<tr>
<td>Team work skills</td>
<td>The ability to build good relations, interact with others and work</td>
<td>Different opinions make a good result</td>
</tr>
<tr>
<td></td>
<td>effectively with them to achieve the same objectives</td>
<td>We can share the opinions</td>
</tr>
<tr>
<td></td>
<td>The ability to contribute towards the planning and coordination of the</td>
<td>Partner can correct if operator is wrong</td>
</tr>
<tr>
<td></td>
<td>team’s efforts</td>
<td>Operator can pay full attention to the patient to complete treatment faster</td>
</tr>
<tr>
<td>Ethics &amp; Professional Moral Skills</td>
<td>The ability to practise ethically, apart from being responsible</td>
<td>Better concentration</td>
</tr>
<tr>
<td></td>
<td>towards the society</td>
<td>Operator can sit still, can concentrate on his/her work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Our work becomes more organised</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Able to work in a stress-free environment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Better infection control and impression making</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient treatment and clinical procedures are more easily executed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Better work coordination between operator and assistant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To achieve better quality and quantity of work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Partner can correct if operator is wrong</td>
</tr>
</tbody>
</table>

Based on Qualtrough’s validated instrument (14) gave students the freedom and flexibility to express their opinions in a non-restrictive way. However, an unanticipated drawback of the item format was the focus on particular soft skills.

Cowpe et al. (5) highlighted a number of competences for graduating European dentists, including the following normative competences or soft skills; communication, problem solving, team building, leadership, professionalism and social interaction. Manoque et al. (15) also emphasised the importance of communication skills, professionalism and expressed behaviours as part of the learning outcome in undergraduate European dental education. In this study, a large number of responses were associated with teamwork and communication skills, indicating that these were foremost in the students’ mind with regard to clinical pairing.

Although the students recognised the value of working in a team, there were considerable problems in their interaction as indicated by the large number of negative responses. In a clinical session, students must identify their different but complementary roles, to achieve efficiency in patient care. This lack of understanding may have affected their working relationship. The learning opportunities provided by clinical pairing also may not have been recognised. Clinical pairing was introduced to respond to the problem of inadequate number of dental chairs and students may have taken this as an administrative decision to be followed, with no consideration of its benefits in teaching and learning. The ability to adapt to the situation and the role reversals between assistant and operator may have affected the nature of their interactions.

A similar observation is reported in Qualtrough (14) that although the students at the University of Manchester exhibited the ability to work as a team, the underlying partner problems were inevitable. She maintained that working together well is a skill that has to be learned and should be a fundamental consideration in the dental curricula. Brodsky et al. also underscore the importance of formal training to develop teamwork skills. Their study, which investigated the effect of formal teamwork training and team-based practices in neonatal intensive care, found significant improvement in teamwork, communication skills, support and respect for one another, sharing of information and greater situation awareness (16).

Ezziane et al. (17) suggested that barriers to effective team performance need also be identified in order to achieve successful teamwork. In our study, one major barrier could be students treating their own individual patients rather than
the treatment of shared patients. A study on teamwork in interprofessional cooperation between dentists and dental hygienists recommended that the planning and treatment of shared patients should be a part of the education programme as the shared responsibility would encourage positive interac-
Pairing as a strategy to promote soft skills

Abu Kasim et al.

Assessment may also contribute to students’ perception of what is important and not. The students in our dental school are assessed individually, as an operator, not as an operator-assistant partnership team. An assessment of the operator and assistant, as a team, may encourage greater responsibility and enhance team performance in the provision of dental care. Assessment of soft skills through direct observations of clinical and OSCEs is also another viable strategy for the development of soft skills (19).

Effective communication leads to a more cohesive team, and this assists the team leader in coordinating team activities thus reducing stressful situations (20). We observed that the operator rarely explains the treatment plan to the assistant in the clinics. At the same time, the assistant may have the lackadaisical attitude of not being concerned to find out more from the operator as to the management of the patient. The development of communication skills also requires formal training; however, proper planning needs to be carried out as studies have shown that students have negative and positive attitudes towards communication skills training (21–24). Our findings also raise the need to more adequately address the development and integration of communication skills in dental education (25, 26).

In contrast to communication and teamwork, there were a smaller number of responses related to leadership skills, and critical thinking and problem solving skills. Student’s immediate concerns were their working relationship with their partners and the effect of this on their productivity. These responses were expected as the system of assessment at the faculty is requirement driven. Additionally, the lack of focus on these soft skills could be due to the difficulty of clearly identifying them. This is in line with the results of a study reporting that students have difficulty knowing how to show that they practise critical thinking (27).

Students’ difficulty with leadership skills may be explained by how ‘a peer’ is defined. Webster (28) defined a peer as ‘a person or thing of the same rank, value, quality, ability, etc’. As the respondents were peers at the same level of study, the development of leadership skills is challenging. Leadership without legitimate authority requires particular leadership skills and competencies (29). Successful development of leadership skills in nursing education focused on pairing students with differing academic or experience level (27, 30, 31), where legitimate authority could have been an important factor. Given the absence of legitimate authority, students may find working together as a team difficult.

At our faculty, different departments undertake the teaching of professional ethics. This may have led to the compartmentalisation of skills and the lack of transfer to the clinical setting. Competences related to professionalism and ethics, hence, should be developed in a structured and comprehensive manner if students are to recognise its relevance to dental practice. Students need to see that clinical training is not only to develop their clinical knowledge and skills, but also a means to instil professionalism and ethical standards required for the provision of high-quality patient care. An important goal of dental education is to develop a professional attitude and rely on ethics and moral values within the dental profession and the society at large (32–34).

Conclusion

In examining the perception of soft skills amongst dental students, teamwork and communication were the most prevailing. This study also showed that pairing could potentially be used as an instructional strategy to develop soft skills amongst dental students; however, a qualitative research approach may provide better insight in understanding dental students’ development and use of soft skills in their clinical practice.

Acknowledgement

We would like to acknowledge the contribution of Professor Toh Chooi Gait and the dental students who participated in this study. This study was supported by Grant No. RG100/09 HTM, University of Malaya, Kuala Lumpur, Malaysia.

References