Role-play in Endodontic Teaching: a Case Study

Wen Kai JIANG[1#], Di Ya WANG[2#], Gui Cai LIU[3], Mei Qin GAO[4], Long Xing NI[1], Tie Cheng ZHANG[5], Dong Mei XV[6], Han Tang SUN[1,6]

Objective: *To investigate the role of the application of role-play in endodontic study in improving the communication skills of Chinese dental undergraduates prior to their direct interactions with patients at the Fourth Military Medical University's School of Stomatology, China.*
Methods: *Students were recruited from the 5-year bachelor's programme (n = 36) and randomly divided into six groups, and from the 8-year DDS programme (n = 10) and randomly divided into two groups to participate in the role-play training. Cases selected randomly from the case pool were distributed to the groups. The teacher gave an outline of the roles in the simulation. Each member of each group randomly selected their own role for the role-play. Four types of surveys were distributed to students and faculty members at different points after the role-plays had taken place, to evaluate their attitude towards the use of role-plays in endodontic study. Frequency analysis and a one sample t test were used to describe and analyse students' acceptance of role-play as a teaching technique. The level of statistical significance was set at $P < 0.05$.*
Results: *Students' performance and satisfaction as well as the supporting faculty responses were very favourable towards role-playing. In total, 93.5% of students responded favourably to the role-play, answering 'strongly agree' or 'agree' to the positive statements about their role-play performance. A total of 95.1% of students stated that they had benefited psychologically and technically from the role-play ('strongly agree' or 'agree') after their 1-year rotating internship.*
Conclusion: *The application of role-play in endodontic study is an effective way of educating Chinese dental undergraduates and can be beneficial for their transition from students to dentists.*
Key words: *communication skills, dental education, endodontic study, role-play, teaching technique*
Chin J Dent Res 2020;23(4):281–288; doi: 10.3290/j.cjdr.b867891

1 State Key Laboratory of Military Stomatology & National Clinical Research Centre for Oral Diseases & Shaanxi Key Laboratory of Stomatology, Department of Operative Dentistry & Endodontics, School of Stomatology, Fourth Military Medical University, Xi'an, P.R. China.
2 Department of Occupational and Environmental Health and the Ministry of Education Key Lab of Hazard Assessment and Control in Special Operational Environment, School of Public Health, Fourth Military Medical University, Xi'an, P.R. China.
3 Department of Oral and Maxillofacial Surgery, Nantong Stomatological Hospital, Nantong, Jiangsu province, P.R. China.
4 Department of Orthodontics, Nantong Stomatological Hospital, Nantong, Jiangsu province, P.R. China.
5 Department of Anaesthesiology, Nantong Stomatological Hospital, Nantong, Jiangsu Province, P.R. China.
6 Department of Operative Dentistry and Endodontics, Affiliated Nantong Stomatological Hospital, Nantong University, Nantong, Jiangsu Province, P.R. China.
# These authors contributed equally to this work.

Corresponding authors: Drs Wen Kai JIANG and Han Tang SUN, School of Stomatology, Fourth Military Medical University, No.145 Western Changle Road, Xi'an 710032, P.R. China. Tel: 86-29-84776476; Fax: 86-29-84776476. Email: jwkhappy@hotmail.com; hantang@fmmu.edu.cn

This study was supported by the National Natural Science Foundation of China (81700951), Nantong Municipal Foundation for Social and Technology Research of China (MS12018070), 333 Talent Fund of Jiangsu Province (BRA2019204).

Simulation is increasingly used for teaching and training in dental education in western countries, not only for practising techniques and procedures but also in history taking, patient counselling, clinical reasoning and patient management[1,2]. Due to rapid economic growth in China, the Chinese government is able to support dental education more extensively. For example, an increasing number of dental schools are now equipped with procedural simulation systems such as Clinism (Morita, Osaka, Japan), which have facilitated preclinical procedural training, thus giving dental undergraduates greater self-confidence when faced with real patients in their subsequent rotating internship[3].

However, dealing with patients is a complicated process that involves not only treatment but also history taking, patient counselling, clinical reasoning and diagnosis, with the latter processes accomplished particularly through interaction with patients. Therefore, communication is the basis for a good dentist–patient relationship and is of vital importance for developing mutual trust and exchanging beneficial information[4]. Effective dentist–patient communication skills tend to enhance patient satisfaction, increase patients' likelihood of following practitioner recommendations, decrease patients' anxiety and fear of dental treatment, and reduce complaints and malpractice claims[5]. In western developed countries like Germany, successful dentist–patient communication is increasingly becoming a central learning objective at medical schools[6,7]. For example, at the Medical Faculty of the Ruprecht Karl University of Heidelberg, Germany, medical students take part in longitudinal communication training that also encompasses training with simulated patients to ensure they have the necessary time to practice communication skills[8]. In China, traditional dental education patterns mainly include the typical 5-year bachelor's programme and the innovative 8-year DDS programme. Unfortunately, neither programme has paid sufficient attention to the importance of communication skills training, which in turn has led to countless misunderstandings between patients and internship undergraduates, thereby undermining the self-confidence of dental undergraduates during their rotating internship.

Role-play is a teaching technique that allows students to explore realistic situations by interacting with other people in a managed way to develop experience and trial different strategies in a supported environment[9]. With role-play in endodontic teaching, students might play the role of a dentist or a patient. Both options provide the possibility for significant learning, with the former allowing experience to be gained and the latter encouraging the student to develop an understanding of the situation from the 'opposite' point of view[3]. Role-play training is an efficient and cost-effective way to enhance undergraduates' ability to interact with patients. Therefore, this article aims to describe the attempt to use role-play in endodontic teaching at the Fourth Military Medical University School of Stomatology (FMMUSS), China, in order to help dental undergraduates gain experience in dealing with patients and build their self-confidence.

Materials and methods

Background

The FMMUSS was formerly the Central University School of Dentistry (before 1949). After the establishment of the People's Republic of China, it was integrated into the Fourth Military Medical University and got its current name. It is the only school in China that produces military dental clinicians for the People's Liberation Army and, thanks to its history, facilities, research achievements and capability to offer the most advanced dental education, it is also regarded as one of the top five dental schools in China (along with Beijing University School of Stomatology, Sichuan University West China School of Stomatology, Shanghai Jiaotong University School of Stomatology and Wuhan University School of Stomatology).

Although clinical dental practice entails performing operative procedures on patients, dentistry at the FMMUSS did not attach sufficient weight to laboratory work courses before the 21st century due to a lack of necessary equipment. Since 2004, the establishment of a new technologically advanced learning facility has promoted experimental educational programmes at the FMMUSS. The new educational facility is termed an 'educational centre' and includes several modern lecture halls and a procedural simulation laboratory equipped with sixty Clinism dental procedural simulation systems. The introduction of preclinical training in simulated dental learning environments has significantly enhanced the teaching and learning in the undergraduate programme.

Clinical dental practice is challenging for students. Competence in performing operative procedures, adequate communication skills and professionalism are essential for positive interaction with patients. Although the ability to interact with patients is of great importance for undergraduates' rotating internship, traditional dental education patterns place little importance on dentist–patient interaction in China. Therefore, the pre-

Table 1 Participant numbers by average age, sex and response rate.

Participant group	Total	Average age	Gender		Response rate
			Male	Female	
5-year programme students	36	22	26	10	100%
8-year programme students	10	23	7	3	100%
Junior students	46	21	30	16	100%
Faculty members	10	40	6	4	100%
Total	102		69	33	

clinic role-play training in endodontics was intended for the dental undergraduates who were going to complete a rotating internship.

Subjects

The protocol for this research was reviewed by the Institutional Review Board for the Protection of Human Subjects (IRBPHS) at the FMMUSS (permission number IRB-REV-2011-017).

The details of the participating students and faculty members are shown in Table 1. The FMMUSS admits an average of 36 students in every year group and follows the typical 5-year bachelor's curriculum as determined by the Chinese Ministry of Education and Ministry of Health. This study involved dental students who were in their fourth year between 2011 and 2012 and were randomly divided into six groups. Besides the 36 students on the typical 5-year programme, 10 students on the 8-year DDS programme also participated in the study. The latter 10 students were in their fifth year of the DDS programme between 2011 and 2012 and were randomly divided into two groups.

Several junior lecturers from the Department of Operative Dentistry and Endodontics were engaged as tutors (faculty assistants) for the role-play groups, senior faculty members (professors and associate professors) from the same department were invited to be commentators, experts from the FMMU (including those from the School of Stomatology) as well as some dental students on their rotating internship were engaged as evaluators, and junior dental students of the two programmes were invited to be part of the audience.

Schedule

Operative Dentistry and Endodontics, as one of the important subjects in the Chinese dental education system, is generally offered in the fourth year of the 5-year programme and the fifth year of the 8-year programme. In the first stage of this study, students learned about the aetiology, pathophysiology, clinical manifestation, diagnosis and treatment of pulpal and periapical diseases through the traditional form of lectures and laboratory workshops.

The second stage involved case analysis and discussion directed by faculty members. The cases used for analysis were selected from a pool of cases established by the department based on observation of dental practitioners in China. At this stage, faculty members controlled the steps in the process, during which theoretical knowledge acquired from lectures was reviewed in a vivid way.

Then came the first student-orientated stage, case presentation. The students were divided into groups and cases selected from the case pool were distributed to the groups, before the members of each group gathered to discuss the history and clinical manifestation of the case to reach diagnostic and treatment decisions. Slides were prepared using PowerPoint (Microsoft, Redmond, WA, USA) and one member of each group gave a presentation on behalf of their group. During the presentation, members of the other groups could ask questions and members of the presentation group could give explanations. If there was any uncertainty about the issues in question, the teacher would intervene as a commentator.

Role-playing was the final step in this study. Cases randomly selected from the case pool were distributed to the groups. The teacher gave an outline of the particular roles in the simulation (dentist, dental assistant, patient and patient's relative), prepared the scenario (waiting room, dental clinic), described the aim (demonstration of good or poor communication skills, introduction of treatment process, time and cost, etc.) and indicated the types of personalities to be displayed (elderly, distrusting, arrogant, authoritarian). The outline provided sufficient information and a description of the situation for each group member to interpret the inter- and intrapersonal features of the simulation. Each group member randomly selected their own role: two acted as dentist and dental assistant, two as patient and patient's relative, and one or two were in charge of the voiceover and slide presentation, respectively. After each group had finished their role-play, one of the commentators was asked to give a comment and the group had to answer at least one question from the audience. Members of

Table 2 Evaluation sheet related to different roles for the committee members.

Role	Item for evaluation	Weighting	5-year programme students (mean ± SD)	8-year programme students (mean ± SD)	Significant?
Patient and relative	Accuracy of description of history and symptoms	15	11.53 ± 3.83	9.50 ± 0.67	No (P = 0.076)
	Appropriateness of bodily gestures related to disease (e.g. crying)	15			
	Attitude to dentist and assistant	10			
Dentist and assistant	Competency in history taking	10	9.47 ± 2.61	9.40 ± 5.27	No (P = 0.941)
	Ability to simulate oral examination	10			
	Correct diagnosis (reasons for diagnosis must be given)	10			
	Explanation of treatment plan can be easily understood	20			
	Attitude to patient and relative	10			

Table 3 Evaluation sheet related to different scales for the committee members.

Scale	Item for evaluation	Weighting	5-year programme students (mean ± SD)	8-year programme students (mean ± SD)	Significant?
Theoretical and technical	Accuracy of description of history and symptoms	15	11.17 ± 2.53	7.45 ± 1.85	Yes (P < 0.01)
	Appropriateness of bodily gestures related to disease (e.g. crying)	15			
	Competency in history taking	10			
	Ability to simulate oral examination	10			
	Correct diagnosis (reasons for diagnosis must be given)	10			
Social and ethical	Attitude to dentist and assistant	10	8.69 ± 3.76	12.75 ± 4.83	Yes (P < 0.01)
	Explanation of treatment plan can be easily understood	20			
	Attitude to patient and relative	10			

the evaluation committee scored the role-play based on their opinion on how well it was performed.

Evaluation

The questionnaires were developed based on the issues between the patients and internship undergraduates during the clinical clerkship and the feedback from the mentors and students who participated the role-play session before. These questionnaires therefore have an assessment value.

The evaluation of each group's role-play performance was based on the scores given by the evaluation committee members, with social consideration and theoretical accuracy ranked as the most important items. The items were divided into two: those related to the patient and relative were numbered 1, 2 and 3 and those related to the dentist and assistant were numbered 4, 5, 6, 7 and 8 (Table 2). Additionally, to gain insight into the various components of the activity, the items shown in Table 2 were intuitively divided into two scales: those related to the social and ethical scale were numbered 3, 7 and 8 and those related to the theoretical and technical scale were numbered 1, 2, 4, 5 and 6 (Table 3).

An eight-item survey was distributed to the students who participated in the role-play after their performance, to investigate their impressions of its success (Table 4).

An eight-item survey was distributed to the junior students who had acted as the audience, to ask them how they felt about the performance (Table 5).

One year later, at the end of their endodontic internship, an eight-item survey was distributed to the students who had participated in the role-play, to investigate whether or not the role-play had had a positive impact on their internship (Table 6). An eight-item

Table 4 Student evaluation of the role-play (n = 46).

Statement	SA (score = 5)	A (score = 4)	N (score = 3)	D (score = 2)	SD (score = 1)	TS (1671)
I am satisfied with my work in the role-play	12 (26.1%)	32 (69.6%)	2 (4.3%)	0 (0.0%)	0 (0.0%)	194
The knowledge I gained contributed much to the role-play	20 (43.5%)	23 (50.0%)	3 (6.5%)	0 (0.0%)	0 (0.0%)	201
My words could be easily understood by nonprofessionals	9 (19.6%)	27 (58.7%)	10 (21.7%)	0 (0.0%)	0 (0.0%)	183
I expressed enough respect to my dentists/patients	24 (52.2%)	14 (30.4%)	8 (17.4%)	0 (0.0%)	0 (0.0%)	200
The mentoring by faculty members was important for success	22 (47.8%)	24 (52.2%)	0 (0%)	0 (0.0%)	0 (0.0%)	206
I learned much from the experts' comments	31 (67.4%)	15 (32.6%)	0 (0%)	0 (0.0%)	0 (0.0%)	215
I think this experience will benefit my coming internship	38 (82.6%)	7 (15.2%)	1 (2.2%)	0 (0.0%)	0 (0.0%)	221
It will be a pleasure to be invited as a referee next year	13 (28.3%)	33 (71.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	197

A, agree; D, disagree; N, neutral; SA, strongly agree, SD, strongly disagree; TS, total score.

Table 5 Junior student evaluation of the role-play (n = 46).

Statement	SA (score = 5)	A (score = 4)	N (score = 3)	D (score = 2)	SD (score = 1)	TS (1583)
I have seen a dentist before	39 (84.8%)	4 (8.7%)	3 (6.5%)	0 (0.0%)	0 (0.0%)	220
I am afraid to see the dentist due to a lack of related knowledge	8 (17.4%)	38 (82.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	192
This activity is innovative and I have never seen anything like it before	19 (41.3%)	25 (54.3%)	2 (4.3%)	0 (0.0%)	0 (0.0%)	201
I gained some knowledge about my speciality from the role-play	13 (28.3%)	32 (69.6%)	1 (2.2%)	0 (0.0%)	0 (0.0%)	196
The words the actors used could be easily understood	4 (8.7%)	30 (65.2%)	12 (26.1%)	0 (0.0%)	0 (0.0%)	176
I learned much from the experts' comments	24 (52.2%)	22 (47.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	208
I would be glad to participate in this activity in the future	15 (32.6%)	31 (67.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	199
This activity made me more aware of my speciality	7 (15.2%)	39 (84.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	191

survey was also distributed to the faculty members in the Department of General Dentistry who were responsible for the supervision of students' endodontic internship, to determine whether the students' communication skills had improved since their last classes (Table 7).

To complement the survey results, we analysed students' and mentors' evaluations of the role-play in endodontic teaching. We defined 'strongly agree' as a score of 5, 'agree' as 4, 'neutral' as 3, 'disagree' as 2 and 'strongly disagree' as 1, then calculated the total score for each question. The data were analysed using SPSS version 21.0 (IBM, Chicago, IL, USA). Frequency analysis and a one sample *t* test were used to describe and analyse students' acceptance of role-play as a teaching technique. The level of statistical significance was set at 0.05.

Results

Eight groups, comprised of six groups of students on the 5-year programme and two groups of students on the 8-year programme, took part in the role-play (Table 1). In the final analysis, responses of 'strongly agree' and 'agree' were combined, as were 'strongly disagree' and 'disagree'.

Overall, there was no statistically significant difference between the students from the two programmes ($P > 0.05$) (Table 2). The groups of students on the

Table 6 Student evaluation of the effects of the role-play on their rotating internship (n = 46).

Statement	SA (score = 5)	A (score = 4)	N (score = 3)	D (score = 2)	SD (score = 1)	TS (1706)
The role-play relieved my nervousness about my internship	24 (52.2%)	21 (45.7%)	1 (2.2%)	0 (0.0%)	0 (0.0%)	207
I can take a comprehensive history even when it is complicated	39 (84.8%)	5 (10.9%)	2 (4.3%)	0 (0.0%)	0 (0.0%)	221
The communication skills I learned from the role-play are useful	29 (63.0%)	13 (28.3%)	4 (8.7%)	0 (0.0%)	0 (0.0%)	209
Most of the time I could make a correct diagnosis	25 (54.3%)	20 (43.5%)	1 (2.2%)	0 (0.0%)	0 (0.0%)	208
My explanation could be easily understood	32 (69.6%)	11 (23.9%)	3 (6.5%)	0 (0.0%)	0 (0.0%)	213
Most of my patients accepted my treatment plans	35 (76.1%)	6 (13.0%)	5 (10.9%)	0 (0.0%)	0 (0.0%)	214
My attitude towards the patients was very good	31 (67.4%)	15 (32.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	215
I think the majority of patients trust me	37 (80.4%)	7 (15.2%)	2 (4.3%)	0 (0.0%)	0 (0.0%)	219

Table 7 Evaluation by faculty members who were mentoring students' endodontic internship (n = 10).

Statement	SA (score = 5)	A (score = 4)	N (score = 3)	D (score = 2)	SD (score = 1)	TS (400)
Student–patient conversations were more constructive	10 (100%)	0 (0.0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	50
Patients' history was recorded in greater detail	10 (100%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	50
More communication skills were used	10 (100%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	50
Correct diagnosis rate increased	10 (100%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	50
Students' explanations were easily accepted	10 (100%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	50
Students' attitude towards patients was better	10 (100%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	50
Student–patient conflicts decreased	10 (100%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	50
Appreciation from patients increased	10 (100%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	50

8-year programme received higher scores on the social scale, while the groups of students on the 5-year programme scored higher on the technical scale ($P < 0.01$) (Table 3).

The eight-item survey showed that students responded favourably to the role-play. Evaluations showed a positive attitude towards the use of role-play with regard to items 1 (95.7%), 2 (93.5%), 5 (100%), 6 (100%), 7 (97.8%) and 8 (100%); however, a considerable number of students were not fully confident regarding items 3 (78.3%) and 4 (82.6%), which were related to their words and attitude during the clinical scenarios (Table 4). Nevertheless, students expressed great satisfaction with the role-play.

The junior students who were engaged as audience members also showed high enthusiasm for the activity, and agreed with almost all the items shown in Table 5, while the score they gave item 5, "The words the actors used could be easily understood", was relatively lower (total score 140, strongly agree and agree 73.9%), implying that they were not very familiar with the dental terminology. Compared to the total score for Table 5 (1583), the score for Table 4 was significantly higher (1671; $P < 0.05$), which demonstrates that role-play can improve senior students' communication skills and application of dental knowledge.

The results from the surveys of the mentors and students after the students' 1-year rotating internship were encouraging. The students' responses showed that they had benefited psychologically and technically from the role-play (Tables 6 and 7). Compared to the total score for Table 4 (1671), the score for Table 6 was significantly higher (1706; $P < 0.0001$), which demonstrates that after 1 year of clinical clerkship, senior students can better understand role-play scenarios and are more able to communicate with patients (especially comparing item 3 [183] in Table 4 with item 5 [213] in Table 6 [$P < 0.0001$]). The comments from the faculty members indicated that students demonstrated a dramatic improvement in quality from previous years.

Discussion

Previous research has demonstrated that the teaching of communication skills is best suited to methodologies other than traditional lectures[10]. In the western world, communication skills are taught to medical and dental students via a series of methods such as role-play, recorded video scenarios and standardised patients (SPs)[11-14]. Role-play has been used successfully in the medical and dental curricula as part of these methods. It has been reported that role-play is cited as a teaching methodology used by two-thirds of dental schools in the UK[15,16].

In developing countries like China, however, role-play is still in the preliminary phases of execution in most institutes[17], which has resulted in frequent misunderstanding between patients and undergraduates during rotating internships. This role-play was organised to help dental undergraduates enhance their communication skills and gain self-confidence in their rotating internship. The present study confirms previous findings by demonstrating that the use of role-play proved to be very encouraging; students expressed high levels of enjoyment and great satisfaction with the exercise.

The positive effects of role-play on rotating internships were also proved by the results of the survey completed by the mentors and students after the 1-year rotating internship, especially the mentor comments. For a long time, faculty members responsible for supervision of rotating internships complained about the difficulty of correcting students' behavioural errors, a major cause of which may be the fact that the majority of students came from one-child families and this put them at a disadvantage in learning how to deal with others and society[18]. During the preparation of the role-play, however, their behaviours were improved by the mentors and they gradually learned a great amount about patient communication.

Overall, role-play seems to be a valid way to improve dental students' communication skills if we accept that time for the preparation and performance of the role-play was so limited. Most of the students, especially those on the 5-year programme, lacked confidence in their words and attitude during the clinical scenarios, which implied the necessity of early intervention in social and ethical education for medical and dental students. In some western countries, students must complete 2 to 4 years of study of social and scientific subjects prior to admission to medical and dental schools, which enables students to acquire some communication skills before they deal with medical or dental knowledge; in China, however, medical and dental students are recruited directly from high school and have not learned about interpersonal interaction[19]. Therefore, for students to gain more social experience, it is suggested that the current curricula framework should undergo an extensive transformation, such as by offering social and ethical subjects in high school or in the early stages of undergraduate study. As the students on the 8-year programme (who had finished 1 year of study of social and scientific subjects before learning biomedical and dental sciences) got higher scores on the social scale, it can be concluded that even a minor adjustment can have a noticeable effect on students' social skills. Additionally, the number of students who participated in the role-play was limited due to the particularity of the FMMUSS, as only a limited number of students are enrolled each year. However, role-play would be regarded as a conventional teaching method in endodontic teaching for dental undergraduates at the FMMUSS to further evaluate the effect of role-play on improving dental students' communication skills.

The junior students who were engaged as audience members gave a relatively lower score to item 5 in Table 5, which suggests that two problems remain to be solved. First, after 1 year of studying their speciality, students' dental knowledge was adequate to deal with patients, but they were not sufficiently able to convert professional knowledge into simple language, even after a short period of extensive training from the faculty members. For example, they were accustomed to using the term 'dental pulp', whereas patients in China were used to calling the same tissue 'tooth nerve'. The aim should be for students to use simple and clear language rather than technical terminology in patient interactions since jargon may act as a barrier to communication, and thus impair the dentist–patient relationship and make the patient afraid to ask questions for fear of appearing 'stupid'. As a result, the power dynamic of the relationship would be altered: instead of the power being equal with the patient actively involved in the process, it becomes not so much patient-centred as clinician-centred[2]. Therefore, the clinical clerkship and role-play session should be scheduled earlier in the third year accompanied with 1 year of studying their speciality so that third-year students have the opportunity to learn from their internship mentors about how to deal with real patients. They can learn simple and clear language rather than technical terminology in real clinical scenarios and try to practise and use it skilfully in a role-play setting. From the results for item 5 in Table 6, it can be concluded that the year of interaction with patients had greatly changed students' language habits.

Second, early professional education needs strengthening, since it seemed that the junior students were

not very familiar with dental terminology. Despite there having been controversy regarding the extent to which early professional education should intervene in junior dental students' education, some institutes in China began attempting to provide early professional education to junior dental students several years ago[20]. It is unnecessary and indeed impossible to introduce all diseases to junior students, thus our suggestion is that students should receive an extensive introduction to diseases that greatly affect people's daily life. For example, pulpitis has a high prevalence in China and affects people's daily life significantly. Thus, it is suggested that pulpitis be chosen as a typical disease in the Introduction to Dental Science that is offered in the first year of the 5-year programme, so that students can explain it to others when necessary.

Conclusion

The aim of using role-play in endodontic study was to move towards student-centred learning in China. Although the number of students who participated in the role-play trial was limited, the use of role-play was perceived as a positive experience by the participants and may serve to enhance students' communication skills prior to their direct interactions with patients.

Acknowledgements

The authors thank Prof Jian Yong DUN at the Air Force Engineering University of the People's Liberation Army for his critical review of this manuscript and acknowledge Mrs Xiu Rui HAO at the Department of Operative Dentistry and Endodontics, FMMUSS, for the construction of surveys and other technical assistance.

Conflicts of interest

The authors declare no conflicts of interest related to this study.

Author contribution

Drs Wen Kai JIANG and Han Tang SUN designed the paper and collected the data, and all authors participated in the critical review and preparation of the manuscript and read and approved the final manuscript.

(Received Feb 22, 2020; accepted Jun 18, 2020)

References

1. Marei HF, Al-Jandan BA. Simulation-based local anaesthesia teaching enhances learning outcomes. Eur J Dent Educ 2013;17:e44–e48.
2. Curtin S, McConnell M. Teaching dental students how to deliver bad news: S-P-I-K-E-S model. J Dent Educ 2012;76:360–365.
3. Croft P, White DA, Wiskin CM, Allan TF. Evaluation by dental students of a communication skills course using professional role-players in a UK school of dentistry. Eur J Dent Educ 2005;9:2–9.
4. Murthy V, Sethuraman KR, Choudhury S, Shakila P. Developing prosthodontic residents' communication strategies with edentulous patients: a pilot study. J Dent Educ 2017;81:1351–1361.
5. Rindlisbacher F, Davis JM, Ramseier CA. Dental students' self-perceived communication skills for patient motivation. Eur J Dent Educ 2017;21:166–174.
6. Fischer MR, Bauer D, Mohn K, NKLM-Projektgruppe. Finally finished! National Competence Based Catalogues of Learning Objectives for Undergraduate Medical Education (NKLM) and Dental Education (NKLZ) ready for trial. GMS Z Med Ausbild 2015;32:Doc35.
7. Rüttermann S, Sobotta A, Hahn P, Kiessling C, Härtl A. Teaching and assessment of communication skills in undergraduate dental education - a survey in German-speaking countries. Eur J Dent Educ 2017;21:151–158.
8. Alvarez S, Schultz JH. A communication-focused curriculum for dental students - an experiential training approach. BMC Med Educ 2018;18:55.
9. Cheung GS, Dimmer A, Walker RT. The use of role-play and psychodrama in the education of the dental undergraduate. Aust Dent J 1992;37:20–22.
10. Bligh JG. Trends in medical education. Eur J Dent Educ 1998;2:2–7.
11. Deveugele M, Derese A, De Maesschalck S, Willems S, Van Driel M, De Maeseneer J. Teaching communication skills to medical students, a challenge in the curriculum? Patient Educ Couns 2005;58:265–270.
12. Saab BR, Usta J, Major S, Musharrafieh U, Ashkar K. Communication skills in a Lebanese medical school: from movie theaters to medical classrooms. Fam Med 2005;37:90–92.
13. Barney C, Shea SC. The art of effectively teaching clinical interviewing skills using role-playing: a primer. Psychiatr Clin North Am 2007;30:e31–e50.
14. Yedidia MJ, Gillespie CC, Kachur E, et al. Effect of communications training on medical student performance. JAMA 2003;290:1157–1165.
15. McManus IC, Vincent CA, Thom S, Kidd J. Teaching communication skills to clinical students. BMJ 1993;306:1322–1327.
16. Yip HK, Barnes I. Learning in dental education. Eur J Dent Educ 1997;1:54–60.
17. Ahsen NF, Batul SA, Ahmed AN, et al. Developing counseling skills through pre-recorded videos and role play: a pre- and post-intervention study in a Pakistani medical school. BMC Med Educ 2010;10:7.
18. Yang J, Zhang Y, Ye X, et al. Dental education evaluation in China: a systematic review. BMC Med Educ 2014;14:178.
19. Huang C, Bian Z, Tai B, Fan M, Kwan CY. Dental education in Wuhan, China: challenges and changes. J Dent Educ 2007;71:304–311.
20. Sun H, Yang J, Kawashima N, Li Y, Zhang W, Wang P. A brief comparison of curricula at dental schools in China and Japan. J Dent Educ 2012;76:765–773.