

ORIGINAL ARTICLE

## Using Role Play and Standardised Patients in Pre-clinical Communication Training: Attitudes and perceptions of dental undergraduates

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# Using Role Play and Standardised Patients in Pre-clinical Communication Training: Attitudes and perceptions of dental undergraduates

## ABSTRACT

The Faculty of Dentistry, National University of Singapore (NUS), introduced a revised communication training programme to develop undergraduates' competencies in dentist-patient communication. **Aim:** This study evaluates the programme's effectiveness in building confidence in communication skills and the attitudes of dental undergraduates towards using role play and standardised patients (SPs) to cultivate communication skills. **Methods:** Fifty-three second-year undergraduates who attended the programme were invited to complete a self-administered survey questionnaire. Data were entered into SPSS and analysed using descriptive statistics and cross-tabulations with McNemar tests. The level of statistical significance was set at  $p < 0.05$ . **Results:** The survey received a 73.6% response rate. The majority of the respondents (97.4%) appreciated the relevance of communication in clinical practice. They agreed that the programme had imparted effective dentist-patient communication skills to them and rated it with a mean score of 8.5 ( $SD = 1.0$ ). Only 8 respondents had been confident/somewhat confident of communicating with their patients before attending the programme, while 27 of them reported that they were somewhat confident/very confident after attending the programme (McNemar  $p < 0.001$ ). Close to 95% of the respondents felt that the SPs portrayed realistic real-life scenarios for them to practise communication. Close to 95% of the respondents also indicated that SPs were more effective than role play with peers in helping them achieve their learning objectives. A third of the respondents suggested an increase in engagement and interaction with SPs to enhance the programme. **Key Conclusion:** This study sheds light on how similar future programmes can harness a blend of role play and SPs to enhance the communication competencies of newly qualified dental surgeons.

## INTRODUCTION

Fundamental to undergraduate dental education is the acquisition of scientific knowledge and clinical skills to develop practice-ready clinicians upon graduation. Apart from the core clinical skills such as history taking, examination and diagnosis, treatment planning and execution of specific dental procedures, which are expected of a dental surgeon, equally crucial are dentist-patient communication skills, which are integral to good dental practice.

Brooks and Heath (1985) define communication as “the process by which information, meanings and feelings are shared by persons through the exchange of verbal and non-verbal messages” (p. 8). Good communication has been linked to better health outcomes (Street, Makoul, Arora, & Epstein, 2009). Dentists with effective communication skills are likely to enjoy greater patient satisfaction (Hannah, Millichamp, & Ayers, 2004). They are also better able to allay fear and anxiety commonly experienced by patients (Hannah et al., 2004), thereby making the latter more at ease in the dental clinic. Effective dentist-patient communication can also help to reduce a dentist’s risk of complaints or litigations from patients (Hannah et al., 2004; Mellor & Milgrom, 1995).

Many dental schools have thus invested resources to develop such skills as part of their undergraduate training. A key feature of such communication training is a structured curriculum with a skills-based approach, which has been shown to be more effective than one which is didactic (Hannah et al., 2004; Lane & Rollnick, 2007; Croft, White, Wiskin, & Allan, 2005).

This hands-on skills-based approach allows undergraduates to integrate and apply the skills more effectively (Bosse et al., 2012). Teaching methods involving the use of role play, standardised patients (SPs) and feedback from video recordings are commonly employed to support such an experiential approach in communication training (Lane & Rollnick, 2007; Croft et al., 2005; Bosse et al., 2012; Carey, Madill, & Manogue, 2010; Bosse et al., 2010). These methods facilitate interaction between the undergraduate and the “patient”, thus enabling the former to put the communication skills they have learned into practice.

In communication training programmes used in dental education, role play entails the personification, by undergraduates, of different patient personality archetypes, in various clinical scenarios. Their peers portray dentists engaging and communicating with their “patients”. Role play enables undergraduates

to communicate as both dentist and patient, as they switch between these roles (Bosse et al., 2010). While effective in offering an experiential learning opportunity, this method of delivering communication skills training has inherent challenges, one of which is the need to overcome the reluctance of students to fully engage in role play (Lane & Rollnick, 2007). This could result in a lack of authenticity of the clinical scenarios portrayed through such peer-to-peer interactions. Role play participants may therefore fail to assume their roles seriously enough to yield optimal learning outcomes in communication training (Lane & Rollnick, 2007).

The use of SPs presents an alternative teaching method for communication skills training. SPs are widely used for communication training in medical, nursing and dental education. Such patients are specially trained to assume the role of patients in specific clinical scenarios (Lane & Rollnick, 2007; Bosse et al., 2010). They behave as patients would in scenarios common in daily clinical practice. SPs have been shown to provide a sense of realism to the clinical interactions (Bosse et al., 2012), thus allowing trainees in the healthcare profession to apply their knowledge and skills in an almost real-world setting. Maguire and Pitceathly (2002) noted that trainers can also interact with SPs and thereby offer students an opportunity to critique the communication skills demonstrated and model those which are commendable. At the same time, SPs can also share their insights with the students from a patient's perspective. The use of SPs, they add, provide a controlled environment to simulate a variety of complex clinical interactions, and to develop a repertoire of communication skills (Maguire & Pitceathly, 2002).

The Faculty of Dentistry (FoD) at the National University of Singapore (NUS) introduced a new communication training programme in 2013 as part of its pre-clinical Behavioural Science training for its second-year undergraduates. The programme aimed to develop competencies in dentist-patient communication as part of overall patient management. It was delivered through the use of role play and standardised patient interactions, prefaced by a didactic component which comprised lectures.

This study describes the undergraduates' experience of the new FoD communication training programme, evaluates its effectiveness in building their confidence in communicating with patients, and assesses their perceptions of the use of role play and SPs as distinctive methods of cultivating dentist-patient communication skills.

## **MATERIALS AND METHODS**

### ***Exemption from ethics review***

This study was exempted from NUS Institutional Review Board (IRB) review (Ref: NUS-IRB Reference Code: B-14-023E dated 6 Feb 2014).

### ***Sampling***

All second-year undergraduates ( $n = 53$ ) enrolled in the FoD in Academic Year (AY) 2013/2014 were required to attend the communication training. They were invited to participate in this study at the end of the training. It was made explicit in the survey questionnaire that participation in the study was voluntary.

### ***Structure of training***

The undergraduates received a one-hour didactic lecture that provided the theoretical and cognitive framework of the training programme (Maguire & Pitceathly, 2002). The lecture aimed to raise their awareness of the scope of dentist-patient communications, highlight the significance of communication in clinical practice, as well as share essential communication skills for them to employ in the clinical setting.

Following this lecture, the undergraduates participated in two rounds of small group learning (SGL) (total of six hours) where they had hands-on practice in applying the communication skills taught during the lecture. At the start of each round of SGL, a half-hour lecture was conducted to reinforce practical ways to effectively communicate with patients. The undergraduates attending the SGL were then divided into groups of threes to engage in hands-on practice of the communication skills. A set of seventeen scenarios were developed for the two rounds of SGL to portray common dentist-patient encounters in the dental clinic.

Each scenario comprised a write-up on the background of the dentist-patient interaction and the key communication tasks expected of the “dentist” (e.g. express empathy and address dental fear of patients; eliciting reasons for the dental visit; discussing possible treatment options with patients). The undergraduates were exposed to the role play and standardised patient

methodologies of communication training during the SGL. Of the seventeen clinical scenarios, twelve were used for the role play and the remaining were for the SP interaction. The SPs were recruited through the Centre for Healthcare Simulation at the Yong Loo Lin School of Medicine, NUS. These “patients” were briefed about the scenarios and subsequently went through a two-hour training session. During the training, the SPs could assume their roles and engage with the staff from FoD who played the role of an undergraduate.

During the role play, the undergraduates, in their groups of threes, took turns to assume the role of a dentist and a patient. A peer observer would use a communication skills checklist as a guide to observe how the “dentist” engaged in an interaction with the “patient”. After that, the peer observer offered the “dentist” feedback on the communication skills displayed. Supervising faculty also provided feedback to the undergraduates portraying the role of the “dentist”.

For the standardised patient interaction, the undergraduate assuming the role of the “dentist” communicated with the patient while the other peers in the group observed. At the end of the interaction, the peer observers, SP, and supervising faculty offered the “dentist” feedback on the communication process.

### ***Survey questionnaire and data collection***

A cross-sectional survey using a self-administered anonymised questionnaire was conducted among the undergraduates at the end of two rounds of the SGL. The completed questionnaires were collected on the spot. An explanation of the study and invitation to participate had been given to the students. The questionnaire comprised 30 open- and closed-ended questions. Response formats for the questions included multiple-choice, Likert scales and free-text for the open-ended questions.

In developing the questionnaire, the Kirkpatrick model of evaluation (Alliger & Janak, 1989) was adapted to assess the impact of the programme. With this model, four perspectives were addressed:

- **Reaction:** Assessed how the undergraduates responded to the programme in terms of its method of delivery and implementation.
- **Learning:** Assessed the effect of the programme on deepening the undergraduates' understanding and appreciation of the importance of dentist-patient communication and key communication skills.
- **Behaviour:** Assessed the likelihood that the students will use the dentist-patient communication skills learned during the programme through a combination of appropriate proxy indicators.
- **Results:** Assessed the confidence of the students in using the dentist-patient communication skills.

### *Data Analysis*

Quantitative data were entered into SPSS (version 21) and analysed. Descriptive statistics and cross-tabulations using McNemar tests were used in the data analyses. The level of statistical significance was set at  $p < 0.05$ .

The qualitative data gathered from the free-response questions were listed verbatim and categorised into broad themes.

## RESULTS

### *Subject response*

Thirty-nine second-year undergraduates ( $n = 39$ ) completed and returned their questionnaires. This represented a response rate of 73.6%. About 90% of the returned questionnaires contained responses to a series of free-text questions. This facilitated an analysis of the broad themes related to the key lessons learned from the programme. It also allowed for a qualitative assessment of aspects of the programme the undergraduates enjoyed and ways to enhance it.

### *Overall experience of the programme*

Table 1 summarised the undergraduates' impression of the programme.

Table 1

*Overall impression of the dentist-patient communication training programme*

	Agree	
	<i>n</i>	%
The Small Group Learning (SGL) sessions deepened my understanding of the principles of effective dentist-patient communication.	38	97.4
The SGL sessions increased my interest in dentist-patient communication.	37	94.9
The SGL sessions helped me to see the relevance of communication in clinical dental practice.	38	97.4
The SGL sessions taught me effective dentist-patient communication skills.	38	97.4
The SGL sessions increased my confidence in dentist-patient communication when I begin clinical training sessions with patients.	37	94.9
The SGL sessions made me more aware of the shortcomings in my patient communication style which I was previously unaware of.	38	97.4
The SGL sessions were engaging.	38	97.4
The SGL sessions were interactive.	38	97.4
The lecturers helped to clarify my understanding of the key concepts in dentist-patient communication.	37	94.9
The lecturers provided useful feedback to improve my communication skills.	38	97.4

The majority of respondents (97.4%) felt that the programme deepened their appreciation of the relevance of communication in clinical dental practice, and the key principles of effective communication between dentists and patients. Almost all the respondents (97.4%) agreed that the SGL sessions had taught them effective dentist-patient communication skills. Over 97% of the respondents valued the feedback provided by the supervising faculty in helping them to enhance their communication skills. The majority of undergraduates (97.4%) also found the SGL engaging and interactive.

When asked about the key lessons the participating undergraduates took away after attending the programme, the free-text responses revealed the following broad themes:

- Importance of *using simple language* instead of dental jargon in dentist-patient communication ( $n = 14$ )
- Importance of *displaying empathy* in dentist-patient communication ( $n = 22$ )
- Need to *tailor dentist-patient communication* which is *shaped by patients' personality, expectations and emotions* ( $n = 11$ )
- Awareness of key communication strategies including use of *non-verbals* (body language), tone, and listening ( $n = 14$ )

On a scale of 0 to 10, where 10 reflects an extremely useful programme, the undergraduates rated the programme with a mean score of 8.5 (median = 8.0, range = 7.0–10.0, SD = 1.0).

### ***Likelihood of using communication skills learned***

Following their participation in the programme, the majority of the respondents (97.4%) saw the relevance of communication in clinical dental practice and close to 95% of them indicated that the programme enhanced their confidence in dentist-patient communication when they begin their clinical training with patients. Over 97% of them also became more aware of their shortcomings in communicating with patients. These provided proxies of the likelihood the respondents would use the skills learned.

### ***Self-reported confidence in communicating with patients in the clinic***

After attending the programme, the undergraduates were generally more confident of communicating effectively with their patients in the clinical setting. Only 8 of the respondents were confident or somewhat confident before attending the programme, while 27 of them reported that they were somewhat confident/very confident after attending the programme ( $p < 0.001$ ).

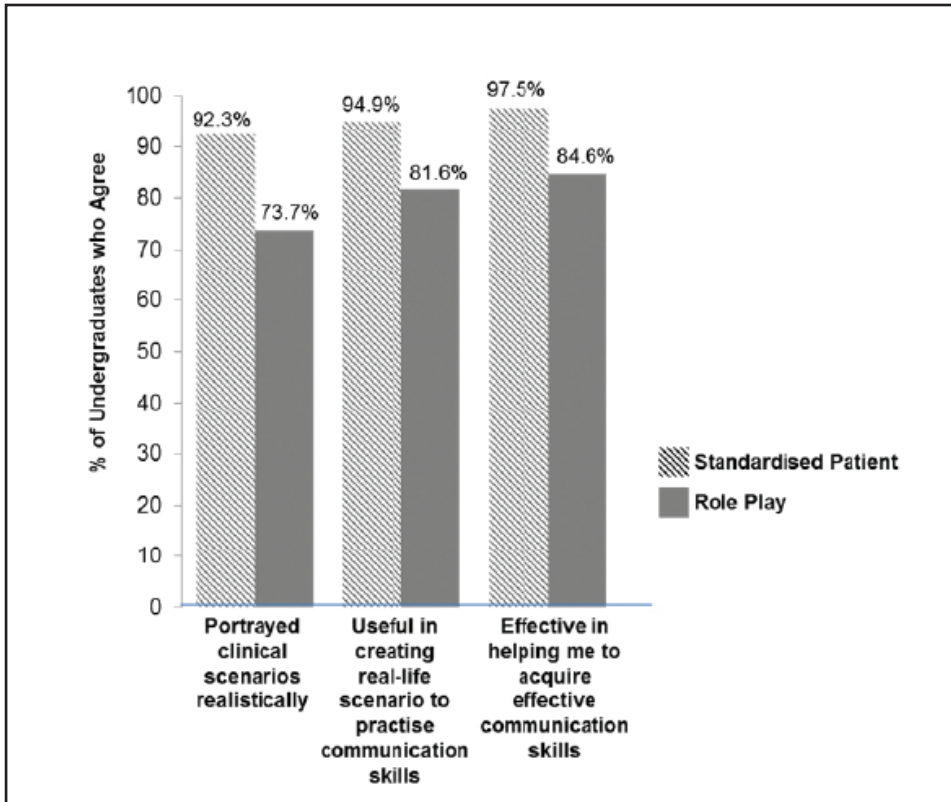


Figure 1. Perceived effectiveness of SPs and role play among undergraduates attending a communication training programme.

### *Attitudes towards the use of standardised patients (SPs) and role play*

Among the respondents, 92.3% of them agreed that that SPs portrayed the clinical scenarios realistically. 94.9% of them appreciated how SPs created real-life scenarios for them to put their dentist-patient communication skills into practice. Figure 1 compares the attitudes of the undergraduates towards the use of SPs and role play in the communication training. Overall, close to 95% of the respondents agreed that SPs were more effective in helping them learn about dentist-patient communication skills than role play with their peers.

When asked to share one thing they liked most about the programme, about half of the free-text responses (49%) showed that the use of SPs was an aspect of the programme they enjoyed. Some of such responses included:

“The SPs! They were amazing.”

“Good patients – acted v [sic] well.”

“Realistic scenario with SP.”

“SP provides a more realistic experience.”

“The opportunity to meet strangers makes it realistic.”

When asked about the one thing they disliked most about the programme, about a third of the free-text responses (6 out of 20) cited the role play component of the training: “Initially role play with classmates a bit awkward [*sic*].”; “Role play was not very realistic.”; “I thought the role play with classmates was kinda [*sic*] false.”; “Hard to be serious with friends.”; “Doing it with classmates not as realistic”.

Interestingly, when the respondents were asked to suggest one way to enhance the way in which the SGLs were conducted, more than a third of the suggestions called for increased engagement and interaction with SPs.

### ***Likes and dislikes of the programme***

The respondents’ appreciated that the programme offered them a range of realistic clinical scenarios where they could put their communication skills into practice (n = 9 out of 35 free-text responses). The rest of the free-text responses revolved around the interaction and “fun” the programme offered.

Apart from the role play which several respondents disliked, some of the respondents indicated that the hands-on practice sessions were “sometimes intimidating” and “stressful”.

## **DISCUSSION**

### ***Structure of the communication training programme***

The training programme was anchored on a blended structure of one didactic lecture and a series of hands-on, small-group sessions. Such a pedagogical framework has been widely adopted by many dental schools as part of their undergraduate training in communication (Carey et al., 2010). According to Lane and Rollnick (2007), interactive teaching methods tend to be “more successful in helping individuals acquire communication skills” than the use of more didactic methodologies (p. 13). While the practical component of communication training is necessary, the didactic component is just as important (Maguire & Pitceathly, 2002), because it has been shown to increase knowledge about communication skills and their use in various clinical contexts (Lane & Rollnick, 2007). One of the undergraduates who participated in the programme appreciated the “structure of sessions—short lecture before, and then role play and SP” as it was useful in offering “mental preparation and concrete

suggestions on how to approach situations”. This need to provide feedback following practice was also echoed by Maguire and Pitceathly (2002), who also cautioned that the feedback should not result in “distressing or deskilling” the participants of communication training (p. 699).

Starting patient interactions early in the pre-clinical educational journey of the dental undergraduate offers many advantages. In general, they become better acquainted with actual “patient realities” (Ratzmann, Wiesmann, Gedrange, & Kordas, 2007) and the experience would help them be better prepared for their clinical encounters with patients. The introduction of the communication training in the second year of the local pre-clinical curriculum is therefore timely as it will prepare undergraduates for their clinical training in their third and fourth years.

### ***General acceptability and appreciation of communication training***

The responses to the free-text questions provided deeper insights into the undergraduates’ experience of the programme. Some of the respondents described the training as “good and effective”; “good that they provided feedback”; “very interesting and simulative” and a “very good learning opportunity”. One of the respondents also indicated that “we should have more sessions like that”. Clearly, the SGL sessions were well-received by the undergraduates and they found the sessions useful in facilitating their learning. This echoes similar positive student experiences in other such communication training programmes (Hannah et al., 2004).

Through their participation in the programme, the majority of them were able to deepen their understanding of the importance of communication, and they opined that the training helped boost their confidence when it came to communicating with their patients at this pre-clinical phase of their training. This was also shown in a randomised controlled trial by Bosse et al. (2010), which showed that role play and SPs yielded a significant effect on self-efficacy ratings and objective performance measures of communication skills.

The undergraduates valued the provision of feedback by supervising faculty as they found it useful in improving their communication skills. Timely feedback after each “dentist-patient” interaction provided immediate formative feedback for the undergraduates to better understand their strengths and shortcomings in communication. It was interesting to note that the training resulted in 97% of the respondents being more aware of their shortcomings in their current patient communication which they were otherwise unaware of (Table 1). This greater sense of self-awareness is useful to enhance their communication styles and prepare them for their patient encounters during the clinical phase of their training.

Many of the lessons learned, and which were cited by the undergraduates in the free-response question were well aligned with the pertinent principles of effective patient communication (Maguire & Pitceathly, 2002). These include the need to display empathy and respect to patients, the use of simple language with an avoidance of unnecessary dental jargon, and paying attention to the non-verbal aspects of communication. It may be argued that these principles were stipulated as key learning outcomes of the programme, and hence could potentially compromise the authenticity of the undergraduates' responses to the lessons learned (i.e. they may merely be "parroting" the skills they need to acquire). However, it could also suggest that the undergraduates were able to experience the importance and relevance of these aspects of dentist-patient communication as they interacted with the SPs in the various clinical scenarios.

### *Perceptions of standardised patients (SPs) and role play*

It was evident that the undergraduates responded differently towards the use of role play and SPs as pedagogical approaches to communication training. The majority of the respondents expressed their preference for SPs as they felt that such an approach lent an unparalleled sense of realism which role play could not offer. This is aligned with other work in this field, which show that student reception towards SPs have been largely positive (Carey et al., 2010).

SPs confer several benefits to communication training. They provide an authentic patient experience and are therefore valuable in training general and specific communication skills among healthcare providers. Such authenticity positions the use of SPs as useful formative and summative assessment tools for communication skills training. While the use of SPs is widely accepted as an effective teaching tool for communication, there is merit in considering how real patients can be trained and empowered to teach and assess communication skills among the undergraduates treating them in the clinics. This will help to address the possibility of SPs becoming "socialised into relating to" students and scenarios "in a more artificial manner than might be observed with real patients" (Carey et al., 2010, p. 75).

Resistance to role play tends to be a common concern which impedes its effective use in communication training (Lane & Rollnick, 2007). Individuals who are more inclined to performing or who may be more extroverted may be less averse to assuming the different roles, and this will enhance the reality of the portrayal. Those who are less comfortable with role portrayal may compromise the authenticity of the patient interaction. Similar resistance to role play was seen in this study, where some respondents felt that "initially role play with classmates (was) a bit awkward"; "role play was not very realistic", and it was "hard to be serious with friends". However, the benefits of role play should not be discounted. Role play has been described as a less

resource-intensive method of communication training when compared with the use of SPs (Bosse et al., 2010). In this present study, a two-hour training session was conducted for SPs. This would not have been necessary with the role play method.

The switching of roles between the dentist and patient during the role play training has also been cited as a useful way of allowing the undergraduates to gain access to an understanding of patient empathy. This, in turn, helps them gain a better understanding of the ambiguities of the roles of the parties involved (Lane & Rollnick, 2007).

## **CONCLUSION**

The benefits of communication in dentistry and healthcare cannot be underestimated. This new training programme provides a useful platform to initiate the training of communication skills among dental undergraduates. It is far from being a means to an end. In fact, it is part of an ongoing journey of communication training which transcends the simulations conducted in the classroom into the clinics. In the clinics, the need to observe and assess such dentist-patient communication skills must not be overlooked. This will support a seamless transfer of knowledge and application of skills across the pre-clinical and clinical phases of training.

The blended use of well-established modes of delivery by way of role play and SPs has been shown to be effective. Both pedagogies for communication training need to be balanced and calibrated to ensure that the educational value of each can be best harnessed to build the communicative competencies of future generations of dentists.

This study to look at the dental undergraduates' experience of a communication training programme in a local context will shed light on how similar programmes can be developed, modified, and enhanced for the future.

## **LIMITATIONS AND AREAS OF FUTURE RESEARCH**

This present study provides a cross-sectional perspective of the undergraduates' views of the communication training and their perceptions related to the use of role play and SPs. It does not offer a direct measure of the impact of the programme on the likelihood of the undergraduates using the skills they learned even though proxy indicators were used to shed light on this. Furthermore, attempts to evaluate the outcome of the training in developing general and specific communication skills in the clinical setting, where the students interact with real patients, should be explored further. Such a longitudinal approach to evaluating the impact of the training will help to inform and guide the development of future educational endeavours to nurture dentist-patient communication skills. This was echoed in the systematic review of communication skills in dental education by Carey et al. (2010), where it was noted that there was no study which specifically explored dentist-patient communication during operative treatment (p. 74).

While this study offers useful insights into the perceptions of the use of role play and SPs in communication training, subsequent studies could consider a more robust model of evaluation using a randomised controlled trial methodology to assess the impact of the use of role play and SPs in such a programme.

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## REFERENCES

- Alliger, G. M., & Janak, E. A. (1989). Kirkpatrick's levels of training criteria: Thirty years later. *Personnel Psychology*, 42(2), 331-342. <http://dx.doi.org/10.1111/j.1744-6570.1989.tb00661.x>
- Bosse, H. M., Nickel, M., Huwendiek, S., Jünger, J., Schultz, J. H., & Nikendei, C. (2010). Peer role-play and standardised patients in communication training: A comparative study on the student perspective on acceptability, realism, and perceived effect. *BMC Medical Education*, 10, 27. Retrieved from <http://www.biomedcentral.com/1472-6920/10/27>. <http://dx.doi.org/10.1186/1472-6920-10-27>
- Bosse, H. M., Schultz, J. H., Nickel, M., Lutz, T., Möltner, A., Jünger, J., Huwendiek, S., & Nikendei, C. (2012). The effect of using standardised patients or peer role play on ratings of undergraduate communication training: A randomised controlled trial. *Patient Education and Counselling*, 87(3), 300-306. <http://dx.doi.org/10.1016/j.pec.2011.10.007>
- Brooks, W. & Heath, R. (1985). *Speech communication* (7<sup>th</sup> Ed.). Madison: Oxford.
- Carey, J. A., Madill, A., & Manogue, M. (2010). Communications skills in dental education: A systematic research review. *Eur J Dent Educ*, 14(2), 69-78. <http://dx.doi.org/10.1111/j.1600-0579.2009.00586.x>
- Croft, P., White, D. A., Wiskin, C. M. D., & Allan, T. F. (2005). Evaluation by dental students of a communication skills course using professional role-players in a UK school of dentistry. *Eur J Dent Educ*, 9(1), 2-9. <http://dx.doi.org/10.1111/j.1600-0579.2004.00349.x>
- Hannah, A., Millichamp, C. J., Ayers, K. M. S. (2004). A communication skills course for undergraduate dental students. *Journal of Dental Education*, 68(9), 970-977.
- Lane, C., & Rollnick, S. (2007). The use of simulated patients and role-play in communications skills training: A review of the literature to August 2005. *Patient Education and Counselling*, 67, 13-20. <http://dx.doi.org/10.1016/j.pec.2007.02.011>
- Maguire, P., & Pitceathly, C. (2002). Key communication skills and how to acquire them. *BMJ*, 325, 697-700. <http://dx.doi.org/10.1136/bmj.325.7366.697>

- Mellor, A. C., & Milgrom, P. (1995). Dentists' attitudes toward frustrating patient visits: Relationship to satisfaction and malpractice complaints. *Community Dent Oral Epidemiol*, 23(1), 15-19. <http://dx.doi.org/10.1111/j.1600-0528.1995.tb00191.x>
- Ratzmann, A., Wiesmann, U., Gedrange, T., & Kordas, B. (2007). Early patient contact in undergraduate dental education in Germany—"The Greifswald Model". *Eur J Dent Educ*, 11(2), 93-98. <http://dx.doi.org/10.1111/j.1600-0579.2007.00429.x>
- Street, R. L., Jr., Makoul, G., Arora, N. K., & Epstein, R.M. (2009). How does communication heal? Pathways linking clinician-patient communication to health outcomes. *Patient Education and Counselling*, 74(3), 295-301. <http://dx.doi.org/10.1016/j.pec.2008.11.015> ■

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