Teaching and assessment of communication skills in undergraduate dental education – a survey in German-speaking countries

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Abstract

Introduction: Teaching communication is perceived to be of importance in dental education. Several reports have been published worldwide in the educational literature describing modifications of the dental curriculum by implementing the teaching of communication skills. Surveys which evaluate the current state of training and assessment of communication skills in dental education in different countries exist already in some countries, but little information is available about German-speaking countries.

Material and Methods: In a cross-sectional study with the aim of a census, all 36 dental schools in Germany (30), Austria (3), and Switzerland (3) were surveyed.

Results: The present survey revealed that at 26 of the 34 dental schools (76%), communication skills training has been implemented. Training of communication skills mainly takes place between the 6th and the 9th semester. Ten schools were able to implement a partly longitudinal curriculum, while the other sites only offer stand-alone courses. Of the 34 dental schools, six assess communication skills in a summative way. Three of those schools also use formative assessments for their students. Another seven sites only use formative assessment. From the various formats of assessment, OSCE is mentioned most frequently.

Conclusion: The necessity to train and assess communication skills has reached German-speaking dental schools. The present survey allows an overview of the training and assessment of communication skills in undergraduate dental education in German-speaking Europe.

Introduction

Teaching communication is perceived to be of importance in dental education. Woelber et al. reported that a great majority of dentists, dental students and patients supported an integration of communicational education into dental curricula (1). The same survey identified that these groups attach vital importance to the dentist–patient relationship regarding the therapeutic outcome (1). Similar results can be found in a study by Okullo et al., that revealed a correlation between patients' satisfaction with oral health care services and the dentist's communication (2). Furthermore, the dentist's behaviour could be identified to play a significant role in the onset of dental fear, with communicative aspects such as 'lack of empathy and respect' and 'lack of support of dental team' being crucial (3).

Several reports have been published worldwide in the educational literature describing modifications of the dental curriculum by implementing the teaching of communication skills (4–7). Bray et al. described how motivational interviewing was introduced into the dental hygiene curriculum (8), and even a positive effect of education in the latter method on the efficacy

of achieving smoking cessation could be demonstrated (9). Haak et al. could demonstrate in a randomised controlled clinical trial that solely interacting with patients during a clinical treatment course did not inevitably improve communication skills, while the implementation of a course in communication skills did (10).

As it is well known that assessment drives learning (11, 12), it is of great importance not only to teach but also to assess communicative competences. Thus, one should consider both, teaching and assessment, when planning a communication curriculum (13–15). Several methods for the assessment of these skills have been reported in the literature (13, 16–18), and their validity, reliability and generalisability have been investigated (19, 20). According to two European surveys from medical education, the objective structured clinical examination (OSCE) is the most frequently contemplated assessment tool for communication skills (21, 22). According to the literature, there seems to be no specific information about assessment tools for communication skills in dental education in German-speaking countries.

Dental and medical education in German-speaking countries is regulated by federal licensing examinations. The German Medical Licensure Act (*Ärztliche Approbationsordnung*) was revised in 2012. Since then doctor–patient communication has to be part of the state examination (23). In dental education, the actual Licensure Act *(Zahnärztliche Approbationsordnung)* (24) was originated in the year 1955 and has not been essentially changed since then. Actually it does not include any psychological or communicative topics. Furthermore, the Bologna process, which postulates the acquisition of key competencies such as communication has not yet been realised in Germany.

In different countries, surveys already exist which evaluate the current state of training and assessment of communication skills in dental education (e.g. USA and Canada) (25). Little information is available about German-speaking countries. The working hypothesis is that teaching and assessment of communication skills at German-speaking dental universities (Germany, Austria and Switzerland) do exist but have been implemented in different disciplines, at different times during the course of studies. Moreover we suppose that very different and heterogeneous teaching and assessment methods are used. Looking forward to an already drafted new Dental Licensure Act and a newly adopted national competency-based catalogue of learning objectives in dentistry (26), which will include communication, this survey tries to clarify the following questions:

1 How are communication skills in dental education in German-speaking countries trained?

  a What is the timing within the course of studies?

  b Which teaching formats are being implemented?

  c Which contents are trained?

  d How is feedback applied in the training?

2 How are communication skills in programmes of dental education in German-speaking countries assessed?

  a When does assessment take place?

  b Which assessment methods/formats are being implemented?

  c How is assessment quality assured?

  d How is feedback applied in assessment?

The overall aim of the present survey is to reveal the data of the actual situation in German-speaking dental schools. The results could be used for identifying the needs of curriculum development processes and for justifying the allocation of required resources.

Materials and methods

In a cross-sectional study with the aim of a census, all 36 dental schools in Germany (30), Austria (3) and Switzerland (3) were surveyed. The network of the 'Working Group for the Advancement of Dental Education' (Arbeitskreis für die Weiterentwicklung der Lehre in der Zahnmedizin, AKWLZ) and the 'Committee for Communicative and Social Competences' (Ausschuss für Kommunikative und soziale Kompetenzen, KusK) of the 'German Society for Medical Education' (Gesellschaft für Medizinische Ausbildung, GMA) were asked for help to identify persons within each of the faculties. They should be knowledgeable about the complete course of studies or might be experts in the field of communication skills. A first mail or telephone call addressed these persons to inquire whether they were willing to answer the online survey about communication skills in their curriculum. In case, one of those persons did not assess itself to be knowledgeable enough to describe the curriculum, alternative persons were addressed in an identical way. Participation was on voluntary, and anonymity was guaranteed.

The questionnaire was based on an instrument which was used to evaluate teaching and assessment in medical education in German-speaking countries (21).

The development took place in several steps: after collecting experience with the questionnaire in the field of undergraduate education, the questionnaire was reviewed and specified for dental education by two dental education professors (SR, PH). This version was piloted by one dental education professor (SR) and edited by two medical education experts (AH, CK). The final questionnaire consisted of 64 items. The composition of the questionnaire is illustrated in Table 1. The whole translated questionnaire can be inspected in the addendum (Appendix).

The survey was administered using LimeSurvey, an open source software. After the last revision, in September 2013, a link to the questionnaire was sent to all identified experts at the 36 dental schools via mail including additional information about the questionnaire.

The Ethics Committee of the University of Munich declared that this project does not need further ethical evaluation and no official ethical approval (UE No. 140-13).

Results

Recirculation and details on the locations

From 36 dental schools, 34 participated in the survey (total response rate: 94.4%, Germany: 93.3%, Austria: 100% and Switzerland: 100%). The locations of all participating dental schools are illustrated in Fig. 1. The number of undergraduates of the dental programme varies from 15 to 80 per year. The average number of students is 40 (median).

Self-assessment of the knowledge about teaching of communication skills at the own faculty

Of the 34 dental schools, at 26 (76%) communication skills training has been implemented. Experts from those dental schools, where communication skills are taught, were asked to self-assess their knowledge about what is taught at the own faculty. Seventeen of these 26 experts claim to have a good overview over all courses which take place at their university. Only one person declares not to have any knowledge of the curriculum. Eight persons have a good knowledge of only a part of the communication courses or of the part they were teaching in person respectively.

How are communication skills trained?

When are they trained?

Training of communication skills mainly takes place between the 6th and the 9th semester. Hardly any courses are implemented in the 1st, 2nd and 4th semester (see Table 2). At eight dental schools, all provided courses are harmonised with each other and considered as being a longitudinal curriculum. Ten schools were able to implement a partly longitudinal curriculum, while the other eight sites only offer stand-alone courses.

Which teaching formats are being implemented?

Of the 26 dental schools, 24 use small groups to train communication skills (e.g. seminars, exercises, tutorials). Lectures are the second most mentioned format ($n = 20$), followed by chairside teaching ($n = 17$). One university uses online formats to deliver communication issues. Twenty-five sites provide further information about didactic tools and methods (see Table 3). Altogether, presentations by either students or teachers are most common ($n = 19$) followed by role-playing with simulation patients ($n = 15$) and conversation with real patients ($n = 14$).

Which contents are trained?

The dental schools were asked to name the communication model or catalogue of learning objectives which is used to plan their curriculum or courses. Only seven dental schools are able to answer this question adequately. The following models and catalogues are mentioned (each only once):
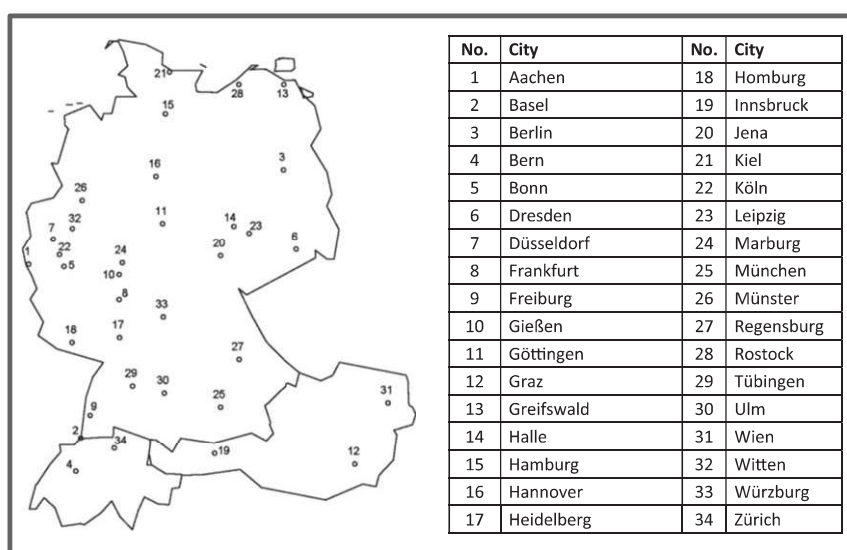

No.	City	No.	City
1	Aachen	18	Homburg
2	Basel	19	Innsbruck
3	Berlin	20	Jena
4	Bern	21	Kiel
5	Bonn	22	Köln
6	Dresden	23	Leipzig
7	Düsseldorf	24	Marburg
8	Frankfurt	25	München
9	Freiburg	26	Münster
10	Gießen	27	Regensburg
11	Göttingen	28	Rostock
12	Graz	29	Tübingen
13	Greifswald	30	Ulm
14	Halle	31	Wien
15	Hamburg	32	Witten
16	Hannover	33	Würzburg
17	Heidelberg	34	Zürich

Fig. 1. *Participating dental schools.*

TABLE 2. When are communication skills trained?

	Longitudinal curriculum (n = 8)	Partly longitudinal curriculum (n = 10)	No longitudinal curriculum (n = 8)
1st semester	2	3	0
2nd semester	1	3	0
3rd semester	2	4	1
4th semester	3	4	0
5th semester	2	4	2
6th semester	4	7	3
7th semester	5	5	6
8th semester	2	3	4
9th semester	3	5	5
10th semester	1	3	5

TABLE 3. Which teaching formats are being implemented?

Educational method	Entries
Presentations	19
Role-play with simulation patients	15
Conversation with real patients	14
Role-play with students	12
Feedback	11
E-learning (e.g. interactive videos)	5
Complex situations (e.g. simulator)	3

- Swiss Catalogue of Learning Objectives (SCLO)
- Profile and Competences for the Graduating European Dentist (Association of Dental Education in Europe, ADEE)
- Basel Consensus Statement (BCS)
- Calgary-Cambridge Guide (CCG)
- National Competency-based Catalogue of Learning Objectives in Dentistry, Germany (NKLZ)
- Catalogue of Competencies, Austria

At nine dental schools, specific communication techniques, strategies or frameworks are reported to be trained within the communication courses. The Calgary-Cambridge Guide is mentioned most often ($n = 5$), followed by the SPIKES model ($n = 3$), SDM ($n = 2$) and motivational interviewing ($n = 2$). Other listed concepts are active listening, Harvard-concept with structures feedback and constructive conflict management, hypnosis, NURSE, OARS and WWSZ (each: $n = 1$).

How is feedback applied in the training?

Feedback is used by eleven sites during the training of communication skills. Looking at the persons providing feedback, dentists are most commonly mentioned ($n = 9$), followed by lecturers ($n = 8$), students ($n = 8$) and simulation patients ($n = 7$). Real patients are named three times. One location reports a 'self-feedback'.

The most frequently mentioned situations, in which feedback is delivered, are conversation with simulation patients immediately after the talk ($n = 9$) and after patient presentations ($n = 5$). All other situations are named maximum three times: students' presentations, exams, team work, video recording of

conversation with (simulation) patients, patient treatment and homework.

How are communication skills assessed?

Of the 34 dental schools, six assess communication skills in a summative way. Three of those schools also use formative assessments for their students. Another seven sites only use formative assessment. Twelve universities state to have a central department for assessment or to have support by the dean's office in preparing, conducting and analysing assessments.

When does assessment take place?

The point of time, when communication skills are assessed summatively, differs widely. Also the frequency varies greatly between one and six semesters. Formative assessment can be found in ten places, mainly between the 6th and the 10th semester. The frequency of formative assessments distributes even more between one and seven different semesters.

Which methods/formats are being implemented?

From the various formats of assessment, OSCE is mentioned most frequently ($n = 6$), followed by presentations ($n = 5$). All other formats are applied sporadically (computer-based formats ($n = 2$), workplace-based assessment and portfolio ($n = 2$), paper-based formats and homework ($n = 1$), and are, therefore, not further discussed in detail.

Osce: OSCE is established in six dental schools. One dental school states to have twelve OSCEs. At the other sites, the number of OSCEs varies between one and three. Within all OSCEs, at least one station is used for assessing communication skills.

At these dental schools, OSCEs are used in five ($n = 1$), three ($n = 1$) and two ($n = 1$) different semesters. The other three apply OSCEs solely in one semester.

Four sites report to perform stations, where the different competences are assessed in parallel. One school uses integrated stations consisting of the assessment of different competences (e. g. inspection and history taking) at one station at one time. One other site performs both.

Detailed checklists for operating the OSCEs can be found most often ($n = 3$), while a combination of checklist and global rating is reported twice. Validated instruments or pure global rating scales are not used at all.

Dentists are appointed to be the examiners of the students. Furthermore, simulation patients and/or examiners from other occupational fields (e. g. psychology, education and sociology) are utilised.

How is assessment quality assured?

All participants indicate that if a summative assessment takes place, the pass mark is arbitrarily defined by setting a specific number of points or percentage (e. g. 60%). For the OSCE, five universities use the same procedure. Only two dental schools use the borderline or borderline regression method, and one mentions the use of a modified Angoff method.

For the quality assurance of OSCEs, statistical analysis (e. g. inter-rater-reliability) ($n = 4$), courses for examiners ($n = 4$), review procedure for validation ($n = 2$) and workshops for authors ($n = 2$) are indicated to be established (multiple answers possible).

How is feedback applied in assessment?

Feedback is given to the students within the exam situation during/after the OSCE at five of the six dental schools, where feedback is used in general. The total result of the exam is confirmed or a detailed feedback is elaborated at three dental schools. Detailed feedback is given to those students who failed the exam at two sites, but only if they ask for it.

Discussion

Teaching communication skills is established at three-quarters of the dental medical schools in German-speaking countries. Assessment of communication skills in contrast is only established at a third of the sites. This is more than expected but still a lot less compared to the results from the survey regarding medical curricula (21). The focus of the point of time, when communication skills are trained, is between the 6th and 10th semester, which is in the clinical part of the curriculum. As there is no course with a special communicative background scheduled (e. g. psychology), it can be hypothesised that the contents are taught in lectures or seminars accompanying the main clinical courses of operative and prosthetic dentistry. Seminars and lectures are the most frequently given answers regarding the teaching format, while chairside teaching is mentioned less often. This result is surprising comparing it with the result of the medical survey (21), as practical exercises could be used much more easily in dentistry than in medical teaching because of the typical chairside situation starting latest in the 7th semester. This result could also give a hint that communication is only lectured by single persons, but is not integrated into the clinical courses, where it is necessary to calibrate and teach a higher number of teachers at the same time. It is also in accordance with the relatively low number of longitudinal curricula, where more teachers have to be included.

Feedback as a teaching method is only mentioned by 11 universities. This is a much lower number compared to the medical survey. One can assume that this is in concordance with the fact that all German dental faculties have to follow the actual German Dental Licensure Act, which does not allow any experimental curricula. This might also lead to a conservative attitude against modern educational methods. One further reason might be the limited resources of lecturers and teachers that are calculated according to the German Dental Licensure Act. Although feedback is widely observed to be a very effective educational method (27), it is still not well established. Comparing the number of dental schools teaching communication skills with an international survey conducted in the US and Canada in 2002 (25), the German results appear quite poor. The latter report revealed that in 2002, more than 86% of the dental schools were teaching interpersonal communication compared to 76% in 2014 in this study.

The questions regarding the assessment of communication skills reveal a different picture in comparison with the situation in the medical curricula. At only 15% of the dental schools compared to 80% in medical schools, summative assessment of communication skills took place. The majority of assessment takes place in a formative setting (29%), which is surprising on the first view. This might be a consequence of the antiquated German Dental Licensure Act (24), which does not include any psychosocial elements. Therefore, communication skills are not relevant for the final exam, which explains why they are not assessed summatively. OSCE is the most frequent assessment format as it is also noted in the medical survey. However, instruments used to assess students differ. In contrast to almost half of the medical programmes, assessors in dental programmes prefer self-developed but not validated instruments. Furthermore, detailed checklists are used predominantly, although actual available literature contains a reference to the use of global ratings to assess communication skills (28, 29).

Another result, which has to be discussed, is the low number of workplace-based assessments, although the clinical courses in the last 2 years of the curriculum, where the students treat their own patients under supervision of dental instructors, gives an ideal platform for that type of assessment. It could be hypothesised that WBA is not enough known in dentistry, and instruments which are already used in postgraduate dental training have not found their way into undergraduate education yet (30, 31). Asking whether the contents are based on any catalogues of learning objectives, only one university mentioned the existing 'Profile and Competences for the European Dentist' (32) by the Association of Dental Education in Europe (available since 2009). One reason for that could be that this catalogue is not very well known in German-speaking Europe. Furthermore, there may be no need for a common catalogue yet because of the absence of a European standard in dental undergraduate programmes as defined in the Bologna protocol. Moreover, a lack of congruence between existing learning objective catalogues and the German Licensure act could be another attempt to explain.

Our survey needs to face some limitations as well. It could be speculated that we were not always able to identify the person, who has the best overview of what is taught. So in consequence, it could be possible that there are already more communicative contents in the curricula than we were able to gather. On the other hand, some persons might be too much involved in their own teaching of communication skills and therefore overestimate the real teaching situation for the whole curriculum at their faculty. In general, surveying only teachers and not the students only discloses, what is taught and not, which competencies are finally learned.

Although the response rate was high, the very low number of dental schools which assess communication skills gives no possibility for statistical interpretation or generalisation of the data related to assessment.

In addition, there are still open questions, for example the amount of resources, which are dedicated to train and assess communication skills. This could be a relevant factor for the actual situation at each individual dental school. We also decided not to collect the specific courses which aim at training communication skills throughout the different programmes.

This would have gone beyond the scope of our survey and prolonged the already very long and time-consuming process for the participants.

Conclusion

The necessity to train and assess communication skills has reached German-speaking dental schools. The present survey allows an overview of the training and assessment of communication skills in undergraduate dental education in German-speaking Europe. Using the data as baseline for further development in this area, it could be helpful in identifying how training and assessing communication skills at dental schools is developed in other European countries. Possibly, tendencies for the use of effective teaching formats for dentistry or assessment tools could be seen by additional evaluations of the current state in this field. Moreover the effect on training and assessing communication skills in dental education due to the implementation of existing or new catalogues with learning objectives for dental education could be evaluated.

An interesting topic for further studies would be to research in more detail influencing factors which support or hinder the implementation of a longitudinal communication skills programme. These include size of the dental school, size of cohort, dedicated resources or faculty development programmes.

Acknowledgement

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Appendix

Addendum: Questionnaire

Teaching and assessment of communicative and social competencies

Details on the location:
1 Country
2 City
3 University/Faculty
4 How many students complete the degree programme each semester?

Teaching of communicative and social competencies
1 Are communicative and social competencies taught as part of the degree programme?
2 To what extent are you familiar with the programme's curriculum?
3 In which semesters are communicative and social competencies taught?
4 Are courses that convey communicative and social competencies over several semesters coordinated or harmonised (e.g. as part of a longitudinal curriculum)?
5 Is the curriculum/course based on a greater model or a catalogue of learning objectives (e.g. Basel Consensus Statement, Disease-Illness Model, Kalamazoo Consensus Statement)?
6 Are specific techniques/schemata taught?
7 In what kind of formats are communicative and social competencies taught?
8 Which didactic tools are used?
9 When do students receive feedback?
10 Who provides feedback?
11 With respect to what topic do students receive feedback?
12 Are observation forms used? If so, which ones?
13 What theories or models form the basis of the feedback (e.g. theme-centered interaction)?

Description of the assessment system
1 In your degree programme, is the assessment of communicative and social competencies relevant for for passing the course (summative)?
2 How familiar are you with the examinations of your degree programme?

3 In which semester is the assessment of communicative and social competencies relevant for passing the course?
4 Is the summative assessment of communicative and social competencies graded?
5 In your degree programme, are communicative and social competencies assessed formatively (non-relevant for passing the course)?
6 In which semesters are communicative and social competencies assessed formatively (non-relevant for passing the course)?
7 Which assessment formats are generally (summative or formative) used for assessing communicative and social competencies?
8 Is there a central examination office for your degree programme that supports designing, conducting and evaluating exams?

Paper- and computerbased assessment
1 In which semesters are communicative and social competencies assessed paper- or computerbased?
2 Are communicative and social competencies summatively (relevant for passing) assessed with *single* paper- or computerbased exams?
3 Are communicative and social competencies summatively (relevant for passing) assessed with *combined* paper- or computerbased exams (combined with other formats, competencies, knowledge)?
4 Which question formats or scenarios that prompt students to answer (stimuli) are used?
5 Which formats that guide students' answers (response-formats) are used?
6 Is the examination/are the examinations relevant for passing the course?
7 How is the passing grade for these examinations set?
8 What kind of feedback do students receive?
9 Who is responsible for grading the examination? *
10 Which disciplines do the examiners originate from?
11 Are the examiners also responsible for teaching the respective course?
12 Which of the following measures are employed to enable quality assurance of paper- and computer based examinations?
13 Please describe briefly how examiners are trained and specify the scope of time used for training in hours:

Objective Structured Clinical Examinations (OSCEs)
1 How many OSCEs are part of your degree programme?
2 How many OSCEs assess communicative and social competencies?
3 In which semesters are communicative and social competencies assessed as part of an OSCE?
4 The OSCEs are a combination of the following stations...
5 Which instruments are used to assess/judge communicative and social competencies during OSCEs?
6 Which validated instruments are used in your degree programme? Please name them:
7 What kind of assessment instruments for communicative and social competencies during OSCEs are used in your degree programme?

8 How is the passing grade for OSCEs set in your degree programme?

9 What kind of feedback do students receive?

10 Who is assessing communicative and social competencies during OSCEs?

11 Are these examiners also teaching communicative and social competencies?

12 Which measures for quality assurance of the OSCEs are employed in your degree programme?

13 Please describe briefly how examiners are trained and specify the scope of time used for training in hours:

Workplace based Assessment

1 In which semesters is Workplace-based Assessment (WBA) for communicative and social competencies conducted?

2 Which competencies are assessed as part of the WBA?

3 Which instruments are used in your study programme to assess communicative and social competencies during WBAs?

4 Which validated instruments are used in your degree programme? Please name them:

5 Is the WBA relevant for passing the course?

Portfolio

1 In which semesters are portfolios assessed?

2 Which competencies are assessed as part of the portfolio?

3 How many components/examinations does the portfolio for communicative and social competencies consist of?

4 Who is assessing the portfolios?

5 Is the portfolio assessment of communicative and social competencies relevant for passing the course or part of such an examination?

Additional comments regarding this survey

1 In case you think any questions were missing or unclear, please share:

2 In case you have additional comments or suggestions concerning the survey, please share:

3 Who is the person of contact in case any additional enquiries concerning this survey arise?