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# TRANSVERSAL SKILLS IN THE WORLD OF WORK: APPLIED LINGUISTICS' APPROACH

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**Abstract.** As a result of the ethno-cultural and economic contacts taking place between different countries, the 21st century has set new guidelines, known as transversal or soft skills, for employability worldwide. Communication between specialists representing different areas and occupations demands specific competences required by innovative employment systems. This, to a certain extent, has an impact on the world-wide use of English as an instrument for multinational communication. Thus, the present research, which is based on the results of the survey administered as part of the Erasmus+ Strategic partnership project *Transversal Skills in Dentistry: Content and Language Integrated Approach*, explored some of the key skills that are cross-disciplinary in nature and are required by the world of work. These skills tend to determine employability of tertiary level graduates with hands-off experience in dentistry. From the practical perspective, the study illustrates the key skills that are vital for increasing youth employability nowadays. The conclusions drawn support the presupposition that the 21st century's employability is based on the manifestation of interdisciplinarity, application of novice content knowledge, and competent transition of academically acquired knowledge and skills into the world of work.

**Key words:** transversal skills, English language, dentistry, Virtual Learning Environment, employability

## INTRODUCTION

The 21st century has witnessed a strong need in the applicability of the competences and skills gained through higher educational institution (HEI) curricula in the professional context.

While there is broad agreement that today's students or would-be professionals need transversal skills to be prepared for the labour market, there is still a great deal of discussion as to which skills in particular constitute transversal skills and which of them are the most important. In addition, a number of related terms such as generic skills, applied skills, cross-disciplinary skills, interdisciplinary skills, 21st century skills, and soft skills exist, the use of which may not be strictly synonymous, as they may have specialized meanings in certain contexts (Online 1). However, in this study, the terms transversal skills and soft skills are used interchangeably.

The aim of the study is to report on the results of the survey (Zaura, Henkuzena, Karapetjana, Ribreiro, Rozina, and Tavares, 2016) administered as part of the Erasmus+ Strategic partnership project *Transversal Skills in Dentistry: Content and Language Integrated Approach*. The core goal of the survey was to investigate the skill demand required by the current labour market and the higher education offer in the field of dentistry.

## BACKGROUND

In its classification of European Skills, Competences, Qualifications and Occupations (ESCO), the European Commission puts a high value on transversal skills and emphasizes that they 'are relevant to a broad range of occupations and sectors' (Online 2). Thus, these skills are applicable to a variety of professions and can be transferred from one profession to another, enabling occupational mobility, which is critically important for success in contemporary workplaces.

Transversal skills or soft skills can be applied in all academic disciplines and subjects in HEIs, and they are like the building blocks for the enhancement of hard skills also required on the labour market. Hard skills relate to specific technical abilities or factual knowledge required to do a particular job (Hunt, 2007). On the other hand, soft skills have been defined as interpersonal, human, people or behavioural skills, which are needed in order to apply hard skills in the workplace (Rainsbury, Hodges, Burchell and Lay, 2002). Muzio, Fisher, Thomas and Peters (2007) claim that these soft skills have a micro social nature and can be divided into (1) intrapersonal and interpersonal skills; (2) personal and social skills; and (3) cognitive skills.

Overall, transversal skills can encompass the following skills: critical thinking, problem solving, analysis, interpretation, and synthesizing information; research skills, creativity, oral and written communication; collaboration, cooperation, facility in using virtual workspaces; information and communication technology literacy; health and wellness literacy (Online 1).

In the context of the present study, transversal skills that are of paramount importance to dentists such as patient management skills, language skills, interpersonal communication skills, and digital skills are emphasized.

## METHODS

The survey was used to identify the skills and competences required by the labour market in dentistry and, thus, crucial for graduates' employability. It also aimed at determining novel and useful approaches to developing efficient and attractive teaching/learning materials for the target groups. To achieve the aims, a questionnaire (see Appendix 1), as an efficient tool for gathering respondents' self-rating of skills, was used. It was developed in several stages.

As a result of the initial pilot work at the beginning of January 2016 a group of professional dentists doing the course English for Specific Purposes at the Faculty of Medicine, the University of Latvia (UL), filled in a questionnaire that included a total of 21 questions and comprised closed-response questions with several predetermined answers. This type was selected since it provides more uniformity across questions in terms of the specificity of the yielded data, as well as because it was easy to code, administer online and analyse such a type of questions.

The questionnaire in the English language was translated into Dutch, Latvian and Portuguese to allow responding in the native language of the three research populations, namely, the students of undergraduate dentistry and postgraduate dentistry programmes and qualified dentists. In order to yield worthwhile data and to test the questionnaire several rounds of pilot surveys in English, Dutch and Latvian were performed on a convenience panel, consisting of the dentistry students at the UL, Latvia, and qualified dentists at the Academic Centre for Dentistry Amsterdam (ACTA), the Netherlands.

The resulting questionnaire contained three parts. Part 1 dealt with demographic data: gender, age, native language, and qualification. Part 2 focused on information regarding the acquisition of dentistry related skills and competences in English, that is, the language of instruction, a proficiency level of English in dentistry, the experienced or expected problems while studying dentistry in English, experience and satisfaction with Virtual Learning Environment (VLE) tools and the preferred online tools for collaborative learning. Part 3 concerned the most essential competences for dentists; the results obtained are not discussed in this article.

All four versions of the questionnaire were adapted to a web-based form by the partners at the Porto Accounting and Business School (ISCAP), the Polytechnic Institute of Porto (IPP) using Limesurvey (v1.73) and tested by all partners before the survey was opened from March 4 to 17, 2016.

In the Netherlands, the invitation to participate in the survey was sent to all Dentistry master's degree programme students (the 5$^{th}$ or 6$^{th}$ year of their study programme in Dentistry) at ACTA. This cohort totalled 262 invitations. To obtain responses from qualified dentists, the invitations were also sent to a randomly drawn group of 302 members of the Royal Dutch Dental Association who graduated in 2005 or thereafter. Additionally, the invitations were sent to the qualified dentists who were following the post-graduate master's degree

programme in Oral Health Sciences (N=33) and were undergoing specialization in one of the following directions at ACTA: Periodontology, Endodontology, Implantology, Pedodontology or Orthodontics. The response rate was 9.5 per cent of the dentistry students, 9.6 per cent of the qualified dentists and 33 per cent of the post-graduate programme students.

In Latvia, the following subgroups were invited to fill in the questionnaire: the members of the Latvian Dental Association via their homepage or personal invitations (N=1500), the students majoring in dentistry at the University of Latvia (N=20) and colleagues (approx. 50). The response rate was 25 per cent of the dentistry students and 4 per cent of the qualified dentists.

In Portugal, the invitations were sent to the Dental Faculty of the University of Porto and to Advanced Polytechnic and University Cooperative, CRL, both providing higher dental education, and to the Portuguese Dental Association with over 8500 members both from Portugal and Brazil. However, by the closing time of the survey, no responses were obtained from any of the invited organizations. Given the lack of response and being interested in the possible reasons, the Portuguese Dental Association was contacted once again, and they clarified that the request for dissemination of the survey was taken note of by the governing Council but, because of a strategic decision taken in 2010, all requests of this nature were not followed through. The research team was only notified of this at the end of March, well after the survey was closed.

## RESULTS

In total, the questionnaire was filled in by 136 individuals, 65 per cent of whom were clinical dentists, 25 per cent – final year dentistry students and 10 per cent – postgraduate dentists proceeding with their specialization programme.

Of the 136 respondents surveyed, 47 per cent used the Latvian version, 42 per cent – the Dutch version and 11 per cent – the English version of the questionnaire. The majority (81%) of the respondents were females. Most respondents (40%) were between 26–35 years of age, followed by 18–25 years (26%), 46 years and above (18%) and 36–45 years of age (16%). In total, 16 different native languages of the respondents were reported, with Latvian being the native language for 37 per cent of the respondents, Dutch – for 35 per cent and Russian – for 13 per cent of the respondents. One individual (a female dentistry student) reported English as a native language. The responses of this particular individual relating to the English language skills (N=135) were excluded from the results but were included in the results on the VLE usage (N=136).

The majority of the respondents (76%) obtained their dental education in their native language, while 10 per cent reported that they received it in English. When asked in which other languages than English or native they followed their dental education, either Dutch (47%) or Latvian (47%) was reported. However, in one case, a mistake in filling in the questionnaire in Dutch was observed: a male

dentist, the age group 26–35 years, with Frisian as a native language, chose 'Other' from the three options given to specify the language of instruction – 'the native language', 'English' or 'Other'. When asked to identify which other language, he chose 'English'. Most likely this was an erroneous choice of the language from the language list, since English should have been selected from the first list of choices: 'English', 'Native' or 'Other'.

About 50 per cent of the respondents estimated their listening and reading skills in English being at a full professional working proficiency, while about 35–40 per cent of the respondents reported partial or full and 20 per cent – only limited working proficiency for speaking and writing skills.

Next, the participants were asked to rate how easy or difficult it was or would be to study dentistry in English. This question was split into two items: dentistry as such and professional communication in English.

The majority of the respondents (approx. 40%) rated the difficulty for both items as neutral. Professional communication in English was rated as more difficult (24%) than dentistry as such (17%). Overall, dentistry was rated as being easier than professional communication in English. When asked to rate the most common expected or experienced problems (listed in Table 1 in Appendix 2) while studying dentistry in English, 54 per cent of the respondents agreed that the lack of language knowledge and learning dentistry at the same time (Q8.2) would be or was the problem. The second largest problem was the lack of knowledge of terminology in English (Q8.3): 51 per cent of the respondents rated this item with either 'agree' or 'strongly agree'. The lack of reading skills (Q8.6) was the least often rated as a problem (45%) area. In general, 45–54 per cent of the respondents rated the listed items as a problem, while 16–23 per cent of the respondents were neutral about identifying problems, and 27–36 per cent either disagreed or strongly disagreed that these items were or would pose a problem.

Of all the respondents, 13 individuals (9.6%) had received their dental education in English (see Figure 1 in Appendix 3). These individuals were asked to agree or disagree with six different statements (Q9.1–9.6) regarding their experience of studying dentistry in English (see Figure 4). The majority (85%) agreed that their language skills have improved since they had started studying in English (Q9.1), while 54 per cent did not think that their study progress would have been faster in their native language (Q9.2) or that their studies were time consuming (Q9.3).

Of the 13 respondents, 38 per cent did agree that they used resources in their native language during their study process (Q9.4), while the majority did not agree that the resources they used only developed their dentistry and not their English language skills (Q9.5). The language barrier was not experienced as a problem for effective communication and for expressing the opinions when studying dentistry (Q9.6).

Next, the respondents were asked to indicate what VLE they used during their dentistry studies. Of the 136 respondents, 53 per cent did not use any

VLE, while 37 per cent reported using WebCT or MOODLE. The majority of the respondents who had used a VLE were satisfied with the VLE.

When asked about the purpose and frequency of VLE usage, the most typical answer was downloading online materials (92% of the respondents downloaded materials at least monthly), followed by doing assignments and checking the grades (see Figure 2 in Appendix 4). Online discussions (11%) and game based learning (15%) were among the least frequently used purposes. When asked which online tools they would prefer using for collaborative learning, the most frequent ones were assignments and lessons (about 60%), while the least ones (15%) were blogs and chats (see Figure 3 in Appendix 5).

## DISCUSSION

This survey had two major aims. It aimed at identifying, firstly, the most appropriate approaches for addressing the target groups for a VLE and, secondly, the professional competences that would benefit from increased knowledge, both in general and in English, for those target groups.

It was identified that the general English language proficiency level of the respondents varied between the intermediate language level (B2) to high-intermediate language level (B2+). Considering the language proficiency criteria established by *Common European Framework of Reference for Languages* (2001), the respondents indicated their ability in the use of the *general English language competence* at the level of: (a) participation in communications on generally predictable topics related to their daily activities and personal environment; (b) communication of personal meaning to a conversation partner by using language elements in social context: to give clear, detailed descriptions on a wide range of familiar subjects, to elaborate narratives, to develop particular points of discussion and to round off with appropriate conclusions by applying strings of sentences; (c) sustaining communication with suitable accuracy and confidence to establish connected discourse.

As concerns the *dentistry area-related language competence*, the respondents indicated satisfactory ability in: (a) obtaining and recording a comprehensive medical and dental state history; (b) gathering information from various profession-related sources; (c) understanding and critically evaluating scientific information; (d) distributing the obtained data to other specialists – dentists.

Within the area of dentistry, a limited language competence was reported in: (a) visual reception (reading) – understanding the professional values and standards described in the administrative processes and requirements for clinical audits in practice; (b) oral production (speaking) – applying the professional values and standards described in the administrative processes and requirements for clinical audits in practice, explaining clinical findings and treatment options to different patient groups.

As concerns *studying dentistry* in English, the following linguistic level limitations were defined: (a) insufficient language competence to study dentistry in English; (b) insufficiently developed productive language skills, such as oral spoken production, for example, appropriate use of profession-related terminology in relevant contextual situations, and written production, for example, profession-related discourse production; (c) insufficiently developed language perceptive skills, such as understanding interaction with a patient/s having international background, listening to audio media and recordings, understanding written professional discourse if it contained unfamiliar general vocabulary or terminology.

Only 47 per cent of the research population had experience in using a VLE during their studies. This could be partly related to a relatively recent introduction of a VLE in undergraduate dentistry programmes and to a large proportion of already qualified dentists among the target population. Only generally common tools such as downloading online material were frequently used, while the use of more interactive and stimulating forms of a VLE such as game based learning or taking a quiz was relatively infrequent. The preferred forms of a VLE were the ones that were the most widely used such as making assignments, but also the ones that were less frequently used such as taking quizzes.

In this study, ten per cent response rate was obtained both from dentists and dentistry students. However, a much higher response rate (33%) was obtained from the group following post-graduate specialization programme at ACTA. This could be explained by the highly international background of these students and the fact that their post-graduate programme is mainly in English. Most likely this group had a greater interest in the topic of the survey.

The response rate among the dentistry students in Latvia was high (25%), while dentists were reluctant to respond (4%). A comparatively low response rate obtained from the professional dentists can be explained by their proactive interest in the life-long learning programmes launched by the Latvian Dental Association. This explains the limited number of visits to the web page of the Latvian Dental Association. International background students who did the dentistry study programme at the UL and whose medium of instruction was the English language demonstrated a higher level of the response rate in comparison with the other target respondent groups. This can be explained by the students' awareness of and interest in the present survey due to the involvement of the UL's teaching staff in it and due to the topicality of the themes outlined in the survey.

Portugal did not deliver any responses. The reason for this most likely was the fact that the study consortium had no prior contacts with the dental faculties in Portugal or any dental professional organizations in this country. Although formal contacts were established between ISCAP and professional organizations and the call to distribute the invitations was made, the organizations did not

respond and the Portuguese Dental Association failed to distribute the invitations to their population.

Additionally, it is possible to speculate on the fact that the survey called for information on a VLE and linguistic competence in English for dentistry: there is a significant number of dentists and international students enrolled in Portuguese HEIs in dental-related courses, but the predominant language both in clinical practice and education is Portuguese. Additionally, Portugal and Brazil signed a protocol establishing direct equivalence between all university degrees in Brazil and Portugal in the 1990s, leading to a migratory flow of Brazilian dentists to Portugal. According to the Portuguese Dental Association (OMD), of the active professionals in clinical practice, 91.7 per cent have Portuguese nationality, and they completed the bachelor's or master's degree in Portugal. Currently, more than 400 physicians are from Brazil. The number of active members of the Portuguese Dental Association continues to grow and is expected to exceed ten thousand already in 2018. This is an accentuated growth and more than the country needs. The OMD also mentions that the inflow of dentists has ceased and the tendency has in truth been inverted: the main emigration destinations of Portuguese dentists are the United Kingdom (59%), France (12.9%) and Brazil (7.4%). Curiously, this tendency does contextualize the relevance of the survey at this time in Portugal.

## CONCLUSIONS AND RECOMMENDATIONS

Concerning the acquisition of the dentistry competences in English, the survey demonstrated that a considerable number of the respondents were not completely satisfied with their linguistic skills to understand and apply the professional values and standards described in the administrative processes and requirements for clinical audits in practice. Their linguistic competence required that the ability to evaluate critically information published in general and clinical scientific research papers or journals, in particular, should be increased considerably. In addition, the respondents' skills to obtain and record comprehensive medical history of patients' oral and dental state required further advancement. The respondents saw the need in developing their abilities to communicate professionally with patients of different social and ethnic backgrounds and with their families to identify patients' individual expectations and/or needs; the skill to manage the patients' stress and the skill to communicate in English with other health professionals involved in patients' care should be improved as well. The respondents' English language competences to explain clinical findings, to describe impairments of function as a result of a tooth loss, to clarify risks and benefits of dental materials and to explain treatment options or plans to patients of different age groups had to be advanced; this way, the patients' awareness of the prevention of developing oral diseases could be enhanced. This survey demonstrated the lack of experience with a VLE in a considerable part of the target population.

The following recommendations result from these conclusions:

1) In order to promote a relatively recent introduction of a VLE in undergraduate dentistry study programmes and to familiarize the already qualified dentists with it, the study materials should be developed so that they enhance the language users' confident communication in the area of dentistry. This will enable them to deal with unanticipated situations through a variety of specialist-area related issues effectively across a VLE; this can be anticipated via efficient application of:
   - student-to-student and student-to-teacher interaction;
   - online quizzes with feedback offered;
   - use of video material that considers patients' consent and confidentiality issues;
   - web information and/or loading reference texts, which will enhance an evidence-based approach to practice;
   - imaging technology, which will familiarize the learners/language users with how to 'read' and/or deal with the dentistry-area related output.
2) Across a VLE and considering the requirements set for the dentistry area, learning/teaching materials should be developed so that they envisage the development and promotion of the would-be-dentists' higher level of language competence via:
   - simulation of both clinical procedures and clinical scenarios;
   - simulation of pre-clinical practices to develop and enhance the language users' clinical skills;
   - discussion and analysis of professional attitude, behaviour, ethics and jurisprudence issues;
   - analysis skills of the basic biological, technical and clinical sciences in order to obtain and record a complete history of a patient's medical, oral and dental state;
   - decision-making, clinical reasoning and judgement skills in order to assist the patient to establish and maintain oral health and general health prevention and promotion.
3) Across a VLE and taking into account the interdisciplinary nature of the English language and the area of dentistry, the would-be dentists' interpersonal, communication and social skills can be enhanced via developing the learning/teaching materials that focus on:
   - maintaining a high degree of linguistic accuracy;
   - establishing efficient interaction with a good control of language use;
   - dealing with unanticipated and/or complex linguistic situations effectively;
   - providing a structured discourse to deal with the profession-related point of view;

- participating in interaction in formal and informal settings on topics related either to meet the interactants' personal needs or to address the areas of their professional and/or scholarly interests.

Thus, establishing a solid synergy between the dentistry area and the use of the English language for instrumental purposes in the professional context can help to determine the choice of methodology for the development of the language resources to be used in a VLE.

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## INTERNET SOURCES

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# APPENDIX 1

## COMPETENCES IN THE ACADEMIC SETTING IN DENTISTRY: CLIL

The purpose of this questionnaire is to gather information about the competences in dentistry as well as about the level of the English language skills required in communication with English speaking patients or colleagues.

The questionnaire is divided into three parts. The first part contains basic general questions. The second part contains questions about acquiring dentistry related skills and competences in English, and the third part deals with the level of major competences in dentistry in general and in English.

The questionnaire should only take 10 minutes to complete. Your answers will be treated with complete confidentiality. Please tick (V) one or more relevant boxes.

### PART 1

1) What gender are you?
   - ☐ male
   - ☐ female
2) What is your age?
   - ☐ 18–25
   - ☐ 26–35
   - ☐ 36–45
   - ☐ 46+

   What is your native language? .....
3) Are you:
   - ☐ a qualified dentist
   - ☐ an undergraduate dentistry student
   - ☐ a graduate program dentistry student

### PART 2

4) What is the language in which you study/studied dentistry?
   - ☐ your native language
   - ☐ English

   Other (please specify) .....

5) What is your proficiency level of English in dentistry?

| | Limited working proficiency | Partial working proficiency | Full working proficiency | Native or bilingual proficiency |
|---|---|---|---|---|
| Listening | ○ | ○ | ○ | ○ |
| Speaking | ○ | ○ | ○ | ○ |
| Reading | ○ | ○ | ○ | ○ |
| Writing | ○ | ○ | ○ | ○ |

6) Please rate the following areas in terms of how easy/difficult each was/would be when studying dentistry in English.

| | Very easy | Easy | Neutral | Difficult | Very difficult |
|---|---|---|---|---|---|
| Dentistry | ○ | ○ | ○ | ○ | ○ |
| Professional communication in English in dentistry | ○ | ○ | ○ | ○ | ○ |

7) What were/would be the most common problems you had/would have to face when studying dentistry in English?

| | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| The initial level of English | ○ | ○ | ○ | ○ | ○ |
| Lack of language knowledge and dentistry learning at the same time | ○ | ○ | ○ | ○ | ○ |
| Lack of knowledge of terminology in English | ○ | ○ | ○ | ○ | ○ |
| Lack of speaking skills | ○ | ○ | ○ | ○ | ○ |
| Lack of listening skills | ○ | ○ | ○ | ○ | ○ |
| Lack of reading skills | ○ | ○ | ○ | ○ | ○ |
| Lack of writing skills | ○ | ○ | ○ | ○ | ○ |

8) If you have studied dentistry in English, state if you agree or disagree with the following statements about learning dentistry in English

| | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| My language skills have improved since I have started studying in English | ○ | ○ | ○ | ○ | ○ |
| My progress in dentistry would be faster if studying it in my native language | ○ | ○ | ○ | ○ | ○ |
| It is very time consuming | ○ | ○ | ○ | ○ | ○ |
| To understand dentistry studied in English, I often use resources in my native language | ○ | ○ | ○ | ○ | ○ |
| The resources I use develop my knowledge of dentistry but do not help me with English | ○ | ○ | ○ | ○ | ○ |
| It is difficult for me to effectively communicate and express my opinions when studying dentistry because of the language barrier | ○ | ○ | ○ | ○ | ○ |

9) What Virtual Learning Environment (VLE) do you use/did you use when studying at university (in English or your native language)?
   - ○ Moodle
   - ○ WebCT
   - ○ Other
   - ○ I don't/didn't use any

10) Are/were you satisfied with the VLE you use/used?
   - ○ Very satisfied
   - ○ Somewhat satisfied
   - ○ Neutral
   - ○ Somewhat dissatisfied
   - ○ Very dissatisfied
   - ○ Don't know

11) For what purpose and how often do you use/did you use the VLE?

| | Daily | Several times a week | Weekly | Monthly | Never |
|---|---|---|---|---|---|
| Research | ○ | ○ | ○ | ○ | ○ |
| File sharing | ○ | ○ | ○ | ○ | ○ |
| Video conferencing | ○ | ○ | ○ | ○ | ○ |
| Game based learning | ○ | ○ | ○ | ○ | ○ |
| Doing assignments | ○ | ○ | ○ | ○ | ○ |
| Taking quiz | ○ | ○ | ○ | ○ | ○ |
| Checking the Calendar | ○ | ○ | ○ | ○ | ○ |
| Personal Development Planning(PDP)/ Self evaluation | ○ | ○ | ○ | ○ | ○ |
| Getting feedback | ○ | ○ | ○ | ○ | ○ |
| Communicating with other students | ○ | ○ | ○ | ○ | ○ |
| Online discussion | ○ | ○ | ○ | ○ | ○ |
| Communicating with lecturers | ○ | ○ | ○ | ○ | ○ |
| Group project | ○ | ○ | ○ | ○ | ○ |
| Downloading study material | ○ | ○ | ○ | ○ | ○ |
| Checking grades | ○ | ○ | ○ | ○ | ○ |
| Online examination | ○ | ○ | ○ | ○ | ○ |

12) Which of the online tools do you prefer for collaborative learning?

- ☐ Assignments – to submit any digital content (files), to receive grades and comments on uploaded files and assignments
- ☐ Blogs – for self-expression and communicating with other students and lecturers
- ☐ Chat – to have a real-time synchronous discussion
- ☐ Choice – to answer a question from a choice of multiple responses specified by a lecturer
- ☐ Database – to create, maintain and search a bank of record entries about any conceivable topic
- ☐ External tool – to access and interact with learning resources or take part in activities on other web sites

- ☐ Feedback – to give feedback about the module/course
- ☐ Forum – to have asynchronous discussions, exchange ideas by posting comments
- ☐ Glossary – to create and maintain a list of definitions, like a dictionary
- ☐ Lesson – or studying content in flexible ways
- ☐ Quiz – to take part in quiz tests which may be automatically marked
- ☐ Survey – to help lecturers learn about their class and reflect on their own teaching

(Adapted from Online 3)

Thank you for your time!

## APPENDIX 2

*Table 1* **Identified problems associated with studying dentistry in English**

| Question | Item |
|---|---|
| Q8.1 | Initial level of English |
| Q8.2 | Lack of language knowledge and learning dentistry at the same time |
| Q8.3 | Lack of knowledge of terminology in English |
| Q8.4 | Lack of speaking skills |
| Q8.5 | Lack of listening skills |
| Q8.6 | Lack of reading skills |
| Q8.7 | Lack of writing skills |

# APPENDIX 3

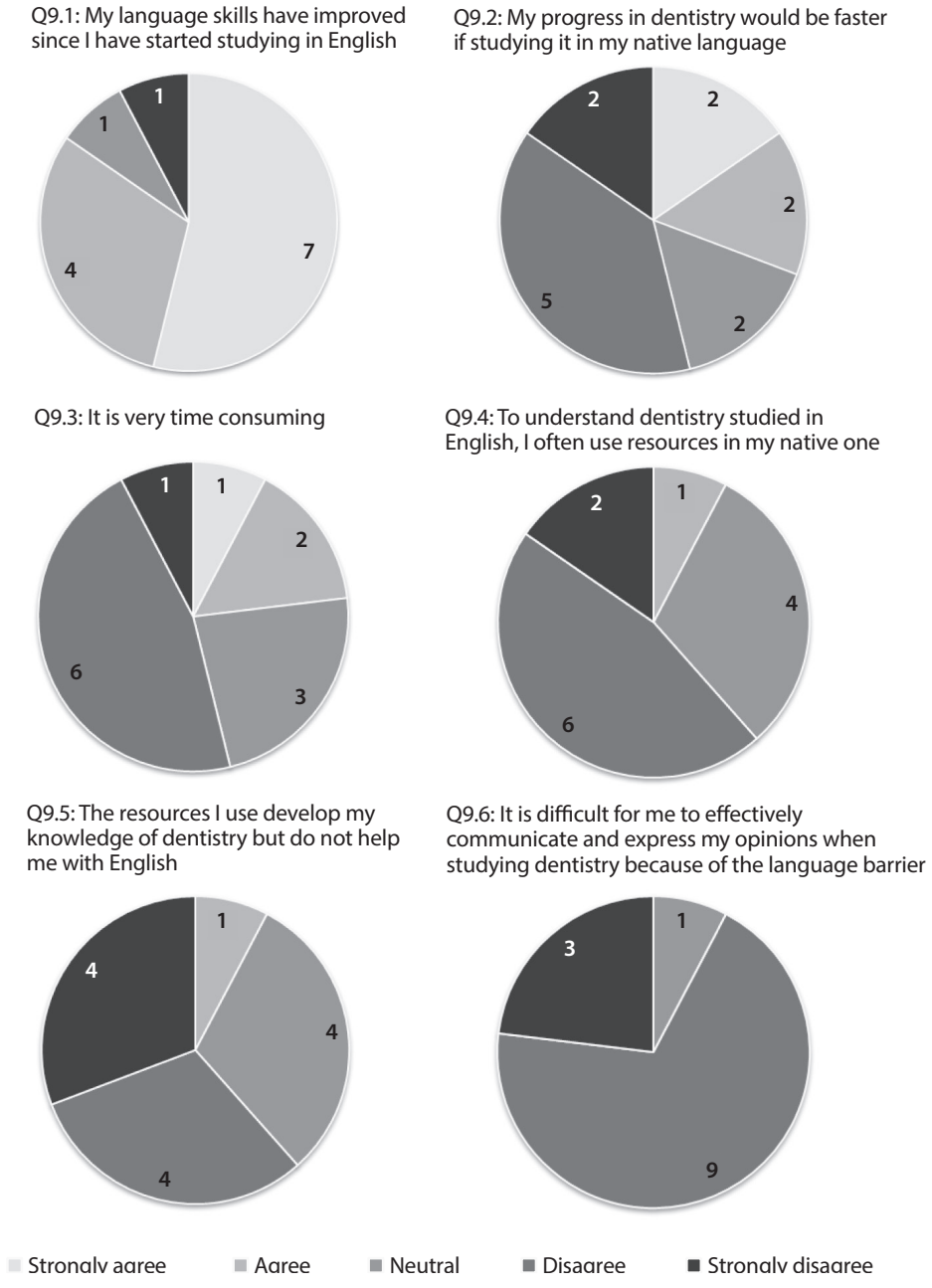


*Figure 1* **Rating of statements (Q9.1–9.6) related to studying dentistry in English** (N=13)

# APPENDIX 4

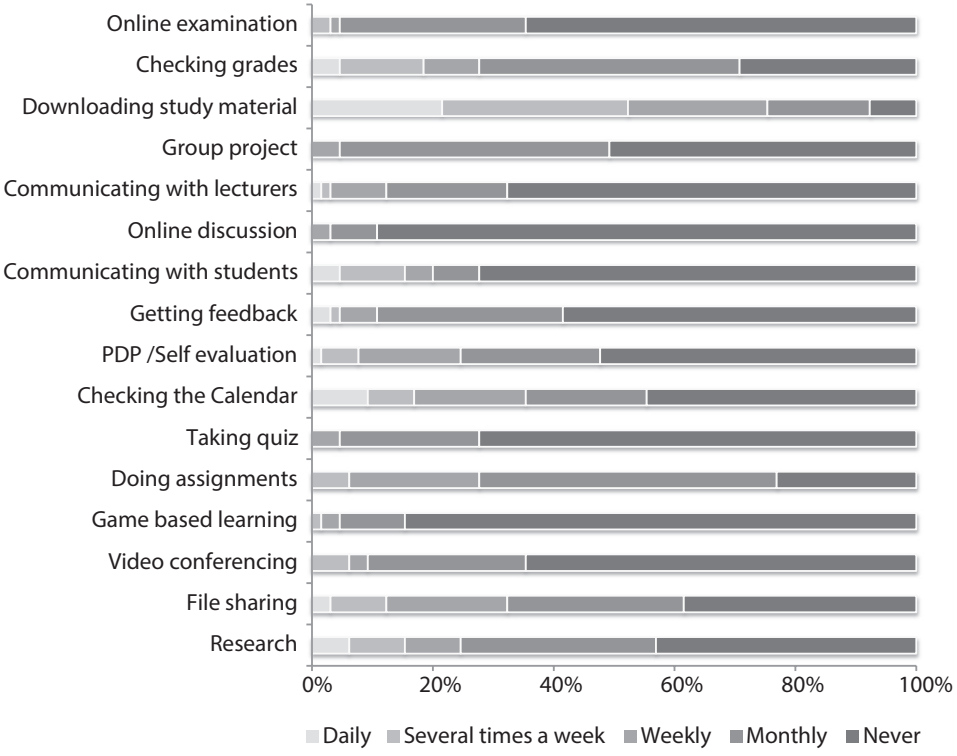


*Figure 2* **Purpose and frequency of VLE use** (N=65)

# APPENDIX 5

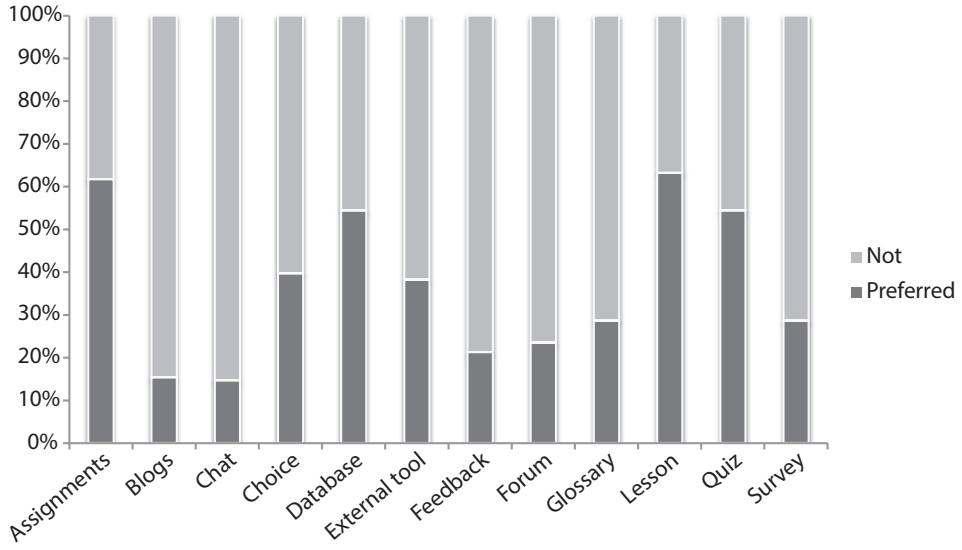


*Figure 3* **Distribution of preference of online tool usage for collaborative learning** (N=136 )

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