

Do we teach efficiently? – perspectives of those
involved in medical education

Attitude survey of teachers, students and patients

Doctoral (PhD)thesis

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1. INTRODUCTION

At the end of the 20th century and beginning of the 21st century, during a couple of decades and due to the information explosion, so quick technical, technological, economic and social changes took place in the world, which could not have been generated even in several hundreds of years by preceding historic eras. The amount of information became intangible and its flow rate nearly could not be followed up any more. So, by 2020 according to Peter Densen the medical knowledge was getting duplicated in every 73 days (Densen, 2011. p. 50). This increased information amount and the knowledge have reached groups and social layers in the world who were previously excluded from these due to their social-economic-geographical position. It does not mean knowledge has become more democratic, however, changes have started.

The fast and pervasive changes have also had a strong impact on higher education in developed countries. Some decades ago the biggest step was the higher education's transformation into mass education; that is, an increasingly higher proportion of the entering age groups have intended and are intending to study further. An international mobility has started worldwide, where students and teachers „wander” from country to country, learn about different teaching-learning environment, methods, ways of thinking.

Both information and knowledge spread rapidly. This is supported by innovative methods, among others the online courses (eg. webinars), which are not tied to either time or place (institution). Besides traditional computers, applications – with a continuously updating and growing selection – accessible on smart devices, mobile phones, tablets are getting more and more widespread. These opportunities, deliberately or not, transform students' learning and information acquiring habits, their expectations towards education, and force the change of the educational forms and methods, in many cases highly questioning the prevailing status quo. It was already at the end of the 1990s that the appearance of the computer brought a number of changes in higher education. An increasing number of instructors sought to use the slide show of the Power Point program accessible on computer as a teaching aid. As the 2010s' increment, good-quality videos easily made and quickly accessible appeared as teaching aids. Parallely, the simplified dissemination on the Internet makes the instructors, trainers and teachers face new technological challenges. And development keeps going...

The appearance of new elements in the field of public and higher education raises several questions, what's more, a paradigm shift. If everything is easily accessible online and in real time, what is the teacher's role in students' training? If more knowledge is available on smart devices than in teachers' heads, if everything can be answered by the smart phone, why should the student attend university and acquire the knowledge about which he or she already now knows that he or she will not need it within 5-10-15 years? Should he or she strive for a traditional degree, which can be obtained via a long training process, with a lot of difficulties and at a high expense, or should he or she acquire an instantly usable knowledge demanded on the job market by any alternative means? Competition is already ongoing between traditional education and changes triggered by technological explosion, whether you like it or not.

Apart from being acquainted with the changes in the world, the impacts of globalization and informational revolution made on higher education, it seems to be an important question what we think about our own role as a teacher in this, the pressures of the challenge, the necessities of the change, in case we do not want to be the losers of the competition. Besides the distress and fear from the change, do we ask the basic questions– challenging our current paradigms – related to our own role and tasks, or do we react on the changes in different ways, eg. blaming the students, the world, etc.? It is a fact that the technical development has brought the change

in the learning and knowledge acquiring strategies of the new generations, the formation of new demands, requirements, and surely, it will force the adaptation skills to these „on teachers’ side” as well.

Obviously, no straightforward answer and solution can be given to all these dilemmas within the frames of this paper, however, as a „background, a sort of reflection accompaniment” it will be continuously present in our questions posed and our analyses.

In the dissertation, we introduce changes in the Hungarian higher education, especially those of the medical education, furthermore the realization of the competences laid down in the Completion and Exit Requirements of the medical education in relation with the new demands of the new century from the perspective of teachers, students and patients. We investigate teachers’ roles in the acquisition of these competences by students and the applied didactic methods and their changes. We also seek an answer whether teachers should develop according to their students, and if yes, in which dimensions, so that they could deliver skills laid down in the Completion and Exit Requirements more efficiently.

1.1. Objectives

The focus of this paper is to examine teachers’ attitude in relation with the global changes of medical education based on research carried out at the four medical education sites in Hungary, at University of Debrecen, Faculty of Medicine, at University of Pécs, Medical School, at Semmelweis University, Faculty of Medicine and at University of Szeged, Faculty of Medicine and the accredited practice places of the general medicine major. On the one hand, we investigate how important the competences specified by the Completion and Exit Requirements are for student, teacher and patient groups, how satisfied they are with the acquisition of these during the training process, on the other hand, we look into whether they find the pedagogical training of their teachers important, and within this, which fields they find particularly crucial and to be developed.

In my paper the Hungarian higher education, with special focus on the medical education, the changes in pedagogue-teacher role will be elaborated on, in relation to the demands emerging in the new century. Our highlighted goal is to explore the teachers’ attitude and presumed role in connection with the requirements specified in the Completion and Exit Requirements of medical education. We also seek an answer to the question what basically determines teaching students: the tradition (the past, how they were instructed, that is, the experience and practices picked as being students themselves) or preparation for the competences in the Completion and Exit Requirements? Do they consider these competences important at all? It is also relevant to map which influencing factors characterize the teaching strategy both on an individual and institutional level (department/institute, clinics/faculty).

Current topic is investigated within the framework of a scientific work based on complex data collection and analyses concerning medical education. As for the examination of the topic, one-, two and multiple variable analyses are applied pointing out how teachers’, students’ and patients’ expectations on aspects specified in the Completion and Exit Requirements and in relation with pedagogical knowledge – according to teachers and students - are developing. Apart from the quantitative analysis we also carried out in-depth interviews (qualitative survey), which made possible to link the scores of the questionnaires to interviews reflecting also teachers’ intentions, narratives, personal motivations, and so, these comparisons could reveal dimensions which would have not get responded solely by analysing questionnaires. We followed the research principle that „qualitative examinations might support the interpretation of quantitative data, while quantitative methods might have a highlighted role in checking and

validating qualitative results” (Király and his colleagues, 2014. pp. 95-96). As the two methods complete well each other, „their strengths add up and compensate each others’ weaknesses, so together they are able to give a more complex picture on the research subject” (Király and his colleagues, 2014. p. 99).

Although my paper does not provide solutions on improving the quality of medical education, it – possessing the data and qualitative information collected in the field of study – might support further significant questions and research and data-based decision making contributing to modernisation efforts.

1.2. Research questions and hypotheses

Hungarian medical education is strongly based on traditions in an „educational-pedagogical sense”. Innovation in education is primarily reflected in the traditional way of transferring modern, new scientific knowledge, and applying part of the innovative technical methods. Instructors/teachers/pedagogues participating in medical training have not taken part in teacher training, and teaching is not their highlighted scope of activity – besides focusing on healing and scientific performance; furthermore, they do not necessarily deploy their innovation skills and potentials in this field. Before-mentioned is supported by a Dutch research from the side of commitment, as for which teachers’ commitment can be assessed as high in itself, however, even higher values were registered toward medical care. Which also means that combining tasks seem to decrease commitment towards teaching (Van den Berg, Bakker, Ten Cate, 2013. p. 264). The question arises whether more or less well-functioning medical education methods in the 19-20th century are appropriate in the 21st century as well, either for the students or – consequently – for the patients and whether they prepare for coping with rapid changes.

Following hypotheses are formulated and investigated in current paper:

1. Teachers do not consider all competences specified in the Completion and Exit Requirements as important to perform medical work as students do.
2. Teachers are less likely to believe than students that their skills in the field of pedagogical knowledge need improvement.
3. Teachers realize which – even newly formulated – competences would be currently crucial in the medical profession, however, they do not focus on conveying these during teaching students.
4. Patients are less satisfied with competences specified in the Completion and Exit Requirements during medical care compared to how important they consider them.

2. LITERATURE REVIEW

The first step of investigating previously mentioned hypotheses and the main topics of the thesis is systematically overviewing, structuring and summarizing earlier published research findings. This part of the dissertation introduces the relevant Hungarian scientific literature on this subject through the changes of the Hungarian higher education and Hungarian medical education, of the teacher-pedagogue-instructor role, and the learning-teaching paradigm. In addition, it also covers international trends.

2.1. Overview – international trends

Changes definitely accompany our life, and this also applies to the field of education and medical profession considered one of the most rapidly developing profession. The emerging new demands and expectations arising from the changes of medical education have already been engaging researchers for a long time as detailed earlier. It was realized pretty early, not only current circumstances should be investigated and viewed when we would like to react on changes in education. An article published in 1930 articulates this idea as follows: „We should not alone be interested in present problems but also be alert for indications of what medical service is likely to be in the future” (Rappleeye, 1930. p. 915). In 2013, Lucey shares similar ideas in his article, that is, we should concentrate on training professionals familiar with the healthcare system of the 21st century rather than focusing on how to train doctors of the 20th century (Lucey, 2013. p. 1). Gwee and Hilliard make a similar reference when they write that such doctors should get trained who well know how to adopt to changes, how to develop themselves, and how to be open to the acquisition of emerging information, knowledge and competences (Gwee, 2003. pp. 4-6; Hilliard, 2018. pp. 996-1003).

Challenges of medical education seem to be described by Frenk and his colleagues in the most complex way in their article, which suggests that all earlier curricula, the goals of medical education, the macro-environment, the patients’ and doctors’ opportunities for migration need overviewing, so, they emphasize the need for reforming healthcare on the whole (Frenk and his colleagues, 2010. pp. 5-8). International conferences and a series of articles discuss the pedagogical implications of medical education, and the need that teachers should be prepared for delivering knowledge. The main idea is that for teachers it is not sufficient if their experience and observations form exclusively their teaching methods (Wilkes and his colleagues, 2018. pp. 364-371; Artino, Konopasky, 2018. pp. 609-613; Grossman, 1990. pp. 5-10; Murray and his colleagues, 1996), which they mainly gather from being learners themselves earlier (Irby, 1994. pp. 333-342). They believe that their medical professional knowledge is not enough to provide proper teaching activity (Chen, Ennis, 1995. pp. 389-401; Darling-Hammond, Youngs, 2002. pp. 13-25), as most of them have not taken part in any kind of pedagogical training (Bligh et al., 2001. pp. 520-521; Calderhead, 1996; McLeod and his colleagues, 2009. pp. 117-124). Dent and Harden, in their book titled *Practical Guide for Medical Teachers* offer numerous solutions how to teach on a professional level in medical education. In addition, there have been efforts at a number of medical training sites to provide pedagogical, methodological trainings for teachers to support the acquisition of knowledge delivery methods (Hesketh and her colleagues, 2001. pp. 555-564).

In case of teachers, their intrinsic motivation and their love for teaching are essential to become excellent in their profession, however, „love for teaching” in itself is not sufficient and does not make teachers capable of teaching well (Dewey and her colleagues, 2017. pp. 894-898).

2.2. The teaching and learning paradigm

Institutions of adult education cannot avoid facing the current paradigm shift of learning and teaching¹. It is the student and learning that stand in the centre of the learning paradigm. As for the teaching paradigm, teachers – based on the same writing by Kraiciné – follow the traditional methods and structure of teaching. The teacher and teaching stand in its centre. Its aim is to deliver information and knowledge, thus, to provide professional skills to graduate students. In this case the key to success comes from the teachers, who justify their suitability for teaching with their scientific progress.

These two paradigms can be perfectly applied for the Hungarian medical education. This is an excellent example how teachers envisage and see successful teaching. Delivering knowledge in a „direct” way seems to be more important compared to students themselves exploring knowledge. A further characteristic feature of teaching is the inflexibility of the classes. As a whole, the teaching-centred paradigm seems to appear in all above cases in medical education.

It should be also borne in mind that unfolding talents for a smaller portion of students is of a special importance (eg. via Scientific Student Association’s scientific work, co-participation in researches with teachers), which is, in turn, a key element to the learning paradigm.

On the whole it can be said that we should face the fact that the success makers of earlier decades have been changed. New generations have entered the adult education, the medical education representing totally different demands, expectations, educational background from the earlier generations.

Harden and Crosby also mention the above-described shift in the teacher role, by students getting into the centre of education instead of teachers (Harden and Crosby, 2000. p. 3). This change also results in the outdated of the former idea suggesting that clever people are capable of everything (e.g. teaching), and it is getting realized that teaching is a very complex academic work (Brew and Boud, 1996. p. 18). Gwee also supports this approach. In his article he underlines that the notion of „teacher knows best and teacher knows most” is outdated and it is suggested to concentrate rather on „lifelong continuing self-education” (Gwee, 2003. p. 6). The main topic of AMEE²’s conference in Vienna in 2019 was also the shift between teaching and learning paradigm. Several lectures discussed how to experience the change, its negative and positive impacts, how to cope with the new challenges brought by incorporating the new learning paradigm into medical education.

Changes have been observed in Hungary, too. At the session of Hungarian Society of Medical Education and Health Science (MOEOT) held in autumn 2013 the leaders of the medical faculties made the decision that it is required to launch a teacher training course delivering the basic knowledge for the young colleagues employed as teachers in medical education.

¹ It was already in 1984 that the following concepts appeared in the foreign-language reference literature: „teacher-centered student-centered strategies”, which also discussed the student’s or the teacher’s central position and envisaged the shift (Harden and his colleagues, 1984. p. 285).

² International Association For Medical Education

2.3.Changes in the Completion and Exit Requirements

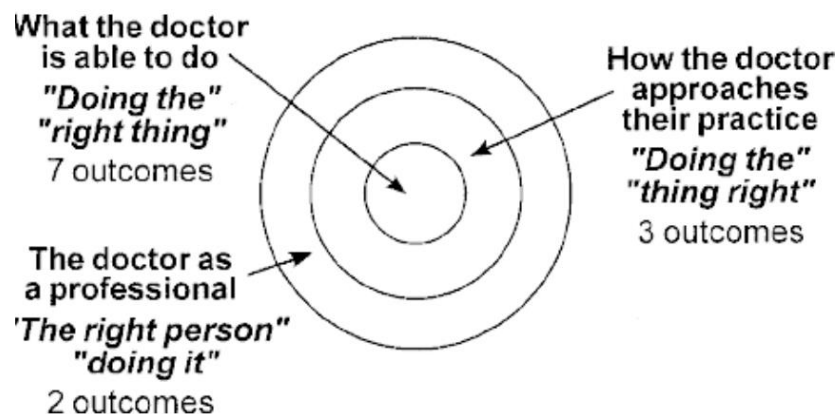
In Hungary it was in 2015 and 2016 that the so called Completion and Exit Requirements were reconsidered, reformulated for the different specialisations, among others the general medicine, in view of the new generation of doctors' expectations and emerging professional needs. Linked to this, the requirements for the teachers and the education itself were defined as well.

Apart from information and knowledge, expectations concerning a doctor's skills and attitudes emerged. Among skills certain activities defined as knowledge in former Completion and Exit Requirements are listed, and communicational skills can be found, too. In the part of the attitudes, behaving with empathy, critical assessment, handling aggression and ethical behaviour are highlighted besides communication. New expectations towards doctors also appear, such as independency, autonomy and decision making skills. All these suggest that expectations towards newly graduated doctors are entirely different from those towards graduates ten years ago.

At this point it is important to look at the international dimensions in terms of how the current Completion and Exit Requirements in Hungary are related to the international literature.

Though competencies required for the medical profession can be grouped in different ways, the model consisting of three circles described by Harden and his colleagues is the most generally accepted at international level.

Figure 1: Three-circle model



Source: Harden, Crosby, Friedman 1999. p. 552.

As per the model shown in above figure the doctor needs to be able to do the following: the doctor has to know what is the right thing to do in a given situation („doing the right thing”), the doctor has to do this in the right way („doing the thing right”), the doctor has to be the right person to do this („the right person doing it”) (Harden, Crosby, Friedman, 1999). Apart from professional knowledge and professional information, further needs for other skills have emerged. As Goleman cites Ruth Jacobs: „professional knowledge is crucial to perform the medical work, but the performance achieved in the medical work is determined by other competences besides knowledge” (Goleman, 1998). As for this, emotional intelligence and personal competences play a greater role in achieving a good performance than cognitive and technical knowledge. Spady (1994) reinforces the same – similarly to the three-circle model – that is, in addition to doctors' knowing what they do, they also need to do it in the right way and the appropriate doctor should do it.

3. RESEARCH METHODS

3.1. Target groups of the research

So as to verify the hypotheses, empirical study with two main parts was carried out. As a quantitative method questionnaire survey was administered at the general medicine faculties of University of Debrecen, University of Pécs, Semmelweis University and University of Szeged. *Teachers* of general medicine major and *students* of általános orvos (=general medicine major in Hungarian) general medicine and Allgemeine Humanmedizin took part in the survey in the period of November-December 2017. In August 2019 the questionnaire survey was carried out with patients at the accredited practice places of the general medicine students of University of Pécs, Medical School enquiring how important they, as being involved, find the competences included in the Completion and Exit Requirements and how satisfied they are with them.

As a qualitative method we conducted in-depth interviews involving fifteen teachers at University of Pécs, Medical School so that we could construct the quantitative survey instrument, the questionnaire, and along with the additional personal perspective we could properly interpret the research findings.

3.2. Questionnaire survey

The questionnaire survey was conducted in the autumn 2017 at the previously mentioned Hungarian medical training sites. Although the standards of medical education are quite similar in developed countries, almost universal, certain elements of the Hungarian Completion and Exit Requirements as legal rules have not been examined in an international comparison. Since we have no information about any Hungarian research on this subject, we ourselves have developed a questionnaire in several phases for both the teachers, the students and the patients to verify our hypotheses.

A committee of experts contributed to the development of the questionnaire, members of which were teachers, quality experts, and also sociologists, clinicians and medicine students. In the first phase the relevant Hungarian and international literature were thoroughly studied (Harden, Crosby, Friedman, 1999; Barabás, 2011), then following the preliminary interviews made with fifteen experienced teachers with close familiarity with the complete training process, we grouped the requirements in the Completion and Exit Requirements into thirty-one competences. With regard to the importance, the delivery of the competence and the degree of the acquisition the questions were divided into two dimensions so that we could study the answers with a GAP matrix.

3.2.1. Developing the questionnaire, determining questions and items

In case of the *teacher* questionnaires, the first main part of the questionnaire was concerned³ with the competences included in the Completion and Exit Requirements, which were examined

³ Only the historical overview of disciplines remains as an exception. This aspect is not included in the Completion and Exit Requirements, however, the exploratory interviews preceding the questionnaire survey implied that the

along three groups of question. The first focused on how the importance of the competences included in the Completion and Exit Requirements are judged from the aspect of medical profession. In the second group of questions we investigated on what level students – by the time of graduation – claim to acquire these competences during their education. The third part aimed to look into to what extent the teacher himself/herself delivers these competences in terms of his/her courses, classes.

In the *student* questionnaire two questions were asked on the Completion and Exit Requirements. The first was about how important students consider these competences during performing medical work, as for the second, the enquiry was about how satisfied they are with the delivery of these during the training.

In the *patient* questionnaire the first question was how important they consider the given features (=competences) for a doctor, the second was to what extent they experience doctors have these features (in other words: how satisfied they are with doctors in those dimensions).

The second part of the questionnaire in the teacher and student questionnaires focused on teachers' pedagogical skills. Teachers ranked to what extent they consider self-improvement necessary in case of the certain aspects, and students responded the question to what extent teachers have the given pedagogical skill and at which area they would need further training.

As the Completion and Exit Requirements include a long list of competences, it was necessary to cut down and group them considering the length of the questionnaire. Also, it is crucial to mention that as the Completion and Exit Requirements determine curriculum, it has a significant impact on strategies applied in education, the methodology of exams, teaching and learning (Harden and his colleagues, 1999).

In case of pedagogy-related questions, listed by Hegyi and Ballér (1996) was used in terms of teachers' pedagogical skills, abilities (see questionnaires in appendix). The questions addressed at which areas they need further training.

3.2.2. *Validation of the questionnaire*

In the process of validating the questionnaire, firstly we applied the method of the so-called face validity, which, as for the given questionnaire, reveals whether the questionnaire really measures what we planned it for. This testing was conducted on a small sample involving fifteen teachers, sixty students and thirty patients⁴. On the whole, respondents found the questionnaires clear, comprehensible and easy to answer. It was only at a couple of places, where questions needed some revision so that respondents interpret them more or less identically – avoiding considerable misunderstandings.

In the next phase of questionnaire development, using the quantitative content validation method we calculated the Content Validity Ratio (hereinafter: CVR) values for the separate aspects (Zamanzadeh and his colleagues, 2015), based on which out of the thirty-one Completion and Exit Requirements twenty-five were kept in the teacher and student questionnaire, as CVR was higher than 0.49 in these cases. As for the patient questionnaire only

teaching and testing of this strongly frustrates students. This is the reason why we made the decision to include this dimension in the list of questions. Our long-term goal is indeed – apart from the research goals – to prepare proposals for the decision-makers on how to improve education.

⁴ The patient questionnaire was applied on a sample of 100 people in the spring of 2019 and developed by Csaba Gergely (Csaba, 2019), a graduate general medicine student at the University of Pécs Medical School, and based on which he constructed his thesis.

twenty aspects were included based on professional considerations and based on CVR only sixteen remained in the final version of the questionnaire. In case of the pedagogical skills, based on CVR values all nine selected aspects got unchanged included in the questionnaire.

Since the student questionnaire needed to get translated both into English and German because of the involved international students, the committee of experts responsible for developing the questionnaire invited two independent translators to ensure the linguistic validity (Guillemin, Bormardier, Beaton, 1993; Beaton, Bombardier, Guillemin, 2000; Gable, Wolf, 1993). These translators translated the version already translated by experts to foreign language „back” to the original (Hungarian) language. Further precisions were made in the student questionnaire in this phase, too.

In the next phase of validating the questionnaire, to calculate the Cronbach alpha values, investigations were made in the same narrower circle mentioned at face validity. That is, we worked with 15 responses in case of the teachers, with 20-20-20 in each language group in case of the students and with 30 in case of the patients. It can be seen that the lowest Cronbach alpha value is 0,820, all the others are higher than 0.9. In the final phase of validating the questionnaire, we performed a factor analysis for the importance of the competences with testing the possibility of listing into main effects.

3.3. Applied statistical methods

In the method of quantitative content validation, the most important and right content of the questionnaire is selected, which is quantified with the Content Validity Ratio (CVR) (Zamanzadeh et al., 2015). Additionally, our work was supported by the Cronbach Alpha coefficient measuring the reliability, inner consistency. A factor analysis was performed. As for the statistical tools we selected the methods of descriptive statistics, GAP matrices, two-sample t-test, variance analysis and factor analysis. In terms of the descriptive statistics, we applied the method of arithmetic mean and standard deviation, by which and based on the respondents' opinions the positioning of the pedagogical aspects and the specific competences in relation to each other could have been illustrated. All analyses were conducted with the IBM SPSS Statistics Data Editor programme version 26.0.

3.4. In-depth interviews with teachers

As part of our investigations we also applied qualitative methodology in addition to the quantitative survey. As it was already pointed out in the methodology part of this paper, the advantage of mixed-type research is that combining the two research types can assist in a deeper understanding of the problem to be examined.

4. RESEARCH FINDINGS

As for the results of the quantitative investigations, first the questionnaire survey conducted with *teachers and students*, then the questionnaire analysis performed with *patients* is introduced in this paper. This part of the paper is closed with the evaluation of the results of the qualitative survey conducted with teachers, the *in-depth interviews*.

4.1. Results of the questionnaires – teachers and students

4.1.1. Sampling and the profile of respondents

Altogether 439 completed questionnaires returned from the teachers at the four medical training sites in Hungary. We received altogether 1515 questionnaires from the students at three languages (except for the University of Debrecen, where there are no German-language general medicine studies). With regard to the questionnaire survey we did not aim at reaching a representative sample, only to receive as many completed questionnaires from the given target group (teachers, students) as possible. The total student sample size would have been 13464 persons, in case of teachers it would have been 1790 persons based on the headcount data at the four medical training sites at the time of the questionnaire completion. Accordingly, the completion proportions arised as follows: in case of students 11.8%, in case of teachers 24.53% was reached. Due to the relatively high number of respondents we believe that with the help of the analysis we might have a reliable picture what the general attitude of teachers and students is towards the competences included in the Completion and Exit Requirements in terms of the medical profession, and how teachers and students judge teachers' pedagogical preparedness.

4.1.2. Completion and Exit Requirements

The first part of the questionnaire developed for teachers and students – as previously discussed – brought the competences included in the Completion and Exit Requirements into focus, examining them in three dimensions in case of teachers, and in two dimensions in case of students. We were seeking answers for following questions:

In teacher questionnaire:	In student questionnaire :
1. How important do you consider below to perform your everyday JOB AS A DOCTOR?	1. How important do you consider below to perform your everyday JOB AS A DOCTOR?
2. To what extent do you think students acquire below during courses?	2. To what extent do you think you have acquired below during your courses so far?
3. To what extent do you think your course(s) deliver(s) below on the whole?	

Considering the comprehensibility of the analysis of the aspects included in the Completion and Exit Requirements, the names of the aspects involved in the questionnaire were shortened and used this way in the paper. These short forms are summarized in below list:

List 1: Original names and short forms of aspects included in the questionnaire

The original names of aspects in the questionnaire	The short forms of aspects used in the paper
1. The timely theoretical and practical knowledge to the everyday work	Theoretical knowledge
2. The professional practice needed for the everyday work	Professional practice
3. The knowledge of historical overview of the medical disciplines	The knowledge of the history of disciplines
4. The flexible professional and everyday thinking	Flexible thinking
5. Respecting human dignity of the patients and the relatives during patient care	Respecting human dignity
6. Respecting the different demographic (sex, age), social and economic characteristics during patient care	Respecting patients' demographic-social-economic characteristics
7. Respecting individual specialty during patient care (e.g. familiar background, emotional state, sexual orientation)	Respecting patients' individual specialty
8. Treating the emotional reactions of the patients and the relatives during patient care	Treating the emotional reactions of the patients
9. Giving information suitable to the patients' qualification, cultural background, cognitive state	Giving information suitable to the patients' qualification, cultural background, cognitive state
10. Fully informing patients about their diseases	Fully informing patients about their diseases
11. Establishing long term "partnerships" with patients (mostly with chronic diseases)	Establishing "partnerships" with patients
12. Handling patients as equals and with respect	Handling patients and with respect
13. An ongoing positive and motivated approach to work	Positive approach to work
14. The individual problem-solving skills (creativity) during everyday work	Problem-solving skills
15. Handling stress and avoiding burnout	Handling stress
16. Handling appropriately patients' expectations on therapy	Handling patients' expectations on therapy
17. Ability to work as a member of a team (in everyday situations)	Ability to work as a member of a team
18. Handling conflicts within the educational team and with the patients (and relatives)	Handling conflicts
19. Good time management	Good time management
20. Improving emotional intelligence	Improving emotional intelligence
21. Work-life balance	Work-life balance
22. Information about career opportunities	Information about career opportunities
23. Participation in further educational courses	Participation in further educational courses
24. Using assertive communication skills	Using assertive communication skills
25. Improving social intelligence	Improving social intelligence

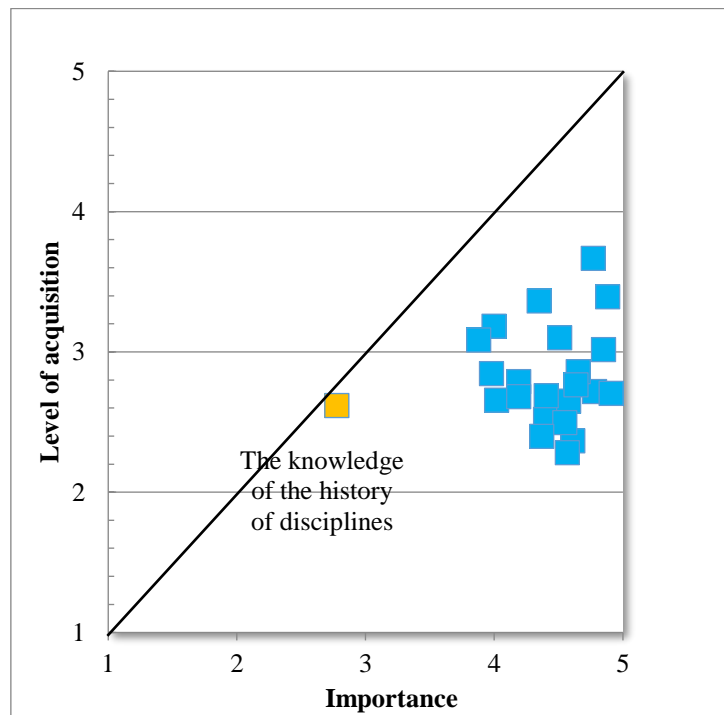
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4.1.2.1. Ratings on the importance of competences by teachers and on their acquisition by students

The relations between the importance and the level of acquisition (indirectly the satisfaction) are analysed in a so called GAP matrix.

The ratings of importance by teachers and the level of acquisition (satisfaction) are shown in below GAP matrix (Figure 2). Based on the squares used for marking it can be seen that underperformance can be registered with each competence.

Figure 2: The importance of competences and satisfaction with their acquisition based on the teachers' answers (mean, N=343)

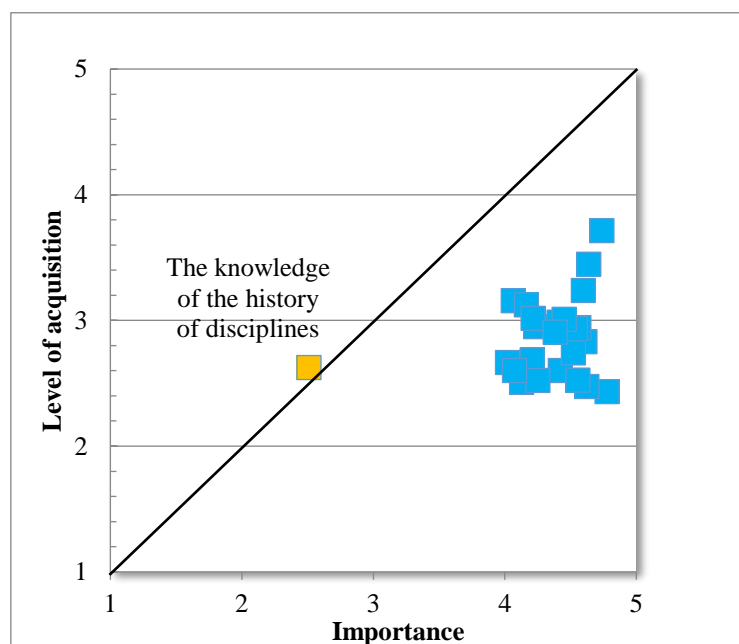


Source: own construction

The fact that each competence in the figure is located under the diagonal makes us conclude that *teachers* are not satisfied with either competence acquired by students during their full training period. It is the knowledge of the history of disciplines that stands the closest to the optimal level.

The *students'* answers to the very same question are demonstrated in below GAP matrix.

Figure 3: The importance of competences and satisfaction with their acquisition based on the students' answers (mean, N=981)



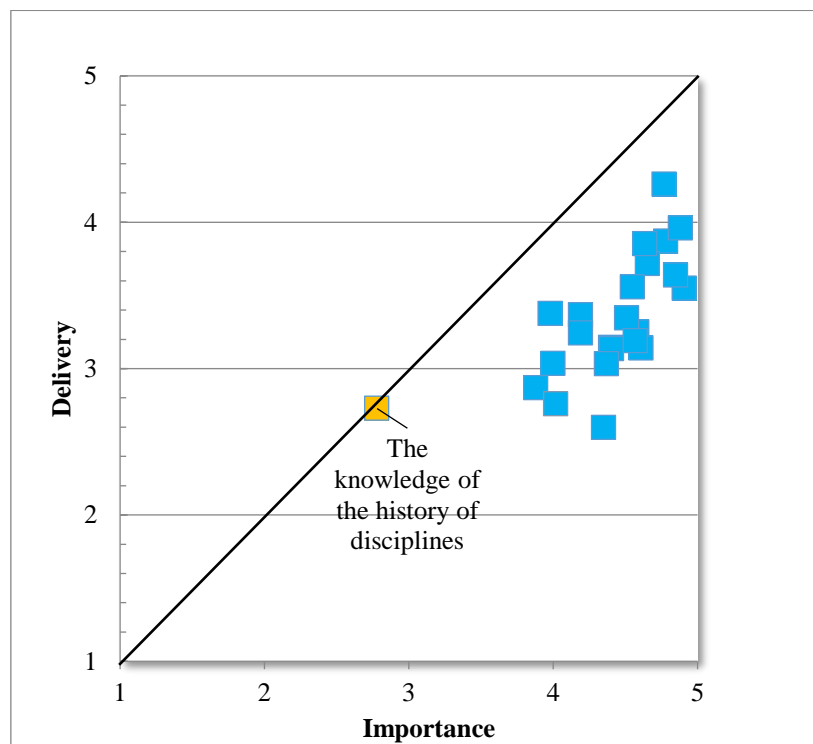
Source: own construction

In this figure an aspect already appeared on the part above the diagonal (that is the knowledge of the history of disciplines), which means that according to *students* the level of acquisition is higher than the aspect's importance (in other words, they know more about it than they think it would be important). In case of further competences – similarly to teachers' opinion – it is visible that according to *students* the importance of the given competence received a higher score than they managed to acquire it during their training until that point. In other words: in *students'* view medical education is „overperforming” in one single dimension, while it „underperforms” in all the others in terms of the needs, that is to say, in terms of the importance.

4.1.2.2. Ratings on the importance of competences by teachers and students and on the level of delivery by teachers

Considering how important *teachers* find the given competence important and to what extent they deliver it during teaching their own subject, the following can be stated. In case of all twenty-five aspects teachers consider the given competence more important than how they deliver it in teaching their subject.

Figure 4: The importance of competences and the level of delivery based on the teachers' answers (mean, N=263)



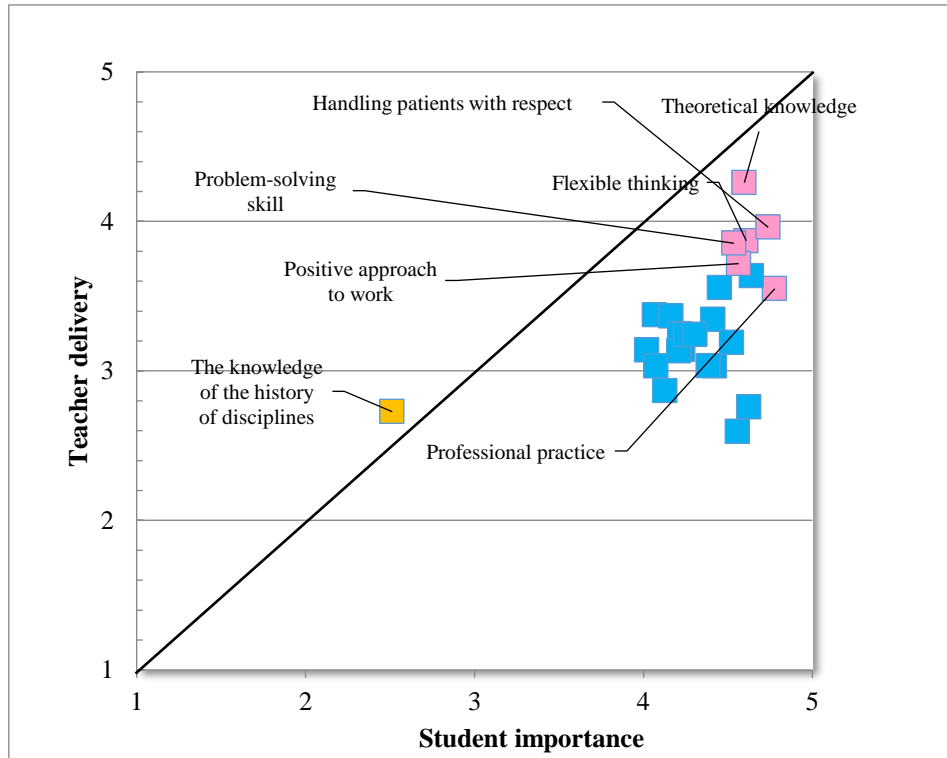
Source: own construction

It is demonstrated in the figure of GAP matrix that merely the dimension of the historical overview of disciplines is located on the diagonal (optimal performance), which suggests that the delivery occurs as per the importance found by *teachers*. In case of the rest of competences teacher satisfaction with delivery is lower to what importance they attribute to them, so an underperforming is characteristic.

In the following figure *students'* importance preferences are compared to teacher delivery level. The figure perfectly illustrates there is overperforming only in one competence, namely in the

historical knowledge of disciplines. Unfortunately, in the delivery of the other competences *teachers* „underperform”, not only in their own but also in *students’* rating.

Figure 5: The importance of competences based on the students’ answers and the level of delivery based on the teachers’ answers (mean, N_O=263, N_H=1497)



Source: own construction

4.1.3. Pedagogical knowledge

The second big question group in the questionnaire was about which knowledge, competences, skills of the teachers need improving during teaching, either according to teachers or students. We sought answers to following questions in the two target groups:

In teacher questionnaire:	In student questionnaire:
	1. To what extent do you think teachers possess following?
1. Do you, as teacher of the medical faculty, feel in connection with below topics that your knowledge needs improvement?	2. At which areas do you think teachers at the medical faculty would need training, further training?

4.1.3.1. Possessing pedagogical skills and the need for further development, improvement

Questions discussed previously should also get compared to each other, accordingly, below table demonstrates mean scores of the three questions all together.

Table 1: Pedagogical skills possessed by teachers according to students and needs for further development, improvement according to teachers and students (mean, N_O=433, N_H=1472)

Pedagogical skills	According to students, teachers possess them	According to teachers, their skills need broadening	According to students, the teacher needs further training
Professional knowledge	4.38	3.12	2.30
Decision-making and rapid assessment of the situation	3.62	2.71	2.97
Learning the ability of professional cooperation	3.51	2.47	3.24
Communication knowledge	3.18	3.15	3.76
Didactic knowledge	3.12	3.48	3.83
Empathy	3.02	2.37	3.63
Improving adapting skills (e.g. flexibility in education considering the needs and expectations of th students and patients)	2.98	2.85	3.71
Psychological knowledge	2.89	3.21	3.56
Organizing and leading the learning process	2.87	3.28	3.92

Source: own construction

According to teachers, their competence in the field of organizing and leading the learning process (3.28) takes the second place in the order of the need for improving, and this „almost” corresponds to the students’ opinion.

Developing professional skills (3.12) ranks fifth, which might indicate that *teachers* find further trainings necessary in general, as knowledge acquired earlier is getting continuously outdated and the changes of medical science need to be reacted on. *Students* altogether indicated teachers’ professional knowledge with an average value 4.38, which suggests that this is what the teachers possess to the greatest extent, while, with a value of 2.87, organizing and leading the learning process proved to be the weakest competence. The response given to this question corresponds to the inverse of the answer, where students were asked at which areas teachers need further improvement. In this context organizing and leading the learning process (3.92) was given as the area which needs the most improvement, and professional knowledge (2.30) was indicated as the area which needs the least improvement.

4.2. Findings of the questionnaire survey - patients

4.2.1. Sampling and profile of respondents

In autumn 2019 we expanded our questionnaire of teachers and students to patients as well, since they are who take part in the healthcare process. Totally 1115, at least 18-year-old participants responded. The query was conducted with the cooperation of 14 medical students (interviewers) with an active student legal status at the General Medicine Faculty of University of Pécs, at Hungarian healthcare facilities⁵. There was no special condition on location and institution, they were allowed to make the interview where they spent their internship period (the only criterium was that it has to be an active healthcare facility, where patients suffering from a disease go to).

Interviewers had opportunities to complete the questionnaires at below places:

- accredited GP's offices,
- university clinical specialist consultations, and
- inpatient departments (hospital or clinical),

namely, at practice places, where general medicine students might spend their internship period. Although data collection – in lack of information on population – was not representative, quotas (male-female proportions and age groups) were determined as follows: male-female proportion: 50-50%, age groups: 20% under 30, 40% between 30 and 60 and further 40% above 60.

4.2.2. Questionnaire construction

The questionnaire included closed-ended and open-ended questions, and consisted of two essential parts. Furthermore, questions were asked about demographic and social characteristics concerning the investigated population (e.g. gender, age, residence, educational background).

The first main part covered the competences included in the Completion and Exit Requirements, and which were examined along two main questions in case of patients.

In patient questionnaire:

- | |
|--|
| 1. How important do you consider below to perform a JOB AS A DOCTOR? |
| 2. To what extent are you satisfied with below? |

In the survey conducted with teachers and students equally twenty-five, twenty-five competences were investigated. In case of patients sixteen competences were retained when developing the questionnaire, which are demonstrated in below list of aspects:

⁵ Although we are well aware of the fact that the sample location might influence responses, we opted for this method due to cost efficiency. In lack of sources, patients were available for us at the practice places of students. In case of an online survey we should have had to take other types of distortion into account, this is the reason why we decided on above method.

List 2: Short forms of competences included in patient questionnaires

Competences
Theoretical knowledge
Professional practice
Flexible thinking
Respecting human dignity
Respecting patients' demographic-social-economic characteristics
Respecting patients' individual specialty
Treating the emotional reactions of the patients
Giving information suitable to the patients' qualification, cultural background, cognitive state
Fully informing patients about their diseases
Establishing "partnerships" with patients
Handling patients with respect
Positive approach to work
Problem-solving skill
Handling patients' expectations on therapy
Handling conflicts
Improving emotional intelligence

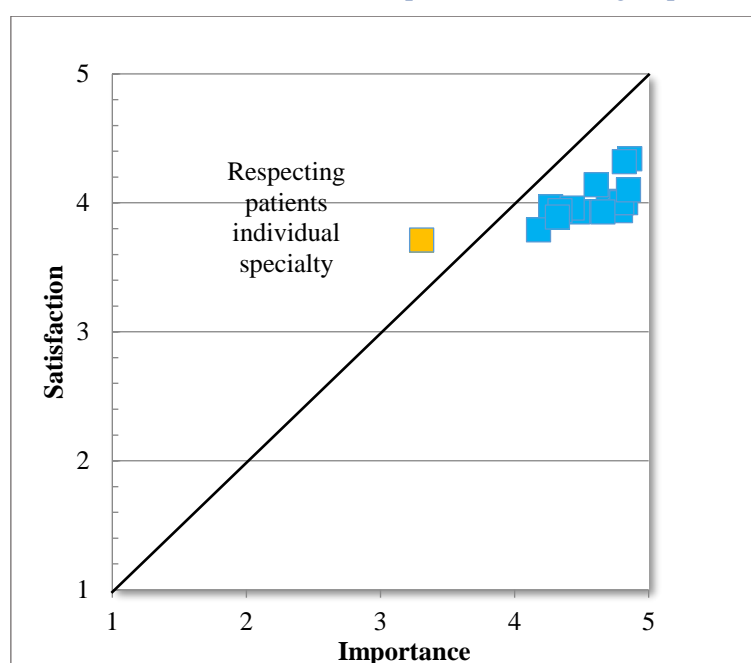
Source: own construction

4.2.3. Rating of competences

4.2.3.1. Ratings on the importance of competences and on the satisfaction with them

Below figure shows how important *patients* consider the given competence, how satisfied they are with it. Furthermore, it points out the difference between these two ratings (the so called „gap”) and whether this difference is statistically significant (p-value).

Figure 6: Importance of and satisfaction with competences according to patients (mean, N=1115)



Source: own construction

4.3. Questionnaire findings – teachers, students, patients

Table 2: The importance of the sixteen competences investigated in the three target groups, the level of acquisition and delivery according to teachers, students and patients (mean, N in the table)

The importance of competences for doctor's work, and the level of acquisition and delivery	Teachers			Students		Patients	
	Importance	Student acquisition	Delivery	Importance	Acquisition	Importance	Satisfaction
N	434	343	263	1.497	981	1.115	
Theoretical knowledge	4.77	3.67	4.26	4.60	3.24	4.86	4.34
Professional practice	4.91	2.70	3.55	4.78	2.43	4.82	4.32
Flexible thinking	4.78	2.72	3.87	4.61	2.83	4.70	4.01
Respecting human dignity	4.85	3.02	3.64	4.64	3.45	4.79	3.94
Respecting patients' demographic-social-economic characteristics	3.98	2.84	3.38	4.07	3.16	4.27	3.97
Respecting patients' individual specialty	4.19	2.79	3.37	4.16	3.12	3.31	3.71
Treating the emotional reactions of the patients	4.40	2.52	3.14	4.23	2.95	4.18	3.79
Giving information suitable to the patients' qualification, cultural background, cognitive state	4.58	2.65	3.25	4.21	3.02	4.83	4.00
Fully informing patients about their diseases	4.51	3.10	3.35	4.41	2.99	4.80	4.00
Establishing "partnerships" with patients	4.41	2.69	3.13	4.21	2.69	4.61	4.14
Handling patients with respect	4.88	3.39	3.96	4.74	3.72	4.85	4.10
Positive approach to work	4.65	2.86	3.72	4.56	2.94	4.66	3.93
Problem-solving skill	4.64	2.76	3.85	4.54	2.93	4.47	3.93
Handling patients' expectations on therapy	4.02	2.66	3.14	4.02	2.66	4.43	3.96
Handling conflicts	4.61	2.37	3.03	4.42	2.60	4.34	3.94
Improving emotional intelligence	4.37	2.40	3.04	4.38	2.91	4.32	3.89

Source: own construction

The table above points out that the prioritization of *teachers and students* is identical in terms of the averages; *patients*, though, include two additional aspects into the most important ones (theoretical knowledge and giving information suitable to patients' qualification, cultural background, cognitive state). In other words, according to patients it is important that the doctor should be „smart”, should have high level of knowledge (theoretical and professional practical knowledge), and also, he or she should handle patients with respect, and should give information – adequate to patient's condition.

It is also interesting to observe that the least important aspect in the given target group was ranked as last with different mean scores. *Teachers and students* assigned an average score around four (teachers: respecting the different demographic-social-economic characteristics 3.98; students: handling patients' expectations on therapy 4.02) to competences, which they consider the least important in performing the physician's work. On the 5-point Likert-scale an average score around four already represents an important rating, consequently, these two investigation groups actually considered each of the listed sixteen aspects as of importance. As for *patients*, though, the competence rated the lowest average score (respecting patients' individual specialty 3.31) is approaching already the average value three, so it is considered only medium important on the 5-point Likert-scale.

So, we can see that *all three investigated groups* basically considered all queried competences as of importance. Altogether merely two factors received a score under the average value 4.00, all the rest was regarded by *teachers, students and patients* equally as important.

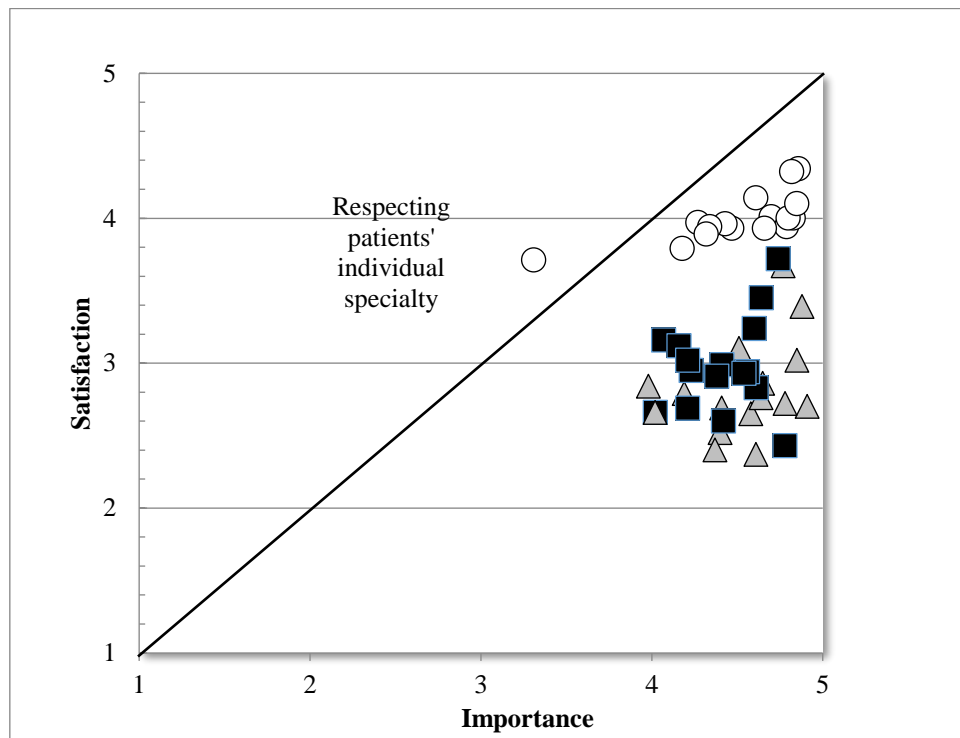
Measuring the rate of satisfaction with these competences also let us conclude, and prioritization shown in the table also supports the interpretation that *teachers* were overall most satisfied with the following aspects: students' theoretical knowledge (3.67), handling patients with respect (3.39) and fully informing patients about their disease (3.10).

In case of *students*, handling patients with respect (3.72), respecting human dignity (3.45) and theoretical knowledge (3.67) were ranked the first three places. Thus, both these target groups' evaluation included handling patients with respect and theoretical knowledge.

Patients are similarly satisfied with physicians' theoretical knowledge (4.34) and this aspect received the highest rating in this field. Lagging not so far behind (4.32), professional practice was ranked second (which might be surprising being aware of the fact that students ranked it last in their satisfaction rating, and even on teachers' satisfaction rating it was only the tenth). In patients' satisfaction rating the third place was taken by the competence establishing „partnership” with patients. (Latest is not involved either in teachers' or in students' satisfaction rating among competences with which they would be the most satisfied.) In sum, patients are satisfied with physicians' theoretical knowledge and professional practice, and they experience partnership with their doctors as well. Latest is observed neither by teachers nor students.

In conclusion, Figure 7 shows, in terms of doctor's competences, patients' assessments stand closest to the diagonal, the so called „optimal performance”. It suggests that dimensions considered important for them in medical work are, though not in their entirety, somewhat fulfilled, the gap between importance and satisfaction is here the smallest. A larger gap can be registered in students' evaluations, and overall, teachers seem the least satisfied (it would be more precise to use the term dissatisfied).

Figure 7: Importance of and satisfaction with competences according to teachers, students and patients (mean, $N_{OF}=434$, $N_{OE}=343$, $N_{HF}=1497$, $N_{HE}=981$, $N_{PF}=1115$, $N_{PE}=1115$)



Key to symbols used: grey triangle: teachers' responses, black square: students' responses, white circle: patients' responses.

Source: own construction

4.4. In-depth interview results - teachers

4.4.1. Characteristics of the interviewees

The total number of the planned and conducted interviews was fifteen. We invited persons for the interviews whom we assumed have reliable insight into the complete process of education, moreover, they are known as committed persons in education, as role models or even as decision makers. This decision of ours was conscious so that we could learn how the selected persons think about the future of education, and what intentions and willingness to change they have. As a selection criterion it had a significant role whether they participate in teaching theoretical or clinical (preclinical) modules. Accordingly, from the respondent teachers 6 persons work in the theoretical, 6 persons in the clinical and 3 persons in the preclinical education on a daily basis. As for their age groups, 5 persons were under 40, 5 persons between 40 and 50, 5 persons above 50 at the time of the survey.

So, during „sample selection” our goal was not to “represent”, to map the teachers of the Medical School at University of Pécs as per age, teaching experience, student satisfaction etc., but to gain information from teachers who can initiate changes in the near future, or they are already now participants of those. This way, the “sample” of the qualitative survey was to serve the goals of a future action research and intervention.

4.4.2. Summary of the in-depth interview findings

As for the interpretation of the findings we need to underline again that the semi-structured interviews were not conducted with the „average” teacher of the Medical School at University of Pécs but with those who – in scope of this project – themselves are excellent teachers and do not refuse to be open to development processes. The main findings of the in-depth interviews are summarized as detailed below:

- Most of the respondent teachers have found their place, role in the teaching activity, on the one hand because they can work in a youthful environment, on the other hand because via teaching and promoting students’ learning even their professional development is seen as secured.
- Despite the fact that for nine of the respondent teachers the work of teaching became part of their life due to its “tying and bundling” with their researcher job, all fifteen are basically satisfied with their role as teachers.
- They see the core part of their role in synthesizing knowledge to students. They feel satisfied when students ask, show interest and perform well on exams.
- Based on the interviews, teachers seem to prepare for their classes in most cases, which essentially includes the review and updating of reference material. It was also outlined that they would feel like getting familiar with teaching methodological, didactic, pedagogical knowledge in order to improve their knowledge, even though some of them mentioned the lack of the exact knowledge of these concepts (in other words: the need has already been formulated that apart from the professional knowledge they would need something else for teaching more effectively but they have not been able to exactly define its content yet).
- It was also mentioned that teachers would feel like expanding the range of their methodologies applied during teaching. Many of them could also bring up examples (e.g. teamwork, small group work, more examples of clinical situations included in classes, integration of patients – following clinical cases, the introduction of similar ones in students’ tasks). So, it was rather apparent during discussions that respondent teachers would not reject further training opportunities. So much not that – answering the specific question – they fully support the introduction of a course with pedagogical content at the faculty.
- However, we would also highlight – though this is not discussed in current paper – that teachers still feel pushed for time. Their research activities, the high number of students and work in patient care impose so heavy burden on them, where race against time and the tasks does not subserve pondering on educational developmental aspirations and actions.

5. DISCUSSION

In the discussion part research findings are getting summarized and contrasted to the research hypotheses and the relevant reference literature. We also endeavour to discuss to which reasons and factors research findings can be attributed to. During summarizing the research findings, we follow the same order as that of the topics covered in the paper. Accordingly, first we summarize the survey results conducted with teachers, students, then with patients, and we also touch upon the findings of the in-depth interviews made with teachers. Apart from these results it seems to be worth mentioning that factor analysis applied for validating the questionnaire supported that competences of the Hungarian Completion and Exit Requirements included in teacher and student questionnaires are compatible with those appearing in the three-circle model adopted by international medical education (by Harden and his colleagues), since competences can be listed into main effects, and the factors are in line with the summary names and content of competences included in the three-circle model. Based on this, those parts of the Hungarian Completion and Exit Requirements and those of the exit requirements internationally adopted in medical education which were included in our questionnaire, show a good level of consistency.

5.1. Decisions related to the hypotheses

Current paper examined following hypotheses:

1. hypothesis:

Teachers do not consider all competences specified in the Completion and Exit Requirements as important to perform medical work as students do.

Above hypothesis was justified in case of three competences: information about career opportunities, using assertivity⁶, and improving emotional and social intelligence. As for these competences I see the difference in scoring (these were rated higher importance by students) in the fact that the social visibility of these fields, concepts and their entrance into public consciousness took place later, consequently, its conscious incorporation into the regular processes of medical education still remains to be seen in Hungary.

In case of fourteen competences, results show exactly the opposite, and as for the rest of competences, there is no significant difference between the average level of the teacher and student importance with a 5% significance level, that is to say, these were considered even statistically justifiably equally important by teachers and students.

International reference literature confirms at several points that there is an enormously huge demand for skills, abilities, competences so that doctors could take part in future processes of medical work as a physician, clinician and teacher (Kugel, 1993. pp. 315-328; Moriates, 2019. pp. 674-677). Unfortunately, recognizing the need is not enough in itself for these competences getting included into medical education. For this, there is a need for an educational model, transformation of the curriculum, raising awareness on syllabi, where the place of these competences can be clearly seen. According to Kurt Lewin (1943. pp. 113-131) „there is nothing as practical as a good theory”. This also reinforces that the incorporation of the new

⁶ Very often even the meaning of concepts is not clear for members of the medical profession. Researchers themselves experienced that participants did not apply for further training course on developing assertivity because they did not understand its title and content.

competences into education needs institutionalisation. It can be read at several points in Artino és Konopasky's article (2018. p. 609) that both the theoretical and practical part of education are essential in medical education. At the same time, they highlight that an education based solely on teachers' experience is outdated (the huge part of which is represented by the two elements mentioned before) and there is need for a theory in medical education which is based more on principles and conscious planning than merely on experience. So, international reference literature does not dispute, either, that theoretical and practical knowledge together provide the backbone of medical education. Both these sources and my research call attention to the fact that it is worth creating harmony and synergy between the competences as the basis of traditional medical training and the newly emerging desirable competences.

2. hypothesis

Teachers are less likely to believe than students that their skills in the field of pedagogical knowledge need improvement.

Our second hypothesis was confirmed by research findings in case of eight pedagogical knowledge out of the nine. In these cases, with a 5% significance level students feel more acutely that teachers' pedagogical knowledge needs improvement than teachers. The professional knowledge element creates the exception, as for which exactly the opposite of the hypothesis was found: teachers consider this more important on average than students (with a 5% significance level). In sum – based on research findings – teachers are less aware of the fact that they would need pedagogical skills during teaching as well, or that they should improve those. The highest average score (3.48) in case of didactic knowledge might refer to the assumption – at best – that certain developmental needs, ideas concerning pedagogical knowledge have already emerged at teachers. However, the average score 3.48 given on the five-point scale could not really be evaluated as a stronger need or field to be developed, as it rather mirrors a neutral perspective. Averages scored by students (though no values above the average 4.0 was seen), compared to the teachers' averages of the given aspects and to the difference between the ratings of the two, however, demonstrate perfectly and support the issue investigated by reference literature and at conferences many times and from several perspectives, namely, the necessity of pedagogical knowledge in medical education (Harden, 1999 pp. 546-552; Irby, 1994 pp. 333-342; Mcleod and his colleagues, 2009 pp. 117-124).

It is especially highlighted that the skill of empathy, the didactic and communicational knowledge are barely above the average three. This is particularly worth noting, as either in the physician's or in the teacher's role (or in both) these count as basic competences. I wonder how a teaching physician is able to credibly „convey” empathy during teaching students, in case he or she does not or just insufficiently possess this skill.

Altogether students rated teachers' professional knowledge the highest (with an average 4.38), while organizing and leading the learning process proved to be the weakest competence with an average 2.87. As an aside, we would like to note that not in all cases should this be the teacher's task: full time educational organizers could be in charge of these tasks and at the same time they could supervise the quality assurance part of education⁷.

Harden, Irby and Mcleod and their colleagues (2009) also discuss this issue in the reference literature and support the idea that there is a need for pedagogical knowledge and skills in medical education. In this part of the paper the names of Dent and Harden (2013) should be

⁷ Similarly to non-doctors, who are in charge of tasks, which do not demand the highest level of professional knowledge, in healthcare next to doctors.

highlighted, who are the authors, among others, the book titled Practical Guide of Medical Teacher, which lays down the pedagogical basics of medical education.

Teaching – as it was in many cases concluded from the in-depth interviews conducted by me – is a tying and bundling with researching, that is, a sort of not conscious activity based on experience, and functions as a generally accepted system in medical education in Hungary. In practice it means that would-be teachers acquire (at best) the pedagogical and didactic (or thought to be that) elements from their older teachers and professors, so, from those who have not received a specialist training, either. It means they convey methods which they acquired during their own university years with personal experience, independently of whether their efficiency has ever been investigated or the expectations towards physicians or teachers have changed in the world. The in-depth interviews let us conclude that younger teachers recognise the existence of pedagogy as a separate discipline and they lack training in this field before starting their teaching work. A further experience of mine is that the interpretation of pedagogical and didactic words represented a difficulty during the in-depth interviews, therefore, the assessment of the fields of improvement connected to pedagogy included in the questionnaire might get distorted, as their real methodological need is not recognised by teachers. Several teachers pointed out during the discussions that they struggle with a number of problems during teaching for which they cannot find solutions. Pedagogical, methodological trainings could respond to these challenges, or at least to part of them.

Research findings also draw attention to the fact that recognizing teachers' needs for pedagogical knowledge and wording of their demands would be of key importance to ensure development. Unfortunately, results by teachers show too little that teachers would have recognized the areas of development in this field.

Student findings attract attention. One of the lectures held at AMEE in 2019 titled „How to train your dragon” draws attention to the fact that even though the first step is that teachers themselves realize their need for pedagogical knowledge, the next step, applying that knowledge and making a behaviour different from earlier habits a routine one during education, present medical education and their participants with further challenges. Changing teaching routines demands a number of factors, the specification of which is not in this paper's focus. Here and now we would just like to indicate that as the first step the teacher him- or herself should aspire to and also feel the responsibility in becoming a „better”, more efficient, more conscious teacher.

3. hypothesis

Teachers realize which – even newly formulated – competences would be currently crucial in the medical profession; however, they do not focus on conveying these during teaching students.

Our third hypothesis was justified in case of twenty-three competences; accordingly, teachers consider almost each of the investigated competences more important on average compared to the extent they convey them during teaching their subjects ($p < 0.05$). The historical overview of disciplines constitutes an exception, in case of which the rate of importance and delivery can be considered identical statistically.

As it was seen with the first hypothesis, almost all competences specified in the Completion and Exit Requirements are considered important by teachers, rated higher than an average score of four. When analyzing the first hypothesis, it was also pointed out that the majority of aspects were rated higher importance by teachers than by students. As for the rate of delivery, the research indicates that even though teachers find the given competence important but the rate

of delivery – except for one aspect – was ranked under the average score of four according to teachers' evaluation. There was a single aspect, namely the theoretical knowledge, in case of which teachers believed they deliver it to students on a higher rate than the average four. The results obtained illustrate that from the perspective of teachers the factual, theoretical knowledge as the most important basis of medical profession forms the backbone of medical education, which they can best deliver during their classes. This result corresponds to the teachers' evaluation of the rate of student acquisition, as there they also indicated theoretical knowledge as the aspect acquired on the highest level. As for the rest of competences, the rate of delivery is not even as high as the average score of four, which concludes that during evaluation on a five-point scale – which is also applied in the school system – it does not reach the level of a „mark” four.

The survey also highlights that teachers' assessment concerning the rate of delivery and students' „knowledge level” varies from students' assessment. In terms of this aspect, students believe they acquire the theory during classes with an average of 3.24. The student averages show values between 2.43 and 3.72, which highlights that delivery, namely teaching could be further improved into the direction of efficiency according to students. Besides, we should not forget that teaching and learning are interacting activities and student performance cannot be attributed exclusively to the teachers. Teaching the attitude and skill of student responsibility for their own learning and making success in life and profession might be also part of a teacher's job as part of the adult education. As for the experience of the in-depth interviews, treating students as adults is often seen as a problem by teachers since students themselves do not behave as adults in many cases. This difficulty emerges mainly in the basic module. It was communicated in several interviews that it is not far from reality if colleagues teaching in the basic module function even as a pedagogue⁸. In terms of their functioning as a pedagogue, on the one hand the need for an educator's work emerges, on the other hand it also appears that they are not able to consciously incorporate the necessary methodological elements into the teaching process during education. They mentioned as an additional difficulty that they have too little time to perform teaching tasks, which causes problems mainly for clinician-teachers. They review their lectures from a professional point of view, but they do not invest time and energy in methodological preparation or further training in this field. One side of this is that in most cases there is no organized possibility for this, on the other side teachers do not feel the need for further training, as also supported by research findings. There was a teacher who showed the signs of apathy and burnout, which might also be the reason for lack of motivation towards further training. Aspects crucial in career development in teaching jobs discussed in the first part of the paper do not support teachers' further training, either, as measures of teaching quality have not taken place yet in medical education.

4. hypothesis

Patients are less satisfied with competences specified in the Completion and Exit Requirements during medical care to how important they consider them.

Above hypothesis was verified aside from one aspect (respecting patients' individual specialty). Research findings indicate, in terms of importance patients rated the majority of competences higher average scores compared to the evaluation of their satisfaction with those ($p < 0.05$). Overperformance appears in case of respecting patients' individual specialty, which implies patients are more satisfied with it compared to how important they consider it. As for all other

⁸ I find it important to note that in-depth interviews also revealed that the majority of teachers are not even familiar with the concepts pedagogue, pedagogy, didactics. Pedagogy is often identified with the activity which is performed by qualified professionals in primary schools.

aspects, it can be seen that patients' expectations are higher than their satisfaction. Results obtained based on patients' answers also support that „consumer satisfaction” with medical performance does not fulfill their needs; hence a greater emphasis should be placed on delivering and making them practiced during teaching. Apart from teaching students, further training of the current board of education should also receive emphasis, during which they could learn about new teaching methods and acquire knowledge about the given competence, develop their own skills.

We see as the most important and striking research finding of the dissertation that it is patients' ratings that are located closest to the diagonal of the GAP matrix considering the average of responses given by teachers, students and patients on the importance of and satisfaction with medical competences. They are – in total – followed by students, and teachers seem the most dissatisfied. It suggests that a nearly optimal performance can be registered in case of patients; accordingly, the discrepancy between the importance of and satisfaction with competences is not so significant. Nevertheless, it is considered the most prominent statement that in terms of all three respondent groups it is the teacher group where the biggest difference between the responses given to the importance and satisfaction can be detected. In other words: their high expectations are not met considering “outcomes” of education, and this is supported (in an indirect way) both by student and patient opinions, as these two important groups are not satisfied with the acquisition of competences (students) and its emergence in the process of healing (patients).

5.2. Strengths and limitations of the research

The main strength of the research introduced in the doctoral dissertation and conducted in the international, multicultural university environment of Hungarian medical schools is that it was made with the inclusion of a wide range of medical students and their teachers taking part in the Hungarian, English and German training. Interviewing patients took place at locations closely related to students' studies at University of Pécs Medical School, with the help of Pécs University Clinical Centre.

It can be mentioned as strength that the quantitative examination conducted with teachers was supplemented with qualitative elements, in-depth interviews. Information gathered via these provided us support to prepare the investigation and interpret the findings.

Particular mention should be made of that strength of the research that even though, on an international level, several reference literature and conferences are devoted to the quality elements of medical education and the pedagogy of medical education, this research can be considered unique in Hungary. To the best of our knowledge there has not been carried out any empirical study on this subject.

It can be considered as the limitation of the investigations carried out in the paper that the interpretation of the examined competences might be different as per target groups, or even individuals. We did not enclose an appendix including clear definitions to the questionnaires, so, as for the assessment of competences, skills and abilities, there is a likelihood in each target group that they do not interpret the given aspect fully in the same way. But this is not solely our investigation's peculiarity, the risk of subjective interpretation does not exclude researchability. In other words: if we cannot measure something perfectly, we cannot give up on the opportunity of measuring – considering this when making the findings.

The paper's other limitation in case of the investigation with patients is that, when assessing the competences related to performing medical work, patients are assumed to have referred

their responses – based on their experience – to one or several doctor(s) known by them, their own-doctor-patient encounters. Their responses might get also influenced (rather into a positive direction) by the fact that they are, because of their situation, hopeful. They trust doctors' knowledge, which serves their healing, or exactly due to their vulnerability they might overvalue doctors' competences. The general social-political public mood, the image conveyed by the media have also impact on assessment.

6. CONCLUSIONS

Our research findings point out that participants of medical education have recognized that competences specified in the Completion and Exit Requirements are crucial for modern education, the transformation of the doctor role, a new type of doctor-patient partnership. However, based on the reference literature (Harden and his colleagues, 1999. pp. 546-552; Wilkes and his colleagues, 2018. p. 366; Artino, 2018. p. 612; Irby, 1994. pp. 333-342; Calderhead, 1996; Bligh and his colleagues, 2001. pp. 520-521; Mcleod and his colleagues, 2009. pp. 117-120) they do not have sufficient knowledge on how to integrate these competences into everyday teaching, the methods they can apply have not developed yet, and this is not exclusively the problem of Hungarian medical education. Since, as for the delivery of most of these competences, „simple” knowledge transfer such as that of the theoretical knowledge is not enough, or in case of teaching professional knowledge, but focus is shifted to the doctor’s interactions (the relationship) and personality.

Nowadays numerous educational modernisation and developmental projects are taking shape at the individual training sites. What is highlighted is that teachers at medical faculties are not typically provided pedagogical, educational methodological training either in Hungary or in other parts of the world (Artino and Konopasky, 2018. p. 610; Calderhead, 1996; Bligh and his colleagues, 2001. pp. 520-521; Mcleod and his colleagues, 2009. pp. 117-120; Lochner and Gijsselaers, 2011 pp. 131-136). Teachers teach, educate based on their own experience and building on „traditions”, and they do not take part in systematic methodological, pedagogical training, which would, among others, include acquiring skills, such as adaptation skills or organizing and leading the learning process (Hegyi, 1996; Ballér and his colleagues, 2003, Nagy, 2002). The reason for teachers’ unfavourable results concerning the delivery of competences and the educational standard of the faculty might be as well that they feel the conflict between the needs, demands and teachers’ „responses” given to these, but they are not, or only slightly, able to resolve it by themselves – lacking any external support. Very often they even lack the realization and awareness-raising about that using other methodological tools or acting based on other educational paradigms they could provide more efficient education carrying more success and pleasure. (White, 2007. pp. 279-297; Krupat and his colleagues, 2016. p. 725, Ernyey and his colleagues, 2014).

Interviews preceding the questionnaire survey also pointed out that there is a huge need for significantly more organized support, „a systematization of trainings and further trainings for teachers involved in education” (Kiss, 2019. p. 655) and continuous improvement in all institutions to develop the teaching-pedagogical work. To support this, good practices have already started to emerge at the individual faculties. A good example is the Workshop to Improve Teaching Skills organized since 2013 at the University of Pécs Medical School, which improves teachers’ pedagogical knowledge and teaching methods considering also the milieu of the faculty’s international education, and also provides opportunity for intensive experience exchange among those who are interested, by making the learning process experience-based (Varga and Füzési, 2019; Faubl and his colleagues, 2019; Juhász and her colleagues, 2018; Schlégl and his colleagues, 2015). At the Budapest medical education site there is a separate organizational unit for education development and teacher training (Education Developmental, Methodological and Organizational Centre), where the leaders of the faculties apply the teacher training programme following the decision made on the Pécs meeting of the Hungarian Society of Medical Education and Health Sciences (MOEOT) held on 8th Nov 2013, similarly to the Szeged training site, and which is accessible by teachers on the e-learning site of the University of Szeged. About the course material we can read in the study by Kokovay and Kiss in details

(Kokovay, Kiss, 2016). To the best of our knowledge on the Debrecen training site there is an optional opportunity for teachers to participate in a teaching methodological course, the personnel background of which is ensured by Semmelweis University. It was in the autumn of 2020 that performing a modern teacher-training course providing pedagogical knowledge got included in the Professional Qualification Directives in Pécs as a requirement for the career development of lecturers and, as a category of an advantage in case of assistant lecturers. As per our information teachers face the same expectations in Budapest and Szeged. In Debrecen teachers' training of medical education is, for the time being, not considered a precondition for career development.

Apart from ensuring all this, the appropriate motivational systems also need to get developed, because lasting commitment cannot be expected merely by the offer of possibilities and without suitable compensation.

7. SUMMARY, RECOMMENDATIONS

My doctoral dissertation's topic is on the one hand the importance connected to the aspects expressed in the Completion and Exit Requirements and the satisfaction concerning their acquisition and delivery from the teachers', students' and patients' perspective, on the other hand the teachers' and students' evaluation on the teachers' pedagogical knowledge and skills, on the necessity of the development and training in this field.

In case of competences specified in the Completion and Exit Requirements, it is obvious that these are important to performing medical work, as it was confirmed by the responses given by all three target groups investigated. It can be also observed that none of the interviewed groups is satisfied with their fulfilment to the extent they find it important. This result points out that there are further developmental and progress opportunities in medical education, which is also confirmed by the participants of education, the students, by the agents of the teaching process, the teachers, and the „users” of the results of the educational process, the patients. Each of these actors can be regarded as the stakeholders of the healthcare higher education, therefore their opinion cannot be ignored during development.

Similarly to the conclusions of international surveys (Krupat and his colleagues, 2016. pp. 723-729; Hesketh and her colleagues, 2001. p. 556; Schwartzstein and Roberts 2017. pp. 605-607; Moriates and his colleagues, 2019. pp. 674-677; Fischer and her colleagues, 2019. pp. 208-212; Tsai and Jao, 2020.; Parmelee and his colleagues, 2009) our findings also verify there is need to pay an even higher attention to the quality indicators of education, the training of teachers, which are of a particular importance not only in professional fields but also in the pedagogical methodology. The research highlighted that the emphasis on the capability requirements included in Completion and Exit Requirements is of major importance in order that students' competences could get specifically developed already during undergraduate medical education. At the same time teachers also need to get trained to learn about these competences, to recognize their importance, necessity, to increase awareness and to get acquainted with the methodology of delivery, as these are not innate abilities, skills.

The most important new scientific findings of the research:

- ***In Hungary this was the first time that the competences specified in the Completion and Exit Requirements in terms of medical education and the conflict between the importance of the investigated pedagogical skills and satisfaction with them were studied.***
- ***To explore this, the method of GAP analysis was applied, and with this the discrepancies between the needs (the importance) and the outcome (the satisfaction) are easily identifiable.***
- ***With the investigation of teachers', students' and patients' large sample, the similarities and differences between the expectations and satisfaction were identified.***
- ***We scientifically verified the everyday experience that teachers rather teach supported by their earlier experience and based on „traditions”, and do not take part in systematic pedagogical-methodological trainings. Even in our view, this ensures insufficient tools for them in terms of the efficiency of their teaching. The research pointed out that there is a need for the pedagogical training of teachers of medical education, as their development can be expected from this and not from the further improvement of their already high-level professional knowledge.***

To successfully meet the aspirations, it is crucial to involve teachers, students, and even patients (and their family), since their roles in mapping these fields, in revealing the complex, systematic problem, in developing the alternative solutions and in the continuous feedback is fundamental.

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LIST OF PUBLICATION

1. Varga, Zsuzsanna; Pótó, Zsuzsanna; Czopf, László; Füzesi, Zsuzsanna: Do we need special pedagogy in medical schools? - Attitudes of teachers and students in Hungary: a cross-sectional study. *BMC Medical Education* 20: 1 Paper: 472, 10 p. (2020)
2. Varga, Zsuzsanna; Pótó, Zsuzsanna; Csaba, Gergely; Duga, Zsófia; Czopf, László; Füzesi, Zsuzsanna: How to teach future doctors? Research on the attitudes of teachers, students and patients towards the learning outcomes in medical education. In: *AMEE 2020: The Virtual Conference: Abstract Book*. (2020) pp. 578-578., 1 p.
3. Varga, Zsuzsanna: Többet vagy eredményesebben oktassunk? In: Varga, Zsuzsanna; Füzesi, Zsuzsanna (szerk.) *Fókuszban a hallgatók - hogyan oktassuk a következő orvosgenerációt? : Egy workshop tanulságai*. Pécs, Magyarország: PTE ÁOK Magatartástudományi Intézet, (2019) pp. 16-18., 3 p.
4. Varga, Zsuzsanna (szerk.); Füzesi, Zsuzsanna (szerk.): *Fókuszban a hallgatók - hogyan oktassuk a következő orvosgenerációt? Egy workshop tanulságai*. Pécs, Magyarország: PTE ÁOK Magatartástudományi Intézet (2019) ISBN: 9789634294894
5. Zsuzsanna, Varga; Zsuzsanna, Pótó; László, Czopf; Zsuzsanna, Füzesi: Professional knowledge and/or soft skills are in the focus of teaching medical students? Attitudes towards medical education from the teachers' and students' perspective (2019). Annual European Conference on Assessment in Medical Education, Lodz, Poland, 2019. november 7-9. poszter
6. Adrienn, Vivien Juhász; Nóra, Faubl; Zsuzsanna, Varga; Balázs, Ernyey; Ádám, Tibor Schlégl: Factors influencing students' satisfaction: results of 10 years follow up. In: *Abstract Book; AMEE 2018 an International Association for Medical Education Annual Conference* (2018) pp. 509-509., 1 p.
7. Korinna, Kajtár; Bernadett, Potos; Klaudia, Csomor; Zsuzsanna, Varga; László, Czopf: Growth in Student Numbers at the University of Pécs Medical School Challenges and Proposed Answers. In: *Best Practice for Research Teaching in Medical Education* (2018) pp. 60-60., 1 p.
8. Zsuzsanna, Varga; László, Czopf; Zsuzsanna, Pótó; Zsuzsanna, Füzesi: Attitudes regarding the medical programme completion and exit requirements among lecturers and students in Hungary. In: *Best Practice for Research Teaching in Medical Education* (2018) pp. 75-75., 1 p.
9. Eszter, Szubotics; Zsuzsanna, Varga; Attila, Miseta: Student mobility through the numbers of ECTS recognition at the University of Pécs Medical School. In: *Challenges of Doctor Mobility in a Changing Europe: Standards and Recognition for Patient Safety* (2016) pp. 49-50., 2 p.
10. Varga, Zsuzsanna: Teljesítményértékelési rendszerrel kapcsolatos attitűdök a Pécsi Tudományegyetem Általános Orvostudományi Karán. In: Csathó, Árpád; Tiringner, István; Kállai, János (szerk.) *XIV. Magatartástudományi Napok: A pszichoszomatika modern szemlélete. Az orvostanhallgatók egészsége*. Pécs, Magyarország: Pécsi Tudományegyetem Általános Orvostudományi Kar (PTE ÁOK), (2015) pp. 58-58., 1 p.
11. Varga, Zsuzsanna; Miseta, Attila: The University of Pécs Medical School is an internationally recognised centre for medical, dental and pharmacological education in the Trans-Danubia region of Hungary. In: *Association, of Medical Schools in Europe (szerk.) Evolution of Medical School Systems in Europe: Are we at a Risk?* Berlin, Németország: Association of Medical Schools
12. Varga, Zsuzsanna; Füzesi, Zsuzsanna: Attitudes towards performance appraisal in the University of Pécs Medical School. *Népegészségügy* 93: 2 pp. 133-134., 2 p. (2015)

Currently we are waiting for the publication of a manuscript:

13. In the journal titled *Lege Artis Medicinae*, as for our original publication titled „*Eredményesen oktatjuk-e azt, amit fontosnak tartunk? GAP analízis: A képzési és kimeneti követelményekben szereplő kompetenciák fontossága és azok közvetítése az orvoscépzésben – ahogy az oktatók látják*”.