

Where are future doctors heading?

Changes in speciality and workplace choice preferences and in intercultural competences during medical socialization in the international surroundings
at the University of Pécs

Doctoral (PhD) thesis

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INTRODUCTION

The operability and quality of health care rely mostly on the professionals working in its branches, therefore it is crucial to gain present and future connected information about the human resources in health care. Among these, we need to mention the motivation and work plans of future doctors.

Last decades' lack of doctors in many specialities and in many places worldwide led the attention to studies about the speciality choice of future doctors. The studies cover the motivational factors behind workplace choices because part of them have serious consequences such as the loss of attractiveness of countryside work. Current statistics, for example the number of doctors per a hundred-thousand inhabitants, the unequal share between speciality and geographical fields, or the unfavourable demographic changes, shade the situation further. The number of doctors in single specialities – also due to the aging in the medical society – decreases constantly. Beyond the impact factors of speciality popularity, also the type of workplace settlement plays a role: the popularity of medical work in the countryside is decreasing and this affects the vacancy of General Practitioners in the countryside in many countries in the world.

Beyond the studies about workplace choice preferences per settlement-size, the medical migration has become a major field of research. Medical migration may increase the deficit in numbers of doctors in some countries and the replacement within borders means more and more difficulties.

Among students with proper foreign language skills, many plan employment abroad before they graduate. Easiness in Health Care administration, such as automatic or simplified qualification accreditation, pave the way for migration.

Discovering push and pull factors is crucial in studies connected to speciality and geographical choices. Although there might be differences among countries, the respondents mention the followings as push factors: low wages, deficit in human resources, economic instability, deficits in work circumstances, and limited possibilities in training and carrier progress.

Pull factors are high salaries, good training and carrier possibilities, and better medical and work circumstances. According to the obvious conclusion of the studies without throughout restructuring of the health care system along with aware creation and long-term keeping of pull factors, no development in medical human resources can be achieved.

In our global world, multicultural societies become reality, thus intercultural knowledge as a social skill becomes a key competence. One way to gain this competence is international student mobility, which is becoming more and more important globally. As of today approximately five million people study abroad for part- or full-time of their studies.

Next to part-time studies abroad in the frame of credit-mobility programmes the full-time degree-mobility studies count as more significant concerning the rate of participants and the economic and cultural impacts. Concerning degree-mobility full-time studies in Hungary medical education is the most popular among foreign students. This can be recognized in the growth in the numbers of foreign students in the Hungarian medical schools.

At the University of Pécs Medical School (UPMS) students of more than 60 nations study in the three different language programmes. Students study in such a socio-cultural surrounding in which they can gain and develop intercultural competences.

We put the process itself and the development of intercultural knowledge and sensitivity in the focus of intercultural competence research, which examines these from the viewpoint of intercultural sensitivity. During the study time abroad students face challenges beyond their studies such as integration in a foreign country, city, culture and student society. This requires continuous fight and adaptation, especially at the beginning of their study time. Language skills and former international mobility experiences can support intercultural communication and this way also evolve intercultural

knowledge for both foreign students coming to Hungary in the frames of international mobility programmes, and for Hungarian students welcoming the foreign ones.

Although gaining intercultural knowledge is not defined as a prior aim while choosing study place, as time passes its possibility emerges among both the accepting group and the students of the foreign language programmes.

During our research time of many years, we have had the opportunity to ask a high number of medical students at UPMS about their speciality and work place choice priorities and about their intercultural competences and their development. The connection point of our research was the recognition that the future medical generation will receive a major role in a continuously changing global world and health care while their own profession connected motivations and expectations are continuously changing as well. The socio-cultural diversity of societies and from the cultural differences emerging complex contexts are manifested in such situations where the patient and the treating person have different cultural backgrounds and their meeting can happen in a third culture, meanwhile the situation and preferences of health care and its workers are continuously changing as well.

International mobility can alter the speciality and workplace choice preferences, and the future plans of medical students. During our research, on the one hand we examined how the employment preferences and the student-medical socialization of Hungarian and international programme students alter during their study time and on the other hand we examined how they evaluate their extracurricular competences gained during their studies, especially the development of their intercultural skills. Further common connection points of the dissertation introduce the research of employment planned for other foreign countries among the English, German and Hungarian training programme students.

SETTING AIMS

The *topic* of the studies carried out in the Behavioural Sciences Department of UPMS and that of the dissertation is on the one hand the specialization and work place choice preferences of students socialized in medical education and on the other hand the examination of intercultural competence acquisition as one of the acquired skills during their studies.

The aim of the dissertation is to detect the reasons and motivational patterns behind the specialization and work place choice of students of the Hungarian and international programmes of UPMS. Furthermore, we also aimed to examine the effects of the studies in this special surrounding on the emergence and development of their intercultural competence and their later choices.

During our researches introduced in the dissertation we used quantitative and qualitative analysis methods in order to learn the motivational and impact factors behind the students' preferences to a wide extend and after their detection to identify the possibilities to involve – even on the system level.

Further aim of the dissertation is to collect information about integration into another culture and about long-term well-being to add to our former research directions while learning the motivation and acculturation process of the Hungarian and foreign students who participated at the study.

In the dissertation, we present the results of two bigger empirical researches that focus on the following two aims:

1. Study: exploration of medical students' specialization and workplace choice preferences and of aleatory migration reasons and motivational factors,
2. Study: medical students' subjective well-being, integration into international surroundings, and emergence of intercultural competence.

1. STUDY: SPECIALIZATION AND WORKPLACE CHOICE PREFERENCES

Study questions and hypotheses

Connected to our aims we formed the following study questions and hypotheses:

Study questions

- Which specialization preferences can we detect among UPMS medical students?
- Which motivational factors and reasons hide behind the specialization preferences?
- Do Hungarian and foreign language programme students plan their future in their home country or abroad?
- Which settlement size do students prefer as work place settlement?
- Which motivational factors and reasons hide behind the settlement preferences?

Hypotheses

- Demographic and social characteristics of future doctors (sex, age, country of origin, financial situation, and parental background) are determining for specialization choice.
- Beyond professional reasons, more life-style factors appear behind specialization choice (life-style, work-time, and wages).
- Future doctors prefer cities to rural settlements as workplace.
- Many students of the Hungarian and international programme can imagine working abroad.

Study tools, methods, and participants

In our study about specialization and work place choice preferences, we applied self-completed questionnaires. It was created by our research group “Students’ Health Behaviour and Medical-Professional Preferences” (SHBMPP) in the academic year 2013/2014. The members of the international research team were the colleagues of the Public Health Department and the Behavioural Sciences Department of the Medical School of the University Pécs, the Public Health Department of Semmelweis Medical School in Budapest, and the Primary Health Care Department of Technische Universität Dresden Carl Gustav Carus Medical School. The basis of the questionnaire was partly (SF-36) the validated questionnaire of TU Dresden and Semmelweis Medical School. The questionnaire was written in English first, it provided the basis for the German and Hungarian translation. In 2014 the Primary Health Care Department of the Ludwig-Maximilian Universität München, in 2016 the Primary Health Care Department of the Martin-Luther Universität of Halle-Wittenberg and the Psychology and Psychotherapy Institute of the Medical School Graz joined our study.

The finalized questionnaire in 2014 included socio-demographic data, dimensions of students’ professional preferences, health status, life quality and questions about alcohol, medication and drug consumption, smoking, vaccination status and sexual behaviour. The dissertation only presents the results about professional preferences in detail.

Students were asked to fill in the questionnaire in Pécs, Budapest, München, and Dresden twice: in the spring semester 2013/2014 and two years later in the spring semester 2015/2016. In Hungary (at both places), students of the Hungarian, English, and German programmes were involved. Completion of the questionnaire was voluntary and anonym at every occasion. In the studies of 2014 and 2016 more than 10.000 students were interviewed on the 4 and later 6 study places, and more than 6000 paper based completed questionnaires arrived to our research team.

Those students were questioned who were in their first, third, or fifth year of General Medicine studies in 2013/2014 and in 2015/2016. In the dissertation, we only presented the results of the students of

UPMS. The applied data collection methods and the numbers of data collection are summarized in the following chart:

Study name	Duration	Participants	Data collection method	Item number	Number of data collection
Students' health behaviour and medical-professional preferences	2014-2016	1 st , 3 rd , 5 th year medical students of the German, English and Hungarian programmes	paper based questionnaire	1641 completed questionnaire (UPMS, all places: 6089)	in 2014 and in 2016 1-1 occasion

Study participants, data collection methods, and numbers (summary chart)

The responders' rata was over 50% in all language programmes and in both years, 2014 and 2016. The pattern size of the German students is 413, of the English students 419 and of the Hungarian students 809; it means 1641 completed questionnaires for the three programmes. Resulting from the study characteristics we cannot talk about a representative pattern, thus the results cannot be considered as general for the whole student population. We can assume that due to the high number of participants no from the respondents different groups were neglected, thus the study results do not include great distortions.

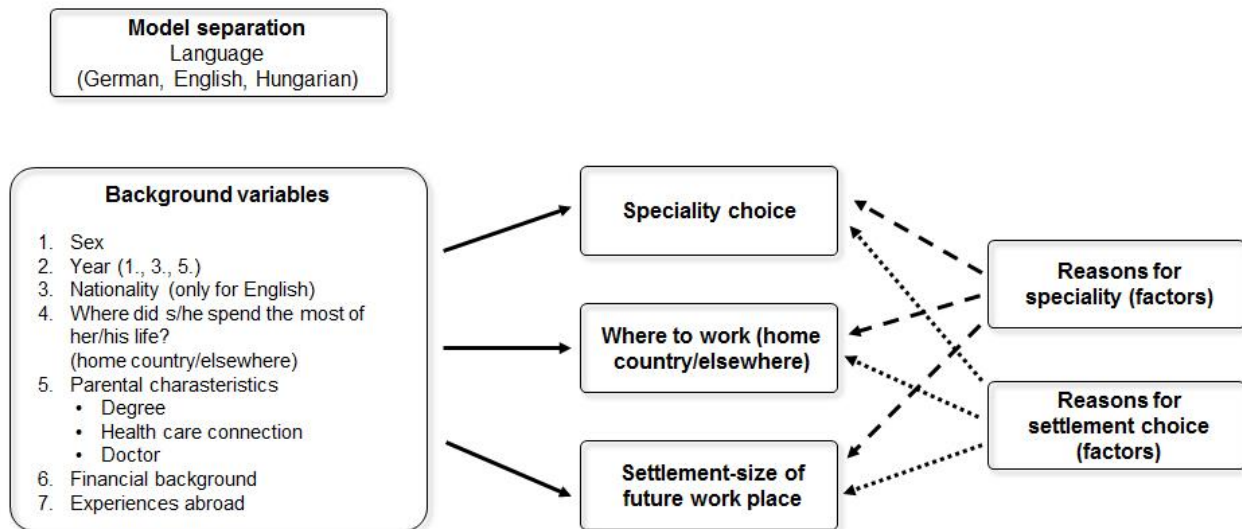
IBM SPSS Statistics Data Editor Programme, version 24.0, carried out every analysis. In cases where we aimed at examining the expectable value correspondence of at least three groups we used variance analysis methodology. We also applied the chi-square test and the Cramer coefficient formula for such low-level variables where there was no possibility to compare averages. At all hypothesis control methods, we marked the P-value, according to which we could decide what to do in connection with zero-hypothesis and we could see how that would answer our starter question or assumption.

Reasons for speciality and settlement choices were compacted into greater impacts by factor analysis. In all result lines, we listed the number of new factors and the factor structure of the starter variable. The effect of background variables on the created factors was examined by multivariate linear regression. The effect of some background factors and of the created factors on the three major variables (specialization choice, migration, and settlement-size choice) was examined by binary logistic regression. While presenting the results we focused on the interpretation of the significant or statistically major ones.

Results, discussion

Theoretical Modell

Basis for our analysis was following a theoretical model. We carried out the examination of connection points and the model by path analysis along the single language programmes. Every arrow on the diagram covers an important relation that were tested by regression models.



Theoretical model of relation systems between chosen factors

Before the path analysis, we listed the reasons for both the specialization and the settlement-size preferences into 9-9 categories: Categories of specialization choice: 1. professional interest, 2. higher salary, 3. better carrier options, 4. higher social prestige, 5. better work-life balance, 6. taking over parental business, 7. better coordination with family, 8. study agreement, 9. further reasons. Categories of settlement choice: 1. staying near home for work, 2. social and family relations, 3. better conditions for medical profession, 4. higher salary, 5. taking over business, 6. expanding horizons, 7. well-developed children institutions, 8. work options for partner, 9. further reasons.

After this, we made a factor analysis for the variable groups mentioned above. According to the rotated component matrix of the specialization choice factor analysis we could identify following factors: “Work-Life-Balance” (better coordination with family, work-life balance), “Medical Carrier” (higher salary, carrier possibilities, and social prestige), “Study Agreement” (agreement between the organization who supports the student and the professional interest which are connected but with opposite sign), “Parental Business” (taking over business and further reasons).

According to the rotated component matrix of the settlement choice factor analysis we could identify the following factors: “Professional Development” (higher salary, better conditions for medical profession, horizon extension), “Local Attachment” (staying near home for work, social and family relations, taking over business, further reasons with opposite sign), “Family in Focus” (well-developed children institutions, and work options for partner).

After creating the factors we ran the regression models connected to the path analysis, thus we tested the theoretical model. In the breakdown of the language groups, we examined how the four factors of specialization choice reasons dimension and the three factors of settlement-size choice reasons dimension affect the three major exam-questions (specialization choice, intention of working in the home country, settlement-size choice).

During the analysis, we applied the classical cross-sectional approach, so we built a multivariable regression model for each language group. Depending on the measurement level of the results and explanatory variables of the given model, linear, binary logistic regression models were inserted.

Specialization choice preferences, reasons and motivational factors

The main motivational factors of specialization choice are the professional and scientific challenges, and the economic (income, prestige) and lifestyle-related motives (work-life balance). The results of our study are in line with the relevant findings of the literature as most of the three language programmes indicated the professional interest while the second and third most important factors were lifestyle and economic motives.

The majority of the literature differentiates between two major factors of **personality and workplace characteristics**. Personal characteristics include social and economic background factors such as age / study semester, sex, residence, marital status, parents' education, religion, living environment, etc. According to some studies, gender selection has the strongest impact on career choice and is only followed by career motivations. Regarding the factors influencing the choice of specialization, we have found in the study that those German students who have foreign countries experience are more likely to choose a specialty depending on whether they can take over parental business.

In the English programme, the opportunity to receive parental business does not appear to be an influencing factor as opposed to Work-Life Balance and Medical Career factors. In the case of students with a doctor mother the Work-Private Balance Factor, and of students with less foreign country experience, the importance of the Medical Career factor seems to be weaker. The preferences of Hungarian students show quite another tendency: the experience gained abroad does not play a decisive role in the selection of the specialization, but the importance of the Medical Career factor is significant, especially for men. This is in line with the findings of previous studies that men consider the aspects of income, prestige and asset orientation to be higher, while for women the secure job, family responsibilities, working time, patient-doctor relationship are more important. In the case of Hungarian students, it has also been found that if the father is a healthcare worker, the students are more likely to justify their choice of speciality by study agreements, while the students whose mother has a higher education degree may be characterized by an opposite tendency.

As for the **workplace characteristics** literature mentions economic and lifestyle factors. Such is the interest in natural science, the prestige of the medical field, career opportunities, material recognition and appreciation, and altruistic motivation, the need for providing help. Numerous studies include plannable work schedules, opportunities for holiday, or even flexible working hours as economic factors. Among the lifestyle factors, lifestyle-friendly and non-lifestyle-friendly distinctions as well as the controllable and uncontrollable lifestyle division are also important. Specializations with a non-controllable lifestyle include surgical professions (including orthopedic-traumatological directions), paediatric areas, internal medicine (e.g. cardiology), obstetrics and gynaecology, and family medicine.

The results of our study show that most of the students of all three language programmes have indicated their specialization choices in surgery, orthopaedics and traumatology. The least popular area was represented by family medicine / general practitioners. The exception for the latter is only German students. In their case, however, it is important to point out that among the interviewed ones there were those students who had a scholarship supporting a family doctor's degree.

In the selection of **surgery**, our results support the findings that have been made in this area. German male students choose surgical professions more than twice as likely as their female counterparts, similarly to English-language students, where men are about 2.5 times more likely to choose this area. In the Hungarian student sample, the gender difference is even more pronounced: male students are five times as much interested in the area. The first year (in both sexes) is only one third compared to male students' values, and children of mothers with higher education are only tenths of this degree of

willingness to specialize in surgery. German students with significant local attachment also less likely to select the surgical area, similarly to those in the worse financial position. Our results show that surgical professions still enjoy high popularity, especially in the lower years, and the proportion of those who choose a lifestyle-friendly profession has increased considerably in recent years.

Looking at **paediatrics**, we found that in German-language programme, men and first-year students are significantly less interested in this area compared to other areas of expertise, so in German-language training, women and upper year students prefer this specialization. Within English language training, Norwegian students' interest in paediatrics is significant compared to other specialities, just as for students with a doctor mother. If the local attachment factor significantly influences the settlement choice, the students have a twofold willingness for the area. For Hungarian students, we found that the chances of choosing a paediatrician for male students decreased to one tenth compared to female students, which underpins the stronger interest and sensitivity of women's assistive disciplines. According to expectations, paediatrics is more interesting for women, the upper year students, for students with a doctor mother, and for those with local attachment. This is presumably due to the special features that may be practiced in multiple forms of employment and allowing more controllable lifestyles.

Considering the choice of the **internal medicine** specialization, our significant results have shown that for students of English-language training, the worse financial situation increases the chances of choosing this specialization by one-and-a-half times. The mother with higher education degree and previous experience abroad also considerably increase the willingness to choose a specialization in internal medicine. Our results confirm that students reflect on the social aspects of a particular specialization: the future of a particular specialization (for example, the growing demand for geriatrics and gerontology) and the related living opportunities are becoming more and more prominent.

Significant results with regard to the choice of the **obstetrics and gynaecology** speciality show that the willingness to choose this area in the German students is significantly increased by the Professional Development factor. Twice as strong motivation is the Work-Private Balance Factor and among the students with a doctor mother there is the greatest willingness to choose the field of speciality. An opposite tendency exists for German students with high Medical Career or Focus on Family Factors. German male students having a doctor father are less likely to choose a specialization in obstetrics and gynaecology. Our results are supported by a number of previous studies that, besides gender and economic considerations, relationship with patients, prestige, and lifestyle represent important factors for selecting a specialization. The first-year students of the English-language programme have a much lower chance of opt-in for obstetrics and gynaecology, which can be explained by the changing professional interest in the course of studies. Hungarian students with a higher professional development factor are more interested in obstetrics and gynaecology. The result is consistent with the presence of professional factors that can be detected in the non-controllable lifestyle disciplines.

Our results about the choice of **family medicine / primary health care specialization** as a deficit area showed that German students with foreign experience show less willingness to choose family medicine as specialization. In the Hungarian programme, male students were considerably less interested in this area, just like the children of mothers with higher education degree. Our results are in line with the findings of the literature on gender differences, and on socio-demographic background factors (e.g. parental background).

Significant results of choosing **neurology** among the professions associated with controllable lifestyles showed that in the case of Hungarian students the parental background as a demographic background factor (mother with higher education degree) greatly increases the chances of choosing this specialization. For students of English programme, the higher value of the Work-Private Balance Factor or the deterioration of the financial situation increases the willingness to opt for neurology. The results obtained are in line with the earlier findings that beyond economic factors that include

income-related opportunities also life-style considerations such as working time planning, work-time balance or even flexible-working time appear.

Workplace choice preferences

The incentive factors for medical career changes are significant: in addition to deprofessionalisation, the strengthening of foreign employment and the stagnation of rural employment are becoming increasingly apparent.

Workplace choice preferences according to countries, reasons and motivational factors

The skilled migration (Brain Drain) of highly educated workers may be a serious source of resupply for those countries where a large number of students migrate. For this reason, the exploration of push and pull factors related to planned foreign employment is very important, as is the case with the choice of specialization. Push factors generally include low income, lack of resources, economic instability, poor working conditions, and limited training and career opportunities. On the contrary, pull factors include the opposite: higher incomes, good training and career opportunities, better health and working conditions. Looking at the willingness to work abroad, we concluded that in all three years of German programme the majority of students plan their future in their home country after graduation. Unlike this, in case of English programme the first year, while in the case of Hungarian students, the majority of the first and third year students think that after graduation they wish to work in another country. Considering the motivations behind the work abroad, all three groups are different: in the case of German students, mostly those students want to work in their own country who have gained less foreign experience prior to their studies. We have found surprising results for students with a higher parental business factor: although they have the opportunity to take over parental or other business they would prefer to work abroad as well as those who did not have such an opportunity. Of the students participating in English language training, only a small number of the Norwegian respondents want to work outside their home country. To a lesser extent, but the same goes for students from Far East. The higher Medical Career factor, which can be detected in connection with the choice of specialization, increases the chances of foreign employment. For Hungarian students, significant results have shown that lower year students, students with foreign experience, and those for whom the study agreement determines the choice of specialization, are less likely to work in their home country. The results show that higher salaries, training and career opportunities, and previous foreign experience (and the level of language knowledge that is the basis for it) are more likely to push Hungarian medical students towards foreign employment.

Workplace choice preferences according to settlement size, reasons and motivational factors

In the 21st century, the balance between work and private life is becoming more and more important, and non-material incentives play an increasing role in choosing the place of work, so employment in rural areas can only be successful in a complex approach. In Hungary the popularity of rural employment decreases dramatically, there is a crisis of human resources. It is particularly severe in settlements that are far apart from larger, more central cities. In addition, vacant rural GP practices are sensitively affected, not just in our country, but also in the weaker structural areas of other countries. Apart from the aging of the doctor's society and the steady increase in age-average, the increasing demand for part-time employment means another problem. The aggregate data of our study show that in the case of foreign language programmes (German, English) and in the Hungarian language programme, the size of urban (between 5000 and 100,000 inhabitants) or metropolitan settlements (above 100,000 inhabitants) are the most popular among students in all three study years. Our aggregated results therefore support the problems highlighted in the literature. The reasons and motives behind the choice of settlements in all three language programmes and in each of the interviewed study years are mostly the social and family relations. Among the students of the German programme, the settlement choice is determined by the Local Attachment factor significantly, which

is more important for the freshmen than among the upper year students. As for the English students, we have found that Professional Development, Local Attachment, and Focus on Family factors influence the choice preferred settlement size associated with the future workplace. Among the Hungarian students, the settlement size is influenced significantly by the Professional Development and the Local Attachment factors. Considering the size of each settlement, our study has provided the following results:

Rural, less than 5000 inhabitants

Looking at the willingness to work in rural areas, we have found that among the German students with an in health care working father and the opportunity to take over parental business greatly enhance the willingness to work in a smaller settlement. If the student's factor value of study agreement is higher, their willingness is also stronger, which is probably due to the Saxon scholarship program launched at UPMS in 2013. For German students who consider the Professional Development factor important, small settlements are only one fifth times worthy of attraction. In the English programme, the preference for smaller settlements is mostly characteristic for Norwegian students (almost four times). If the student's Local Attachment Factor value is higher, it will be more likely to work in rural settlements. For Hungarian students, the effect of three variables is significant for a stronger willingness to work in rural areas: the mother with a higher education degree, the Local Attachment and the Study Contract's higher factor value. However, Hungarian students for whom professional development is important are less likely to choose a rural settlement as their place of work.

Urban settlements, inhabitants between 5000 and 100.000

The results connected to the mid-size urban settlement showed that among German students those who have a stronger Local Attachment are twice as likely to work in the city, beyond this; the higher value of the Parental Business factor also increases its chances. In the case of students studying in English, only one-third of the respondents with foreign experience choose the size of the urban settlement, while those with a higher Family in Focus factor value are also more likely to choose urban settlements. For Hungarian students, whose value of Work-Private Balance, Local Attachment and Family in Focus factors is higher, their motivation is stronger for the medium settlement size, while the higher Professional Development factor seems to have a weaker inclination.

Metropolis, over 100.000 inhabitants

When examining the preferences for settlements above 100,000, our results showed that in the German programme, the third-year-students have a nearly threefold chance of choosing the largest settlement size. In both the German and the English programmes the chances of work in metropolitan cities increase if the factor of Professional Development is higher, which is in line with the gained results connected to the rural settlement size. The larger settlement size is most preferred by first-year Hungarian students and those with a higher Professional Development factor value. It is also preferred by students for whom family plays a more prominent role. The willingness to work in a metropolitan settlement was lower for those who had a higher Work-Life Balance and Study Agreement factor value.

In summary, it can be stated that for the study created professional and life-style motivational factors were clearly distinguishable in both the choice of specialization and the choice of workplace for all three language programmes. In the course of examining the specialization-selection-examination model of the German students, we found that the professional-type factors such as Medical Career and Professional Development, the Work-Life-Balance and the Family in Focus factors influenced the choice for the field of obstetrics and gynaecology. By studying the choice model of students in the English language programme, we found that the effect of life-style factors is well detected, the

Work-Life-Balance Factor points to neurology, while the Local Attachment factor affects the choice for a paediatric specialty. For the students of the Hungarian language, the Professional Development factor points to obstetrics and gynaecology, while the Study Contract affects the choice for neurology. Regarding the place of employment, in the case of German and Hungarian students, among the created factors Parental Business and among the English students, the effect of Medical Carrier can be found as a factor affecting domestic / foreign employment. The study model for the settlement size and the willingness to work can be described for the German students as follows: from professional-type factors the possibility of Professional Development points to the preference of big cities, while the Local Attachment affects the urban settlements. The opportunity to take over parental business and having a study contract affect decisions in favour of rural settlements. Analysing the model of choosing settlement size in the English programme, we have found that among the professional factors, Professional Development pulls into the direction of metropolitan settlements, Focus is the Family factor to urban, while the Local Attachment factor points towards rural employment. In the case of Hungarian students, the model of settlement size is more complex: the Study Agreement factor points to rural and metropolitan settlements, the Local Attachment factor to urban or rural settlements, the Family in Focus to the cities, while the Professional Development factor affects all three directions. The Work-Life-Balance Factor affects urban-metropolitan settlements, reinforcing the existence of a human resource crisis previously mentioned in connection with rural employment.

2. STUDY: EMERGENCE AND DEVELOPMENT OF INTERCULTURAL COMPETENCE

Study questions and hypotheses

In connection with the objectives, the following study questions and hypotheses were formulated:

Study questions

- How does the well-being of foreign students studying in Hungary / Pécs evolve and how does it change during the training period?
- How do the Hungarian language skills of foreign students and the level of language proficiency affect their integration process?
- How do the knowledge and attitudes of foreign students about host culture change during the training period?
- How do the differences between the original and the accepting culture change in relation to the time spent in Hungary?
- Which factors to accommodating to the accepting culture are considered difficult or challenging to them and what factors are perceived to be simple?
- How do their attitudes towards other cultures change due to the international academic surrounding?

Hypotheses

- The well-being of foreign students studying at UPMS decreases after arrival and reaches the highest level on average by the end of the training period.
- Due to the limited duration of study time in the host culture, students' integration process may be hindered.
- Learning the language of the accepting culture has a positive impact on the progress of the integration process
- The growing knowledge of the accepting culture constantly evolves from directly recognizable knowledge and impressions towards recognizing the cultural characteristics and deeper values that emerge during a longer stay.

- The international university environment enables the acquisition of intercultural competence for all participants in this surrounding, even beyond the university environment
- During the studies in the international programme, through the development of connection points and co-operations the increase of participation and so the social capital can be observed.

Tools, participants, methods

In our study on the intercultural impact of the multicultural university environment, we used a self-completed questionnaire as a quantitative method, and focus group interviews were used as qualitative measuring instruments. The questionnaire studies were started among the students of the German programme at the beginning of the academic year 2009/2010 and were carried out for eight years, until the end of the academic year 2016/2017. General medicine students gave the sample during this time. The study was extended to the students of the English programme after the establishment of the research team from the academic year 2011/2012 and then to the Hungarian students too from the academic year 2013/2014, considering our results also important for the examination of the Hungarian accepting culture. This assumption has been proven during the investigations. During a total of eight years, a total of 13,084 online and paper-based questionnaires were returned to our research team.

From the qualitative methods, focus group interviews were open to group interaction and discussion. Since the multicultural environment has a strong influence on the emergence and development of intercultural competence, opinions and experiences are often on group-level, so focus group interviews can reflect attitudes towards individual attitudes and opinions, and by discussing them, they may be exposed to insights that were not enquired in the questionnaire. The total number of participants in the focus group interviews that have been conducted seven times between the three academic years 2013-2016 was 92 and the number of people in each groups was between 8 and 15. By gender, men and women were almost equally represented, more than half of them were foreign-language (German and English) students, (a total of 51), the distribution being appropriate to the focus group frames.

The applied data collection methods and the number of data collections are summarized in the chart below.

Study name	Duration	Participants	Data collection method	Item number	Number of data collection
Development of medical students' intercultural competences in multicultural university surrounding	2009-2017	German (2009-2017) English (2011-2017)	online and paper based questionnaires (IKK1-IKK6)	13084 completed questionnaire	2009-2017 3 times a year
		Hungarian (2013-2017) all study years	focus group interviews	92 students	8 focus groups

Participants, data collection methods, and numbers for the presented study (summary chart)

Resulting from the study characteristics we cannot talk about a representative pattern, thus the results cannot be considered as general for the whole student population. We can assume that due to the high number of participants there were no neglected groups, thus the study results do not include great distortions.

IBM SPSS Statistics Data Editor Programme, version 24.0, carried out every analysis. During the analysis work we used a two-sample t-test for hypothesis control, which is one of the most commonly used hypothesis-testing methods. Its aim is to test the equivalence of two basic population probabilities based on a sample. Using the average of two groups, their standard deviation and number of group members, we examined whether the expected value of the two groups in the basic population is the same. The two-sample t-test was used during the dissertation when the values of two groups were available to compare and we were wondering whether they were statistically the same. In the study on the development of intercultural competence, we studied the proportionality of the answers given by the students in the examined periods, and in this case we applied the standardized normal distribution probabation function.

Results, Discussion

In our questionnaire and focus group study on the intercultural impact of the multicultural university environment, we aimed at investigating the subjective well-being of the foreign and Hungarian students socializing in the University of Pécs, as well as the examination of certain factors of their integration into the international environment and the emergence of intercultural competence. From the results of the questionnaires and the focus groups, we will outline the relevant dimensions that may influence the development of intercultural competence in direct or indirect form.

Examination of students' well-being

Student well-being is a factor directly influencing the possibility of developing intercultural competence, connected to which the trends in student well-being can be followed by the answers to the questionnaires taken at different times. While studying abroad, in addition to acquiring knowledge, the integration into another country, city, culture, and student environment is challenging, which determines the subjective well-being of students in particular in the beginning, since adaptation to the new environment requires continuous coping and adaptation. The results of our study reveal that, in the case of German respondent students, at the beginning of the studies, there was no noticeable difference in the average level of well-being, but a slightly decreasing tendency. A significant change can be seen in the case of upper-year students, when the respondents feel better than the average and the graduates even better, reaching the maximum values for the entire period for both sexes. In the initial period, respondents of the English programme feel relatively well in general, while in the following periods of study there is a decreasing tendency. Second year students feel well the least, while like in the German language programme the graduating students feel the best. In the focus group study, most international students reported that if they were placed in the position of a foreign student during their studies in Hungary, there was no reason not to feel good, confirming the results of the questionnaire studies.

Former impressions and knowledge about Hungary

In our study regarding the knowledge about Hungary we found that at the beginning of their studies, the most frequent answer delivered by both the German and the English respondents was language, which significantly decreased with the length of the study period. The students of the German programme were most likely to enjoy the weather, university life and leisure opportunities / parties, and in some periods, gastronomy and housing were present too. The higher year students mention in each period the knowledge about culture that proves that to get to know the deeper layers of the accepting culture is only possible after a longer time. Similarly, to German students, students of the

English programme preferred weather, university life, housing and prices / shopping opportunities. Leisure opportunities / parties were more likely to appear only in the answers of the upper year students and the graduates, which demonstrate the ability to integrate.

To the question what they liked the least in Hungary, the answers from the German students showed that the ratio of dislike has increased with regard to infrastructure and social affairs, politics and the attitude towards the environment. Similarly, we found significant increase in dislikes among the respondents of English programme in terms of politics, treatment of foreigners, and driving habits. In accordance with the above, during the focus group interviews, students of foreign language programmes proved increasing knowledge and positive impressions. Most often, the Hungarians' hospitality, the mood and size of the university city, and the positive gastronomic experiences were highlighted. In the case of negative impressions, primarily the financial discrimination against the foreigners came to fruition, as well as the differences in values and traditions.

Language skills

Knowledge of foreign languages is a factor that strongly influences the development of intercultural competence, and besides social skills and general culture as a competence, it is an important part of the European framework for basic competences. Regarding the German students, it can be said that the average language level of the graduate students is below the level of language proficiency planned in the first year but shows better results compared to the level of language proficiency in the second and upper years. It is an interesting result that female respondents plan to learn the Hungarian language at a higher level in the early stages of studies than men do. In the case of actual acquisition, senior female students consider their Hungarian language skills to be lower than their male students do, and this is the case for graduating students as well. The first year students of the English programme receive a higher average value compared to the respondents in German-language training, but that decreases slightly for the second year. After a perceptible deep in the upper years, there is a slight increase in the actual language knowledge of graduate students in the English programme. During the focus group interviews, students of foreign language programmes confirmed that learning the Hungarian general language at intermediate level was not successful. An exception to this is the communication required in the clinical module, which was achieved at a slightly higher than the basic level. Hungarian students have reported similar impressions regarding the language competences of foreign language students.

Differences between the original and the accepting culture

Based on the results of the differences between our own and target culture, we concluded that, in the case of German programme, by the progressing study significant increase was experienced with respect to the perceived differences in politics. It is interesting to note that certain factors have not been mentioned by senior students (e.g. lifestyle, lifestyle differences), and some aspects only appear at the graduates, such as work attitudes or national pride. Focus group interviews confirmed the results of quantitative study. As time goes by, the perception of differences in certain factors is also abolished in the English language programme (e.g. housing, dressing) while other aspects such as perceiving political or communication differences are only reflected in higher years.

Adapting to another culture – hindering and supporting factors

Looking at the adaptation to the other (accepting or sending) culture, our results showed that for the respondents of the German programme university studies and university life were considered to be the most simple in terms of adaptation. By advancing of study time, this factor showed a significant decrease, similarly to the aspect of housing. Additionally, everyday life, prices, shopping opportunities, and gastronomy were always considered as simple. Respondents of German programme found the language of the host culture the most difficult to adapt to during the studies.

Difficulties in social conditions showed a significant increase as study time passed by, and so did infrastructure and bureaucracy. On the other hand, it has been a downward trend towards distance from home, which makes progress in integration more likely. Respondents of the English programme - similarly to German students - considered university studies and university life to be the most simple in terms of adaptation, with a significant decline as study time passed by. Additionally, everyday life, housing, prices, and shopping opportunities were continuously considered as simple. However, only the graduate students considered the leisure time to be simple in terms of adaptation. Similarly to German respondents, the language was the most difficult for adaptation for the English programme as well. The difficulty of adapting to mentality has shown a steady increase, similarly to the aspect of social conditions. For second year students, knowledge of the country and its inhabitants, while for the upper year students, infrastructure and bureaucracy meant difficulties in adaptation, which points to the more important dimensions of integration.

Like the students of foreign language training, we asked Hungarian students what they felt to be the easiest and most difficult to adapt to in the international environment. Based on the received answers we concluded that university studies in the international environment was considered the most simple for Hungarian students, with a significantly decreasing tendency.

From the second year onwards, the aspect of adaptation emerges, while accepting and integration are marked simple only by the first year. With a downward trend, it seems to be difficult to get acquainted with other students and so is the use of foreign languages. Growth over the entire study period was shown by the aspect of the differences between financial possibilities, which Hungarian students felt to be problematic in terms of adaptation. Accepting and integration, just like in the English programme, were only marked by second-year students, while upper year students and graduates mostly perceived problems with housing and entertainment differences. In addition to the factors that were considered to be difficult to adapt to, we also examined the inconvenience experienced by the students of foreign and Hungarian language training in the accepting and sending culture, which was also confirmed by the results of the focus groups. More than half of students in foreign language education have been in a disadvantaged position in the host culture, while less than a fifth of Hungarian students have been in a similar position while having contact with the foreign students - with a downward trend. German students most often got in a long lasting disadvantaged position due to language and communication difficulty, as did English language students. Growth could be detected for over the entire training period in the number of unpleasant situations due to tradition and social differences. In the English language programme, the incidence of social and customary disparities decreased for the entire duration of training, but the number of unpleasant situations that manifested in the form of blasphemy increased. One-fifth of the Hungarian students who were already in a disadvantageous situation with foreign students - similarly to their foreign counterparts - were most likely in that similar position due to communication difficulties and mentality and tradition differences. Our results showed that the proportion of unpleasant situations arising from social differences increased throughout the training period, while the incidence of xenophobia was terminated by the time of graduation.

Attitudes towards the presence of other cultures

Concerning the study of the development of intercultural competence, it was important to analyse students' opinions about the presence of other cultures, on the one hand, when the students themselves are staying in another culture and, on the other hand, about those from other cultures in their own country. In connection with the presence of other cultures in Hungary, German students most often demonstrated the positive characteristics of the presence for the entire duration of the education, and the aspect of the development of intercultural competence was still sustained over 15%. Like the German program, the students of the English programme also highlighted the positive nature of the presence. It is also noticed that the "okay" and the "as long as foreigners are behaving" are decreasing while "enriching Hungarian culture", "important", "globalization phenomenon", and "contributes to

the development of intercultural competence" responses have shown an increasing tendency in advance of the entire training time. From the Hungarian students in this group of questions we asked what they thought about their long-term (e.g., a few years) stay abroad, which was considered particularly important for the foreign work intentions of Hungarian doctors and medical students. The Hungarian students - as in their foreign counterparts - appreciate the foreign stay mostly positively. With regard to those arriving from other cultures in their own country, German-language training students consider the presence of other cultures mostly positive and important. The factor contributing to the development of intercultural competence is increasing towards the end of the study period, and the enrichment of culture by foreigners is more frequently mentioned. The most frequent response of the English students was also the positive influence and importance of the presence of other cultures, beyond these the potential for the development of intercultural competence was also emphasized here. Like their foreign counterparts, Hungarian students are also positive about the presence of other cultures in their home country, which enriches the host environment and their presence improves intercultural competence. Our results are fully supported by focus group studies and are in line with models for the development of intercultural competence.

Emergence and development of intercultural connecting points and cooperations in international academic environment: possibilities of strengthening participation and social capital

The results of the focus group study and the results of feedback and attitudes on the most important annual event of the International Evening of the foreign students show that both foreign and Hungarian students consider intercultural communication as positive and important. With regard to the integration of foreign students, based on the feedback from the focus group interviews, we can state that there are many connections between foreign students and their Hungarian counterparts and the host media, mainly in English or German, which point as the bridge building social capital marks towards tolerance, cooperating and spontaneous social skills and to the sharing of knowledge with others. Participants in the focus groups emphasized that the challenge of adaptation and integration for the students is mutual, but with openness, these problems can be overcome as demonstrated by a number of jointly implemented community projects. (Jointly implemented cultural events, charity actions such as: Pécs Music Society, Open Mic, Advent / Spring Concert, Movie Nights, Motivational Speech, International Evening, Concert for Cause and Cocktails for a Cause, Misina Animal Protection Association, support for Pécs' needy: regular clothing and utility items collection). In addition to the sources of social co-operation that builds the bridge, social forms of manifestation can also be gained and can increase. The community service and the strengthening of student relationships, which highlight the importance of trust as a social capital and of network of connections, plus highlights the desire to communicate and participate, the difference in the current and the optimal status that can function as a motivating force.

Strengths and limitations of the study

The joint strengths of the studies in the multicultural university environment of the University of Pécs, presented in the doctoral dissertation, are following: a wide range of German, English and Hungarian language programmes provided the samples and that resulted in a persistently high response rate. Among the strengths of study about the possibilities of developing and development of intercultural communication and competence, we can mention that we could rely not only on the extremely high number of feedback from the quantitative study participants, but also on the information gathered through the qualitative, focus group interviews. It is a further strength of the research that a similar multidisciplinary study, conducted over several years in this field, has not yet been implemented in Hungary.

The similar strength of the study on the specialization and workplace choice preferences presented in the dissertation is that it is a repeated study, in which a large number of respondents delivered feedback with a similarly high response rate in the two years of the study. As we worked with an

international research team, another strength of the study is the comparability of the data gained internationally in the future.

The limitation of the study presented in the thesis is that the generalizability of the results of the study is limited in the absence of probability sampling. There was a further limit on the lack of specific identification and traceability in both studies despite repeated studies and the decline in the number of foreign medical students following the fourth semester, which is a particularly strong tendency in the German language programme.

The study presented in the PhD dissertation has primarily led to an increase in previous study results in the form of empirical results. In addition, the study on the emergence and development of intercultural competence can contribute to the creation of a new approach by combining the theories of multidisciplinary fields.

CONCLUSIONS

Conclusions connected to the empirical study results are set along the aims and hypotheses. During my aim-connected research, I examined following study topics and set these new statements:

Speciality and work-place choice preferences

1. Personal characteristics of future doctors are determining for speciality choice. Among personal characteristics sex, country of origin, financial background, and parental background seemed to affect speciality choice intention.
2. Based on our study it seems to be proven that beyond professional reasons more life style factors occur behind specialty choice. Among these following could be detected: under “Work - Private-life - Balance, we could see the better balance between work and private life and the better synchronized family life. Under “Local Attachment”, we could detect work choice next to place of origin, sustainability of social and family relations, possibility to take over business. Under the factor “Family in Focus”, we could find reasons like satisfactory institute system for children and satisfactory work opportunity for partner.
3. Our presumption according to which future doctors would prefer cities against rural settlements as work places was proven. Rural settlements would only be preferred among the responders as follows: with study agreement (German and Hungarian programmes), taking over parents’ business (German students), local attachments (all language programmes).
4. According to our fourth hypothesis, foreign and Hungarian students could imagine working abroad in huge numbers was only partly proven. Only the first year students of the English programme and the majority of first and third year programme Hungarian students think they would plan their future work place abroad.

Emergence and development of intercultural competences

About the hypotheses of the development of intercultural competence and of the emergence and development of intercultural connection points and cooperation we concluded as follows:

1. Well-being of foreign programme students at UPMS decreases after arrival and it reaches its highest peak towards the end of their study period. This assumption was fully proven in both language programmes (English and German) right. Assumptions based on study results, the values of well-being have taken a “U” shape in both cases, which strengthens that after arrival at the accepting culture a decrease would follow, which again increases after the deep in the second year continuously until the end of studies.
2. The limited study time spent in the accepting culture can cause burdens in the integration process of the students – this assumption seem to get proven along with our first hypothesis, as the well-being degree for students who come for a limited period – usually for four semesters – is the lowest. From the focus group interviews, we could conclude that students with limited study time stuck in the Bennetian ethnocentric phase and their integration process into the accepting culture has not yet or has just slightly started.
3. Learning the language of the accepting culture supports the integration process positively. Communication problems of Hungarian language or limited language acquisition hinders the integration as we concluded. Feedbacks acquired during the qualitative examinations prove that upper year students or students of foreign programmes who spent their full study period here clearly recognized language limitations as slowing factor in integration. (According to MJ Bennett's model, the development of intercultural sensitivity and competence is a batch process that can be divided into an ethnocentric and etnorelative phase. In the former, the person concerned looks at his new environment through the glasses of his own culture, while at the next stage, after a period of individually different lengths, regardless of the culture of its own, it is able to see and interpret the phenomena of accepting culture. Within the two phases a total of six stages can be reached, from rejection to even integration.)
4. Our results prove that the extension of knowledge about the accepting culture continuously proceeds from the directly – mostly in everyday situations – experienced knowledge and impressions to the cultural characteristics and deeply laying values (e.g. mentality, values and traditions) detected during longer stay.
5. International university environment makes intercultural competence acquisition for all participants possible, even beyond university surroundings.

Both the quantitative study and the interview feedbacks prove that intercultural competence of both programmes (foreign and Hungarian) develop in the international environment. This happens in the etnorelative phase, which can be detected after the second year of studies. Qualitative examinations also strengthen that students clearly determine the emergence of intercultural competence as a positive skill, which they can directly benefit during their later medical work from.

6. During studies in international university environment and by the emergence and development of intercultural connecting points and cooperations, participation and this way the empowerment of social capital can be detected. Concerning this hypothesis, we could only conclude by the focus group examinations, which show that intercultural connection points mostly emerge by accidents. Its room, e.g. common physical education can play the role of directing. During the interviews, we could also figure that organized opportunities, the number of which increases due to the work and motivation of foreign student councils, pave the way for cooperation possibilities, the number of connection points increases and thus emergence and development of participation and “bridge building” social capital will be enabled.

SUMMARY, CONCLUSION

In the dissertation, I focused on the operability of health care and the quality of its human resources. Within these frameworks, I also examined the motivation, the work plans, and the competences of future doctors discovered during their university socialization in multicultural surroundings.

Studies of the last decades have highlighted the changes in doctors' decisions about speciality and workplace not only due to wages, profession and carrier possibilities but also due to balancing between work and private life. To keep satisfactory operability in health care it is crucial to follow the pull factors of workforce market, to be aware of generation changes and these to be carried out optimally during the university years in order to create the possibility to involve faster and more effectively.

The socio-cultural diversity of societies and the from the cultural differences emerging complex contexts (cultural differences in health and illness, symptoms and their possible cure, trust put into health care, patients from minorities, multicultural surrounding due to migration) are manifested in such situations, where the patient and the treating person have different cultural background and their meeting can happen in a third culture, meanwhile the situation and preferences of health care and its workers are continuously changing as well.

These necessitate the development of intercultural competences of health care workers, possibly during their medical education. Intercultural key competences can be gained the most authentically and specially for students studying abroad in frames of mobility programmes of higher education or for students of the accepting culture. The knowledge gained in mobility programmes becomes this way more valuable. It is important to highlight that earning intercultural competences will be inevitable in all fields of health care in the near future, therefore the university curricula and the educational portfolio of the complete health care education must be extended, and interdisciplinary cooperation must be strengthened.

Although multicultural surroundings need continuous sociocultural adaptation from both the accepting and the accepted culture's side, due to their presence part or full-creation and adaptation of cognitive, affective, and pragmatic-communicative part-competences of intercultural knowledge can occur for example in the more and more multicultural health care.

Aiming at participation at solution seeking, thus achieving optimal state can motivate us to use intercultural competences which furthermore affect relation-networks and trust as developing social capital positively.

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FAUBL NÓRA - PUBLICATIONS

Journal articles as basis for the PhD dissertation

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