Introduction

The reforms of teaching geography took place in several countries in the 1970s and 80s. In Hungary the reforms from the 80s led to creating the education of professional geographers. The history of the Hungarian education of geographers and the development of its market demands is typical of the entire eastern European region. In Hungary, the education of geographers does not go back to the distant past, as it was launched only in 1993, although the education of geography teachers has been going on at the Hungarian universities for more than one hundred years. The educators of Szeged University played an important role in launching this course, shaping the core curriculum and organising the accreditation procedure. After the first five years of teaching we carried out the audition of the programme and meanwhile we indicated a labour market research, the results of which reinforced our conception concerning the modernisation of the education of geographers, the revision of the core curricula and launching new lines of specialisation.

The current state of education, the modernisation process and the results of the market research are presented in this study.

I. The roots of the education of geography in Europe and Hungary

The golden age of geography was between the 15th and the 19th centuries, which were characterised by the great discoveries and chart-making (Huggett, P. 1990). At that time geography did not exist as an academic science, as it lacked its theoretical and methodological background. The colonisation and the development of international trade at the beginning of the 19th century was reflected by the fact that geographical societies were founded by those interested in economy in order to purchase more and more precise information (e.g. Paris – 1821, Berlin – 1828, London – 1830, Mexico – 1833, Frankfurt – 1836, etc.). Experts who participated in collecting and systematically arranging the information joined these societies one after the other. Owing to their activities, especially to Humboldt’s and Ritter’s methodological work the academic science of geography emerged. A range of geography departments was set up: Berlin – 1820, Bonn – 1835, Giessen – 1864 (Schrettenbrunner, H.L. 1990), moreover, there were specific professorships for geography and political sciences at the University of Göttingen in the mid-18th century.
At the Technical University the department of geography and statistics was founded in 1863. But the first pure geography department was set up in 1870 (as the 5th in Europe) with Janos Hunfalvy as its professor.

In Hungary at the present time 19 geography departments are at five universities, and further 4 in four colleges. The universities cover the whole territory of the country uniformly (in Budapest, Szeged, Debrecen, Pécs and Miskolc). Mostly physical and social geography departments can be found at the universities, regional geography departments are frequent as well, but there are special departments as landscape ecology department in Debrecen and applied geoinformatics in Szeged. About 1600 students studies at the universities and another 1200 student in colleges, all together it is 1,2 % of the given age-group. The students are thought by 200-250 university and college teachers, and extra 200-250 persons work as professional geographer. Approximately 1200-1400 teacher works in primary and secondary schools. In the Hungarian higher education a consolidation program started in 1999 with the support of World Bank. Due to this program the degree of disunity was decreased and the universities and colleges within the same town were integrated, for example in Szeged and Debrecen.

After completing the secondary school studies the Hungarian students can study geography in free different levels. A student, who finish 8 semesters will get a „college diploma”, which entitle him to teach geography for 10-14 years old, primary school students. (In Hungary, in a typical case, the 8 years of primary school is followed by 4 years in a secondary, and a student must complete at least 10 years.)

In accordance with the order of the Hungarian higher education and the prevailing higher education law, 10 semesters have to be completed at the universities. The students have to pass a final examination at the end of the 10th semester on the faculties of Sciences and Architecture. Besides, the to-be teachers have to write a diploma work, the geographers have to work on a thesis as well, but they have to present it for a board of examiners. As far as the credit system will probably come into force in the year 2002 in the Hungarian higher education, the different courses and seminars are counted and recognised as „work units” similarly to the credits. The compulsory minimum, which must be completed until the end of the study, is expressed in terms of work units.

According to the above, after completing 10 semesters the students will get a diploma in geography teaching or professional geography. The aforementioned entitle them to teach 14-18 years old students in secondary schools. We do not have too much information about the acceptance of the last mentioned brand new profession, i.e. professional geographer. Besides the undergraduate programmes most of the universities have the right to launch postgraduate programmes, e.g. PhD training, which includes 6 semesters. The students have the possibility to spend a part of their study at other European universities. This is supported by several exchange programmes, like ERASMUS.

The geography, as a subject, is authorised in primary and secondary schools, though its role and importance have changed in the last few decades. The geography teaching managed to present high level achievements in Hungary in the 1970s. According to an IGU survey (Haubrich,H. 1996) the average achievement of a student in 71.2 per cent, which ensures the second and third place in international comparison. On this list the mean value is 55.7 per cent, where the scores of the students are as follows: Germany 61.2, Austria 66.5, Belgium 43.7, Great Britain 50.8, the USA(San Diego) 54.7, here the Spanish speaking
minority 35.1, and Italy 56.6 per cent. (The sample was between 1-1500 per country) These results may as well give rise to satisfaction. But, all the same, this stable condition did not make it possible for the experiments in geography teaching in the 1970s and 80s (e.g. spatialism, problem orientation) to be tested in the Hungarian geography teaching. One has to admit that these experiments were not successful in other countries, either, the former in the US, the latter in Germany, but they served the process of renewal. Thus, in Hungary’s educational achievements in the 1980s can be considered to be relatively good. Under such circumstances did the social change take place, along with a wholesale change of paradigm, which was escorted by the general – not only European – depression of geography teaching. This process includes the radical decrease in tuition time. In Hungary, the weekly tuition time of geography as a subject was 23 in 1949, while this number was only 14 in 1965, moreover, it was only 11 in 1990. As it was planned, this time will be decreased to 8 hours a week 2002. This plan is in accordance with the total tuition time in Slovenia and Poland, that is, twelve. (Probald, F.1998) These data indicate the decline in the enforcement of the interests of geography rather than the decline in the social demand for geography. In Hungary, the changes in the content caused by the changes of the regime, the explanation to the decrease in tuition time and the prolonged renewal of content and form had to be handled simultaneously. No doubt, one of the cardinal points of the reform-like conceptions was to give a start to the education of professional geographers. In this process the answers to the problem-orientation, the changes in content and the decrease in the tuition time could be revealed, but at the same time we wanted to correspond to the social demands as far as marketing is concerned.

II. Changes in geography since 1990: new and modernised curricula

After the changes in the regime the role of the local authorities became more important, foreign investors tended to turn up using local data resources, and more and more clients needed spatial information. The elaboration and interpretation of the spatial information was carried out by experts who were capable of interpreting data in connection with their qualification, but they failed to convey the behaviour and changes of these phenomena within the capacity of everybody. Professional geographers and geography teachers are educated at universities of sciences and technology.

Organisation of educating professional geographers

In the 1970s the word ‘professional geographer’ tended to have a pejorative interpretation. It was used to refer to people who were not in the possession of an academic degree but their expertise was justified as explorers (travellers or ‘discoverers’). In the late 1980s and early 90s a large scale of efforts and needs appeared concerning the renewal of geography teachers’ training. At the beginning these changes were those of the quantity (form) rather than the content. The formal changes were required by ‘life’. By 1991-92 it became clear that the higher education could expect a considerable increase in the number of students (from the earlier 12-14 per cent of the age groups the number developed up to 30-35 per cent, which is three times higher ). And at the same time it is irrational to expect two or three times greater need for geography teachers. Moreover, everybody should be aware of the fact that there will be a 20 per cent decrease in the tuition time and a radical decrease in the number of children – in the age group of 12-16-, and this phenomenon should be or should have been somehow handled.

It may sound more important that we, in agreement with others, found it essential that the content should be revised and we had definite ideas to transform it. We thought that our concise experiences of the geographers’ profession could be adapted to the Hungarian
conditions and this profession could be organised without preparing the market for it. There was no real opportunity to explore the market at that time, although the condition of starting this faculty – it being financed by the state – was the verifiable social demand. Of course, there was no direct social demand, we only had a general idea that there was some vacant area in connection with a survey concerning the environment – geo-ecology and habitations-regions. In order to separate the image of the geography teacher and the professional geographer one should stress – sometimes excessively - the features which represent the difference between the two faculties. On the one hand it was undoubtedly the practice-orientation, that is, the geographer, with the knowledge acquired, should be capable of working out applied geographical-spatial problems. On the other hand, we thought we should provide the students with the knowledge that is convertible in the labour market. Both these aims are still in practice.

In 1991 and 1992 the opportunity came to merge the modernised content and the formal novelties. We started to elaborate the faculty in the summer of 1991. After numerous discussions, at the beginning of 1992 we managed to present our proposal comprising the content and formal requirements of the education of geographers. Based on our conception, the education of professional geographers was put into practice first in Szeged and Budapest in 1993, then in Debrecen (1994), in Pécs (1997) and finally in Miskolc (1998). At present approximately 800 students are learning to master as professional geographers and another 800 as geography teachers. There is a tendency that in the university education the number of future teachers is decreasing and the number of professional geographers is increasing, which can be perfectly illustrated by the survey at Szeged University. (Fig. 1)

**Figure 1** The number of students studying to be geographers or geography teachers on the Faculty of Sciences at Szeged University in the last 10 years.

*The structure of core curriculum*
The system of the Hungarian higher education, in accordance with the higher educational law, prescribes a ten-semester course at the universities. On the faculties of science and architecture of the universities of science and technology and absolutorium has to be taken after finishing the ten-semester course. To graduate as a geography teacher one should work on a thesis, if specialised in research an diploma thesis should be submitted to a board for discussion. As the credit system is probably to be introduced in the Hungarian higher education only in 2001, the activity of the students is acknowledged by a credit-like unit, i.e. work-unit, by which the compulsory minimum activity is defined which is necessary for the students to be entitled to take their degree.

The specialisation grid for both professional geographers and geography teachers is the same in the first four semesters, but it means the parallel programme of the two faculties rather than the uniformity, as the geography teachers study pedagogical subjects as well (for more information: http://www.sci.u-szeged.hu/oktatas/foldrajz/index.html). In the fourth semester the geographer students specialise in different accredited subjects (Table 1), and they follow the core curriculum in the further (5-10th) semesters. In the fifth semester each student has to take up both compulsory courses and theoretical and practical courses relevant to the specialisation.

<table>
<thead>
<tr>
<th>University</th>
<th>Specialisation</th>
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<tbody>
<tr>
<td>Eötvös Lóránd University - Budapest</td>
<td>Regional and Urban Planning</td>
</tr>
<tr>
<td></td>
<td>Environmental Planning</td>
</tr>
<tr>
<td>Szeged University - Szeged</td>
<td>Regional and Urban Planning</td>
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<td></td>
<td>Environmental Planning</td>
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<tr>
<td></td>
<td>Geoinformatics, Geology</td>
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<tr>
<td>Kossuth Lajos University - Debrecen</td>
<td>Regional and Urban Planning</td>
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<tr>
<td></td>
<td>Environmental Planning</td>
</tr>
<tr>
<td>Janus Pannonius University - Pécs</td>
<td>No Specialisation</td>
</tr>
<tr>
<td>Miskole University - Miskole</td>
<td>No Specialisation</td>
</tr>
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Table 1. Hungarian Universities where geographers are trained and the specialisation facilities

Experiences and novelties

Analysing the first five years of training geographers a few problems have arisen which escaped our attention when organising this course. In addition, the teaching material became old-fashioned or the latest scientific results did not introduce emphatic points into the training and the old training system did not fit into the new structure.

The first problem to sort out was to give the basic sciences a sufficient role in the first part of the course, which was found necessary to make up for the lack in the students’ knowledge owing to the different levels and limits of secondary education. This is why we found it important that mathematics, chemistry and biology should be taught in the first two semesters, creating a theoretical basis to these subjects but at the same time finding connection between them and their application in the geo-sciences. (The basis of geochemistry, Quantitative physical geography, Biogeography). The second problem to come up was the strengthening of the students’ individual activity and their problem-solving
practice. After evaluating the students’ feedback and the experiences during the professional practical education it became evident that the students would start their individual research work relatively late, in the seventh and eighth semesters. This situation can be considered as a disadvantage when trying to join in the continuous working process during the professional practice, on the other hand, the students should be able to choose a topic to elaborate for graduation and to practise and interpret the suitable methods individually. This is why the students should write an essay in the fifth and sixth semesters, which should be presented for discussion to the board of lecturers, researchers and students of the departments of geosciences. Thus the students tend to find a topic to elaborate in the earlier years of their studies and they will gain practical skills in planning and working on their theses for graduation. The third and a most complex problem to sort out was the modernisation or the annihilation of specialised courses, the introduction of new courses, the changes in the proportion of the basic and specialised training (the strengthening of the specialisation).

a) The major part of the course syllabus drawn up seven years ago needed modifying in content as significant changes had taken place particularly in our region at the end of the 20th century. The technological changes should not be ignored either, such as spatial informatics, remote sensing, computers and the access to the world net and their effects on geography (e.g. the usage of global data bases). The methods and devices of measurement and observation (e.g. GPS, continual, digital measurements on the spot, etc.) got renewed and their introduction into the education needed new courses, such as the bases of GIS, Remote sensing, Digital cartography, Landscape ecology and Regional processes in Europe, which are now included in the basic educational programme.

b) The previously existing specialised courses were professionally renewed and new courses were introduced, such as Regional planning, Urban ecology, Logistics, Economy of Tourism, Environmental geology, Geomathematics and statistics, Landscape ecological planning, Introduction to geographical project management, etc), and two brand new specialised course was launched: geoinformatics and geology. The former was set up to satisfy the immense demand of different sectors (local authorities, government offices, estate offices, the private sector, etc.), which depend on the research carried out by the Department of Physical Geography and the Laboratory of Applied Geoinformatics, and also on the well-known and respected mathematics and informatics training of the Szeged University. Launching the geology specialisation aimed to satisfy the permanent demand of the students and also to keep the old traditions, and besides there is a strong industrial link to be maintained (MOL Rt – a state-owned oil holding)

_Evaluation of curricular reform and additional curricular developments_

The curricular reform can be evaluated from several points of view. The reformed curricular is valid only for the first year students, therefore, considerable conclusions can not be drawn, or at least not yet.

To satisfy the continually strengthening demands of the market the students have to get very large field of special knowledge, but these special subjects are not in the common curriculum, as far as they are not compulsory for everyone. We would like to solve this problem by special seminars for 5-10 students and by inviting well-known scientists as lecturers.

_III. Market research for geographers_

The geographer’s profession, as such, did not exist before, and now many of us are
working on its acknowledgement as a profession in Hungary. It is our students who represent our project best. The changes in Hungary on the end of 80’s make possible for the students to give account about their thorough grounding when they get into real competitions. In this case they have to prove not only their excellent paper knowledge, but they have to confirm that they are able to create new worth. Besides, they have to verify that their knowledge is useful and essential for the expert advisory panels both in the private sector and in the state institutions.

There are positive examples before us from Germany and England. At the Szeged University 225 students study to master as a geographer and another 350 or 400 students at other universities. This is quite a considerable number, which serves as a reason why – along with the rest of the universities – have been working on the acknowledgement of his profession in the labour market. (In Germany this process took twenty years between 1970 and 1990).

Within the frames of this co-operation a project was drawn up by the team of the Marketing Management Department of the Szeged University, on behalf of the three institutions which take part in training geographers. This programme is unique in the Hungarian higher education, as co-operating universities meant to introduce a new profession into the market rather than one particular university meant to make itself and its experts become more popular.

This project had a twofold purpose. Firstly, we had to find the potential employment possibilities, where the special knowledge of this newly founded faculty can be most effectively utilised than that of the previous faculties. Secondly, the employers of this are had to be informed about this novelty. At this stage of marketing we could not undertake a convincing and persuading campaign, as the market – as further researches later proved, in accordance with the technical literature (Kotter,1992) – was not in the possession of any information about the product, that is, the knowledge of young expert graduates.

*Therefore, the campaign faces several tasks:*

A. The geographical needs of the employers was mapped and it had to be transformed into a claim for a real expert, who can be educated at universities.

B. We had to know, what kind of idea is formed about our science, scientists. This is the only way to form the right opinion in the future.

Thus, during the campaign we have solved the question of market research, product positioning and wider notoriety.

We have solved the problems based on the following schedule:

1) The period of product-research and product-analysis
At this stage we accurately surveyed how adapt the students were in the above mentioned curriculum. Based on the recorded information, from both the institutions and the students’ aspect we thoughtfully examined the courses. This thorough examination covered the recorded and publicised subject material, the technical literature and the practical experiences. Besides, by way of team questionnaires we carefully surveyed the viewpoints of the leading lecturers and also the geographer students on the higher grades. Detailed minutes were drawn up about the focus teams, which made it possible to compare and separate the positive and negative opinions. Hence we should mention a ‘side-effect’ of the campaign, that is, the institutions received a feedback about both the market of experts – the campaign was meant to survey and influence this market -, but also about their own market, their students.

At the end of this stage detailed and precise data were available about the skill and talent of the geographers trained in Hungary, about their knowledge and also about the application skills and their limits. Thus we could start examining the readiness to accept this substance of knowledge. We turned to the DACUM method. (Development Curriculum Method) This method arranges the revealed skills into an activity matrix, which then outlines the tasks requiring such skills. By grouping the tasks special scopes of activity became distinct.

After all this we launched the second stage, which meant exploring the market outlined in the first stage and also examining its state and knowledge.

2) Period of Market Research

This was the most important period, therefore, the greatest expenditure forecast was planned. The mapping of the market served two purposes: to know more about the needs and expectations of the potential consumers and about the degree of their familiarity with geographers. These gave information not only for planning the campaign, but it was a feedback for the universities about the knowledge of their students, and it can be the basis of the continuous modernisation of the curricula.

At this stage we applied primer research methods so that we could determine future effectiveness and obtain reliable information about current market conditions. We had random company sample questionnaires filled ion by phone. The panels represented the market segments explored in the first stage. (Churchill 1988). In the course of questioning we made our conclusions relying upon 113 valid answers. The questionnaire covered the examination of the possible connection between the problems arising at the firm, the geographer’s knowledge and also the renown of the geographer’s profession. The most important results are illustrated by the charts below: (Fig. 2-3)
The renown of the geographer’s profession

Figure 2: The usage of geographical information by the firms questioned

Figure 3: The renown of the geographer’s profession

The initial suppositions proved to be true: the market needs geographical information but knows nothing about the experts. Furthermore, we analysed the renown of the training institutions and also the questioning methods concerning the qualification of the experts dealing with the above mentioned problems. We did so with the intention of providing a concise depiction – supplemented with secondary sources – of both the market capacity and the competitors. We established the fact that in Hungary it is the engineer’s profession that means the most difficult challenge partly because of the traditional positive image, partly because of the real knowledge.

We can conclude, that in the market is a need for the knowledge of geography and geographical attitude. Unfortunately, because of the employers mean the geography, as a science, in a very narrow sense and they do not know a lot about the new experts, the employers employ more practice orientated experts instead of geographers.

At the end of the market analysis we collectively created the third target group, which was meant to influence the market. Besides the local authorities and government offices two private firm groups were involved, first the privately owned companies which are strongly
related to government projects and the public relations units of firms dealing with the environmental risk. Our aim was to find a sound market for the geographers’ complex and extended knowledge, which, consequently, does not meet the demands of high expertise by all means.

3) The campaign

The campaign was decisively based on the means of personal disposal, advertising and propaganda. A Direct Mail campaign was the first step, based on a sample comprising one thousand firms. The data bases of the firms practically covered the Hungarian firms of the chosen target groups. According to the answers and other priorities we visited fifty firms in the hope that, in the possession of the detailed information, they would employ a qualified geographer. The experiences of these visits are presented in Fig.4:

![The results of the visits](image)

**Figure 4** The results of the visits

To supplement all this we allocated advertisements in special papers. The final act of the campaign was an effect-measurement, which measured the effect with the same methods as in the initial research:
The renown of the training after the campaign

![Figure 5](image.png)

Finally we found it ascertained that the market of geographers’ is not only competitive but also promising at the same time. Not only this market but also the training and its content was supported by the campaign, which achieved its aim, and it managed to undertake tasks of the internal quality assurance as well. And we can be particularly proud of the above mentioned if one takes it into consideration how new this profession is.

Evaluating the problem solution in a complex way one can conclude, that the campaign was successful in giving real information about the market, therefore, we could contribute to the better planning of the „product”, i.e. marketable expert. For the potential employers we could offer the geographers as the effectual solution of existing problems. To improve the judgement of geographers in comparison of other experts will be the aim of another campaign.
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