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## **SHOULD WE AND CAN WE MOTIVATE UNIVERSITY STUDENTS? - THE ANALYSIS OF THE INTERPRETATION OF THE ROLE AND THE TEACHING METHODS OF UNIVERSITY TEACHERS**

### **Abstract:**

Reducing student drop-out rates is a challenge faced in Hungarian higher education. Our research and development project is intended to contribute to this effort: we analyse the notions and experiences of teachers concerning the possibility of motivating students, as well as their own role models as teachers and their teaching methods. We also explore students' motivation, their experiences and expectations related to classes at the university.

It was studied whether the motivation of students appears in the teachers' understanding of their own role. Do they accept or reject the motivation of students as a task? Is there a difference in the teaching methods applied between those who consider a part of their role as teachers to motivate students and those who reject this? We were also curious how the opinions of teachers and students were similar or different concerning the motivating effect of various teaching methods.

We collected data from teachers and students at six Hungarian institutes of higher education. The teachers' questionnaire was completed by 210 respondents, and semi-structured, in-depth interviews were also conducted with 41 of them. The students' questionnaire was completed by 1,130 respondents. In the analysis of the data, we used both quantitative and qualitative methods. Based on the results, half of the teachers faced with difficulties in connection with motivating students. In the interpretation of the role models of the majority of them, the intention of motivating students appeared positively. By contrast, in the opinion of 68%, academic success depends on the students alone.

There was agreement in that the respondents considered the use of digital tools, interactivity, practicality as having the most motivating effect. In the frequency of encountering various methods, however, there was a difference in the assessment given by students and teachers.

The interviews shed light on the fact that, despite the best intentions, the actual achievement of motivation of students in the classrooms is often missing. The reason may be the lack of pedagogical and methodological knowledge and consciousness.

### **Keywords:**

university teachers, university student, teachers' role model, motivation, teaching methods, higher education of economics

**JEL Classification:** A23, A20, I23

## 1 Introduction

In the past three decades, there have been numerous changes in the higher education of Hungary. These include the move toward “mass production,” resulting in a significant diversification in the composition of the student population. The difficulties inherent with a large proportion of the teachers being unprepared for these changes and struggling with the situation is shown by the fact that reducing student drop-out rates, as well as keeping teachers in academia and ensuring the supply of their next generation have been problems for decades.

Parallel with the protraction of finding a solution, the unsatisfied voices of teachers and students have become louder in a parallel way. Long-standing and prestigious research universities are increasingly popular among motivated students of outstanding academic performance, while other higher education institutions – e.g. younger universities of applied sciences, formed from colleges – also receive a large number of students of inferior performance. In these institutions, teachers encounter and struggle with groups of large sizes and varied compositions. Approximately 30-35% of the students leave the institution within a short time. (Solt et al., 2018)

It is not only the lack of preparation and a decrease in abilities that are sensed and indicated by the teachers, but they also report on significant, negative changes in motivation and attitudes. Some of them think back of the times nostalgically when students’ motivation, attitudes and level of preparation still made it possible for teachers not having to deal with teaching methodology and motivating students, because the latter arrived with a will to study. Reflex-like responses to students’ failures include that “they don’t belong here” or “going to college is not mandatory”, etc.

Based on conversations with students it would appear that their apathy and disillusionment with their studies is partly a consequence of the deficiencies on the part of the university. According to the feedback given by students, the institutions often do not correspond to students’ expectations in terms of either the teaching methods or the organisational structure and operation, and this has an adverse effect on the motivation, activity and commitment of students.

Our own university is working towards a solution on two fronts. On the one hand, students are given assistance through special programmes. On the other hand, a decision has been made to support and develop the teachers’ activity. Our research and development project is aimed at the examination of both the teachers’ and the students’ side, with an eye to supporting teaching activities. In the interest of making the cooperation between teachers and students more efficient, we aim to enable the stakeholders on the two sides to have realistic knowledge about each other and the views prevailing about them, especially in the areas of motivation and teaching methods. On the basis of these and the analysis of the

classroom activities, we are engaged in drawing up methodological resource materials, as well as workshops for teachers.

This paper aims to present the results of a part of this complex project. In the focus there are the relations amongst students' motivation, teaching methods and university teachers' interpretation of their role.

In the following, we will review the literature that determined and inspired our research outlook, related to the motivation of students in higher education and the teaching methods used there.

## **2 Foundations in terms of theory and approach**

Our outlook was influenced by the theory of Heckhausen (1991), according to which the existence of a goal and the desire to achieve that goal are not enough for the necessary action to follow: a certain "threshold of desire" must also be crossed. In other words, the desire for a degree and a career in itself will not necessarily lead to learning activity. Crossing the threshold of desire is an emotional step, and therefore, we must separately look for the factors that concern the feelings of the students toward the university, the subject, the teacher and learning, and that can move them in a positive direction. Pintrich and Zusho (2002) applied this theory to the environment of higher education. Its inclusion is justified by the fact that, during the interviews teachers expressed on several occasions their hope that after a successful lesson the students would remember the material better, and after their interest was successfully raised they would look into the topic more in depth on their own. However, at the subsequent examinations the teachers were disappointed to see that the enthusiasm achieved in the classroom did not translate into more learning, so we can assume that the "threshold of desire" was not crossed.

In drawing up our research concept, we relied on Herzberg's (1969, 2005) two-factor theory of satisfaction and motivation. The essence of this theory, fundamentally about workplace/leadership satisfaction, is that the level of satisfaction is dependent on the parallel presence of two groups of factors. The absence of what Herzberg calls "hygiene factors" – e.g. the relationship established with a supervisor/teacher, the expertise of the teacher, the relationship established with others, the physical environment, the leadership/teaching style, status, security – can result in significant dissatisfaction, but their existence only motivates to a small extent. Conversely, the absence of "motivator factors" – such as tasks, the interesting and meaningful nature of the activity, responsibility, independence, sense of success, recognition for one's achievement, opportunity for development – causes dissatisfaction only to a smaller extent, but rather just results in the lack of satisfaction, but their presence leads to satisfaction and motivation. The applicability of this theory in higher education is supported by the research of DeShields et al. (2005), Ataliç (2016) as well as Hui-Chin and Tsui (2015).

The use of this theory is justified by the fact that motivating factors can easily linked with teaching methods: is the teaching is interesting and enjoyable, are the students involved, do they have a sense of development, are the recognized, can they have independent ideas, tasks, responsibilities?

We dispensed with the usual separation of extrinsic and intrinsic motivation, since on the one hand it transpired that their effect mechanisms on the neural level is the same (Fülöp, 2010; Marr, 2005), and on the other hand, at the end of our work we can only make recommendations for the development of the extrinsic elements.

Exploring the link between learner motivation and teaching methods has been the subject of a large number of papers, research and innovation projects, which indicates that this is a problem that is well perceivable also internationally. Without striving for completeness, some of these are mentioned below that served as sources of inspiration for formulating our research concept.

In her research, Khalid (2013) explored what classroom activities and teaching styles raise students' interests in higher education. She interviewed the teachers considered to be the best by their students and recognized for their teaching, asking them about their teaching methods. Her questions were aimed at finding out what could be used to motivate students and what has a demotivating effect. As a result of the analysis of the interviews, she came to the following conclusions, which are also relevant from the point of view of this research project:

- What students encounter through complex project tasks are not classroom-oriented, but life-like tasks the solution of which requires creativity and are therefore motivating.
- Interest and enthusiasm toward the subject can be perceived in the teacher who highlights important points and directs attention to them, rather than being lost in the details.
- Students' participation in the exploration of the topics makes the learning interesting.
- Teachers illustrate their teaching with examples taken from everyday life, which the students can also understand and relate to.
- Students are more involved if they can sense a link between the topic of the course and their own career goals. This link must be obvious and easy to discover.
- Students must feel that they are all important to the teacher, and that the teacher wants all of them to learn the material and successfully complete the course.
- There is a need for regular and meaningful feedback on students' work at a stage when they can still change their working style and the content of their activity.

In her research, Lubicz-Nawrocka (2019) examined the characteristics of what students perceived as excellent teaching. She analysed the characterizations given by students about teachers nominated for teaching awards. From these texts, she identified four factors: excellent teaching is characterized by teachers' concerted, visible effort in connection with the teaching the subject, their commitment to engaging students, breaking down student-teacher barriers, and stability of support.

Jármai (2015) suggested that in higher education it needs to rethink the role of the teaching methods. She pointed the gap between the generational features of the students and the teacher centered teaching methods. For the effective teaching and learning the teachers have to turn their methods in student centred direction.

In contrast with the above, there is also an approach supported with empirical data which, on the basis of an examination of learning efficiency, argues for the application of teacher-centred methods in higher education. (Fischer and Hänze, 2019)

Examining the motivational effects of the use of ICT tools, Ollé (2010) has come to the conclusion that digital tools are good for many things, but they cannot fully substitute for contact activities, including the motivational force of personal rapport. We wish to devote particular emphasis to the weight that the use of digital tools in teaching and learning has in the opinions of students and teachers.

Our earlier research, conducted mainly on secondary-school samples, showed that the teacher's interpretation of their own role exercises a measurable effect on the quality of teacher's work. This can be identified, for example, in the use of methods. The organised and well-elaborated concept of the teachers' own role contributes to the successful application of the methods. By contrast, an disordered and undeveloped role model weakens the effectiveness of any method used. (Fúzi, 2017, 2015) We considered teachers' interpretation of their own role important for the purpose of exploring the relationship between student motivation and teaching methods also in a higher education environment.

It was on the basis of the above that we drew up our research concept and methods.

### **3 Research conception, sampling and methods**

The questions raised were:

- Does the motivation of students appear in the teachers' understanding of their own role? Do they accept or reject the motivation of students as a task?
- Is there a difference in the teaching methods applied between those who consider a part of their role as teachers to motivate students and those who reject this?

- How are the opinions of teachers and students similar or different concerning the motivating effect of various teaching methods?

### **3.1 Tools of the data collection**

In order to find answers to the questions raised, we used questionnaires for students and teachers, also conducted semi-structured in-depth interviews with the latter group.

#### **Questionnaires**

The use of the questionnaires was justified by the need to collect data from the largest possible number of teachers and students, covering a diversity of areas. We developed separate questionnaires for teachers and students in such a way that the questions pertaining to the motivational and learning characteristics of students and to the methods used in higher education would be included in both questionnaires, resulting in comparable data sets. As a result of the above, the opinions of the teachers and the students can be easily compared. The questionnaires could be completed online by those in possession of the relevant link. The data collected were primarily subjected to a quantitative analysis, using SPSS.

#### **Interviews**

In addition, we also conducted semi-structured in-depth interviews with some of the teachers, in order to be able to make in-depth analyses and to further nuance the quantitative results. The interviews were conducted on the basis of a prepared outline, allowing the subjects also to go more into depth in certain topics, depending on their reactions and needs. The transcripts of the interviews were primarily analysed using a procedure of qualitative textual analysis. Teachers' interpretation of their own role was primarily possible through the interviews conducted. Because we received few easily manageable, coherent answers to the open question aimed at the interpretation of the role, in the course of our analysis we took the entire text as the basis, and we also gathered and took into consideration scattered elements related to the concept of the role. It turned out that the interpretation of role by many can be derived from a list of their tasks as teachers, the presentation of the tasks undertaken and rejected, and this was mixed in with the aims of the teaching activity.

### **3.2 The sampling method and the presentation of the sample**

Starting out from our own institutional profile, the scope of our research project covered teachers and students in economic higher education, because we specifically aimed to provide assistance to them with the findings. The data was collected among teachers and students in the related programmes of six Hungarian universities. The sampling took place with a combination of the convenience and the snowball sampling methods. We contacted

the teachers, through a network of acquaintances and on the basis of lists of addresses collected from the websites of economic higher education institutions, either in person or by way of electronic mail specifically addressed to them. The students were involved into the research project by way of their teachers who were contacted and agreed to participate.

The teachers' questionnaire was eventually completed by 210 (119 women and 91 men) and the students' questionnaire by 1,130 respondents. There were found some defective student questionnaire which were not suitable the further analysis. The number of analysable students' questionnaires were 1,075 (675 women and 399 men). In addition, we also conducted interviews with 41 teachers (18 women and 23 men). The sample of respondents was representative for their respective institutions, although not nationally.

#### The characteristics of the teachers participating in the survey

The average age of the respondent teachers was 48.5 years (the oldest respondent was 77, the youngest was 26 years old), the average length of their experience in higher education was 18.7 years (between 1 and 54 years). 51% of the respondents were certified as teachers, 2% were in the process of pursuing such studies, and 47% had no teacher certification.

#### The characteristics of the teachers involved in the interviews:

The average length of teaching experience of the interviewees was 17.6 years. 50% of them were certified as teachers, and one person was in the process of pursuing such studies. The interviewees represent the general sample of respondents by questionnaires well. 47% of them have experience teaching in secondary education as well.

#### The characteristics of the respondent students

The average age of the students participating in the survey is 22 years. The average number of semesters completed is four. In terms of their motivation, 33% responded that it has not changed since they started their studies, 55% said it changed negatively, and a positive change was reported by 12%.

In the following, we will present and attempt to provide interpretations of some of the findings. We devoted particular attention to the relationship between students' (and occasionally also teachers') motivation and the teaching methods.

## 4 Results

The data collected with the use of the questionnaires were subjected mathematical statistical analysis, using SPSS. We attempted to interpret and further nuance the results of the calculations by way of a qualitative analysis of the interviews.

On the basis of the interviews, 18% of the teachers sensed a markedly positive tendency in the area of students' characteristics (they are more independent and purposeful), while 48% saw the changes as markedly negative (disrespectful, unprepared, unmotivated, making only minimal effort, lacking perseverance). Another 34% saw a more detailed picture and listed more or less the same number of positive and negative elements and/or evaluated their experiences with the students objectively.

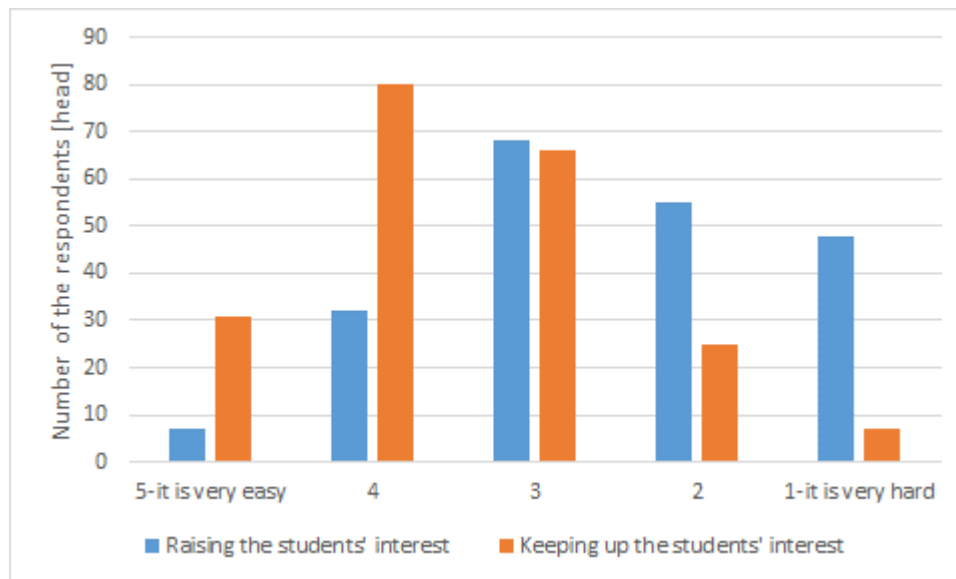
### 4.1 Students' motivation from the viewpoint of teachers' role

Motivation did appear spontaneously in the interviews, but it was only the fifth most frequently mentioned response to the question concerning the aims of teaching. The way teachers phrased their responses indirectly included that they considered it as their task to "raise interest," "familiarise students with the joy of learning," provide a sense of success," and "get them to like the subject."

Teachers definitely consider motivation as one of their tasks (measured on a scale of five, average=4.1, range=4). It is independent from that they had teacher degree or not. At the same time, they also agreed that academic success primarily depends on the students themselves (average=3.9 range=4).

According to the findings, teachers – regardless of whether or not they are certified as teachers – consider raising the interest of students a major challenge. On a scale of five, they gave this an average of 2.5 points (range=4). Keeping up students' interest was found to be a somewhat easier task (average=3.5 range=5). (Figure 1)



**Figure 1: Raising and keeping students' interest**

Source: Own adjustment based on the collected data

When we gathered data on the necessity of, as well as the possibilities for motivating students during the interviews, it turned out that university teachers' interpretation of their own role is generally less elaborated and comprehensive. This is supported by the fact that they needed a long time to think about this question, and several of the respondents responded that they had never thought about this, or just referred back to the question concerning the aims of the work of teachers, indicating that their reply would be the same.

In most cases it was necessary to ask them separately whether they thought that motivating students was part of a university teacher's role. In addition to their positive answers, they also formulated that they expect a basic level of motivation from students, in the absence of which they feel that their own efforts are inadequate. In other words, they can turn a motivated student into an even more motivated one, but they cannot encourage altogether uninterested students and move them out of their passive attitude, and in fact feel that such students have a demoralising effect on teachers as well. The minimally expected level of motivation is the presence of the student with their active attention. From the perspective of Heckhausen's theory, the results could be interpreted in such a way that, in their own opinions, the teachers are not able to facilitate the crossing of the threshold of desire.

In the teachers' interpretation of their role there played a serious role improving teaching skills and professional knowledge as well. They thought it serves the students' improvement indirectly.

During listening to the interviews it was clarified that the making students motivated that is one of the greatest challenge for the university teachers.

Similarly to Jármai and Végh (2017) we found it is cooperation with the students, their feedback and successes that encourage teachers to develop their own teaching activity further. As a result of the necessity and the effect of such social feedback, this was formulated by teachers as an inherent need. Teachers complained that the quality and development of the teaching activity is underrepresented as a factor in the system of promotions. On the basis of the formalised expectations of institutes of higher education, moving forward in the profession is linked almost exclusively with academic performance, while the development and quality of teaching activities is not evaluated. This one-sided evaluation increases dissatisfaction, accelerates teachers' exhaustion, and degrades teaching quality.

## 4.2 About teaching methods

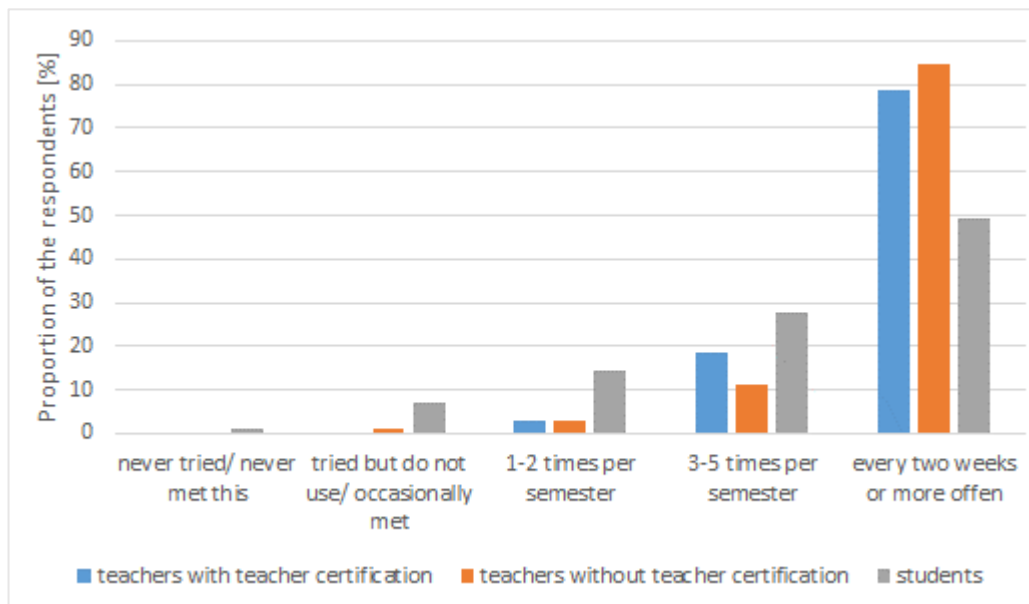
We have examined whether it is possible to differentiate between the teaching methods used on the basis of different background variables, such as age, sex or years of experience teaching outside higher education. Differences worth mentioning were only found along the existence or absence of teacher certification.

Based on the interviews, university teachers' most important two tasks were on the one hand developing their teaching and learning materials and on the other hand developing teaching methods.

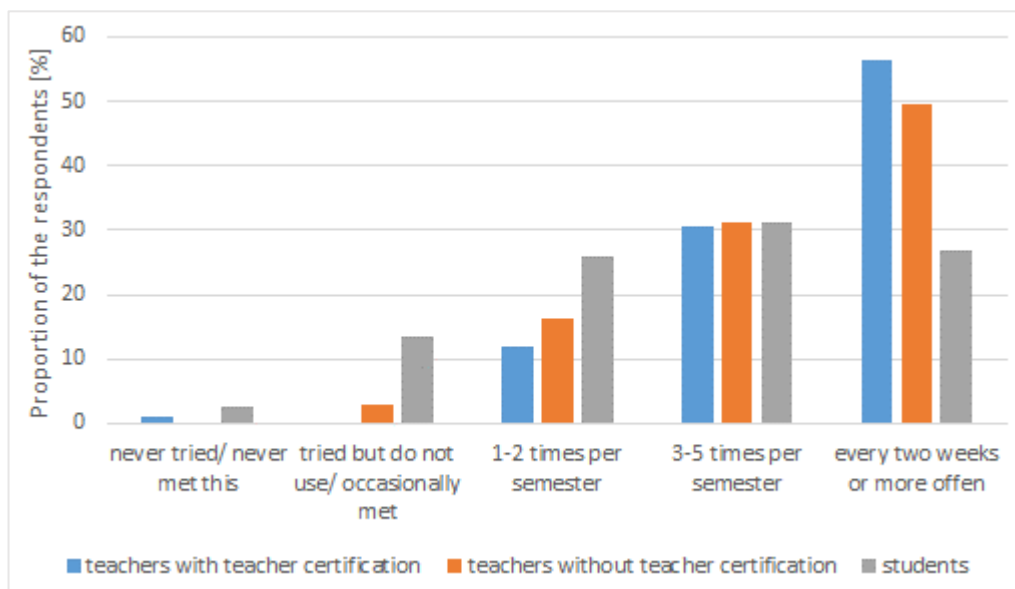
Lecturers without teacher degree assumed that their colleagues with teacher degree knew a lot of tricks and techniques to handle the differences among the students. The results show that is not true. Both groups of teachers struggle with engaging and motivating students. The interpretations of university teachers' role pointed that methods and motivating students are closely interwoven. They were expected the solution of the motivation problem from the methods.

It was surprising that, on the basis of the teachers' responses, they used almost all of the 24 listed methods/tools/techniques listed quite frequently, 3 to 5 times per semester on average. (1. appendix) Exceptions from the above are experiments, role play, making conceptual maps, and using mobile applications. The first two were considered alien to the nature of the programme.

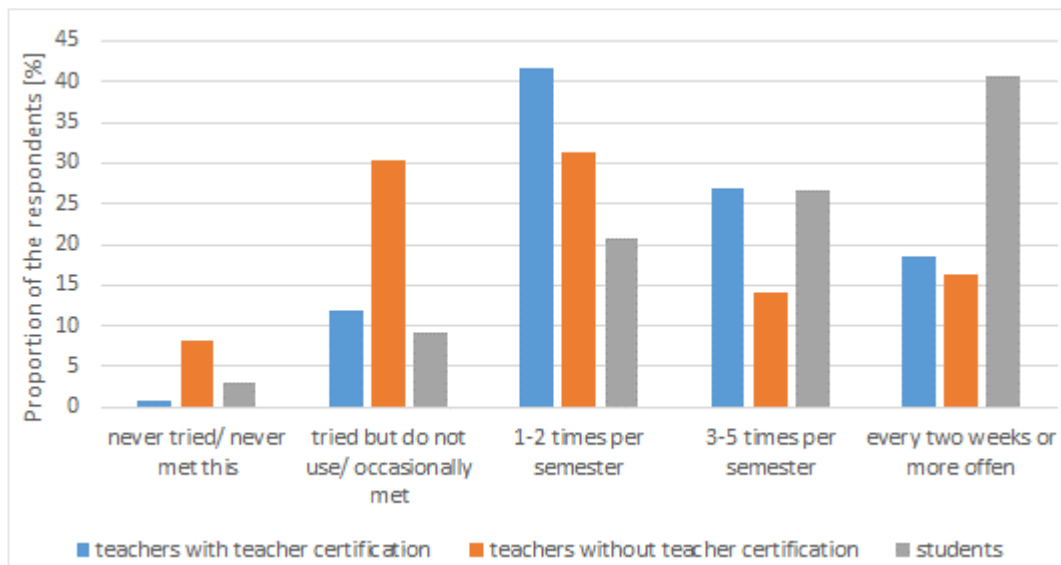
The frequency of encountering these four methods was also evaluated similarly by the students. By contrast, in the view of the students, the other methods are used with a frequency different from the one indicated by the teachers – some of them more, and some others less frequently. The following diagrams jointly illustrate the different perception of the teachers and of the students. (Figures 2-4)

**Figure 2: The teacher presents the solutions of problems, tasks from real life**

Source: Own adjustment based on the collected data

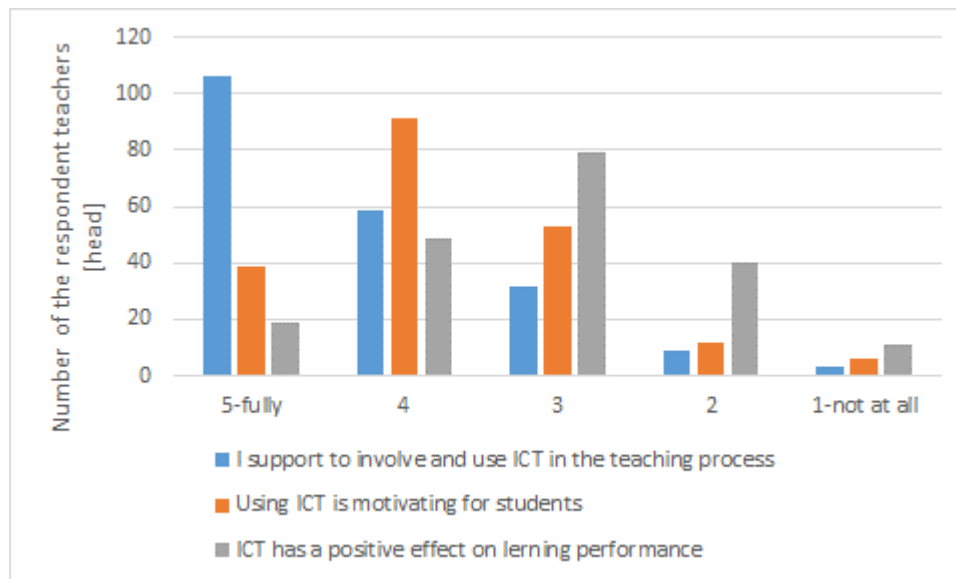
**Figure 3: Opportunity for explicating creative ideas of the students**

Source: Own adjustment based on the collected data

**Figure 4: Frontal, mologue-like teaching of teachers**

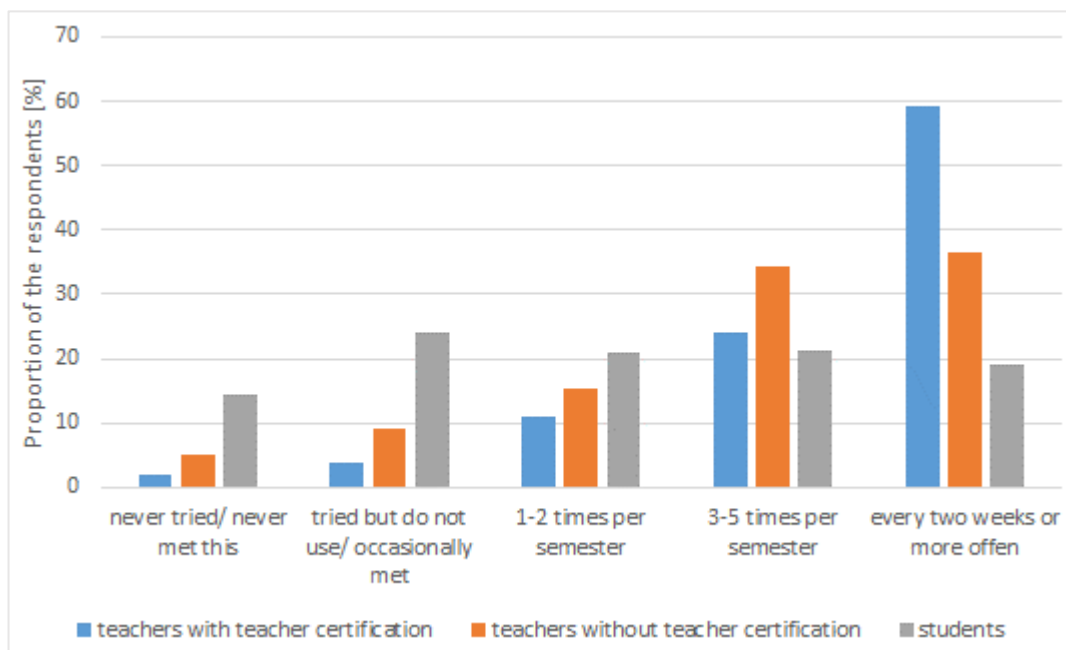
Source: Own adjustment based on the collected data

The opinion of the teachers in terms of whether the use of ICT (information and communication technology) tools help in motivating students varied. (Figure 5) This is justified by the fact that they do not see it clearly and supported by evidence that the use of ICT tools would have a positive influence on learning performance and efficiency. On a scale of five, the effect of ICT tools on enhancing learning efficiency was evaluated at an average of 2.95. It is interesting that teachers nevertheless support the involvement and use of ICT tools in education, at a rate of 4.2 on a scale of five, mostly for the purpose of creating and maintaining interest. The interviewees considered involving ICT tools the third most important task of university teachers.

**Figure 5: Using the ICT**

Source: Own adjustment based on the collected data

In connection with the teaching methods, the interviews showed that the majority of the respondent lecturers believed that it was the task of the teacher to use interactive methods instead of lecturing. At the same time, almost without exception they were also of the opinion that the size of their groups is an obstacle to this. There was, however, also a respondent who considers it a challenge and enjoys teaching an audience of several hundred students. 60% of the teachers are more or less dissatisfied with the sizes of their groups. Similarly to the teachers, students also reported that the attention they received from teachers was insufficient. (Figure 6)

**Figure 6: The teacher devotes a few minutes to each student**

Source: Own adjustment based on the collected data

We wish to note that regardless of the size of the group taught, teachers invariably thought a smaller one would be ideal. The loads are further increased by the parallel courses. The research findings of Dunbar (1998) may provide guidance in determining the optimal group size. One can maintain manageable, still mutually satisfying professional/working relationships with approximately 100 persons at a time. It would be expedient, therefore, if the total combined number of students taught did not exceed this limit.

### 4.3 The examination of similarities and differences

The opinions of university teachers was coherent in regard to methods. According to the correlation calculation, for example, those who appreciate feedback by students more use questions more frequently and provide more opportunities for students to explicate creative ideas ( $r=0.358$   $p<0.01$   $N=108$ ). Teachers who enjoy experimenting with new methods did in fact mark more methods as usually used by them. Those who favour the more intensive use of ICT tools, for example, used mobile applications more frequently in their teaching ( $r=0.392$   $p<0.01$   $N=108$ ), and they are more convinced of the positive effect that they have on improving the learning performance ( $r=0.436$   $p<0.01$   $N=108$ ).

The widest repertoire of methods was available to those teachers with certification who are also willing to incorporate student feedback into their activities.

In the above, we have presented the opinions of students concerning their encounters with the various teaching methods, compared with the frequency that teachers felt they used the same methods.

With the exception of a few cases, the differences perceived in case of these frequencies were not accidental. No major difference was found in case of making conceptual maps, group work and pair work, but the Mann-Whitney test showed significant differences in case of the other methods. (Appendix) It can be concluded that interactivity, acknowledged by teachers as necessary, and the methods and elements motivating students appear in teaching significantly less frequently than indicated by the responses of the teachers. (Figure 2-4, 6)

We have also examined whether an interrelation can be shown between the methods of teaching used and the extent to which teacher considered it their task to motivate students. In this respect, we also examined teachers with certificate separately from those who are not certified teachers.

In case of teachers with certification/pedagogical degrees we found, using Spearman's rank-order correlation method, that the more teachers consider motivating students as their task,

- the easier they find it to raise students' interests ( $r=0.236$   $p<0.05$   $N=108$ );
- the more motivating they find students' successes ( $r=0.236$   $p<0.05$   $N=108$ ) and the more joy they derive from the cooperation with them ( $r=0.277$   $p<0.01$   $N=108$ );
- the more they rely on students' independent acquisition of knowledge ( $r=0.209$   $p<0.05$   $N=108$ );
- the more often they present solutions to problems and tasks from real life ( $r=0.209$   $p<0.05$   $N=108$ );
- the more often they present solutions to problems and tasks from real life ( $r=0.233$   $p<0.05$   $N=108$ ).

In case of certified teachers/those with a degree in pedagogy, there is a positive significant correlation in accordance with the following. The more teacher accepted the task of motivating students, the more frequently

- they encourage students to raise questions ( $r=0.241$   $p<0.05$   $N=99$ );
- they devote a few minutes of individual attention to each student ( $r=0.348$   $p<0.01$   $N=99$ );
- they apply the method of independent task solution ( $r=0.344$   $p<0.01$   $N=99$ );
- the more motivating they find students' opinions ( $r=0.356$   $p<0.01$   $N=99$ ) and the joy derived from the cooperation with them ( $r=0.388$   $p<0.01$   $N=99$ ).

On the basis of the above, there is a positive, significant link between undertaking the task of motivating students and the application of methods that facilitate this. From the perspective of motivating effect, the choice of methods by teachers with and those without certification can also be relevant.

Teachers completing the questionnaire did not agree that the method would be more important than the personality of the teacher (average=1.9 range=5). On the basis of the teachers' interviews, even though the teaching methods used are important, but they would not be sufficient without a good rapport established with the students. Taking students' needs into consideration, cooperating with them, and teaching interactively follow from this direct relationship with the students. This link, therefore, establishes the effectiveness of the methods, and a close interweaving of Herzberg's hygiene and motivator factors can be observed.

According to the majority of the teachers interviewed, the good, partnership-based relationship with students has a force of motivation that is also perceivable in the results of the learning. Almost all teachers agreed that reducing the sizes of the groups taught would be necessary to create the foundations for the above mentioned relationship. The calculation shows a positive significant correlation between the suitability of the group size for the teacher and the frequency of personal attention given to individual students ( $r_{\text{group size-time for everyone}}=0.212$   $p<0.05$   $N=108$ ;  $r_{\text{group size-using project}}=0.309$   $p<0.01$   $N=108$ ;  $r_{\text{group size-students' independently work}}=-0.213$   $p<0.05$   $N=108$ ).

Both the questionnaires and the interviews confirmed that the majority of university teachers consider it important to find out about and to take into consideration the needs of students. A third of the interviewees rejected the notion of students evaluating teachers work. Two-thirds, by contrast, find it very important, and maybe even conduct such surveys themselves among students and also uses such feedback by incorporating it into their own activities and teaching methods.

Based on the interviews, majority of teachers clearly give a preference to preparing in terms of the material to be taught, but lot of them also think about the characteristics of students, such as the level of education, the type of the programme they participate in, the characteristics of the group or the form of the programme (full-time versus evening).

In the framework of the interviews, teachers had an opportunity to present their best teaching practices used for motivating students. These could be grouped on the basis of what factors they prioritized in the successful cooperation with students:

- Student activity (mentioned 16 times) – facilitating activity, involvement, sense of success, this is why many respondents considered smaller group sizes important, ICT tools;
- Adjusting the material taught to the students (mentioned 11 times) – a more practical approach, not using foreign words, logical structure, simple language, references to films rather than books, using channels of information that students use;
- Taking attention spans into consideration (mentioned 9 times) – shorter sessions, small breaks built in, varying methods, ICT tools, motivating rewards/feedback;



- Relationship (mentioned 7 times) – more direct relationship, acceptance, more trust and less control, the issue of smaller group size was linked by some with the deepening of relationships.

The dilemma also appears whether, as a consequence of adjusting to student needs, the possibility of development is lost, in case students do not strive to live up to the expectations and to think and solve tasks in such a way that is not the most comfortable for them. After all, the expectations following from the tasks of industrial and economic organisations will not be adapted to the habits and working methods of recent graduates either. Motivated and focused work is expected by employers.

## 5 Discussion

In the course of the evaluation of our research findings, we explored several opportunities for development, primarily concerning the research methods.

It transpired during the analysis of the interviews that there were minor shifts of focus between the interviews conducted by the six different interviewers. All interviews followed the questions of the prepared outline and were complete; at the same time, it was according to each interviewer's own specialization that they encouraged the respondent's "side tracks" or discussing certain topics in more depth. In the future, a better alignment of the interviewers' work would be desirable.

The suitability of the results to draw more general conclusions is limited by the fact that both the student and the teacher respondents participated voluntarily, and therefore, only the opinions of this sample appeared in the responses, consisting of those willing to devote their time and energy without any compensation.

The perceptions of the teachers and the students concerning the frequency of the use of the individual methods also shows significant differences. One of the reasons for this is that during the class sessions students are not necessarily conscious of what happened from a methodological point of view, or perhaps they were not able to identify certain methods included in the questionnaire on the basis of their names and descriptions there. Other of the reasons for this could be that the teacher missed to explain the aims and effects of the method used. One of the reasons for the difference may also be that teachers' responses were given in line with the assumed expectations. An explanation for the differences could be found after observing and analysing some classes.

Due to the preservation of anonymity the quality with which the teachers actually perform their work cannot be determined. This additional information could further enhance the value of the best practices presented by them.

## 6 Conclusions

In the following, we will provide a summary of the conclusions taking shape in the current stage of the research and analysis.

University instructors find it difficult to interpret their role as teachers. Since the link between teachers' interpretation of role and the quality of their work can be proven on the basis of the secondary-school sample, it would be worth examining this topic further to find out whether the quality of teaching in higher education could also be enhanced by way of developing teachers' interpretation of their role. This could be a possible direction and topic for the training proposed for teachers.

Teachers clearly feel that it is part of their tasks to motivate students. However, they only feel that their efforts in motivating students were successful if the students already had a certain basic level of motivation, which means, at the minimum, presence with active attention. Teachers find it easier to further motivate those who are at least at a basic level of motivation. In the opinion of teachers, academic success primarily depends on the students themselves. A combination of the above suggests that teachers consider the crossing of the "threshold of desire" according to Heckhausen's theory as a task of the students, and they do not consider their own tools sufficient to achieve this.

The "best practices" presented in the interviews as proven to work well for motivating students are aimed at increasing interactivity, involving students, adjusting the discussion of the materials to the characteristics of the students and making them more practical, as well as reinforcing the partnership nature of the teacher-student relationships.

The responses of the teachers suggested that their work is characterized by the use of a variety of methods; however, this was not reinforced by the opinions of the students. In the experience of the students, the interactive and motivating elements were present much less frequently than their teachers believed. The interviews also shed light on the fact that even though the teachers strive to use methods that both they and their students think of as motivating, this often remains an intention only, which is not put into practice. The obstacle to crossing this threshold of desire in the case of the teachers is, on the one hand, lack of time and energy, and on the other hand, lack of awareness.

The increased use of ICT tools is supported by teachers despite the fact that they are not convinced of their effect in enhancing learning efficiency. Based on the examination of the links, these tools can be successfully used in raising interest.

Students clearly see a link between the application and the efficiency of methods with the sizes of the groups taught. As a result of a larger number of teacher-student interactions, a smaller group improves the rapport between the stakeholders, and as a result, also enhances efficiency.

From among the background variables, the existence or absence of teacher certification was the only one that would correlate with significant differences in the use of teaching

methods. Based on the interviews we can conclude that those with teacher certification connect the characteristics of the students with their choice of methods, and they consciously adjust the method used to the problems that emerge. Teachers without teacher certification also strive to adjust their teaching to the specificities of their students, but their attempts are more random, based on the principle of trial and error.

These results show, on the one hand, that certification makes a teacher's choices concerning methodology more conscious, and on the other hand, they show that the development of pedagogical/methodological awareness may be necessary in the continued, in-service training of teachers.

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## Appendix

With the exception of the factors highlighted in colour, a significant difference can be shown between the perceptions of the teachers and of the students on the basis of the Mann-Whitney test.

| Methods/tools/<br>techniques   | Frequency<br>of using or<br>meet with<br>the<br>methods | never tried/<br>never met this | tried but do not<br>use/<br>occasionally met | 1-2 times<br>per<br>semester | 3-5 times<br>per<br>semester | every two<br>weeks or<br>more |
|--|---|--------------------------------|--|------------------------------|------------------------------|-------------------------------|
|  |   | %                              | %  | %                            | %                            | %                             |
| the teachers<br>addresses questions<br>to the students                                 | university<br>teachers                                  | 0.5                            | 1.45   | 4.3                          | 15.45                        | 78.3                          |
|  | students  | 1.5                            | 11.7   | 15                           | 26                           | 45.9                          |
| the teacher<br>encourages the<br>students to ask<br>questions                          | university<br>teachers                                  | 1                              | 2.45   | 4.9                          | 23.05                        | 68.6                          |
|  | students  | 1.6                            | 9.2  | 17.7                         | 28                           | 43.5                          |
| the teacher asks the<br>students to collect and<br>process information<br>on their own | university<br>teachers                                  | 0.95                           | 5.0  | 14.7                         | 36.0                         | 43.35                         |
|  | students  | 2.3                            | 11.3   | 27.1                         | 31.8                         | 27.5                          |
| the teacher presents<br>examples taken from<br>real life                               | university<br>teachers                                  | 0                              | 0.5  | 2.9                          | 14.8                         | 81.75                         |
|  | students  | 1.2                            | 6.9  | 14.5                         | 27.9                         | 49.5                          |
| the teacher presents<br>the solutions of<br>problems, tasks from<br>real life          | university<br>teachers                                  | 0.45                           | 2.45   | 10.1                         | 27.45                        | 59.55                         |
|  | students  | 1.6                            | 10.8   | 21.4                         | 31.1                         | 35.2                          |

|   |                     |       |       |       |       |       |
|---|---------------------|-------|-------|-------|-------|-------|
| opportunity for explicating creative ideas        | university teachers | 0.45  | 1.5   | 14.1  | 30.95 | 53.0  |
|   | students            | 2.6   | 13.4  | 25.9  | 31.2  | 27.0  |
| the teacher devotes a few minutes to each student | university teachers | 3.5   | 6.4   | 13.15 | 29.2  | 47.85 |
|   | students            | 14,5  | 24,2  | 20,9  | 21,4  | 19    |
| frontal, monologue-like teaching                  | university teachers | 4.5   | 21.15 | 36.5  | 19.5  | 17.35 |
|   | students            | 2.9   | 9.1   | 20.7  | 26.6  | 40.7  |
| teaching with presentations                       | university teachers | 1.4   | 1.45  | 11.4  | 25.8  | 59.95 |
|   | students            | 1.1   | 2.4   | 9.0   | 17.0  | 70.4  |
| making an outline or drawings on the whiteboard   | university teachers | 9.8   | 17.95 | 17.8  | 22.55 | 31.85 |
|   | students            | 2.8   | 10.3  | 19.2  | 30.6  | 37.1  |
| showing, sending around authentic materials       | university teachers | 9.25  | 7.0   | 18.45 | 32.65 | 32.65 |
|   | students            | 9.3   | 21.1  | 30.1  | 26.0  | 13.5  |
| making conceptual maps                            | university teachers | 21.65 | 21.6  | 27.1  | 19.15 | 10.55 |
|   | students            | 23.9  | 26.9  | 22.1  | 16.4  | 10.7  |
| group work/pair work                              | university teachers | 8.85  | 6.8   | 20.6  | 26.6  | 74.4  |
|   | students            | 7.3   | 13.6  | 20.1  | 26.1  | 32.8  |
| project/project task                              | university teachers | 5.85  | 7.25  | 23.2  | 28.85 | 29.85 |
|   | students            | 9.3   | 14.8  | 28.8  | 26.3  | 20.7  |
| students solve tasks on their own                 | university teachers | 1.5   | 2.45  | 13.1  | 27.7  | 50.2  |
|   | students            | 3.3   | 8.9   | 20.7  | 32.0  | 35.1  |
| professional discussion, debate                   | university teachers | 6.3   | 7.7   | 23.9  | 30.3  | 31.85 |
|   | students            | 10.8  | 23.3  | 27.8  | 22.0  | 16.0  |
| the students give presentations, short lectures   | university teachers | 5.35  | 3.95  | 30.95 | 32.85 | 26.9  |
|   | students            | 8.3   | 13.0  | 27.5  | 28.4  | 22.8  |
| watching a film                                   | university teachers | 17.5  | 13.05 | 22.85 | 24.9  | 21.7  |
|   | students            | 29.3  | 30.8  | 21.2  | 12.7  | 6.0   |
| role play   | university teachers | 32.65 | 21.3  | 14.6  | 14.55 | 17.0  |
|   | students            | 45.0  | 28.0  | 14,6  | 8,8   | 3,5   |
| experiments                                       | university teachers | 51.7  | 27.2  | 12.2  | 4.3   | 3.85  |
|   | students            | 47.8  | 27.3  | 13.7  | 8.0   | 3.2   |
| using ICT tools                                   | university teachers | 5.5   | 5.45  | 15.1  | 25.65 | 48.4  |

|                           |                     |       |       |       |       |       |
|---------------------------|---------------------|-------|-------|-------|-------|-------|
|                           | students            | 4.4   | 13.2  | 19.2  | 23.9  | 39.3  |
| using Moodle              | university teachers | 51.1  | 23.15 | 6.85  | 4.45  | 14.45 |
|                           | students            | 45.7  | 15.4  | 11.1  | 10.7  | 17.1  |
| using Coospace            | university teachers | 29.15 | 8.25  | 6.65  | 10.65 | 45.3  |
|                           | students            | 25.9  | 10.2  | 13.2  | 15.9  | 34.8  |
| using mobile applications | university teachers | 41.35 | 19.4  | 16.45 | 9.1   | 13.75 |
|                           | students            | 30.9  | 21.6  | 16.6  | 17.0  | 14.0  |

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