Factors Contributing to Students' Academic Success Based on the Students' Opinion at BME Faculty of Economic and Social Sciences

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Abstract

This study presents the opinion of students of the Faculty of Economic and Social Sciences at the BME concerning the factors, which contribute to students' academic success. Academic success was defined by the successful completion of university studies. 478 students were consulted by online questionnaire. The factors were grouped into eight scales: practice-oriented education, student's social relationship on campus, student's study habits, supports for student's learning in classroom, student's attitude towards responsibilities in university, support by family and friends, conscious career choice and assistance provided by remedial courses. The opinions of the male and the female students varied across seven scales, with only the role of student's social relationships on campus being judged similarly by both genders. Students studying for bachelor's degrees judged the role of the student's social relationships on campus to be more important. Students on different degree programmes held differing opinions in two scales.

Keywords

academic success, degree completion, students of Faculty of Economic and Social Sciences at BME, bachelor's and master's students

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1 Introduction

The experience of students during their higher education studies is investigated to greater extent by North-American researchers into higher education (Kandlbinder, 2015; Tight, 2007). Researchers outside North-America, including European researchers, have focused on other aspects of higher education (Tight, 2007).

Specifically, in the past decade, research themes in Europe were connected with the Bologna process, the validity of higher education studies on the labour market and with those attitude changes, which have led to students being perceived as customers, with the result that their satisfaction during higher education studies has become an extremely important question (Teixeira, 2013).

The topic of student success has greater past in North-American higher education researches, especially in recent decades (Tight, 2007). Therefore, North-American higher education researches, theoretical models and their results are going to be reviewed.

Initial studies of student experience, especially in the second half of 1960s and in 1970s, focused on the question of student's dropout from institutions of higher education, and the results encouraged comprehensive examination of this topic (Tinto, 1975; Spady, 1971 cited Demetriou and Smitz-Sciborski, 2011). Tinto (1975) synthesised the results of previous studies, and created a theoretical model of dropping out, emphasizing the importance of distinguishing between different types of dropout students. He emphasized that failure to separate differing types of dropouts, in earlier work had led to contradictory results. The literature identifies the following sub-populations of students who drop out from higher education: 1.*voluntary withdrawals*, who decide voluntarily to leave the institution, though would have been able to finish their studies, 2. *involuntary dropouts or academic dismissals,* who have an insufficient level of academic performance and are not able to complete a degree course 3. *stop-outs*, who leave the institution for a short or long time-period, then they re-enrol and complete their studies, 4. *transfer-outs* who leave their institutions and enrol in an another one, where they attain a degree, 5. *opt-outs* who

leave their institutions because they have achieved their goals, but their goal is not to attain a degree. These latter students are referred to as non-degree-seeking students. Scholars suggested that each subgroup of dropouts has unique characteristics, experiences of the higher education and backgrounds to their withdrawal (Tinto, 1975; Herrera, 2006; Voight and Hundrieser, 2008).

In more recent studies there was a change in the focus of the higher education studies and researchers began to investigate the question of retention. Herrera (2006, p.11) refers to this as a "paradigm shift, concentrating on success and not failure". In higher education this means that researchers focus on the students who are persistent, especially at-risk students, and not on those who are dropouts. These strength-based approach studies investigate the experiences of successful students in order to apply their results for the benefit of all students. This change in research focus can also be explained by the declining number of students in higher education (Demetriou and Smitz-Sciborski, 2011).

The review of retention and persistence researches can contribute to the better understanding of the question of student success. Therefore the concept of retention and persistence will be clarified then the major theoretical models are going to be discussed.

2 Definitions and theoretical models of retention and persistence

There are various definitions of undergraduate retention in the literature (Herrera, 2006; Demetriou and Smitz-Sciborski, 2011). A common feature of most of them is that they emphasize the ability or efforts of the institution to ensure that the students remain from admission to graduation. Retention statistically is measured by the rate of the students who remain from the beginning of one academic year to another, and especially from the first semester to the second among the first-time, full-time students (Voight and Hundrieser, 2008).

The notion of persistence is also used in parallel with the retention, which typically refers to the efforts of students themselves (and not institutions) to obtain a degree and it is often connected to the academic success of the students. Yet, in the literature, there is another type of persistence is known as institutional persistence/retention and means to keep students in the universities where they started their studies. "In this sense institutional persistence is defined as successfully advancing from one academic level to the next and graduating in a timely manner" (Herrera, 2006:p.9). In this study, the terms retention and persistence will be treated as synonyms because both refer to the same phenomenon and processes viewed as contrary to the problem of students' dropping-out.

As various theoretical models have been used to explain retention/persistence, it is worth briefly reviewing the major theoretical frameworks.

The most cited is Tinto's (1975) Integration Model, at first, created to explain the different types of drop-out behaviours, later being used in connection with retention. According to Tinto (1975) the student's family background (such as parental educational level, parental expectations and socio-economic status), individual characteristics (abilities, personality, sex), past educational experiences (performance in high school) and commitment to the goal of completion of college are important in retention. His model also emphasizes the interaction between these factors and the academic measures (such as grade performance, intellectual development) and social systems (such as peers, faculty, administration) of the college. Tinto argued that the more an individual was integrated into the social and academic system, the greater his or her commitment to the institution and to the goal of college completion would be.

Astin's (1993 as cited Keller, 2011:p.58) I-E-O (input-environment-output) model categorises the student's characteristics upon entry to university (such as age, sex, race, ability, family background) as the input factors. A further category, environmental factors, refers to the environmental aspects of campus (living in campus residence, connection with other students, professors, staff, educational experiences and extra-curricular activities). In this linear model outcomes refer to the student's characteristics after encountering the campus environment (such as cognitive-intellectual or non-cognitive features e.g. attitudes or values), which are formulated by input factors and by environmental features. Astin (1999) also emphasized the student's involvement in college, reasoning that it increased student's development and learning, thus contributing to persistence.

Bean's (1980) Student Attrition Model used the model of work turnover to explain student attrition, as he emphasized the similarity of the two situations. According to this framework the student's background and organizational determinants influence the satisfaction and the commitment of the student. Bean (1980) stressed the harmony between an individual's characteristics and the features of the institution and the contribution this makes to the students' satisfaction, strengthening the intention to persist. Later, in his synthetic model he identified the following variables which influence whether students will persist or dropout: background, organizational variables, environmental variables, attitudinal and outcome variables and the intention to leave or persist (Bean, 1981). Background variables refer to similar factors as were mentioned in earlier models, thus containing objective information which is measured before admission (such as high school grades, ACT scores). Organizational variables reflect a student's experience of the organization such as his/her number of friends, informal contacts with professors, membership in campus organizations, and the support of advisors. Environmental variables refer to those factors over which the university has little or no control e.g. family responsibilities, approval of family, difficulties in

financing school and the opportunity to transfer or to get a job. Attitudinal variables comprise a subjective assessment of the quality of the institution, the value of the education received, the satisfaction of the individual at college or the certainty of his or her choice of institution. A student's university grade point average is considered as an outcome. According to Bean (1981) the student's intention to leave, or conversely his/her persistence is the best predictor in this model.

Cabrera et al. (1993) suggested that Tinto's Integration and Bean's Student Attrition Model emphasized the importance of student's background in adjusting to the institution, and consequently stressed the effect of a successful match between the student and the college in determining persistence. Both theoretical frameworks thus regard persistence as the result of a complex set of interaction between the factors examined.

Cabrera et al. (1993) devised an Integrated Model which incorporated some of the variables of both the Integration and Student Attrition models and adding more variables on their own. Their model contained the following variables: encouragement from friends and family along with financial factors as environmental variables, along with academic integration and academic performance, social integration, institutional and goal commitment, and their effects on the student's intention to persist and on their actual persistence. Their results indicated that when the two theories were merged into one model, it allowed a better understanding of the complex interactions between the different variables and their effect on persistence. Cabrera et al. (1993) stressed that encouragement from friends and family, that is, from significant others as well as other environmental factors were important in affecting student persistence. They pointed out that the coordinated efforts of the institutions, bringing together the various support services available (such as financial aid, academic advising, counselling) could be effective, and suggested that continuous monitoring of the effect of the institution's intervention plans on persistence is necessary. They agree that the underlying process of persistence could be different in the case of different colleges, but their results could give a starting point for the staff of various higher education institutions to create their own programme for supporting the persistence of their students.

Demetriou and Smitz-Sciborski (2011) suggest that from 2000 onwards a holistic approach has gained ground, which stresses the responsibility of all members of the campus community in student retention and persistence. Researchers focus on the interactions between the students and the wide-range of support services (academic, personal and social) which are easily accessible to them. To summarize, the different theoretical models, which triggered numerous investigations show that different types of variables (e. g. individual, institutional) affect student persistence and most of them can also be used to explain student success.

3 Student Success

In higher education student success statistically is measured by the graduation rate, which is defined as percentage of students entering an institution who graduate within 4, 5 or 6 years with a baccalaureate degree (Voight and Hundrieser, 2008). Faculties of higher education argue that it is a mistake to define student success only in terms of obtaining a degree. They suggest that it is useful to think about student success more broadly (Schroeder, 2011a).

Their argument is confirmed by the results of their focus group research with first- and second-year students who were in risk. The students realized success differently; some of them defined as getting a good job and for these students their goal was to prepare for their career. Others emphasized the importance of self-improvement during their higher education studies, and there were students who attend a college or a university for learning's sake, thus for them attaining a degree was not the most important outcome (Schroeder, 2011b).

AFT (American Federation of Teachers) of Higher Education has defined student success "as the achievement of the student's own educational goal" rather than degree attainment (Schroeder, 2011a:p.4). Consequently, the board of AFT recommended their members to handle the question of student success in broader terms.

Researchers have generally taken a more objective approach to this subject than the AFT of Higher Education. It is well illustrated in Perna and Thomas's (2008) monograph, summarized the theoretical approaches of four disciplines (economics, education, sociology and psychology) in relation to student success. They claim that three indicators of student success are common in the literature: 1. higher education access or enrolment into higher education, 2. academic performance during higher education, and 3. persistence or degree completion. It was found that the investigation of academic performance is most common in psychology and in education journals. Works of sociology and economics on the subject frequently focus on college access or enrolment, while the question of persistence or degree completion is an area which is relatively commonly examined by researchers in the fields education and economics. It was found that researchers more often use quantitative methodologies than qualitative ones to investigate student success. Perna and Thomas (2008) found that scholars prefer to investigate gender, socioeconomic status, race or ethnicity differences between the different student subgroups than the differences stemming from the characteristics of the higher education institutions.

Perna and Thomas's (2008) definition of student success is more complex and recapitulative. They consider student success as a longitudinal process in which there are four transitions: 1. *college readiness* which is measured by academic preparation and educational motivation, 2. *college enrolment* is examined in terms of college access and college choice, 3.
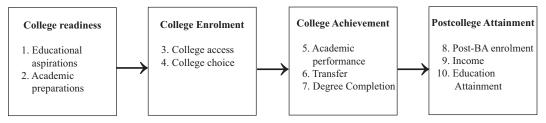
Fig. 1 Transitions and ten indicators of student success (Source: Perna and Thomas, 2008:p.6)

college achievement, which is measured by academic performance, transfer to another institution and degree completion and 4. *postcollege attainment* which is meant in terms of educational attainment, income, and enrolment in graduate school. Perna and Thomas (2008) identified ten indicators of student success (see Fig. 1).

Later they proposed a conceptual model of student success, which summarizes the different perspectives of the various disciplines, which have focused on the topic and contains four layers of context, which influence student success (internal context, family context, school context and broader social, economic and political context). Their conceptual model they propose assumes that student success is affected by the features of the individual, their family resources, the institution, the community structures and the types of supports it offers, social and economic possibilities and educational policies. The four layers show the factors, which contribute to student success or are investigated by the researchers working on this question.

Perna and Thomas (2008) employ the term "internal context" to refer to the effects of student's cognitive and non-cognitive processes on student success. In the literature it is mostly psychological researchers who have focused on the role of students' intellectual ability, achievement motivation, learning style and personality characteristics. Studies have suggested that there are positive relationships between intellectual abilities, achievement motivation and students' academic success in higher education (Busato et al., 2000; Nonis et al., 2005).

Others confirm the connection between the personality factors of students and their academic work. Conscientiousness (a factor of the Big Five inventory) is found to be the best predictor of grade point average (Dollinger et al. 2008). The influence of factors that can be controlled by the students, such as class attendance, hours of study and part-time work on academic performance has also been investigated. MacCann et al. (2012) suggested that time-management, as a behavioural expression of high conscientiousness, is also important in academic success, especially for part-time and mature students who have to balance studying, work and family commitments.

Recently scholars have focused on other non-cognitive factors of students which can affect academic performance. This line of research emphasizes the correlation between academic success and emotional intelligence (EQ) (Cotrus et al., 2012). Beauvais et al. (2014) found that academic success was related not to the overall emotional intelligence of students, but to one branch of EQ, which is responsible for managing emotions. They also noted that researchers have begun to focus on the role of other psychosocial factors in academic success, such as psychological empowerment, resilience, spiritual well-being or ways of coping with stress (Safloske et al., 2012). Nonis et al. (2005) found that feelings of inferiority or the dimension of situational optimism were important factor in predicting academic success as well as intellectual ability of students. These results show that the characteristics of students are influential in determining student success.

Investigations connected to the effect of family context focus on the role of parents' occupation, educational level, family wealth, bonding to parents, parenting styles and family structure in promoting student success (Perna and Thomas, 2008). Demetriou and Smitz-Sciborski (2011) summarized the influence of family background and suggested that students from low-income families were more likely to have a part-time job to pay for tuition fees. These students thus have to balance between their academic life and other parts of their life. They concluded that those who have grants, and thus do not have to work in parallel with their studies are more likely to graduate. They have also explored the difficulties of first-generation students, whose parents were not familiar with higher education processes, and could not give support to their children in this regard.

The impact of family is important, but it decreases with the age of the students. Aschaffenburg and Maas (1997) illustrated the determinative role of the parental background (social-class) in the education achievement of their children. They confirmed the effect of family background in the transition from high school to college, in entering higher education. However, their research results also emphasized that the strength of family decreases during the full educational career.

To summarize, to date there have been fewer studies into the role of the family characteristics in student success than investigations into the connection between the students' characteristics and their academic success, and it may be suggested that the effects of the family context decreases during the higher education studies.

The effect of higher education institutions (school context) on student success has already been described in Tinto's Integration model, which stressed the influence of social integration on student retention and indeed the influence of this factor on students' success interested other researchers (Tinto, 1975; Glass and Westmont, 2012). One area of research which investigates

the relationship between institutional characteristics and student success focuses on faculty-student interaction. Research results suggest that positive faculty-student interaction contributes to student's academic success (Demetriou and Smitz-Sciborski, 2011). Positive faculty-student relations seem to play an important role in encouraging students to participate in university research projects. These positive relations include faculty caring (such as mentoring), promoting students' self-confidence and the development of their academic self-concept and they also contribute more generally to positive higher education experiences (McEnroe-Petitte, 2011; Kara and DeShields, 2004).

Other authors focus on the influences of different instructional approaches on students' success. Gelisli (2009) has demonstrated the positive effect of a student-centred education approach compared to a teacher-centred approach on students' academic success. Čukušič et al. (2014) gathered empirical evidence of the positive connection between online self-assessment, which is an integral part of e-learning or blended type of courses and student success.

Most of the scholars investigate the effects of institutional support programmes, services and interventions, which contribute to students' success. Results show that academic advising, comprehensive learning assistance, programmes for first-generation students, early warning systems for at-risk students and extended freshmen orientation are among the practices which are important in student success (Habley et al., 2010). Others have investigated the effects on academic success of specific courses for first-year students such as a student's education strategy course or a student success course (Abdykhalykova, 2013; O'Gara et al., 2009). In a comprehensive study Kuh et al. (2005; 2010) explored the practices of 20 four-year colleges and universities, that performed well in student engagement and graduation rates. Their purpose was to present how institutions promoted student success. They summarized their recommendations and suggestions to other institutions, stressing that the institution must emphasize the importance of student success in their mission. These results show that the members of staff (faculty, administrators, services) and the interventions of higher education institutions can contribute to their students' success.

Perna and Thomas (2008) have also suggested the influence of external forces on student success as mentioned earlier (social, economic, and policy context). Researchers who are interested in the effects of this context focus on the role of financial aid, public policies or the influence of the media in shaping student success.

In summary, reviewing various researches of student success, we argue that the proposed conceptual model of Perna and Thomas (2008) is the most comprehensive. It provides a theoretical framework and outlines the factors which affect student success, rendering a useful basis for future researchers and thus we decided to apply this one as basis for own research.

4 Researches of Higher Education in Hungarian Context

Researchers into Hungarian higher education have focused on several different areas. Some of the investigations concentrate on the trends of educational attendance, financing and the structure of tertiary education, and the connection of these with the labour market or the question of quality assurance in higher education (Bálint et al., 2006; Berács et al., 2015; Keczer, 2014; Tóth, 2011). The Centre for International Higher Education Studies at Corvinus University publishes strategic progress reports of higher education, including summarized changes during the previous academic year and make assessments. These reports concern the aforementioned topics of higher education (e.g. financing, higher education policies, composition of institutions).

Other investigations have focused on the quality of teaching programmes, the experiences of the Hungarian Bologna programme and the learning outcomes of higher education, coordinated by the Centre for Higher Education Management at Faculty of Education and Psychology of Eötvös Lóránd University.

The question of students' academic achievement has mostly been addressed by the researchers of CHERD-Hungary (Centre for Higher Education Research and Development Hungary) at Debrecen University. Pusztai (2014) devised a multidimensional approach to student achievement similar to that of Perna and Thomas (2008) model. She suggests that this complex index, which contains various separate dichotomous factors (such as commitment to academic purposes, academic performance, respect of educational norms, willingness to work and further educational plans) can measure students' effectiveness in higher education. Pusztai (2011) also investigated the effects of students' social network (e.g. relationships with other students, interaction with lecturers) on their academic achievement. Her results suggest a positive effect of friends on the achievement of students with low qualified parents and found a positive connection between participation in voluntary or religious groups and students' academic achievement (Pusztai, 2015). Fényes (2009) investigated how academic effectiveness varies by gender and social background. She found that females were more successful in secondary school, but in higher education this difference decreased. Male students have more publications and more often plan to continue their studies at PhD programs than females. Szemerszki (2015) focused on the effects of students' socioeconomic background (parental education), motivation (commitment to studies), previous studies, and institutional features on their transition to MA/MSc level. According to her results the type of institution (university rather than college), parents with higher qualifications and better grades at secondary school are factors, which contribute to the continuing of higher educational studies at Master's level. Dusa (2015) concentrated on the impact of students' mobility, and her results showed that studying

abroad had a positive effect on students' academic achievement. Kovács (2015) investigated the connection between students' sporting activities and their achievement. She found that leisure sport activity had a positive influence on academic achievement, but competitive sport had negative effects, as did an inactive life style. Bocsi (2015) focused in her research on the habitual background of academic achievement (such as intrinsic and extrinsic motivation). She distinguished different groups of students according to their academic effectiveness. She found a positive correlation between intrinsic motivation and students' academic success.

Other studies focused on the phenomenon of procrastination at higher education which had a negative impact on students' academic efficiency. Takács (2010) tried to find a connection between the personality characteristics of students and their procrastination behaviour. Recently Hungarian researchers have investigated the question of how talent management at institutions of higher education can support talented students (Bodnár et al., 2011).

In summary, it can be stated that the topics and types of research into this field in Hungary varied, they focus on broader contexts, such as economic or policy questions of higher education, concentrating on education-related topics, and the academic success of students. The role of the family in the academic efficiency is thoroughly investigated, however the role of the staff, interventions and programmes of higher education institutions in academic success requires more research. It would also be useful to explore the opinion of the students regarding which factors contribute to academic success. This study would like to provide answers to some part of these missing research fields.

5 Methodology

Our research approaches the question of student success from the students' point of view. We were interested in academic success as defined by the successful completion of higher education studies and attaining a degree, therefore this study focused on one indicator of student success.

The aim of this investigation was to explore the main contributing factors to the successful completion of students' university studies in the opinion of the participating students. The research also tried to find the answers to the following questions, as well:

- Are there any differences between the opinions of male and female students?
- Are the opinions of bachelor's degree students different from those of master's students?
- Do students from different degree programmes have divergent views on the factors contributing to the successful completion of higher education studies? (We investigated five different programmes.)

Prior to the quantitative research a qualitative investigation was conducted into the experience of the students of the Faculty of Economic and Social Sciences. Students were interviewed about their positive and negative experiences during their studies, their difficulties and the assistance they had. They were also asked about the factors, which contribute to their academic success and about their future career plans.

In reported here quantitative investigation an online questionnaire was used, which consisted of 54 statements. Most of them were created by drawing on the results of the preliminary qualitative research. The introductory rubric of the online questionnaire was as follows: Dear Student, We are interested in your study experiences at the university. Please judge to what extent the following factors contribute to the successful completion of the university studies. For the successful completion of studies, it is important that…. and then the students judged the importance of the various factors given in several statements on a 6-point Likert type scale (1= absolutely not important, 6= extremely important). The online questionnaire also contained personal data: age, gender, faculty, level of university study and type of degree programme. (Appendix 1 contains the statements of the online questionnaire.)

5.1 Sample

478 students of BME Faculty of Economic and Social Sciences took part voluntarily in the research, all of whom were participating in full-time degree programmes in the spring semester of 2011. 41.8 % of the respondents were male and 58.2 % of them were female students. The mean age of the participants was 22 years (18 years old was the youngest and 36 years old was the eldest student). 69.5 % of the respondents were BSc/BA students, 24.9 % of them were MSc/ MA students, 4.2 % studied on traditional (in Hungary) five-year university courses and the rest, 1.4 % were PhD students. Table 1 shows the distribution of the participants in each programme of the faculty.

Table 1 Distribution of the participants by academic programme

Academic Programme	Number of participating students	%
Management and Business Administration	124	25.9 %
Engineering Management	110	23.0 %
International Management	97	20.3 %
Communication and Media Studies	53	11.1 %
Applied Economics	21	4.4 %
Other	73	15.3 %

Members of Student Government of the Faculty of Economic and Social Sciences helped the investigation by motivating students to fill in the online questionnaire.

5.2 Statistical analysis

The data were processed by the 19th version of the SPSS Statistical Program Package. The results were factor analysed, including principal component analysis by varimax rotation. Item analysis was performed to test factor reliability. The differences between the opinions of male and female students and the students studying for bachelor's and master's degrees were analysed by independent t-test. The differences in opinion between participating students on different university programmes were evaluated by one-way ANOVA.

6 Results
6.1 Factors of students' academic success

A total of eight factors were obtained, based on factor membership (criterion factor weight ≥.40) of the 54 statements. Seven statements were excluded because their factor weights were low. Factor loadings and the final items, including factor weights are shown in Appendix 2. Scales were constructed whose internal consistency was measured by item analysis. The Cronbach alpha values of the factors scales were above 0.70 except for Factor5 (α: 0.678) and Factor8 (α: 0.617). Nevertheless, these two scales were also retained, because they gave new standpoints for the research. Correlations between the factor scales ranged between 0.186 and 0.570 (mean r =0.331). Although a somewhat higher correlation was found between Factors 1 and Factor4 (r =.570), and between Factor1 and Factor5 (r=0,414), these three factors were treated separately in the analysis.

Factor1 (α: 0.805), termed "Practice-oriented education", includes 11 statements, which show that a practice-oriented approach in education can contribute to the students' academic success, such as: the topics of the subjects should be specialized for each faculty, there is balance between theory and practice in the courses, the seminars and practices should be held in small groups, lecturers should also have practical experience in their professional field and the education should be more practice-oriented.

Factor2 (α: 0.787), termed "Student's social relationships on campus", contains 9 statements which emphasize the importance of building social relations in academic success. The following statements are examples of this dimension: the student should participate in the freshmen's camp, the student should be in touch with senior students, the student should put his/her address on the mail list of the class, the student should connect to the work of student organisations and the student should use the help of student mentors.

Factor3 (α: 0.711), termed "Student's study habits", includes 8 statements which refer to the students' studying habits which are determinative of academic success. The followings examples are illustrative: the student should be able to map out his/her time, the student should be able to select from the teaching materials, the student should find a balance between studies and entertainment, the student should be able to decide independently on academic affairs.

Factor4 (α: 0.709) termed "Supports for student's learning in classroom", contains 6 statements which describe how the institution (including both lecturers and academic administration) can contribute to students' academic success. The following statements are included in this factor scale: the academic administration helps students' orientation, the university should provide internship for the students, assessment should be based on materials that have been taught, lecturers' requirements are published on time, the slides of the lectures should be available.

Factor5 (α: 0.678) termed "Student's attitude towards responsibilities in university", includes 5 statements which describe what a student should do towards his/her own academic success. This attitude refers to a conformist behaviour, whereby a student closely follows rules about studying. The following examples illustrate these rules: the student should work hard, the student should study regularly, the student should utilize the opportunities for consultation announced by the lecturers, the student should take his/her exams at the designated time and should participate in research activities of the university.

Factor6 (α: 0.717) termed "Supports by family and friends", contains 4 statements which show how the student's family and friends can contribute to a student's success for example: the student's family provides a solid financial support, the student's friends should give emotional support, the student's family should provide emotional support.

Factor7 (α: 0.717) termed "Conscious career choice" includes only 3 statements which concern how the students should choose their professions, such as: the student should choose a subject he/she is interested in, the student should choose a subject the content of which he /she knows, the student should choose an appropriate career for himself/herself.

Factor8 (α: 0.617) termed "Assistance provided by remedial courses", also contains 3 statements which describe how these special courses can contribute to the student's academic success for example: the lecturers should provide revision lessons for students, should provide special courses for the students to improve their performance and the relation between lecturers and students should be based on partnership.

The role of these eight factors in the students' academic success is shown in Table 2. According to the students the three most determinative factors are: the "Supports for student's learning in classroom" (Factor4), the "Student's study habits" (Factor 3) and the "Conscious career choice" (Factor7). According to the students who participated the "Student's attitude towards responsibilities in university" (Factor5) and the "Student's social relations on campus" (Factor2) contribute less to the successful completion of their higher education studies.

Table 2 Factors contribute to student's academic success

Factors	N	Mean	Std. Deviation	Minimum	Maximum
Support for student's learning in classroom (Factor4)	478	5.22	.589	2	6
Student's study habits (Factor3)	478	5.17	.489	3	6
Conscious carrer choice (Factor7)	478	5.06	.790	1	6
Practice-oriented education (Factor1)	478	4.92	.628	2	6
Support by family and friends (Factor6)	478	4.78	.790	2	6
Assistance provided by the remedial courses (Factor8)	478	4.23	.888	2	6
Student's attitude towards responsibilities in university (Factor5)	478	3.89	.791	2	6
Social relationships on campus (Factor2)	478	3.75	.811	1	6

6.2 Gender differences

The results suggested that there was no significant difference between the male and female students in Factor 2 ("Social relationships on campus"). In the other seven factors however, female students had significantly higher mean scores than males. (See Table 3).

According to the results female students judged more important the "practice-oriented education" (Factor1: t(388,97= -5.497 p=0.000), the "student's study habits" (Factor3 t(476)=-2.823 p=0.005), the "supports for student's learning in classroom"(Factor4 t(476)= -3.394 p=0.001), the "student's attitude towards responsibilities in university" (Factor5 t(476)= -3.560 p=0.000), the "support by family and friends" (Factor6 t(476)= -3.821 p=0.000), the "conscious career choice" (Factor7 t(476)=-2.395 p=0.017) and the "assistance provided by remedial courses" (Factor8 t(476)= -2.487 p=0.013) in the academic success.

6.3 Differences between bachelor's degree and master's degree students

One of our research questions was whether there were differences between the opinions of bachelor's and master's students along the factors contributing to the academic success. In this respect, significant differences were visible only in Factor 2 ("Social relationships on campus"). Table 4 shows the details.

Table 3 Differences between male and female students' judgements

Factors	Gender	Mean	N	Std. Deviation	t-statistic	p-value
Practice-oriented education (Factor1)	male	4.74	200	.660	-5.497***	.000
	female	5.05	278	.569		
Social relationships on campus (Factor2)	male	3.74	200	.737	-264	.792
	female	3.76	278	.862		
Student's study habits (Factor3)	male	5.10	200	.490	-2.823**	.005
	female	5.23	278	.482		
Support for student's learning in classroom (Factor4)	male	5.11	200	.608	-3.394***	.001
	female	5.30	278	.563		
Student's attitude towards responsibilities in university (Factor5)	male	3.74	200	.777	-3.560***	.000
	female	3.99	278	.784		
Support by family and friends (Factor6)	male	4.62	200	.794	-3.821***	.000
	female	4.89	278	.767		
Conscious carrer choice (Factor7)	male	4.96	200	.882	-2.395*	.017
	female	5.14	278	.759		
Assistance provided by the remedial courses (Factor8)	male	4.11	200	.898	-2.487*	.013
	female	4.32	278	.873		

*p≤0.05; ** p≤0.01; ***p≤0.001

Table 4 Differences between bachelor's and master's students' judgements

Factors	Students by degree	Mean	N	Std. Deviation	t-statistic	p-value
Practice-oriented education (Factor1)	bachelor's	4.94	332	.599	-0.622	.534
	master's	4.98	119	.601		
Social relationships on campus (Factor2)	bachelor's	3.83	332	.806	3.109**	.002
	master's	3.56	119	.783		
Student's study habits (Factor3)	bachelor's	5.22	332	.464	1.839	.067
	master's	5.12	119	.522		
Support for student's learning in classroom (Factor4)	bachelor's	5.24	332	.553	-0.379	.705
	master's	5.27	119	.564		
Student's attitude towards responsibilities in university (Factor5)	bachelor's	3.87	332	.799	-1.086	.278
	master's	3.96	119	.772		
Support by family and friends (Factor6)	bachelor's	4.77	332	.801	-0.700	.485
	master's	4.83	119	.766		
Conscious carrer choice (Factor7)	bachelor's	5.08	332	.762	-0.265	.791
	master's	5.11	119	.826		
Assistance provided by the remedial courses (Factor8)	bachelor's	4.28	332	.907	1.594	.112
	master's	4.12	119	.846		

Bachelor's students judged the role of the student's social relationships on campus to be more important (Factor 2: t(449)=3,109 p=0.002) in academic success. In the other factor scales the students' opinions did not find any differences.

6.4 Differences between the students of distinct degree programmes by the area of specialization

One-way ANOVA showed significant differences between the students' opinions of the five degree programmes in terms of the "practice-oriented education" (Factor1 F(4,400)=5.705 p=0.000) and the "conscious career choice" (Factor7 F(4,400)=2.823 p=0.025). There were no differences in the other factor scales.

The Tukey HSD post hoc test indicated in Factor1, "practice-oriented education" was held to be more important in academic success in the opinion of the students of Management and Business Administration (2.), International Management (3.) and Communication and Media Studies (5.) than it was to the students of Applied Economics (1.) (See Table 5).

Students of Communication and Media Studies (5) judged Factor7 ("conscious career choice") to be more important for students' academic success than Engineering Management students (4) did.

7 Discussion

The result of the factor analysis showed eight factors which contribute to the successful completion of university studies, and in this study these were interpreted as factors affecting academic success. The proposed conceptual model of Perna and Thomas (2008) may provide a framework to analyse the role of these factors, and this theoretical model is the basis of the following interpretation. Four of the eight factors can be linked to the institutional (school) context. This result is not surprising, because recently scholars of higher education have concentrated on the role of the higher education institution, such as the effect of faculty-student interaction, the instructional approach of the lecturers or the influence of the various institutional support courses or programmes. In this study practice-oriented education (Factor1), supports for student's learning in classroom (Factor4), the assistance provided by the remedial courses (Factor8) and the student's social relationships on campus (Factor2) are connected to the institutional context. This latter factor refers to students' contacts with senior students, student mentors, student organisations and with classmates, which is connected to the campus life of the students. These four factors demonstrated that the institution determines the academic success in the opinion of the participating students. This finding is confirmed by the result that the students judged supports for student's learning in classroom (Factor4) to be the most important factor and practice-oriented education (Factor1) to be the fourth most important factor in degree completion. However, the assistance provided by the remedial courses (Factor8) was only the sixth most important of the eight factors. This latter result illustrated that the participating students did not judge revision lessons or remedial courses to be as important in enabling them to complete their degree.

Our results support the assertion made by Demetriou and Smitz-Sciborski (2011) that a holistic approach has gained

Table 5 Differences between the students of different degree programms

Factors	Degree programms				
	1. N=21	2. N=24	3. N=97	4. N=110	5. N=53
ANOVA F-values	Mean (Std. Deviation)	Mean (Std. Deviation)	Mean (Std. Deviation)	Mean (Std. Deviation)	Mean (Std. Deviation)
Practice-oriented education (Factor1) $F(4,400) = 5.705***$	4.55 (.855)	4.94 (.590)	4.99 (.578)	4.82 (.611)	5.18 (.510)
Social relationships on campus (Factor2) $F(4,400) = 2.201$	3.54 (.910)	3.81 (.845)	3.90 (.830)	3.82 (.668)	3.56 (.412)
Student's study habits (Factor3) $F(4,400) = 1.092$	5.11 (.471)	5.16 (.504)	5.25 (.428)	5.17 (.490)	5.28 (.426)
Support for student's learning in classroom (Factor4) $F(4,400) = 2.164$	5.12 (.729)	5.21 (.598)	5.30 (.483)	5.14 (.571)	5.37 (.479)
Student's attitude towards responsibilities in university (Factor5) $F(4,400) = 2.214$	4.02 (.761)	3.85 (.703)	3.89 (.871)	3.75 (.838)	4.13 (.833)
Support by family and friends (Factor6) $F(4,400) = 1.863$	4.74 (.910)	4.65 (.882)	4.86 (.724)	4.70 (.706)	4.95 (.872)
Conscious carrer choice (Factor7) $F(4,400) = 2.823*$	5.13 (.891)	4.99 (.876)	5.15 (.730)	4.93 (.779)	5.33 (.572)
Assistance provided by the remedial courses (Factor8) $F(4,400) = 1.475$	3.95 (1,117)	4.31 (.839)	4.34 (.902)	4.12 (.921)	4.24 (.848)

(1.Applied Economics, 2.Management and Business Administration, 3.International Management, 4.Engineering Management, 5.Communication and Media Studies)

ground, which stresses the responsibility of all members of university staff (faculty, administrators, support services) in retention and, we believe, also in academic success.

The social relationships of students on campus (Factor2), which are also part of the institution context, were adjudged by students to be the least important for the successful completion of higher education studies. This is an interesting finding in our study, because it contradicts previous study of Tinto's (1975) Integration model emphasized the role of social integration in retention, noting that it can contribute to increasing students' commitment to earning a degree. Pusztai (2011), Hungarian researcher have also found a connection between students' social relationships and their academic efficiency, although she suggested, that social integration can only support academic achievement for certain student groups, concluding that the integration theory has limited validity in terms of academic success.

These relationships could be supportive for freshmen, because these could facilitate their integration into the campus life. These social relationships can also be determinative in the academic success if they provide emotional bonding for students to cope with difficulties during their higher education studies or provide them opportunities to talk about and to solve their learning problems or career dilemmas. It would appear, that these relationships are as deep emotionally as friendships can contribute to academic success. In other cases, when these relationships are casual or provide students with practical information about how to spend leisure time they

do not contribute to academic success. However, it seems reasonable to conclude that students' social relationships on campus require further investigations to clarify their role in the academic success of students.

Three of the eight factors: student's study habits (Factor3), conscious career choice (Factor7), student's attitude towards responsibilities in university (Factor5) can be linked to the internal context of Proposed Conceptual Model (Perna and Thomas, 2008). In the literature mostly psychological studies focus on the connection between the students' cognitive and non-cognitive characteristics and their academic achievement (Busato et al., 2000). In our study factors are created based on the results of interviews and consequently did not focus on any other aspects of the students' personality or the intellectual ability of the students factors which may also influence the student's academic success.

Nonetheless our results show that the participating students accorded greater importance to factors linked to internal context as factors in the successful completion of their university studies. Student's study habits (Factor3) was the second highest rated, and conscious career choice (Factor7) was judged by students to be the third most important factor contributing to academic success. This view can be explained by students' increased awareness of their role in their academic success, but we would suggest that the students did not wish to exaggerate the importance of their role, because the attitude towards responsibilities in university (Factor5) was judged to be the

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second least important factor in academic success. This factor emphasized that students should work hard, should study regularly, should utilize the opportunities for consultation announced by their lecturers, should take their exams at the designated time and should participate in the research activities of the university. The low mean of this factor in successful completion of university studies suggests that the participating students felt that such an attitude toward the learning does not contribute significantly to academic success.

Only one of the factors considered was connected to family context of the Proposed Conceptual Model (Perna and Thomas, 2008). This was the support by family and friends (Factor6), which encompassed both the emotional and the financial support of the students' families and, in parallel, the emotional support of friends. This factor was judged to be the fifth most important in the completion of the university studies. Hungarian researchers have investigated the connection between family background and a student's achievement, emphasizing the importance of parental education. Szemerszki (2015) found that the influence of family background had a strong influence on the expected completion of higher education studies and on whether a student continues his/her studies at Master's level. The role of friends in a student's efficiency was investigated by Pusztai (2015) who found that religious groups had the most positive effect on a student's achievement. In our research the emotional support of friends was investigated, and this aspect of the friends was found to be more important than those social relationships on campus which do not give students emotional support.

These eight factors were able to explain 45 % of the variance, which suggests that other factors contribute to the successful completion of university studies (See Appendix 2). As we mentioned earlier other factors which are linked to internal context, such as cognitive aspects of students (e.g. intellectual abilities) and other non-cognitive characteristics, (e.g. emotional intelligence, personality features) can be influential on students' academic success (Dollinger et al., 2008; Cotrus et al., 2012; Beauvais et al., 2014). It may be worth investigating the role of these factors in academic success.

The institutional context also includes other factors which can contribute to a student's academic performance. Pusztai (2011) investigated and distinguished between different patterns of faculty-student relationships. She found a positive correlation between the students' interaction with the faculty and student academic efficiency, suggesting that the effect of faculty-student relationships may also be determinative.

Previous studies found that institutional support programmes or services had a positive effect on student's academic success (Abdykhalykova, 2013; O'Gara et al., 2009). These programmes (such as freshmen orientation, learning strategy courses or academic advising, faculty mentoring) may also contribute to academic success, especially in the case of first-generation students or non-traditional students. It would be advisable to give students the opportunity to use these programmes at university and then to explore their effectiveness in academic success.

Finally the role of students' family background, especially the social status of the family and the parent's level of education, were shown to influence students' academic performance and plans to continue their studies at Master's level, which indicates that these factors are not negligible (Szemerszki, 2015).

This study also attempted to determine whether there were differences between female and male students' opinions. The survey results indicated that female students judged all the factors to be more important in the successful completion of their higher education studies, except for social relationships on campus. In this latter scale there was not a significant difference between female and male students. These differences can be explained by the fact that for female students the completion of the degree is more important, and thus they use every support to gain a degree. According to Fényes's (2009) results, girls were more successful in secondary schools, they were in the majority in higher education, and also attained better grades in higher education. However, their advantage disappeared in certain areas at higher education level with male students producing more publications, and being more likely to be planning to take Ph.Ds. during their higher education studies. In this study an economic theory was outlined to explain the female majority in higher education (Di Prete and Buchmann, 2006 cited in Fényes, 2009). According to this theory it is easier for females to find a good job on the labour market with a degree, while males can also find good jobs without a degree. This suggests that degree completion may be more important for female students than for male students, which may explain their greater motivation. However, further investigation focusing on the aspirations of female and male students to graduate, would be required to support this hypothesis.

Another focus of this study was on the differences between the opinions of bachelor's and master's students. Our result demonstrated that bachelor's students evaluated the importance of the student's social relationships on campus (Factor2) in the completion of university studies more highly than the master's students. This result shows the importance of the social interactions at bachelor's level, which is consistent with the investigation of Pusztai (2011). She also found that at master's level the role of the other students decreased and that it was the formal or informal interactions with the faculties, which contributed to academic success. Her results confirm the differences between the bachelor's and master's students in the scale of the social relationships on campus.

Finally, we explored the differences between the opinions of students on different degree programmes. Differences were found in the students' perception of the importance of having a conscious career choice (Factor7) and of practice-oriented education (Factor1) in academic success. According to the students

of Communication and Media studies a conscious career choice was more important in the successful completion of higher education studies as compared to the opinions of students of other programmes. This result suggests that if a student does not know exactly why she/he has chosen communication and media studies that student might not to complete her/his degree and this student may drop out.

Practice-oriented education was evaluated to be a more important factor in academic success by students on degree programmes other than Applied Economics. This surprising result could be interpreted as a sign that the Applied Economic students have already found their programme practice-oriented, and it does not need further improvement. Students from other programmes, however, marked this factor highly important because they expect their higher education to provide them with knowledge applicable on the labour market. The importance of practice-orientated education demonstrates that students interpret academic success broadly, and that they consider higher education studies in terms of how they contribute to their career plans and how they help to prepare them for the labour market.

8 Conclusion

This exploratory study focused on the opinions of students of Faculty of Economic and Social Sciences at BME, so the results can only be used for other students in a limited way. However, this study demonstrates some important facts, which can be considered further by other institutions, as outlined in the following summary.

Our results highlight the role of the institution in the successful completion of higher education studies. The responsibility of higher education institutions in the student's academic success has been confirmed in the literature and our results further underscored this. As we mentioned in the theoretical background, Kuh et al. (2005; 2010) explored the practices of 20 four-year colleges and universities which performed well in student engagement and graduation rates, and they stressed that the institution has to emphasize the importance of student success in their mission. These results show that all the members of staff (lecturer, administrators, support services) of the higher education institutions can contribute to the students' success. The importance of faculty-student interactions and the educational approach of lecturers in academic success were also demonstrated (Pusztai, 2011; McEnroe-Petitte, 2011; Kara and DeShields, 2004; Geslisli, 2009). Our results would thus appear to confirm that institutions can do a great deal to support their students' academic success. This support is important, especially when there are students in higher education who are not prepared for university studies. Harbley et al. (2010) found that early warning systems, which caution students at risk, freshman seminars and advising interventions with selected populations were the most effective retention practices, which

also contribute to the students' academic success. Clearly a single model of best practices cannot be recommended and every institution must determine which programmes will be most appropriate to support their students' academic success.

As we mentioned earlier, conscious career choice was also important in degree completion, and this can be facilitated by orientation programmes for students in high schools. If the students have accurate information about the different degree programmes and about what they will study, then they may choose a faculty confidently and they will be committed to a specific degree programme which can in turn contribute to the completion of their studies. Furthermore, senior students can visit high schools to talk about their experiences and career plans, because they come across as more authentic for students of secondary schools. This type of activity requires cooperation between student organizations and the leaders of the different faculties.

The importance, to students, of practice-oriented education as a factor which is important in student's academic success suggests, that students have new expectations toward the university including that there be a balance between theory and practice, that lecturers have practical experience in their professional fields, that the subject matter of course units should be specialized for their own faculty and that students should participate in internships. It would seem, then, that students expect university to prepare them for the labour market. This is a new trend in the higher education and faculties need to foster and maintain active relationships with companies to attempt to achieve this objective.

While students' study habits are linked to the internal aspects of student success, institutions can also foster them by running courses in learning strategy. However, these courses can only be effective if they are not too general, but instead are specialized in certain subjects. The role of lecturers is important in deciding on the subject matter of these courses.

Finally, there are other factors which affect student's academic success and which the institution does not have any influence on. These are the effect of the student's family background (social status, parental education) and certain cognitive and non-cognitive features of the students or their social relationships outside the campus. The role of these factors should also be considered.

In summary, this study has explored the opinions of the students while not presuming to provide a complete view of the issue, which clearly requires further investigations. We believe that the academic success of the students is an important new topic of research in higher education. Although the role of the family in academic efficiency has been thoroughly investigated, the role of the university staff members (lecturers, administrators) and of interventions, programmes of higher education institutions could profitably be the subject of further research in Hungarian higher education.

References

Abdykhalykova, Z. (2013) Extended Academic Advising in Kazakhstan: Improving the success of first year students. *Procedia-Social and Behavioral Sciences*. 89, pp. 357-362. DOI: 10.1016/j.sbspro.2013.08.860

Aschaffenburg, K., Maas, I. (1997) Cultural and educational careers: The dynamics of social reproduction. *American Sociological Review.* 62(4), pp. 573-587. DOI: 10.2307/2657427

American Federation of Teachers (2011) Student Success in Higher Education. [Online]. Available from: http://www.aft.org/pdfs/highered/studentsuccess0311.pdf [Accessed: 8th April 2014]

Astin, A. W. (1993) What matters in college? Four critical years revisited. San Francisco: Jossey-Bass. In: Keller, D. A. (2011) *An integrated model of early community college student success: understanding success in developmental mathematics*. PhD. Dissertation. University of Iowa. [Online]. Available from: http://ir.uiowa.edu/etd/996 [Accessed: 21st April 2015]

Astin, A. W. (1999) Student involvement: A Developmental Theory for Higher Education. *Journal of College Student Development*. 40(5), pp. 518-529.

Bálint, J., Polónyi, I., Siklós, B. (2006) *A felsőoktatás minősége*. (The Quality of the Higher Education.) PH Felsőoktatási Kutatóintézet, Budapest. [Online]. Available from: http://www.hier.iif.hu/hu/konf/Felsooktatasi_POLONYI.pdf [Accessed: 22nd June 2015] (in Hungarian)

Bean, J. P. (1981) *The Synthesis of a Theoretical Model of Student Attrition.* Paper presented at the Annual Meeting of the American Educational Research Association (Los Angeles, CA, April 13-17, 1981). 1-34. ED 202 444.

Bean, J. P. (1980) Dropout and Turnover. The Synthesis and Test of a Casual Model of Student Attrition. *Research in Higher Education*. 12(2), pp. 155-187. DOI: 10.1007/bf00976194

Beauvais, A. M., Stewart, J. G., De Visco, S., Beauvais, J. E. (2014) Factors related to academic among nursing students: A descriptive correlational research study. *Nurse Education Today*. 34(6), pp. 918-923. DOI: 10.1016/j.nedt.2013.12.005

Berács, J., Derényi, A., Kováts, G., Polónyi, I., Temesi, J. (2015) *Magyar Felsőoktatás 2014. Stratégiai helyzetértékelés*. (Hungarian Higher Education 2014. Strategic Progress Report.) Corvinus Egyetem. Nemzetközi Felsőoktatások Központja, Budapest. [Online]. Available from: http://portal.uni-corvinus.hu/fileadmin/user_upload/hu/kutatokozpontok/NFKK/konferencia2015jan-MF2014/MF2014_strat.pdf [Accessed: 22nd June 2015] (in Hungarian)

Bocsi, V. (2015) A hallgatói eredményesség habituális háttere. (The habitual background of students' academic achievement.) In: Pusztai, G., Kovács, K. (ed.) *Ki eredményes a felsőoktatásban?*. (Who is efficient in higher education?.) Új Mandátum Kiadó, Budapest, pp. 133-144. (in Hungarian)

Bodnár, G., Takács, I., Balogh, Á. (2011) Tehetségmenedzsment a felsőoktatásban. (Talent management in higher education.) Budapest: Magyar Tehetségsegítő Szervezetek Szövetsége. [Online]. Available from: http://tehetseg.hu/sites/default/files/19_kotet_net.pdf [Accessed: 22nd June 2015] (in Hungarian)

Bordás, A., Ceglédi, T. (2010) Bemutatkozik a Debreceni Egyetem Felsőoktatási és Kutató Fejlesztő Központja. Felsőoktatási Műhely. (Introduction Centre for Higher Education Research and Development of University of Debrecen. Higher Education Workshop.) [Online]. Available from: http://www.felvi.hu/pub_bin/dload/FeMu/2010_1/Femu_2010_1_95-98.pdf [Accessed: 23rd June 2015]

Busato, V. V., Prins, F. J., Elshout, J. J., Hamaker, C. (2000) Intellectual ability, learning style, personality, achievement motivation and academic success of psychology students in higher education. *Personality and Individual Differences*. 29(6), pp. 1057-1068. DOI: 10.1016/s0191-8869(99)00253-6

Cabrera, A., Nora, A., Casteñada, M. B. (1993) College Persistence. Structural Equations Modelling Test of an Integrated Model of Student Retention. *Journal of Higher Education.* 64(2), pp. 123-139. DOI: 10.2307/2960026

Cotrus, A., Stanciu, C., Bulbarea, A. A. (2012) EQ vs IQ which is most important in the success or failure of a student. *Procedia-Social and Behavioral Sciences*. 46, pp. 5211-5213. DOI: 10.1016/j.sbspro.2012.06.411

Čukušič, M, Garača, Ž., Jadrič, M. (2014) Online self-assessment and students' success in higher education institutions. *Computers & Education*. 72, pp. 100-109. DOI: 10.1016/j.compedu.2013.10.018

DiPrete, T. A., Buchmann, C. (2006) Gender-Specific Trends in the Value of Education and the Emerging Gender Gap in College Completion. *Demography*. 43(1), pp. 1-24. cited in Fényes, H. (2009) p. 2. DOI: 10.1353/dem.2006.0003

Dollinger, S. J., Matyja, A. M., Huber, J. L. (2008) Which factors best account for academic success: Those which college students can control or those they cannot? *Journal Research in Personality*. 42(4), pp. 872-885. DOI: 10.1016/j.jrp.2007.11.007

Dusa, Á. R. (2015) A nemzetközi hallgatói mobilitás értelmezése eredményességi szempontból. (Explanation of international student mobility in terms of achievement.) In: Pusztai, G., Kovács, K. (eds.) *Ki eredményes a felsőoktatásban?*. (Who is efficient in higher education?.) Új Mandátum Kiadó, Budapest, pp. 25-42. (in Hungarian)

Fényes, H. (2009) Nemek szerinti iskolai eredményesség és a férfihátrány hipotézise. (Gender differences in academic efficiency and the male disadvantage hypothesis.) *Magyar Pedagógia*. 109(1), pp. 77-101. (in Hungarian)

Gelisli, Y. (2009) The effect of student centered instructional approaches on student success. *Procedia Social and Behavioral Sciences*. 1(1), pp. 469-473. DOI: 10.1016/j.sbspro.2009.01.085

Glass, C. R., Westmont, C. M. (2014) Comparative effects of belongingness on the academic success and cross-cultural interactions of domestic and international students. *International Journal of Intercultural Relations*. 38, pp.106-119. DOI: 10.1016/j.ijintrel.2013.04.004

Habley, W., Valiga, M., McClanahan, R. (2010) *What works in student retention? Fourth National Survey*. Private 4-year Colleges and Universities Report. ACT July 1. ED515219

Kandlbinder, P. (2015) Signature concepts of key researchers in North American higher education teaching and learning. *Higher Education*. 69(2), pp. 243-255. DOI: 10.1007/s10734-014-9772-7

Kara, A., De Shields, O. W. Jr. (2004) Business student satisfaction, intention and retention in higher education: An empirical investigation. *Marketing Educator Quarterly*. 3(1), pp. 1-25.

Keczer, G. (2014) Az egyetemek szerepe, irányítása és működése a 21. század elején. (The role, the management and operation of higher education at the early 21st century.) In: *Felsőoktatás-kutatási tanulmányok. Közép-Európai Monográfiák 11*. Egyesület Közép-Európa Kutatás, Szeged. [Online]. Available from: http://portal.uni-corvinus.hu/fileadmin/user_upload/hu/kutatokozpontok/NFKK/publikaciok/Keczer.pdf [Accessed: 22nd June 2015] (in Hungarian)

Kovacic, Z. J. (2010) Early Predicting of Student Success: Mining Students Enrolment Data. Proceedings of Informing Science & IT Education Conference (InSite). pp. 657-665. [Online]. Available from: http://proceedings.informingscience.org/InSITE2010/InSITE10p647-665Kovacic873.pdf. [Accessed: 20th April 2015]

Kovacic, Z. J. (2012) Predicting student success by mining enrolment data. *Research in Higher Educational Journal*. 15(1), pp. 1-20.

Kovács, K. (2015) A sportolás hatása a tanulmányi eredményességre. (Effect of sport activity on academic achievement.) In: Pusztai, G., Kovács, K. (ed.): *Ki eredményes a felsőoktatásban?*. (Who is efficient in higher education?.) Új Mandátum Kiadó, Budapest, pp. 161-172. (in Hungarian)

Kuh, G. D., Kinzie, J., Schuh, J. H., Whitt E. J., Associates (2005, 2010). *Student success in college. Creating conditions that matter.* Jossey-Bass, John Wiley & Sons, San Francisco.

MacCann, C., Fogarty, G. J., Roberts, R. D. (2012) Strategies for success in education: Time-management is more important for part-time than full-time community college students. *Learning and Individual Differences.* 22(5), pp. 618-623. DOI: 10.1016/j.lindif.2011.09.015

McEnroe-Petitte, D. M. (2011) Impact of faculty caring on student retention and success. *Teaching and Learning in Nursing.* 6(2), pp. 80-83. DOI: 10.1016/j.teln.2010.12.005

Nonis, S. A., Hudson, G. I., Philhours, M. J., Teng, J. K. (2005) Changes in college student composition and implications for marketing education: revisiting predictors of academic success. *Journal of Business Research.* 58(3), pp. 321-329. DOI: 10.1016/j.jbusres.2003.06.001

O'Gara, L., Karp, M. M., Hughes, K. L. (2009) Student success courses in the community college. An exploratory study of student perspectives. *Community College Review.* 36(3), pp. 195-218. DOI: 10.1177/0091552108327186

Perna, L. W., Thomas, S. L. (2008) Theoretical Perspectives on Student Success: Understanding the Contributions of the Disciplines. *ASHE Higher Education Report.* 34(1), pp. 1-87.

Pusztai, G. (2011) *Láthatatlan kéztől a baráti kezekig. Hallgatói értelmező közösségek a felsőoktatásban.* (From invisible hands to hands of friends. Student interpretive communities in higher education.) Oktatás és Társadalom 9., Új Mandátum Kiadó, Budapest.

Pusztai, G. (2014) „Nem biztos csak a kétes szemnek…" Hallgatói eredményességi koncepciók és mutatók a felsőoktatás-kutatásban ("It's not sure only for dubious eyes…" Conceptions and indicators of student efficiency in research on higher education.) In: Nagy, P., Veroszta, Zs. (ed.): *A felsőoktatás kutatása. Tisztelgő kötet Hrubos Ildikó születésnapjára.* Gondolat, Budapest, pp. 146-164.

Pusztai, G. (2015) Támogató tényezők. Tanulmányi eredményességet támogató tényezők az egyetem falain belül és kívül. (Supporting factors of academic achievement inside and outside the university.) In: Pusztai, G., Kovács, K. (ed.): *Ki eredményes a felsőoktatásban?.* (Who is efficient in higher education?.) Új Mandátum Kiadó, Budapest, pp. 79-97.

Saklofske, D. H., Austin, E. J., Mastoras, S. M., Beaton, L., Osborne, S. E. (2012) Relationships of personality, affect, emotional intelligence and coping with student stress and academic success: Different patterns of association for stress and success. *Learning and Individual Differences.* 22(2), pp. 251-257. DOI: 10.1016/j.lindif.2011.02.010

Schroeder, S. (2011a) Exploring Student Attitudes, Aspirations & Barriers to Success. Six focus groups among higher-risk first-and second-year community college and technical college students, and four-year university students. [Online]. Available from: https://www.aft.org/pdfs/highered/studentfocusgrp0311.pdf [Accessed: 11th August 2014]

Schroeder, S. (2011b) Student Success in Higher Education. Executive Summary. AFT Higher Education. [Online]. Available from: http://www.aft.org/pdfs/highered/studentsuccess0311.pdf [Accessed: 11th August 2014]

Spady, W, G. (1971) Dropouts from higher education: Toward an empirical model. *Interchange.* 2(3), pp. 38-62. cited DOI: 10.1007/bf02282469

Szemerszki, M. (2015) A felsőfokú tanulmányi előmenetelt és sikerességet befolyásoló tényezők. (Influencing factors of higher educational advancement and success.) In: Pusztai, G., Kovács, K. (ed.) *Ki eredményes a felsőoktatásban?.* (Who is efficient in higher education?.) Új Mandátum Kiadó, Budapest, pp. 108-118.

Takács, I. (2010) A halogatás jellemzői a felsőoktatásban. A halogató magatartás és a személyiség jellemzőinek vizsgálata a felsőoktatásban. (Features of procrastination in higher education. Research of procrastination behavior and personality characteristics in higher education.) Habilitációs dolgozat. Eötvös Lóránd Tudományegyetem, Budapest.

Teixeira, P. N. (2013) Reflecting about Current Trends in Higher Education Research: a view from the journals. In: Kehm, B. M., Musselin, C. (eds.): *The Development of Higher Education Research in Europe.* Sense Publishers, pp. 103-121. DOI: 10.1007/978-94-6209-401-7_9

Tight, M. (2007) Bridging the divide: A comparative analysis of articles in higher education journals published inside and outside North America. *Higher Education.* 53(2), pp. 235-253. DOI: 10.1007/s10734-005-2429-9

Tinto, V. (1975) Dropout from Higher Education: A Theoretical Synthesis of Recent Research. *Review of Educational Research.* 45(1), pp. 89-15. DOI: 10.3102/00346543045001089

Tóth, R. (2011) *Hatékonyság vizsgálatok a felsőoktatásban.* (Efficiency studies in higher education.) Egyetemi doktori (PhD) értekezés tézisei. Debreceni Egyetem Ihrig Károly Gazdálkodás- és Szervezéstudományok Doktori Iskola, Debrecen. [Online] Available from: http://www.science.unideb.hu/media/document/111219_tothreka.pdf [Accessed: 23rd June 2015] (in Hungarian)

Voight, L., Hundrieser, J. (2008) Student Success, Retention and Graduation: Definitions, Theories, Practices, Patterns and Trends. In: Noel-Lewitz Retention Codifications. November. 1-22. [Online] Available from: http://www.stetson.edu/law/conferences/highered/archive/media/Student%20Success,%20Retention,%20and%20Graduation-%20Definitions,%20Theories,%20Practices,%20Patterns,%20and%20Trends.pdf [Accessed: 21st April 2015]

Appendix 1

Dear Student,

We are interested in your study experiences at the university. Please judge to what extent the following factors contribute to the successful completion of the university studies. 1=absolutely not important 2= not important 3= less important, 4=important, 5=very important 6=extremely important

For the successful completion of studies, it is important that….

1.	the student should choose a faculty he/she is interested in.
2.	the student should choose a faculty the content of which he /she knows.
3.	in the secondary school he/she should choose a specialisation he/she can draw on at the university.
4.	the education should be more practice-oriented.
5.	the university should give more information about the specialisation.
6.	the university should provide special courses for students to improve their performance.
7.	the relation between lecturers and students be based on partnership.
8.	lecturers hold high quality lectures.
9.	the slides of the lectures should be available.
10.	the student should participate in the freshmen's camp.
11.	the student should be in touch with senior students.
12.	the student should put his/her address on the mail list of the class.
13.	the student's family provides a firm financial background.
14.	the student's friends should give emotional support.
15.	the student should learn languages..
16.	the student should also study abroad during his/her university education.
17.	the lecturers be professionally qualified.
18.	the student should be able to decide independently on academic affairs.
19.	the student should be able to map out his/her time.
20.	the student should participate in lectures that are worth attending.
21.	the student should utilize the materials of the lectures available on the internet.
22.	the student should request help in time if something fails.
23.	the student should participate in an internship.
24.	the seminars and practices should be held in small groups.
25.	the student should be able to select from the teaching materials.
26.	the student should work hard.
27.	lecturers' requirements are published on time.
28.	the academic administration help students' orientation.
29.	lecturers also have practical experiences in their professional field.
30.	the degree courses should be built on each other.
31.	the student should choose an appropriate career for himself/herself.
32.	the student should connect to the work of student organisations.
33.	lecturers' requirements are clear and consistent.
34.	there is balance between theory and practice in the courses.
35.	the student should be open to new things.
36.	the student should use the help of student mentors.
37.	the student should find the balance between studies and entertainment.
38.	the student should put his/her address on the mail list of the senior classes.
39.	the student should utilize the opportunities for consultation announced by the lecturers.
40.	the student should study regularly.
41.	the student should participate in the research activities of the university.
42.	the student should take his/her exams at designated time.
43.	the university should provide internships for the students.
44.	the student should relax enough.

45.	the student's learning techniques should be adapted to the requirements of the university.
46.	the student should build relationships with his/her class-mates.
47.	the lecturers should provide repeating lessons for students.
48.	the student should be persistent.
49.	the student should study together with his/her classmates.
50.	the student's family should provide emotional support.
51.	the student should not work alongside his/her university studies.
52.	assessment should be based on materials that have been taught.
53.	the student should be able to deal with the freedom provided by the university studies.
54.	the topics of the subjects should be specialized for the student's faculty.

Appendix 2

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.854
Bartlett's Test of Sphericity	Approx. Chi-Square	8201.827
	df	1431
	Sig.	.000

Cumulative explained variance %: 44.977

	Factors							
	1	2	3	4	5	6	7	8
17.the lecturers be professionally qualified	0.670							
29. the lecturers also have practical experiences in their professional field	0.629							
34. there is balance between theory and practice in the courses	0.616							
8.lecturers hold high quality lectures	0.532							
24. the seminars and practices should be held in small groups	0.530							
23. the students should participate in internships	0.528							
4. the education should be more practice-oriented	0.521							
15. the student should learn languages	0.472							
16. the student should also study abroad during his/her university education	0.463	0.415						
54. the topics of the subjects should be specialized for the student's faculty	0.456							
11. the student should be in touch with senior students		0.768						
10. the student should participate in the freshmen's camp		0.721						
36. the student should use the help of student mentors		0.618						
32. the student should connect to the work of student organisations		0.577						
46. the student should build relationships with his/her classmates		0.535						
49. the student should study together with his/her classmates		0.475						
12. the student should put his/her address on the mail list of the class		0.449						
38. the student should put his/her address on the mail list of the senior classes		0.433						
19. the student should be able to map out his/her time			0.612					
21. the student should utilize the materials of the lectures available on the internet			0.549					
22. the student should request help in time if something fails			0.525					
20. the student should participate in lectures that are worth attending			0.51					
18. the student should be able to decide independently on academic affairs			0.493					
25. the student should be able to select from the teaching materials			0.473					
53. the student should be able to deal with the freedom provided by the university studies			0.419					
37. the student should find the balance between studies and entertainment			0.411					
52. assessment should be based on materials that have been taught				0.649				
27. the lecturers' requirements are published on time				0.617				

Statement	C1	C2	C3	C4	C5	C6	C7	C8
9. the slides of the lectures should be available				0.587				
43. the university should provide internship for the students				0,514				
33. lecturers' requirements are clear and consistent				0.497				
28. the academic administration helps students' orientation	0.404			0.446				
40. the student should study regularly					0.654			
42. the student should take his/her exams at designated time					0.621			
41. the student should participate in the research activities of the university					0.544			
26. the student should work hard					0.493			
39. the student should utilize the consultation opportunities announced by the lecturers					0.446			
14. the student's friends should give emotional support						0.699		
50. the student's family should provide emotional support						0.662		
13. the student's family provides a solid financial background						0.659		
48. the student should be persistent						0.520		
1.the student should choose a faculty he/she is interested in							0.788	
2. the student should choose a faculty the content of which he/she knows							0.727	
31. the student should choose an appropriate career for himself/herself							0.604	
6. the university should provide special courses for students to improve their performance								0.679
47. the lecturers should provide repeating lessons for students								0.559
7. the relation between lecturers and students be based on partnership								0.467