

EVALUATION OF SOME ASPECTS OF BACHELOR STUDY BY THE STUDENTS OF ENGINEERING STUDY OF THE SLOVAK UNIVERSITY OF TECHNOLOGY

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Abstract

The article is the primary partial output of the research task KEGA 3/6216/08 Launch of the subject Guidance to enterprise into educational program Teaching of professional technical subjects of the second stage at Faculty of Materials Science and Technology of the Slovak University of Technology (MTF STU). Its content is aimed to evaluation of bachelor study by the students of the first grade of engineering study from the point of view of student's perspective.

Key words

learning, teaching, self- reflection, student's personality

Introduction

In connection with the successful self-promotion of student, it is necessary to mention the role of entrepreneurship in the personal profile of student in his future. Entrepreneurship understood not only from the perspective of participation in particular company, whether his own or an employee's, but also from the perspective of managing himself in lifelong education, which is one of the dominant priorities of individual success.

In regards of dynamics of contemporary society, the development of which overran quantitatively and qualitatively the planned prognoses and expectations

it is necessary to provide to students and students of technical universities in particular, not only current trends, but by moderate and perspective system regulations of educational contents and means this dynamic development register, reflect and provide to students dispositions for handling of wide spectral elements of near and distant future.

At technical universities not only the subject of study is important but also a didactic tool, which in perspective allows a student to go through a permanent self-education and at the same time improves all his forms of study in future.

Key attributes for lifelong education by recommendation of the European Parliament and Council from 18 December, 2006 are defined as follows: "Learning to learn is the ability to continue and persist in learning, to organize own learning, also by the help of effective management of time and information, both individually and in groups.

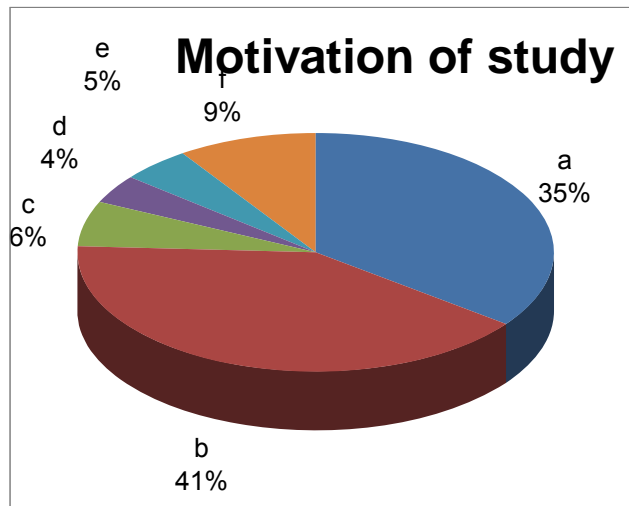
This competence includes awareness of the learning process and needs of individual, identifying of available opportunities and the ability to overcome obstacles in intension to successful learning. This competence means gaining, processing and assimilating new knowledge and skills, as well as to seek and use guidance. Learning to learn encourages learners to build on previous education and experience to use and apply knowledge and skills in different contexts: at home, at work, in education and training. Motivation and confidence are crucial at this competence of an individual [1].

Bachelor's degree according students of engineering degree

In the first phase of research task solving, we focused on the detection of those factors in education process at the STU, which, in perspective will enable the students to master their professional operating especially from the perspective of lifelong education. The basic goal of this phase of a research task solving is finding of remaining state and subsequent strengthening of primary outputs, which enable the improvement of teacher - student interaction. Primary outcomes are, from our point of view, necessary assumption for determination of secondary outcomes i.e. assumption of development of those students` competencies which positively contribute to their application in labor market in business environment, to their flexibility and adaptability according to rapidly changing demand conditions in the labor force, determined by acceleration of information and global space. The research sample consisted of 342 students of the first grade of STU engineering study with approximately equal representation of individual faculties (FEI, FIIT unrepresented), of which were 162 men and 180 women. The questionnaire containing 23 items (seven opened, others closed) was applied. The results are:

1. What you are currently the most motivated to study engineering level at the university?

- a) to develop your education, knowledge and abilities in study branch (35%)
- b) to obtain good career opportunities (41%)
- c) to obtain the possibility to get good pay (6%)
- d) to obtain a good position in society (4%)
- e) to obtain the title (5%)
- f) after completion my bachelor's degree I had a clear direction of the study (9%)
- g) this was the wish of my parents (0%)
- h) because my friends applied for this study (0%)
- i) other reasons (0%)

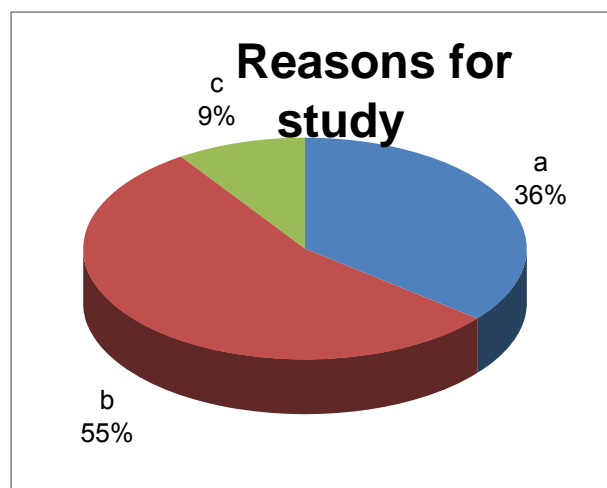


Graph no.1

Students generally have the motivation to continue their study at the engineering level with good prospects of application in the labor market. Successful career of each student is determined by development of those capabilities, which in the future will be required by their prospective employers.

2. Faculty (study branch) you attend is:

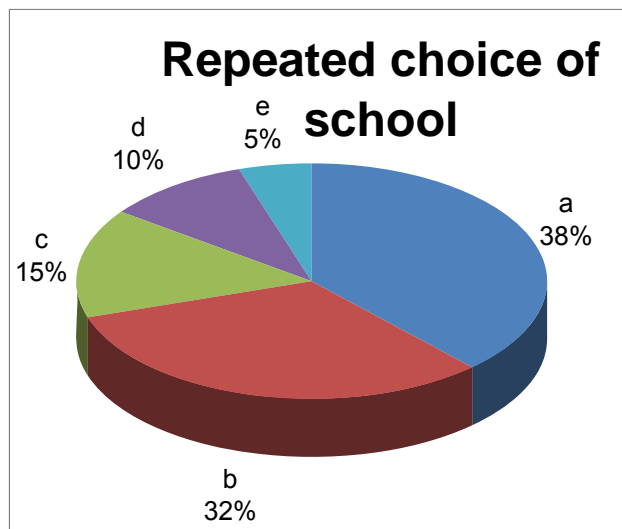
- a) faculty (specialization) that you most wish to study at and its choice was for you on the first place (36%)
- b) faculty (specialization), which was substitution, but still acceptable solution (55%)
- c) the faculty (specialization), which was the choice of an emergency (9%)



Graph no. 2

3. Would you according your experience of the bachelor study apply again for the same study branch (faculty)?

- a) definitely yes (38%)
- b) probably yes (32%)
- c) I do not know (15%)
- d) probably not (10%)
- e) definitely not (5%)



Graph no. 3

4. Rate your readiness to study engineering degree after bachelor's degree by selecting the appropriate value (0-I was not prepared at all, 5- I was very well prepared):

Table 1

Readiness for study in field	min.0 max. 5
theoretical knowledge	3,1
Personal characteristics (responsibility, time accuracy and alike)	2,4
How to organize the time	1,5
How to search information	2,9
Study effectively from the text, internet	2,2
How to make notes	1,9
How to easy remember study material	1,6
How to prepare for exams	2,8
How to deal with stress	2,9

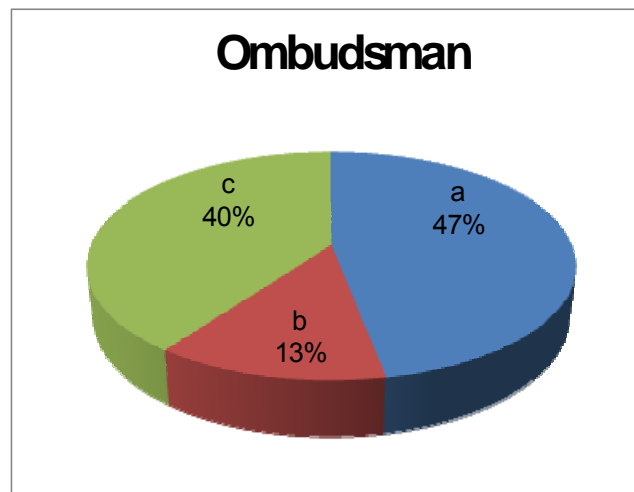
Subjective assessment of the students readiness for study reaches the highest level in the field of theoretical knowledge as the most problematic, seems the time management and the ability of effective note taking at lectures, seminars and tutorials. What difficulties did you have during the elaboration of your BSc thesis? (open question) - the most frequent answers:

- reluctance to cooperate from the part of teacher
- no cooperation with specialists from practice,
- little information from specialized subjects,
- difficult procurement of literature
- problem with obtaining information,
- reluctance to cooperate with students in the business,
- distance of company,)
- busyness of head of BSc thesis

In open question the students themselves specified the biggest problems in the elaboration of thesis. Frequency of not connection of bachelor thesis with practical outcome in a particular company was more than 80%. These findings are in the contrary with the requirements of employers, which means that the school, respectively the specific teachers have to be much more open to communication with various departments of economy.

6. *Would you accept at the Faculty the Institute "ombudsman" to deal with complaints and remarks of students concerning teaching?*

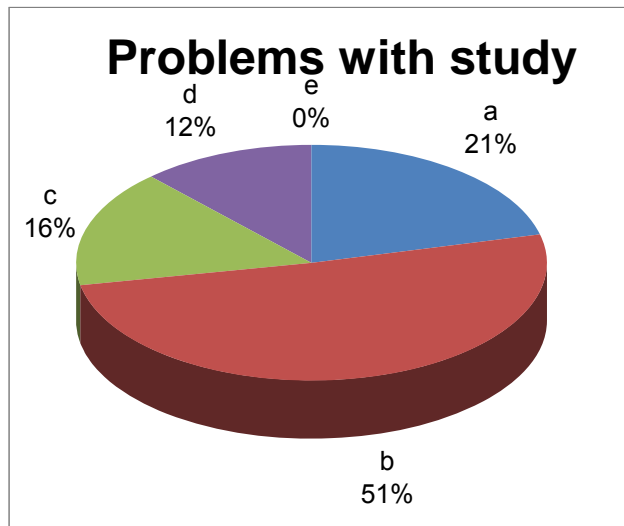
- a) yes, definitely (47%)
- b) I consider that to be redundant (13%)
- c) I cannot judge (40%)



Graph no. 4

7. *Specify the problem area you had the most often to deal with after the transition to the higher level of study:*

- a) personal (21%)
- b) in the study (51%)
- c) the social (human relations) (16%)
- d) economic (12%)
- e) other (0%)



Graph no. 5

51% of students indicated in the transition to engineering degree course, problems in the study area. These results correlate with our findings made in the research project KEGA Experimental introduction of the subject Introduction to the study, where we specified the learning skills of students and the need for understanding and diagnosis of learning styles as a relevant factor in the success of the study.

8. If you have successfully completed the year, to what extent does influence your success the following factors (based on a scale: 0-no effect, 5-strong impact)

- a) good teachers
- b) my abilities (good memory, logical thinking, concentration)
- c) my characteristic features (steadiness, diligence, strong will, curiosity)
- d) Good motivation
- e) good preparation at the Bachelor degree
- f) it depends of coincidence and happiness

Table 2

Success factors	min.0 max. 5
Good teachers	2,2
My abilities (good memory, logical thinking, concentration)	3,26
My characteristic features (steadiness, diligence, strong will, curiosity)	2,59
Good motivation	3,1
Good preparation at the bachelor degree	2,6
It depends of coincidence and happiness	2,1

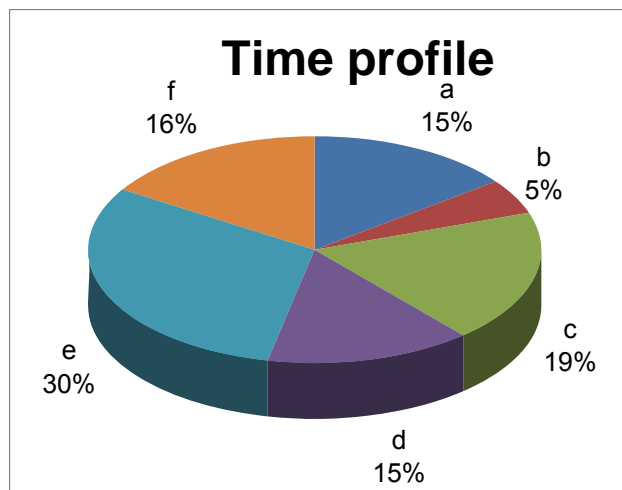
9. How often did you meet with failure, indicate the reasons: (open question)

- subjective approach of the teacher,
- minimum, respectively. no difficulty during the semester,
- non objective evaluation
- over demanding teacher during exam
- poor preparation of teacher
- another teacher during seminars, another during examination - different difficulty and priorities
- bad day of examiner.

The analysis of items eight and nine shows a considerable deficit in self- reflection of students. While during success is dominating the area of subjective skills - good memory, logic of thinking, concentration, motivation and so on. In failure the students seek the causes of it in the wide range of options, without considering their own inaccuracy, respectively. Shallowness in preparation for exams.

10. Give the proportion of hours per day spent by doing following activities:

- a) time spent at school (3.54 h, 14.8%)
- b) individual study and preparation for school (1.16 h, 4.8%)
- c) relax (4.56 h, 19%)
- d) interests of (3.57 h, 14.9%)
- e) sleep (7.31 h, 30.4%)
- f) part-time employment during study (3.86 h, 16.1%)



Graph no. 6

The results of time profile are striking- the fact that the amount of time devoted to school and self-study; respectively homework elaboration for school (19.6%) is much smaller than the time allowed to relax and interests of students (33.9%). The results only underline the fact that students fail to reasonably deal with time (see Table 1. They are not encouraged to systematic work, they are used to work occasional and sporadically, especially during the examination period, they over work.

11. Evaluate the following areas on the scale (0-extremely bad, 5-very good):

- a) the use of ICT in education
- b) teachers' attitude to the use of modern technology
- c) development of your critical thinking within the compulsory forms of education
- d) equipment of classrooms
- e) access to Internet
- f) your activity during lessons
- g) the application of creative thinking within the frame of compulsory forms of education
- h) the equipment of library with necessary literature

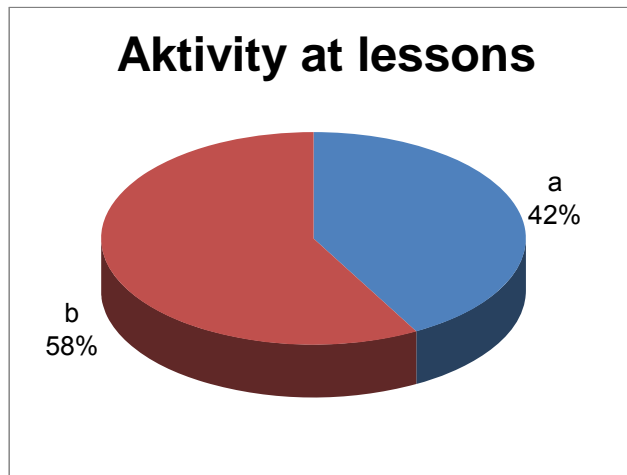
Table 3

Evaluation of education aspects	bad0 very good5
Use of ICT in education	4,5
teachers' attitude to the use of modern technology	2,7
development of your critical thinking within the compulsory forms of education	1,4
equipment of classrooms	2,4
access to Internet	4,9
your activity during lessons	1,8
the application of creative thinking within the frame of compulsory forms of education	1,6
the equipment of library with necessary literature	3,9

From a subjective assessment of individual factors of educational processes, which appear to be significant in meeting the requirements relevant to students' success in the future, resulted that the factors that may be allocated to the material means of teaching the students highly rated - the Internet and ICT. Much less were rated the means of teaching, which directly affect their personal development - activities during educational process, critical thinking, autonomy and creativity. The above figures reflect not only the rigidity of teachers and their low interest in the student's personal growth, but probably also lack of appropriate teaching resources, enabling leadership of seminars, lectures and exercises with the creation of space for student's activity and autonomy.

12. In teaching methods, which are preferred by your teachers, students are more:

- a) active (42%)
- b) Passive (58%)

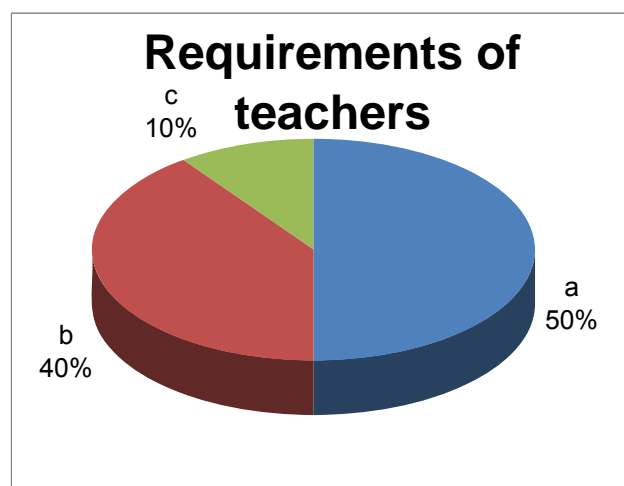


Graph no. 7

It is difficult to expect from student to be active and independent, if a teacher does not create the space for the development of these factors. The application of teaching methods in education at STU generally bears the marks of transmisiveness, 58% passive students are not the adequate mark of teaching process quality at the Slovak University of Technology and indeed does not contribute to the desired profile of a graduate.

13. Are you familiar in advance with requirements of teacher for the student?

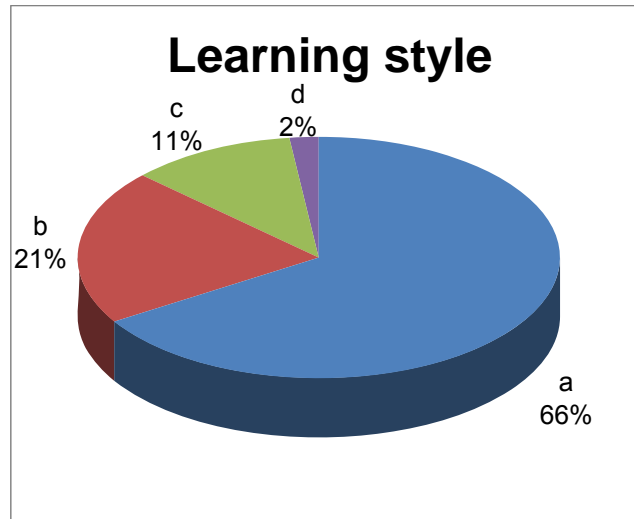
- a) yes, the teachers mostly say clearly what they will require from the student during the examination. (50%)
- b) partly, teachers foggy indicate what they will be require from the student during exam (40%)
- c) I rarely know what is required for the exam (10%)



Graph no. 8

14. Did your teachers diagnose for you your learning style (learning strategies).

- a) No never. (a) (66%)
- b) Yes, I know my learning style and I try to respect it during learning (21%)
- c) Yes, I know my learning style, but I do not respect it. (11%)
- d) Yes, I know my learning style, from the period of my high school study (2%)



Graph no. 9

The issue of learning styles, their need for students has been solved in the research project KEGA. Not only students but also teachers do not have enough knowledge about this issue. Ignorance of own learning style, as well as ignorance of the student's style from the side of teacher, moves many elements of the interaction teacher - student into the position of lack of transparency, respectively abstruseness which is ultimately reflected in the quality of learning outcomes.

Conclusion

Management of educational process is determined by the quality of teacher - student interaction, which is bounded from both sides by the dynamics of rights and responsibilities. Their mutual and balanced complementarity is the guarantee of invention, initiatives imaginativeness - both for the teacher, as well as for the student. The prospect of a student, and not just in terms of his success in the professional orientation, is unambiguously affected by not easy, and certainly not socially appreciated work of his teacher.

References:

[1] Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning (2006/962/EC). Annex: Key competences for lifelong learning A European reference framework. OJ, L 394, 30.12.2006, p. 10-18.