A pilot study of students' self-actualising phenomena at a technical university

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ABSTRACT: The objective of this article is to demonstrate the quantitative and qualitative indices of the spontaneous self-actualisation of the Electrotechnical Faculty students at Donetsk National Technical University, Donetsk, Ukraine. A questionnaire was used to identify the values of objective reality that reflect upon the definite necessities of life. An analysis of the responses to the questionnaire is summarised in this article. It is based on students' self-actualising aims in the scope of the academic year. In this article, the problem of self-actualising in the context of the conditions at a higher technical school is considered at some length for the first time. In its entirety, the article touches on the important problems associated with an objective assessment of the students' psychological state that is caused by the conditions connected with major changes in the Ukraine educational system being currently converted to a model of education corresponding to the Bologna Declaration and fulfilling the European Standards.

INTRODUCTION

After entering the university, the flow of new knowledge significantly reduces the kaleidoscope of youthful dreams, these being ousted because of the rigorous demands of educational deadlines. Students' real needs increase during this stage of their academic career, and different *needs* are their responses to the new passions [1-6]. Using Maslow's terminology, newly acquired values are *meta* needs directed at widening the scope of knowledge and specifically their cultural wealth.

It is apparent that the scope of the above mentioned needs is narrower for students as compared with people of a more mature age, i.e. those aged over twenty-five years and older. This age- and experience-based difference means that comparative interests of the two groups can be gauged. Therefore, it is possible to investigate students' self-actualising aims by analysing the results obtained from a completed questionnaire.

It is evident that the questionnaire results provide a psychological insight that is necessary for providing students with moral support and encouragement in the context of their self-actualisation choice. It also allows for the development of recommendations for improving the educational process as a whole. Of particular interest is an analysis of changes over time in the students' choice of self-actualising aims: from semester to semester and year by year for the same academic groups when obtained with the use of the same questionnaire.

SELF-ACTUALISING ACCORDING TO MASLOW

According to Maslow, the motivation spheres of personality consist of a series of hierarchically subordinated groups of necessities, including the necessities of life in the struggle for self-actualisation: one strives to be that one could be [6]. The latter thesis corresponds in full measure to the aim that is posed in the process of education at higher technical schools.

Also according to Maslow, the aim of teaching is not in mastering new information or new skills (formal teaching) but rather helping people to become better human beings (true teaching). As this takes place, the self-actuating people are drawn into activities which are of great values, so that the labour and the joy of life cannot be divided. Such values are presented structurally into fourteen groups of values of being (*meta-necessities*). Suppression of the latter B-values can result in various *meta-pathologies*. According to Maslow's assertion, B-values are the meaning of life for most people in spite of the fact that the majority of them do not suspect that they have the mentioned *meta-necessities*.

The capability for self-actualisation is considered by Maslow to be the inherent ability of people to be independent of

their social conditions. Besides, as shown in an investigation carried out by Huizinga [7], all the needs identified by Maslow were found in all social classes and professional groups (with the exception of students). Further, it is Maslow's opinion that there is a meta-motivation level of necessities in truth, kindness, beauty and justice. These necessities are all of a higher order than the level of basic motivations.

The ways of personality behaviour that lead to self-actualising, as well as their characteristic features, can be summarised as being the following:

- Lively and disinterested emotional experience with the total concentration and complete absorbing into thoughts;
- Uninterrupted process of separate self-actualisation choices;
- Self-actualising of the one's *own I* by heeding the voice of the inner pulse;
- Self-actualisation is always based on assumption that the man takes the responsibility upon himself;
- Self-actualisation is assumed to be an independent opinion, i.e. non-conformism;
- Self-actualisation is not only the final result but the whole process as well;
- Self-actualisation includes the highest emotional experience at the point in time when the decision is taken;
- Trying to find the sense of one's own life demands the destruction of one's own psychopathology.

As a summary to his investigations, Maslow pointed out that he was unaware of how the information in the data obtained by him would be useful when applied to young people.

CHARACTERISTIC FEATURES OF THE STUDIED PROBLEM

It is apparent that the general structure of values at the students' self-actualising should not essentially differ from the block of fourteen values considered in Maslow's theory.

The investigation reported on here was conducted among personalities (students) in a social group that lacks sufficient maturity, as they are in the course of moulding and developing their professional skills and acquiring their creative habits. This distinguishes them from the basic principle of Maslow's theory, which assumes that self-actualisation objects are personalities with a high degree of psychological maturity. Nevertheless, the changes of the self-actualisation values of being in the course of training and developing the student's personality when keeping the values of the professional orientation, are of the principal interest.

The distinction between the activity of specialists in industry and students in a technical university can be considered by comparing the stacked structures of their professional and educational guidance values shown in Figures 1 and 2. Both structural schemes reflect the interconnection between specialists and students with their surroundings and social environment. Both contain the following elements:

- Educational block of knowledge and skills (No. 1);
- Block of psychological components reflecting the action directed to fulfilling the accepted decision (No. 2);
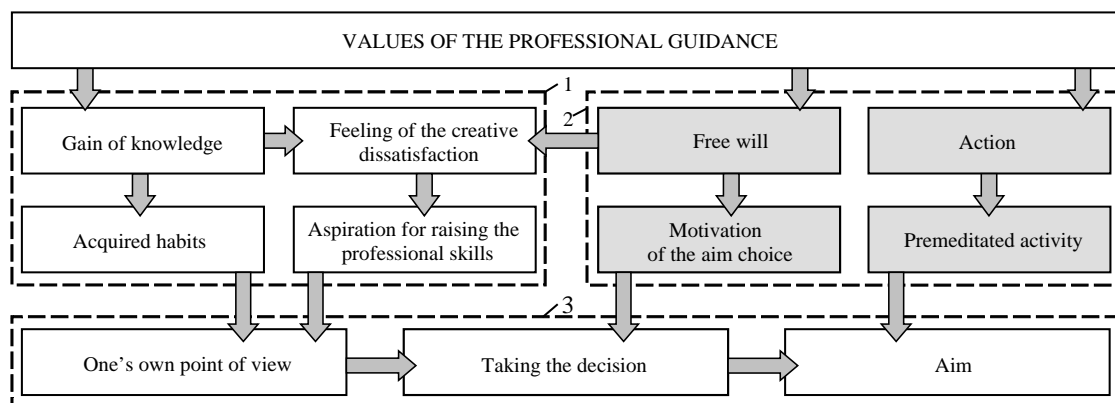- Block of achieving the aim (No. 3).

Figure 1: Stacked structure of the professional guidance values of specialists.

Both of the stacked structures contain analogous blocks of achieving the aim. The basic functions of free will, as it is shown in the Figures 1 and 2 (see the shaded blocks 2), come in both cases to the choice of motives and purposes; regulation of motives to the action; the organisation of psychological processes and adequate activity; and mobilisation of psychological and physical possibilities under the situations associated with overcoming the obstacles when attaining the aim.
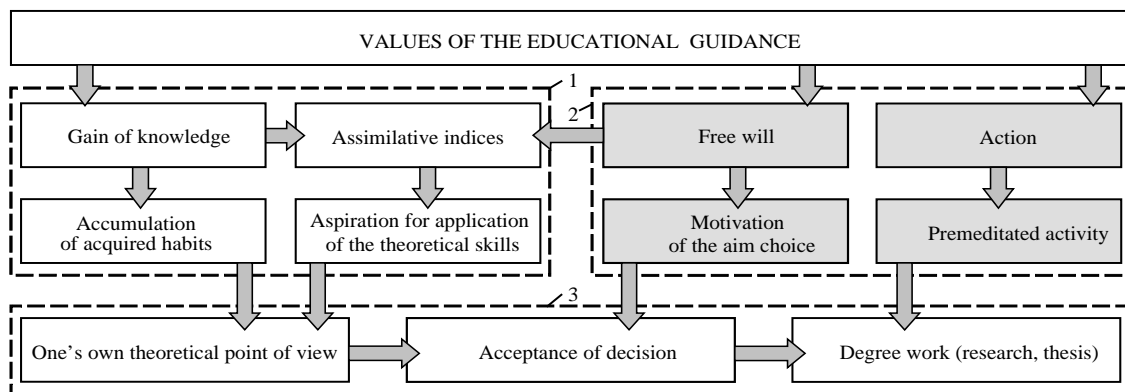
VALUES OF THE EDUCATIONAL GUIDANCE

Gain of knowledge → Assimilative indices ← Free will | Action

Accumulation of acquired habits | Aspiration for application of the theoretical skills | Motivation of the aim choice | Premeditated activity

One's own theoretical point of view → Acceptance of decision → Degree work (research, thesis)

Figure 2: Stacked structure of the educational guidance values of university students.

The following principal propositions can be attributed to the characteristic features of the self-actualising process at the university:

- Disinterested emotional experience (absorbing in the process of realising one's own capabilities)*;
- Self-actualising process reflects the manifestation of one's own I (the ego)*;
- Self-actualising is alien to conformism*;
- Period of time during training the student at the university offers more favourable conditions for the self-actualising as compared with the industrial ones and many others;
- Self-actualising at the university conditions does not appear to be the choice of the final aim;
- Self-actualising at the university conditions may be considered as a means against the psychopathology;
- Self-actualising at the university is realised under the favourable social conditions: the students are virtually free from the society demands; influence of the behaviourism and the Freudian ideas are practically unfeasible;
- Self-actualising is favourable for acquiring by students the individual experience of getting to know the social surroundings by experience during realisation of the every choice.

The asterisk above indicates the provisions that coincide with the analogous provisions proposed by Maslow.

Table 1: Choice of the self-actualising aims by students in the scope of academic years.

No. of question	Years of study				
	1st	2nd	3rd	4th	5th
	Quantity of students (persons)				
	165	142	145	103	120
	Total, $\dfrac{Male}{Female}$ (on a percentage basis)				
1	$24.8 \dfrac{18.8}{6.0}$	$30.3 \dfrac{19.7}{10.6}$	$25.5 \dfrac{17.2}{8.3}$	$28.1 \dfrac{18.4}{9.7}$	$30.8 \dfrac{25}{5.8}$
2	34.5	37.5	26.9	31.1	11.7
3	12.1	7.0	6.2	9.7	6.7
4	10.9	12.0	11.7	6.8	8.3
5	1.2	1.4	2.1	5.8	3.3
6	5.4	8.4	12.4	7.8	8.3
7	9.7	0.7	8.3	6.8	3.3
8	29.1	24.0	28.3	24.3	19.2
9	8.5	40.8	28.3	35.0	34.2
10	23.0	35.9	26.2	16.5	19.2

Without question, training the younger generation at university is connected not only with academic teaching but also with changing their psychological interests also under the self-actualising processes. Obviously, a lack of self-confidence prevents the personality from developing and makes it possible to restrict the sphere of potential possibilities of the student's self-actualisation.

COMPONENT ANALYSIS OF THE TEACHING PROCESS REFLECTING UNIVERSITY STUDENTS' INTERESTS

It is believed that the university social environment brings into being the conditions necessary to put forward the hypothesis about the rightful broadening of Maslow's scope of B-values. This assumption is based on the following:

- The choice of speciality by young people when entering the university, as a rule, is based on the subconscious level;
- Values of the university's being, other than cultural wealth, generally are not beyond the scope of the specific kinds of studies connected only with professional activities in the future.

In other words, demonstration of a keen interest in the studies and overstep the limits of the syllabus can be considered as the self-actualising cases.

The students' interests in the sphere of the higher technical education allow for the distinction to be drawn between the following groups of components:

- Those, which coincide with the values of being determined by Maslow and connected with broadening of the formal curriculum;
- Those directed to solving of the purposeful problems connected with future job placements or family relations.

The questionnaire presented in the Table 2 embraces in full measure the range of students' interests. Questions 1-6 of the first group are related to the self-actualising values of being. Question 7 falls to the necessity that the inner call from the standpoint of self-actualising by Maslow is combined with the deliberate need to obtain a profound education. The aims of the second group reflected by questions 8-10 cannot be referred to the self-actualisation.

Table 2: The content of the questionnaire.

No.	Self-actualising aims
	Point out the aim of your aspiration at the moment:
1	- to be accustomed to the spiritual values: music, painting, *belles lettres*, poetry, religion, …(another kind of values) ...;
2	- sport;
3	- profound study of a foreign language;
4	- teaching for acquiring two professions at the same time;
5	- taking part in sub-faculty scientific research work;
6	- learning to master the new methods of computerisation;
7	- extending my knowledge in all disciplines by handling of all the manuals and methodical tutorials;
8	- extending my knowledge in the disciplines to be required for carrying out my duties at the concrete employment on graduating from the university;
9	- combining study at the university with work at the employment;
10	- emotional experience of love.

It is evident that the answer to Question 9 in an indirect way reflects the living standard at home and Questions 3-7 are connected with the conscious extension of study hours to increase the levels of self-appraisal and self-esteem of the student's personality and to command the respect of all students in the academic group.

However, a number of Questions (4, 6) are of the quasi-utilitarian character conforming to the future advantages. In these cases, it is difficult to distinguish between the voice of the inner pulse, conformism or foreseeing of the future activity.

It is important to note that the questionnaire results as a whole will reflect upon the influence of the social conditions in society at the period of transition from socialism to a Western-style democracy in the Ukraine, with no recommendations of the imperative character in the state system of the higher education. The indirect evidence of the above mentioned influence is reflected in the questions of the second group (8-10).

The questionnaire was supplemented with a question that demanded an answer to a categorical opinion: *Doubt as to my choice of specialty was right (YES/NO).*

QUESTIONNAIRE-BASED ANALYSIS OF THE STUDENTS' SELF-ACTUALISING

The questionnaire was presented to the students of the Electrotechnical Faculty training in electrotechnic specialities such as *Electrical Power Plants*, *Electrical Systems and Networks*, *Electrical Supply of Industrial Enterprises* and *Automatic Electrical Drive* during the fourth and fifth weeks of odd semesters during the 2007/2008 academic year. There were 873 students registered in the Faculty. Due to low class attendance rates only 675 students responded.

The quantitative indexes of questioning the students are presented in Table 1 and shown in Figure 3. The detailed analysis of spiritual values is presented in Figure 4.
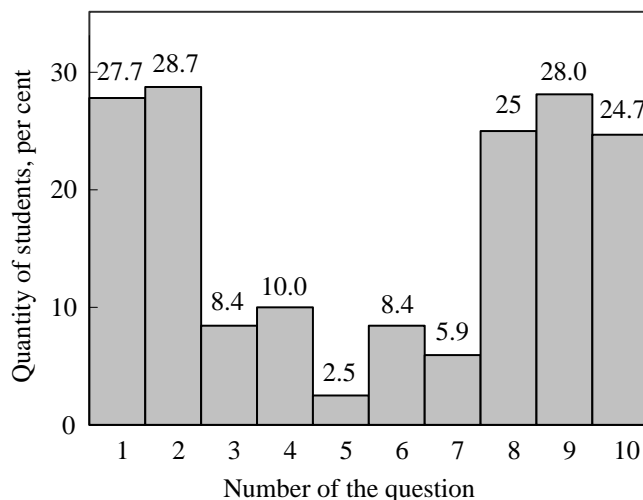

Figure 3: Choice of the questionnaire aims by students of the Electrotechnical Faculty per five academic years.
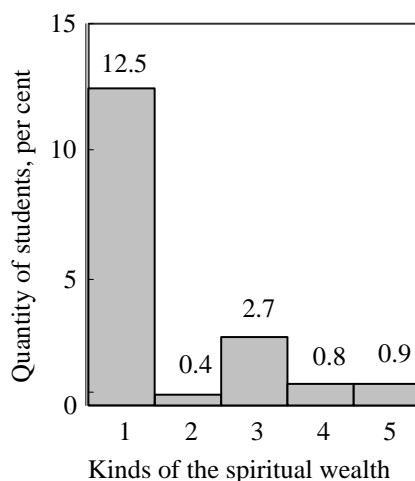

Figure 4: Student's interests in the sphere of concrete spiritual wealth per 2nd – 5th academic years: 1 – music; 2 – painting; 3 – literature; 4 – poetry; 5 – religion.

The analysis of Table 1 and the presented Figures makes it possible to note the following peculiarities:

- In contrast to industrial conditions, the self-actualisation of the university students in the sphere of sport is realised not only as necessary relaxation or rehabilitation of their capacity for mental work, but the self-actualising act as well. Under the circumstances some doubts are cast upon the classification of the students' responses to the second question listed in Table 2 because, as it follows from Table 1, positive responses to the second question obtained at the fifth year of study decreased by approximately threefold;
- On the spiritual side, students' replies are more reliable but this kind of self-actualisation, unfortunately, is characterised by the moderately low indexes (28.6%) in view of the fact that the social and economic students' conditions of life are highly unfavourable. One should bear it in mind that the interests to the sphere of spiritual values are associated with the self-dependent cognition in the sphere of self-realisation [8];
- Unfavourable social conditions in the country manifest themselves in holding the teaching at the university and the unskilled casual work (34.5%);
- Teaching at the same time in two specialities (10.0%) reflects, to a certain degree, the students' doubt as to the proper choice of speciality (39.8%);
- The extreme low interest manifests itself in the students' questioning for taking part in scientific research work (2.5%).

The indexes, given above in the round brackets, reflect the average data which take into account the virtual quantity of participants being a part of separate academic groups forming four specialities and five courses of study.

A more than twofold increase of the index at the fourth year of study (5.8 per cent) does not change the overall appraisal of the student's relation to the self-actualising aim under consideration. The unexpected outcomes obtained reflect the present-day social requirements in the sphere of science.

Figure 5 presents the unexpected results under examination of the students' opinion as for their choice of speciality in the sphere of electrical and power engineering.
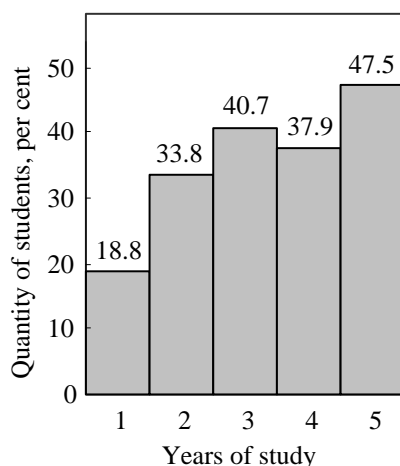

Figure 5: Changes in the students' opinion with regard to the proper choice of speciality.

It is believed that the annually increasing number of *YES* responses is a reflection of the students' uncertainty in their choice of speciality. In turn, this is a consequence of the prolonged transient period from the development on planned lines in the education system to the self-regulating market of job placement.

It is understood that annual quantitative indexes of self-actualising indirectly reflect the prospects in the progress of scientific and technical potentiality of the country in electrical power engineering.

CONCLUSION

Classification of the students' aims in the self-actualisation sphere of the technical university was proposed and quantitative characteristics of the students' interests in the activities of the Electrotechnical Faculty were obtained.

The hypothesis concerning the possibility of broadening the scope of the B-values, proposed by Maslow, under the educational process in the technical university was put forward.

The annual questionnaire findings can be used for an analysis of changes in students' interests over time and for the perfection of the educational process at the Electrotechnical Faculty.

ACKNOWLEDGEMENTS

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