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THE RESEARCH OF THE IDEAL AND REAL IMAGES OF A TEACHER OF A TECHNICAL UNIVERSITY BY THE METHOD OF SEMANTIC DIFFERENTIAL

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Abstract:

The relevance of the study of the image of the ideal teacher lies in the fact that in modern conditions it is important to study not only the professional competencies of higher school teachers, but also the perception of teachers by students, since the latter are the main subject of the higher education system in Russia. The study was conducted on the basis of the Moscow Aviation Institute (NIU). It was attended by 200 students of the 2nd-3rd year studying at technical faculties. The method of research was the modification of the semantic differential of Ch. Osgood, during which students themselves constructed bipolar scales and determined their significance. The study showed that the most significant characteristics of an ideal teacher for students are clear / incomprehensible presentation, responsiveness/non-responsiveness, bias/objectivity. Such scales as literate/illiterate speech, technical backwardness/advancement, modernity/non-modernity, ability/inability to interest also received high marks of significance. The greatest discrepancy between the image of an ideal teacher and real teachers for future engineers is observed on the scales of technically backward/ advanced, responsive/unresponsive, modern / non-modern young/old. According to the other scales, the discrepancy is less significant. The calculation of the semantic differential showed that there is a discrepancy between the images of the ideal and real teacher (1,7 out of 7), but it is not critical. Despite the fact that the gap between the images of the ideal and real teacher is generally small, some problems were identified. Many students expect more understanding and loyalty from the teacher, but this does not mean that they would not like to see an absolutely "soft", undemanding teacher. They expect responsiveness, respect and an individual approach. Students are not fully satisfied with the level of technical advancement of university teachers, which is largely due to their age characteristics. Based on the data obtained, it is necessary to improve the degree of proficiency of teachers in technical means of teaching and communication, as well as the process of not only professional, but also personal communication with students.

Keywords: the image of an ideal teacher, the qualities of a teacher, technical advancement, future engineers, the method of semantic differential.

Introduction

In the last decade there have been significant changes in the “teacher-student” relationship which are connected with the transformation of requirements for teachers and students. The traditional (vertical) type of interaction between teachers and students is becoming a thing of the past. It is replaced by a newer approach based on the interactive dialogue in the conditions of increasing the information and the acceleration of the pace of its practical and professional application (Vasilyeva, 2007). The student is increasingly becoming a partner of a teacher in

the educational process, an active participant in joint activities with the teaching staff (Cheremiskina & Raschupkina, 2019; Baranova et al., 2020).

Education has long been focused on the student as a consumer of services, therefore, the opinion of this group about teachers is very important. It is necessary to identify students' expectations from teachers, to receive from them assessments of the teaching process and feedback in various forms. In some universities teachers have become largely dependent on student's feedback, but students still cannot fully assess the competence of teachers due to the lack of necessary knowledge and training. Students' marks can be influenced by the complexity of a subject, personal relationships with teachers, unwillingness to make efforts to get the desired result and many other factors. Therefore, in modern education, much attention is also paid to assessing the competencies of teachers according to formal indicators and using experts (Annenkov, 2015; Pochestnev, 2020). But it's obvious that students' opinions and ideas can't be ignored since they are an important tool for ensuring the quality of the educational process (Yagudina, 2011).

The image of a teacher can be considered as the ideal qualities of a teacher from the point of view of students' perception (Prokhoda, 2015: 106), as a set of students' ideas about the ideal teacher who positively affects students' involvement in the educational process.

To identify the image of the ideal teacher, much research is being conducted in various universities.

The works of E.N. Larina (2013), Z.A-M. Albakova (2015), G.E. Efimova, A.N. Sorokin and M.V. Gribovsky (2021) and many other Russian scientists are devoted to the consideration of the ideal image of a teacher. G.E. Efimova, A.N. Sorokin and M.V. Gribovsky (2021) distinguish three main categories in the image of the ideal teacher: personal qualities, competencies and skills necessary for the implementation of the research process. A.A. Puchkov notes that students start to pay more attention to professional qualities than to personal ones (2012).

In the course of the research conducted by Russian scientists it was revealed that the ideas about the ideal teacher depend not only on the university, the course, the direction of training (Egorov, 2013; Prokhoda, 2015), but also on the personal orientation which is determined by psychological testing (Cheremiskina & Raschupkina, 2019).

In some works, the concept of the teacher's image is used, the core of which is considered "competence as education in the subject area and didactic culture" (Sysoyeva, 2009: 126). A.A. Tarakanova (2012: 71-72) notes that the image of a teacher is "a kind of business card of a teacher which informs others the necessary information about him" and "depends on the style of pedagogical communication".

The analysis of scientific literature shows that the majority of domestic authors relatively often describe the image of a teacher, based on the results of quantitative research (questionnaires, testing) (Larina, 2013; Cheremiskina & Raschupkina, 2019). Standardized methods do not always allow to understand how students really think, which images dominate their ideas.

Foreign researchers often turn to the qualitative and quantitative methods to study the image of the ideal teacher. One of the most popular methods is the content analysis of students' mini-essays or compositions. For example, Romanian scientists studied 77 essays of students of humanities faculties (Rusua, Şoitu & Panaite, 2012: 1018), as a result, it was revealed that students value the communication skills of a teacher, knowledge of psychology, justice, good knowledge of his subject, intellectual development and respect for students. American researchers used the content-analysis method to analyze 600 works (mini-essays) on the image of the ideal teacher (Chang-Kredl & Colannino, 2017: 43). Students expect that the ideal teacher will be smart, attractive, with a sense of humor, strict but fair. N.A. Omar et al. (2014) with the help of content-analysis of the essay revealed that it is important for students to see a polite, cheerful, friendly, erudite and punctual teacher who will show interesting presentations, give examples on the topic of classes (Omar et al. 2014: 186).

Nevertheless, Russian scientists in their works also use qualitative methods: interview (Efimova, Sorokin & Gribovsky, 2021), focus groups (Borichevskaya, 2018), content-analysis of mini-essays (Sysoyeva, 2009). During the focus groups with students, E.I. Borichevskaya (2018) concludes that it is important for students that the teacher not only develops them, but also develops himself, has an active life position, treats students as colleagues. Content-analysis of students' essays revealed a negative image of the teacher as arrogant and inflexible that contradicts the image of the ideal teacher (Sysoyeva, 2009: 127).

The author of this article uses a modification of the projective technique of the Osgood semantic differential, in which students are not imposed with the template answer options. This method has been chosen due to the fact that the obtained quantitative estimates are based on the answers coming from the students themselves, so they have a qualitative basis. In our opinion, it allows to clearly identify the most significant characteristics of teachers for students and the specifics of the opinions of future engineers.

The purpose of this article is to identify the image of the ideal teacher of a technical university from the students' point of view, compare it with the image of the real teacher, determine the difference between these images and give recommendations for improving the teaching style and communication with students.

Methodology and Methods of Research

To determine the image of the ideal teacher of a technical university, a modification of the Osgood semantic differential method was used (Tatarova, 1999). The semantic differential makes it possible to detect elements of poorly reflected structures of consciousness that serve as the basis for the formation of stereotypes and value representations (Sikevich, 2016).

The difference from the standard methodology is that students themselves have designed bipolar scales (from -3 to +3), which are significant for evaluating the ideal and real university teacher.

The research involved 200 students of the 2nd and 3rd years of education of the Moscow Aviation Institute (Scientific Research Institute). Most of the respondents were men (80%) studying at the 2nd and 3rd courses of technical faculties. The share of girls was only 20%, which is due to the predominance of male representatives in the general population.

The research of the image of the ideal and real teacher by the method of semantic differential included several stages: the formation of bipolar scales by the students themselves, the determination of the weight (significance) of each scale by the respondents, the assignment of marks on each scale according to the images of the ideal and real teacher, the calculation of average grades based on them, discrepancies in average grades between ideal and real teachers.

To calculate the semantic differential, 6 scales were selected which are attributed to three factors: Strength, Activity and Attitude. Based on the results obtained on these scales, conclusions about the proximity of images of the real and potential teacher were drawn.

Results

At the first stage of the research of the image of the ideal teacher of a technical university students were divided into groups of 10 people. Each of them had to formulate 5 dichotomous scales for evaluating the image of the ideal and real teacher. As a result, 100 scales were received. However, many of them were quite similar or contained synonymous expressions. For further research, 17 scales were selected and grouped into 6 categories (Table 1).

Table 1. Bipolar scales formed by students to assess the image of a university teacher

Category	**Scale (from -3 to +3)**
1. Style of the material presentation	Incomprehensible presentation – comprehensible presentation
	Illiterate speech – literate speech

	Unable to interest – able to interest
	Technically backward – technically advanced
2. Attitude to students	Unresponsive – responsive
3. Knowledge assessment and control system	Biased – objective
	Strict – soft
4. Knowledge of the subject and attitude to it	Ignorant – competent
	Not passionate about the subject – passionate about the subject
5. Personal qualities	Unpunctual – punctual
	Ordinary – charismatic
	Non-authoritative – authoritative
	Without a sense of humor – with a sense of humor
	Boring – interesting
	Non-modern – modern
6. Appearance	Untidy – tidy
	Young - old

The largest number of scales were constructed according to such categories as "Personal qualities" (6 scales) and "Style of the material presentation" (4 scales). This suggests that future engineers in the image of the ideal teacher pay special attention to how the teacher presents the material and what personal characteristics he has.

For the remaining categories ("Attitude to students", "Knowledge assessment and control system", "Knowledge of the subject and attitude to it", "Appearance"), 1-2 scales are left. When formulating bipolar scales, special attention was paid to the technical advancement and age of teachers.

It is obvious that each of the constructed scales has a different importance for the respondents. In this regard, they were rated by students from 0 to 1, where 1 is the highest significance.

The average results of the significance of the scales are presented in Table 2. The most important scales for evaluating university teachers were: comprehensible/incomprehensible presentation (0.9), responsiveness/unresponsiveness (0.9), bias/objectivity (0.9). Such scales as literate/illiterate speech, technical backwardness/advancement, modernity/non-modernity, ability/inability to interest also received high ratings of significance (Table 2).

Table 2. Assessments of the ideal and real teacher from the students' point of view

Scale (from -3 to +3)	Average value, ideal teacher	Average value, real teacher	The difference between the values of the ideal and real teacher	Scale significance
Incomprehensible presentation – comprehensible presentation	3	2	1	**0,9**

Illiterate speech – literate speech	3	2,4	0,6	**0,85**
Unable to interest – able to interest	3	2,4	0,6	**0,8**
Technically backward – technically advanced	2	0,5	**1,5**	**0,85**
Unresponsive – responsive	3	1,7	**1,3**	**0,9**
Biased – objective	2,5	1,5	1	**0,9**
Strict – soft	0,5	-0,5	1	0,7
Ignorant – competent	3	2	1	0,65
Not passionate about the subject – passionate about the subject	2	1,2	0,8	0,5
Unpunctual – punctual	2	1	1	0,55
Ordinary – charismatic	2,5	1,5	1	0,6
Non-authoritative – authoritative	2	1	1	0,75
Without a sense of humor – with a sense of humor	1	1	0	0,4
Boring – interesting	2,5	1,5	1	0,5
Non-modern – modern	2	0	**2**	**0,8**
Untidy – tidy	2	1	1	0,5
Young - old	0,5	-1	**1,5**	0,75

It is important for students that the teacher brings his material to them in an interesting and accessible way, has a literate speech. Here, the maximum estimates were obtained (+3).

Based on the average grades, it must be noted that students see the ideal teacher as a punctual, charismatic, authoritative, interesting and modern person. At the same time, the average score on these scales is from +2 to +2.5. As for a sense of humor, it should be present in a moderate amount (+1).

Students would like to see a teacher who is quite progressive in technical terms (+2). This characteristic is especially important for students of technical specialties.

Students would also like teachers to be responsive (+3), almost completely objective (+2.5) in assessing their knowledge, and only a little bit "soft" (+0.5). Despite the fact that students expect understanding, objectivity and support, they would not like to see a teacher too soft and undemanding.

The ideal teacher should know his subject well (+3), but at the same time not be too keen on it (+2).

We would like to pay special attention to the category "Appearance". Its emergence is due to the fact that there are a lot of elderly teachers at technical faculties, this fact has both pros and cons. It should be noted that students would like to see a person close to middle age as a teacher. According to tech-students, the optimal age range for a teacher is from 30 to 50 years, and the maximum age is 70 years (Kogan, 2016). At the same time, students-teachers value older teachers more than younger ones because of the illiteracy of the speech, vulgarity and lax style of the latter (Kolmogorova & Spiridonova, 2017). In addition, the neat appearance of a teacher also appeals to future engineers (+2).

The greatest difference between the image of the ideal teacher and real teachers is observed on the following scales: technically backward/advanced, responsive/unresponsive, modern/non-modern, young/old. Students believe that teachers are not technically advanced enough (0.5), not fully responsive (1.7), rather non-modern (0) and not young (-1). At the same time, we note that the first three scales are highly significant for students.

Many elderly teachers working at technical faculties, on the one hand, have deep knowledge and experience, but, on the other hand, they cannot always present information in an interesting, lively way and using modern technologies.

According to the scales, the difference between the images of the ideal and real university teacher is less significant (0.8-1) – clarity of presentation, knowledge of the subject and passion for it, the degree of objectivity, strictness, punctuality, charisma, authority, interest, neatness of appearance. Note that in 3 scales there is minimal or no difference at all. So, students believe that a sense of humor of university teachers is at the normal level. Literate speech and the ability to interest are also approaching ideal values.

Thus, according to the scales, differences in the assessments of the ideal and real teacher are recorded, but they are of an uncritical nature.

In order to reveal the degree of proximity between two objects – the ideal and real teacher in the students' representations not on separate scales, but in a generalized form, – we resorted to calculating the differential (Tatarova, 1999: 104). From the previously presented 17 scales, 6 were selected, which relate to the factors "Strength", "Activity" and "Attitude" (Table 3). It should be noted that almost all the selected scales were of high importance for students.

For each of the factors, the average grades for the ideal and real teacher are calculated (Table 3).

Table 3. Correlation of the scales with the factors of the semantic differential

Factor	Scale (from -3 to +3)	Average ratings by factor, ideal teacher	Average ratings by factor, real teacher
Activity	Technically backward – technically advanced	1,25	-0,25
	Young – old		
Attitude	Unable to interest – able to interest	2,8	1,86
	Unresponsive – responsive		
	Biased – objective		
Strength	Strict – soft	0,5	-0,5

Based on the average ratings by factors, the value of the differential was calculated, by which it is possible to judge the proximity of the images of the ideal and real teacher. As G. G. Tatarova notes, to find the distance between these images, it is enough to take two key factors (in our case, this is "Attitude" and "Activity").

The differential value calculated by the formula: $D(A, B) = \sqrt{\sum_{i=1}^{k} d_I^2}(A, B)$ was 1.77. In order to interpret this value, it is necessary to understand the possible minimum and maximum. So, the minimum value for the maximum proximity of the images will tend to 0. The maximum value, provided that the average factor ratings for the real teacher are low, will be more than 7.

Thus, the obtained values indicate that the images of the ideal and real teacher differ but not much; nevertheless, there are problems associated with technical advancement and some aspects of communication with students.

Discussion and Conclusion

This research once again showed the high relevance of several problems existing in technical universities. Firstly, this is the problem of teachers' knowledge of modern technologies. Today's students are mostly well-versed in modern means of communication, various technical programs, but at the same time they expect that teachers will be at a higher level and will be able to teach them something new in this area. This is also evidenced by the desire of students to see teachers modern and progressive. This is directly related to the issue of aging of the teaching staff of technical universities. This problem is widely known and quite complex, since, on the one hand, there are very few young personnel who can replace the older generation; at the same time, many elderly teachers want and are ready to work for a long time. Taking into account the request of the students, it is necessary to motivate young talented graduates to stay at the university in order to pass on their knowledge to the next generations.

Another problem is related to the nature of communication between students and teachers. The request for a high degree of responsiveness implies not so much loyalty and softness, but rather the flexibility of the teacher in relation to each student, an individual approach to him, the opportunity to get help in difficult situations. Thus, students want to see the teacher not as a subject of evaluating their knowledge, but as an assistant, mentor, older friend.

The assessments obtained during the research showed the need to improve some aspects of teaching at a technical university. It is obvious that it is necessary to increase the level of teachers' proficiency with technical means of teaching and communication with students. This is especially relevant in the context of online education.

The results of the research can be used to develop specific measures to improve the educational process in a technical university. Nevertheless, based on the data obtained, we can recommend the following:

1) To strengthen the development of technical means of communication and technical programs by teachers in the framework of professional development.

2) To conduct trainings for teachers on communication with students.

3) To involve young graduates-practitioners in teaching.

The problem of aging of the teaching staff of technical faculties is not easy to solve, it requires an integrated approach.

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