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Professional Culture of the Specialist of the Future

TO THE TECHNOLOGY OF FORMING GENERAL CULTURAL COMPETENCY OF A FUTURE ENGINEER

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Abstract

General cultural competency is considered as an integrative quality of a future engineer concerning his potential for self-realization in his future career. A text-oriented approach is used in developing the technology of the general cultural competency formation in the process of language education at a technical university. The correlation of a number of skills of general cultural competency with most textual skills developed in the process of language education allows to look upon textual activity as a developing medium for the formation of the targeted competency. The technology of its formation is characterized as a humanistic activity-oriented technology having developing and penetrating character and targeting the formation of a student's general cultural competency through his self-actualization in the process of textual activity. The variety of methods and forms of education involved in the textocentic technology implementation as well as the diversity of general cultural skills being developed in the process of textual activity are shown to be indicative of the multi-component nature of the culture of textual activity itself - in keeping with cognition/language and communication/speech planes of a student's self-actualization in the process of language education. Textual activity being found useful in mastering different types of culture relevant for a student's self-actualization, the development and application of the textocentric technology of the general cultural competency formation are regarded as a meta-subject pedagogical task in the process of a future engineer's training.

Keywords: General cultural competency, textual activity, textual competency, self-actualization, textocentric technology.

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1. Introduction

Modern education challenged by social demands of the society is aimed not only at training a highly professional specialist but at developing his personality, unveiling his potential, growing his self-awareness, searching for the ways of his self-realization. A modern educational paradigm is known to be culture-oriented in its character addressing the fundamentals of culture as the basis for the personality development. One of the principal traits culture is made up which has to be developed in the process of education is general cultural competency of a student.

According to the Federal State Educational Standards a graduate of a technical university has to master a certain number of professional and general cultural competences. If the formation of professional competency is in the focus of the training programs in fundamental sciences and subjects of specialization, the task of developing general cultural competency is accomplished first of all by virtue of humanistic education. This is explained by the very concept of general cultural competency as an integrative quality of a student's personality determined by his experience in mastering cultural and educational space, the degree of acquiring different types of culture and the level of his humanistic education necessary for successful implementation of professional, social and (inter)cultural activity (Klementsova, 2015, p. 124).

2. Problem statement

The development of general cultural competency, as applied to a student of a technical university, implies encouraging his abilities in thinking clearly, building his oral or written speech logically, participating in business and professional communication efficiently, i.e. in making presentations, taking part in discussions, defending his point of view, reading and translating texts in one of the foreign languages, etc. This suggests that among all the humanities disciplines taught at a technical university it is language education that does much to develop general cultural competency of a student, the explanation being contained in the significance of semantic and communicative aspects of the process. Besides, nearly all issues of intercultural communication are also tackled in the process of foreign language teaching, which brings language education to the front position in the development of general cultural competency.

In its turn, content analysis of the concept of general cultural competency revealing the significance of its semantic and communicative character suggests referring to text as a unit of cognition and communication in search of the basis for this competency development. The question concerns the use of text in developing the ability to acquire cultural products as a result of their study and comprehension (cognitive component of general cultural competency), to master cultural and educational space (value-orientation component) and to carry out cultural activity and communication (communicative activity component) (Alexankov, Trostinskaya, & Pokrovskaia, 2018; Trojanskaja, 2004).

Text is known to be a unique didactic unit exhibiting polyfunctional nature (Dakowska, 2016). Representing an ingenuous manifestation of thought and being used as an instrument of social interaction of people, text represents an objectified form of communication allowing to model the processes of its production and comprehension and providing the basis for the development of communicative and cognitive competencies of a student.

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Text is used in educational process to teach students to extract information adequately and produce speech correctly, to communicate both professional and cultural content, to gain knowledge of lexical and grammatical organization of language, to learn ways to organize and present their ideas clearly, etc. Text implicitly contains methods of mastering all types of information: educational, professional and cultorological (Vojtick, 2004). Taking account of similar circumstances allows to speak of a person's knowledge of text and his ability to implement textual skills on the base of this knowledge as of his textual competency (Bolotnova, 2009, p. 152).

Textual competency is realized and developed in the process of textual activity which is regarded as a system of actions based on knowledge, skills and abilities that permit to produce, perceive and interpret texts (Zherebilo, 2010). The concept of textual activity seems to be the most useful for the humanities education, training in textual activity involving gaining knowledge of the schemes of text perception and text production typical of the culture being learned. Thus, proficiency in textual activity may be looked upon as an indicator of general culture of a student that the educational programs of a modern technical university is aimed at in the terms of general cultural competency of its graduates (Klementsova, 2018). Culture of language, culture of speech, culture of communication, culture of thinking as components of general culture of a person are developed in the process of language education, while mastering of these types of culture represents both the conditions and the means of a student's personality development achieved in the process of his textual activity in the language classroom.

Such an approach allows to consider textual competency as a value that is intimately involved in the development of general cultural competency. The clues to the relationship between general cultural competency and textual competency have been proved to lie with the developing potential of textual activity. The latter is relevant to other types of activity and corresponding types of culture essential for a person's self-actualization (cp.: language activity – language culture, speech activity – speech culture, communicative activity – communication culture, cognitive activity – cognitive culture) (Klementsova, 2015).

It should also be noted that developing different types of general cultural competency bearing a relation to textual activity and specific tasks of language education is in agreement with textocentism as a priority direction of a modern educational paradigm (Lopatuhina, 2003). Pedagogy as a human science targeting "mastering and transferring humanistic values" (Scherba, 1974) can't be aside of "text domination" in humanistic research carried out in our modern textualized society (Hébert, 2011; Rothkegel, 2015; Trosborg, 2010). These circumstances provide us with an extra reason for considering the possibilities of the text-oriented approach in studying the problems of the general competency formation of a future engineer.

3. Research Questions

The awareness of the fact that proficiency in textual activity is contemplated by the task of developing general cultural competency of a student allows to associate the improvement of a student's general cultural level with the development of his textual competency in the process of language education. This makes the text-oriented approach to the development of the technology of the general cultural competency formation relevant to general education of a student at a technical university, meanwhile

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raising a number of research questions. They concern the content of general cultural education at a technical university, the culture general training methods used in a language class, the scope of general cultural skills being formed in the process of language education, the particularities of the text-oriented approach implementation, the requirements to the texts and text tasks used in the process of language education, etc.

Acknowledged textocentism and culture-oriented character of language education have raised a number of issues concerning the relationship between culture of textual activity deploying in the language class and other types of culture being developed in the process of language education. Clarifying the conditions for textual activity to realize its developing potential within the framework of a specially designed technology is also assuming an importance.

4. Purpose of the Study

The aim of the present study is to develop an educational technology of the general cultural competency formation using the text-oriented approach and considering a full-fledged textual activity to be the quintessence of general cultural competency of a technical university student. The aim-oriented tasks of the study are related to describing the key features of the technology, establishing the conditions for its implementation, revealing methods and forms of education responsible for the process, selecting relevant texts, elaborating text tasks maintaining the efficiency of the technology.

Moreover, since the textocentric technology can be supposedly classified with a great number of known educational technologies aiming at improving the efficiency of the educational process, the task is posed to study the character of their correlation and to establish a place allocated to the textocentric technology of the general cultural competency formation in their hierarchy.

5. Research Methods

A number of scientific pedagogical methods form the methodical basis of the investigation: theoretical and methodological analysis – in clarifying the concepts and terms used in the research and in finding out the degree of advancement of studies of the problem under investigation; discourse reflection – in logical reasoning on the basis of the researcher's pedagogical experience of using textual activity and text processing techniques in educational process; the analysis of the best teaching practices – in determining the ways textual activity is used by traditional and innovative educational technologies; a pedagogical experiment – in obtaining information on the results of the developed technology implementation.

6. Findings

The availability of a textocentric conception of the general cultural competency formation (Klementsova, 2018), a wide range of the possibilities for the relevant technology implementation in a language class, interdependence and interconnectedness of all stages of the competency formation process, and possibilities to diagnose the efficiency of the process at each stage validate the status of the technology under investigation, emphasizing its conceptuality, reproducibility, systematicity and controllability. The study of the technology's most relevant features allows to characterize it as a humanistic activity-oriented

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technology having a developing and penetrating character and targeting the formation of a student's general cultural competency through his self-actualization as a person in the process of his textual activity.

The study undertakes an instrumental and procedural approach to describing the technology, since the latter being related to educational process (to the process of language education) provides for the formation of the target competency in the multistage process of textual activity. The approach allows to demonstrate a penetrating character of the textocentric technology of the general cultural competency formation explaining its involvement in other educational – primarily innovative - technologies. This feature of the technology in question can be explained by (1) the ability of language to act not only as the aim of language education but also as a medium of instruction which makes it possible to extract information from texts and produce one's own texts in a native or a foreign language – in accordance with the need; (2) an active use of text as information medium, a form of knowledge, a didactic unit, source of cognitive tasks, etc. by different technologies involved in the process of teaching various disciplines; (3) the dependence of efficiency of a number of educational technologies on the students' skills in textual activity related to their adequate perception and creative use of textual information.

The study makes an attempt to determine the degree of the textual activity involvement in the educational technologies most widely used in higher schools, textual activity of a student being considered as a prerequisite for his general cultural competency formation. The analysis takes into account the classification parameters of the technologies presupposing the use of textual activity (methodological approach, orientation to personality spheres and structures, lesson types, teaching aids and methods), methodical features of technologies, stages of a lesson involving the use of textual activity.

The efficiency of the traditional text processing techniques is familiar to all language teachers: giving a title to the text, dividing the text into parts, making up a plan, answering questions to the text, summarizing the text, etc. In terms of the general cultural competency formation the question here can concern the development of a certain group of skills – in language, speech, cognitive and informative activities. Nevertheless, the undertaken analysis has found out that it is the group of innovative educational technologies that takes priority in making use of a unique pedagogical potential of text as the highest unit of instruction, a polyfunctional educational instrument and the basis for unfolding textual activity which is a matter of principal for the general cultural competency development.

Intensification of textual activity along with other educational activities accounts for highlighting a separate direction of modernization of educational technologies represented by problem-based learning, project-based learning, game-based learning, interactive educational technologies. At the same time, textual activity is also actively involved in the implementation of other groups of educational technologies: technologies based on the efficiency of organization and management of training (programmed learning, individualized learning, collective learning) and technologies based on didactic improvement and reconstruction of teaching/learning materials (modular learning, integrative learning technologies).

There are several factors pointing to compatibility of the qualification parameters of the innovative technologies in question and the textocentric technology of the general cultural competency formation: activity-centered (communicative) and person-oriented approach; orientation to such personality spheres as knowledge and skills, mental actions, practical traits of a personality, personality control mechanisms; as well as the developing and reproductive-productive character of the technologies according to the

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assimilation of experience and the teaching methods used, respectively. Displaying certain compatibility of the innovative technologies with the textocentric one, these factors specify multi-vector character of the latter. To take one example, the problem methods of teaching actively used by the innovative technologies, followed by productive, creative, developing and dialogical methods of teaching, turn out to be naturally compatible with the use of textual activity as the principal attribute of the textocentric technology due to the very existence of problematic, creative (secondary), dialogical texts.

As for a developing character of the textocentric technology, it is primarily credited to a developing nature of any text involved in educational process, taking into account: (a) the mission of text recognized by a modern educational paradigm and linked not to a simple transmission of knowledge but to revealing and developing students' abilities in language, speech, communication, cognition, etc.; (b) participation of texts in developing the so called "verbal problem/communication/game situations" and in formulating problematic and/or productive questions; (c) the ability of texts demonstrating certain genre specificity (tasks, tests, quotations) to stimulate cognitive and speech abilities of the students; (d) creative use of texts (mostly secondary sources).

There is a good reason to believe that textual activity used by the innovative technologies manifests itself as a certain "activator" of a pedagogical process enhancing the development of key competences, organizing the acquisition of new experience, shaping thinking processes, denoting the directions of a student's self-actualization in many respects owing to his acquisition of competency in the field of general cultural values. It is recognized that the greatest potential in the field of mastering culture and, consequently, in developing general cultural competency of a student belongs to those innovative technologies that make use of a full-fledged textual activity presupposing a gradual passing through all of its stages, from the first acquaintance with a text and its initial understanding till the final stage of creative use of the knowledge gained.

The case in point is the group of the innovative educational technologies based on the intensification of the students' educational activity, project-based learning and various interactive technologies being the most efficient in developing general cultural competency. In the case of their use the targeted competency is represented by a full set of general cultural skills correlating with the textual ones, i.e. skills in the field of language, speech, communication, cognition and research, information processing, sociolinguistic and sociocultural interaction, professional activity and professional thinking, self-education and self-control (Klementsova, 2018).

At the same time, the textocentric technology of the general cultural competency formation making use of textual activity as of its indispensable part is quite expectedly becoming innovative in its character itself. It, as an example, imbibes features of problem-based learning participating in building a problem situation or in finding a way to resolve it. A student being faced with new, inconsistent or incomplete information (Barhajev, 2009, p. 178) is required to show independence and activity while searching for the missing information. This, in turn, changes the indicators of a student's cognitive processes and develops his culture of thinking and his personal information culture.

Similar work with text, inferring search for the missing information, can be arranged while performing communication game activities. Unequal distribution of problem-related information extracted

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from different texts by the students working in pairs makes it necessary to find out the unknown facts from each other. It stimulates students' speech activity and develops their culture of speech and communication.

Moreover, acquisition of the textual information favors the development of a student's perception, attention and memory, text taking a major role of input in the acquisition process. It is known that integration of authentic texts into language teaching serves to merge culture and context with language, provide engaging topics for students to explore and "offer a means for engaging in more challenging, higher-order thinking tasks" (Shrum & Glisan, 2009, p. 182). There is reason to believe that focusing on the content of tasks, mostly professional ones, allows a student as an adult learner to partially free himself from tension of mastering foreign language reality. This circumstance seems to transform text into a "simulator" of thought and language structures mastering. This is possible in the case of using textual tasks, textual format tests, textual instructions in a foreign language in the process of language education. These types of texts provide students with an opportunity to be plunged into a simulated professional situation thus turning their textual activity primarily into cognitive process and stimulating their cognitive and informative activity. Communicative success of such texts and tasks is also worth noting being predetermined by the interdependence of cognition/language and communication/speech planes of a student's self-actualization in the process of language education (Klementsova, 2015).

A lot of texts possess the ability in the field of cognition/language and communication/speech stimulation due to their genre specificity (e.g. quotations, advertisements, poetic texts). Such texts are considered to represent both the content of the developing technology and its tool. As for the functioning of the latter, i.e. procedural description of the technology, a staged formation of textual competency being involved in innovative pedagogical processes of activation and intensification of students' activity also gets a chance of enriching itself with a new content. It can be achieved by emphasizing: (a) the component of independent goal setting (at the stage of pre-textual activity), (b) the component of reflection and evaluation (at the stage of primary textual activity), (c) the component of evaluation and correction (at the stage of secondary textual activity), (d) creative component (at the stage of post-textual activity).

Thus, the task of predicting the content of a text, which is typical of the stage of pre-textual activity, can be extended to independent forecasting of text problems, as well as the aim and objectives of reading. An adequate comprehension of a text, as the task of the primary textual activity stage presupposes a student's reflection on the quality of his reading comprehension testifying to the self-assessment of his involvement in textual activity. Evaluative attitude of a student to the content of the text and his awareness of the textual activity being performed and the means of its (self-)regulation implies the possibility of correcting a student's comprehension in the process of the text interpretation. The same holds true for the next stage of textual activity - secondary textual activity.

Since reflection is an important part in the mechanisms for the development of any type of activity (Costa & Kallick, 2009; Tshedrovitsky, Rozin, Aleksejev, & Nepomnyashchaya, 1993), it is looked upon as an obligatory participant in all stages of textual activity. As for the skills in the field of an independent goal setting and forecasting, self-assessment and self-regulation, it should be stressed that they present general cultural skills of self-development and self-education representing a wider field of self-control.

The fourth stage of textual activity targets the development of skills of creative use of textual information, the case in point here is the transfer of the acquired textual skills to the conditions of the new

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textual activity. This is possible in the case of using a supplementary text in the educational process, provided this text develops the same topic or models a problematic/professional situation. At this stage of textual activity a communication/speech plane of a student's self-actualization is brought to light pointing at domination of productive skills thus emphasizing the development of general cultural skills belonging to speech and communication.

The content enrichment of the technology of the general cultural competency formation can't but affect the diversity of methods and forms of education involved in the technology implementation. As the result, even at the stage of pre-textual activity the tasks implementing productive educational methods are used apart from traditional receptive language tasks aiming at the text theme definition. These are mainly tasks pursuing the development of the independent goal-setting skills associated with the comparison of the main idea expressed in the text with one's own opinion on the problem and with the shaping of the goal image as the desired result of reading. Typical forms of education at this stage include individual, group, and frontal work.

Traditional tasks for the stage of primary textual activity are represented by the tasks aiming at the development of receptive skills. They provide for the use of different reading strategies and at the same time control the adequacy of the text comprehension, i.e. initiate activity to get an expected educational result (cp. a concept of "goal realization"). Besides these tasks, there are another ones that seem reasonable for this stage of textual activity. They presuppose certain "goal reflection" involving the establishing of cause and effect relationship between the activity done by the students and its methods and results (cp. the stages of goal setting (Jerohina, 2011)). The answers to the questions related to finding out whether the text discusses the assumed problem, or whether the textual information confirms the correctness of the chosen reading goal, etc. seem to be important. They contribute to transforming the reading –first of all an independent one – into a conscious process. The latter, being the manifestation of the student's conscious attitude towards learning in general, can be looked upon as a prerequisite for the developing his ability in thinking and acting independently and "achieving his specific potential" in a future career (Turrel, 2015).

The change in the program of obtaining a planned educational result due to the adjustment of the reading goal usually takes place at the stage of secondary textual activity in the process of text interpretation. Here the traditional tasks aiming at the receptive and reproductive skills development (related to the differentiation of primary and secondary information, the definition of the main idea of the text, the identification of cause and effect relationship between its parts, folding textual information, etc.) are supplemented with the tasks targeting the reproductive and productive skills development (related to the development of the ability to express the evaluation of the text, to formulate generalized judgments, to participate in the text discussion, to use the text for developing arguments in support of one's position, etc.). As for the typical forms of educational activity, they are represented by individual and independent work at the stage of primary reading activity which is supplemented with pair or group work at the stage of secondary textual activity in the case of oral reflection.

And finally, the productive skills development, i.e. creative use of the acquired textual skills, takes place at the stage of post-textual activity. The tasks used at this stage have a problematic/creative character, their implementation involving the use of a supplementary text which helps to model a problematic (communicative, professional, game learning) situation requiring a creative approach for its solution.

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The crucial point is a student's awareness of inconsistency or insufficiency of the available information, while a supplementary text can contain judgments and opinions contradicting the content of the main text or knowledge and opinion of a student, or describe the problem itself presupposing the search for additional sources of information. That's how a student becomes aware of the possibility of critical comparison of two texts, of two points of view which results in his revealing inconsistent information and realizing the need to develop and defend his own opinion of the problem.

The student's awareness of the need to formulate his own opinion or to develop his own approach to the problem distinguishes the post-textual activity tasks from those used at other stages of textual activity. The answers to the questions in the context of post-textual activity are related to expressing a student's own opinion on the problem discussed, explaining the reason, telling the difference, formulating assumptions, etc. They presuppose the ability of a student to reflect on the subject, to keep a critical distance in an attempt to develop an objective view of the situation, to expand the framework provided by the text, to rely on his own experience in assessing the problem. This circumstance allows to make a conclusion that it is the stage of post-textual activity that is responsible for the development of textual skills of the widest cognitive and communicative range. Productive methods of these skills development provide for the students' work in pairs or groups in the classroom.

Thus, it is reasonable to believe that the use of various methods and forms of education that is possible due to an innovative enrichment of the textual technology content imparts certain innovation to textual activity itself. It is obvious that the processes of text production and text perception involve not only an adequate comprehension, interpretation and assessment of a text but also a complex goal setting process which attests to the student's awareness of the textual activity process he takes part in. Moreover, the range of the types of culture characterizing a general culture of a student and acquired in the process of his involvement in textual activity is also considerably expanded. It appears to include cultures of self-assessment, self-control and self-education that are vital for a future professional activity of a technical university student.

The same holds true for culture of critical thinking, which is considered by S.L. Rubinshtein "an important indication of a mature mind" manifesting itself in "an ability to identify a problem" (as cited in Zhogova & Kuzina, 2017). Meanwhile critical attitude is characterized as an important constituent of an adequate self-assessment revealing itself in a person's self-control. As for creative thinking that is considered the highest form of thinking, its importance in problem solving also seems to be crucial since creative approach implies that a learner "is attempting to advance toward an outcome that is new, unstructured, and open-ended" (Isaksen, Dorval, & Treffinger, 2011, p. 21).

Moreover, it has been found that the tasks implementing the innovative content and involving the use of problematic, productive, developing, dialogical methods at each stage of textual activity entail the performance of universal educational actions of cognitive-communicative and personal-regulatory nature. It's worth noting that universal educational actions are the ones that maintain a student's abilities to self-development and self-improvement, which is vital for the development of his general cultural competency.

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7. Conclusions

Thus, the undertaken study aiming at developing the formation technology of general cultural competency of a future engineer has proved validity of the textocentric approach. The correlation of a number of general cultural competency skills with most textual skills allows to look upon textual activity as a developing medium for the formation of the targeted competency. The developing potential of textual activity is enhanced in the case of its involvement in the innovative educational technologies based on the intensification of the students' educational activity, project-based learning and interactive technologies being the most efficient in developing general cultural competency.

Having acquired an innovative character due to its compatibility with a number of innovative educational technologies, the technology of the general cultural competency formation can be characterized as a humanistic activity-oriented technology having developing and penetrating character and targeting the formation of a student's general cultural competency through his self-actualization as a person in the process of his textual activity.

The variety of methods and forms of education involved in the textocentric technology implementation as well as the diversity of the general cultural skills being developed in the process of textual activity are indicative of the multi-component nature of the culture of textual activity itself. It turns out to be compatible not only with language culture, speech culture, communication culture, cognitive culture – in keeping with cognition/language and communication/speech planes of a student's self-actualization in the process of language education, but also with culture of information processing, culture of social interaction, cultures of self-control, self-development and self-assessment that are crucial for professional self-realization of a future engineer.

The undertaken study allows to emphasize that (1) textual activity of a student presupposes his self-actualization in different types of activities he is well aware of, (2) different types of culture being mastered in the process of textual activity refer not only to general but also to professional culture of a student, (3) a full-fledged textual activity of a technical university student being the quintessence of his general cultural competency relevant to his humanities education, the competency formation in a language class should have an advanced character and be implemented in the process of the targeted textocentric technology application.

Being designed for the application in a language class, the technology of the general cultural competency formation "is outgrowing" the level of "mesa technology" (module technology) leading out from the level of considering a particular methodical problem to the level of language and other humanities subjects. Since textual activity turns out to be useful in solving the problems of general cultural and professional training of a technical university student through building a dialogue with the surrounding world, the textocentric technology of the general cultural competency formation can be considered to represent a meta-subject pedagogical task in the process of a future engineer's training.

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