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Educational Potential of Case-Study Technology

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Abstract

This article presents the results of phenomenological and typological analysis of case-study technology educational potential. The definition "educational potential of case-study technology" is given, the main characteristics of which are changed in communication and collaborative activity quality, appearance of educational initiatives, change of participants' position in learning process, formation of "collective subject" in collaborative activity, increase of learning (subject) results. Dependence between case-study technology application and quality of learning process participants' involvement in the collaborative activity, and with the quality of educational (subject) results is established.

1. Introduction

In modern conditions of innovative development in education, changing its quality is caused by inclusion of the students themselves in learning process and in their learning organization. Today the priority in education is not given to such processes as *"mastering" and "remembering"*, but to the ability of a person to be the subject of their learning, participate in generation of goals and meanings of learning, building of personal presence place by a person, comprehension of one's own learning, which is developed during interaction and communication

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(Prozumentova, 2009, p. 16). Thereupon, a special interest is expressed to using the technologies, providing the involvement of students in their own learning process organization that allows organizing a productive communication among learning process participants at the lesson. Such technologies also include case-study technology. Having appeared in the beginning of the previous century, the technology is still very popular nowadays among teachers of different disciplines. It is actively used both in secondary schools and in higher educational institutions.

2. Literature review

A literature review is used to study different definitions of case-study as well as its educational opportunities, which have been already revealed by different domestic and foreign scholars.

Analysis of various literature sources allowed selecting the following definitions for the term "case-study". Fry et al describes case-studies as complex examples which give an insight into the context of a problem as well as illustrating the main point (Fry, 1999). According to Stake, case-study is both the process of learning about the case and the product of our learning (Stake, 1995, p. 28). Yin speaks about case-study as an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident (Yin, 2009*)*. George and Bennett consider that case-study is an instance of a class of events where the term class of events refers to a phenomenon of scientific interest that the investigator chooses to study with the aim of developing theory regarding causes of similarities or differences among instances (cases) of that class of events *(*George & Bennett, 2005*)*.

So, one can say that the term "case-study" covers a variety of problems posed for analysis, but most types include several key elements. Case-studies are either based on real events, or a construction of events which could reasonably take place. They tell a story involving issues or conflicts which need to be resolved – though most case-studies do not have one obvious or clear solution. The information contained in case-study might be complex (including charts, graphs, and relevant historical background materials) or simple – a human story that illustrates a difficult situation requiring a decision.

We define case-study as a student-centered activity based on topics that demonstrate theoretical concepts in an applied setting. This definition of case-study covers a big number of different teaching structures we use, ranging from short individual case study to longer group-based activities.

Educational research has shown case-study to be a useful pedagogical tool. Grant (1997) outlines the benefits of using case-study as an interactive learning strategy, shifting the emphasis from teacher-centered to more student-centered activity Raju and Sanker (1999) demonstrate the importance of using case-study in engineering education to expose a student to real-world issues which they may faced in furute. Case-study has also been linked with increased student motivation and interest in a subject (Grant, 1997; Rahu & Sanker, 1999; Mustoe & Croft, 1999).

Thus, educational opportunities of case-study technology are determined by its being based on two powerful stimuli of learning activity: 1) inclusion of real, practical situations and real-world examples where experienced, knowledge of those solving the case are needed; 2) a wide range of forms and ways of communication regarding a case (situation).

Popularity of the technology is also provided by the fact that it gives teachers the right to decide on a way of communication with students during case solving, developing different models of communication for solving a wide range of learning and educational problems. In addition, practical use of case-study technology can become a successful method of professional growth and teaching skills improvement. Even a long experience of technology application will not allow it become *"customary"* and *"boring"*. The technology continuously opens new opportunities for teachers to try, search, find new unexpected learning effects, and therefore is able to form a positive motivation towards professional activity (Fedorinova & Kalachikova, 2013)

Actualization of anthropological approach to learning organization, in which rethinking of the essence of learning itself, understood as a space for meaning-making, human and personalized communication (Kabrin, 2005), humanitarian medium (Slobodchikov, 2000), learning medium, in designing and creation of which only a person himself takes part (Prozumentova, 2005), here case-study technology is seen in the context of solving the problem of human learning. Not only formation of various qualities and competencies are mentioned herein, but establishment of subject position of learning process participants (Korovina, 2010), their initiating of meaning-making

(Granovskaya, 1988), that provides grounds to think that case study technology is not only aimed at implementation of competency-based, learner-centered, but anthropological approach to its organization.

All of the above-stated allows considering case-study technology not only as pedagogical, when its organizational aspect is emphasized, on that how a teacher uses this technology, but also as an educational technology. In this relation, those educational effects emerging during this technology application and its educational potential are of significant interest for us.

2.1. The essence of the concept "potential"

Nowadays the range of potential problems is new for education, therefore, it is impossible to give a detailed review of literature on the subject. In this connection, we referred to considering the definition content in various research areas that, as we assume, allowed us formulating the idea about educational potential of case-study technology.

The term *"potential"* in etymological meaning originates from the Latin *"potentia"* and in translation means power, force and capability. Comparative analysis of a definition content in various fields of knowledge shows that a concept of potential is more often used for characterizing the abilities and capabilities and is thought as a means, reserve, source, which can be engaged for some purposes.

According to Leont'ev (2005), there can be two quite different approaches to potential studying. One of approaches is "potentialism", considered to belong to Frankl (1984), who interprets it as inborn abilities, laid on a biological level and revealing in favorable conditions. The other approach is based on Sartre's statement (1994): "Existence precedes the essence" and means that potential is created by a human and caused by their free choice and life. Transition from potentialism to existentialism in understanding the conditions of human development is characterized, according to Leont'ev (2005), by moving from classical psychology to humanitarian approach.

To determine the potential, it is necessary to mention its relation and function to the goal and result (Large Soviet Encyclopedia, 1975), and considering the hidden nature of potential, the methods of humanitarian research, precedential, phenomenological and typological analysis should be used for determining the educational potential (Prozumentova, 2009).

The hidden nature of potential is mentioned and it cannot be left without attention, then it becomes clear why potential investigation is often focused on how to actualize it instead of creating the potential.

Based on the above, in a vast meaning *"educational potential"* is considered by us as something, owing to which a qualitative certainty forms and develops. As "educational potential of case-study technology" we understand the capabilities of this technology to have an effect on involvement quality and nature, quality of communication and collaborative activity of educational process participants.

3. Materials and Methods

For revealing the potential of case-study technology we used the methods and techniques of phenomenological and typological analysis, developed by Prozumentova (2005) for studying the educational innovations. Research material was the phenomenological description of previous experience of case-study technology application for teaching engineering students during the course of "Foreign Language" (Fedorinova, 2012). The method of research consisted of performing a range of research procedures, such as:

- Building the context of research (location, time, conditions and research objectives)
- Situation description;
- Analytical comments (determining of the empirical features of case-study technology educational potential)
- Analytical summary (grouping empirical features, describing case-study technology educational potential and justification of obtained groups as characteristics of this technology's educational potential)

Completion of the stated procedures helped us make a phenomenological analysis of case-study technology educational potential and determine the empirical features of changes, caused by this technology application.

Thus, among educational effects, arising as a result of case-study technology application, the effects were

revealed, serving as evidence of changes in communication and collaborative activity quality, such as:

• Appearance of personal initiatives and motivation to implement them in collaborative activity and communication. Students plan the path of work by themselves, organize their group work, develop the strategy of their work with suggested material, negotiate, build the communication process what is reflected in the texts: *"I suggest that we first discuss …"*, *"First, let everyone read, get acquainted with the information, and then we'll listen to opinion of each …",* etc. During a common lesson the speech activity of students is usually limited by an answer to the question asked by the teacher, and making an exercise, according to the example. Thus, students are deprived of opportunity to express initiative, independence and creativity during assignment fulfilling.

• Emotional involvement: diversity of emotional states and feelings of communication participants. During communication the moments of emotional tension, anxiety, surprise of collaborative activity participants are constantly observed, that is explained, first of all, by presence of problem situation, which needs to be solved, number of participants in the discussion, extent of their involvement in the discussion process, their learning activity and availability of various views. This is reflected in the texts: Students: *"I was **concerned** by the fact that …"*, *"**Do not get excited**, let the other say…"*; Teacher: *"Classroom hummed, the groups in which students worked, reminded the "alveary", "… **the situation was heating up**, Anton insisted on his point"*, etc.

• Personal involvement in interaction, emergence of I-space in communication. Students are not simply *"involved"* in the communication, they *"get carried away"* and *"live"* it.

• Diversity of contacts and communication course. Students not only interact with each other, the teacher, subject content, but refer to their own experience, experience of other participants and cultural samples. Confirmation of this are the following statements of students: *"Based on **my experience**, I can say that …"*, *"I'll give you my father's **example** …"*, *"And I have **example** when…"*, etc.

• Search for meaning in their actions, statements and also in actions and statements of other participants. During communication, there were multiple moments of "semantic tension", related to questions' arising among students referring to each other: *"Why?"*, *"What for?"*, *"By what criteria…?"*, *"On what grounds…?"* , etc. So students try to find and understand the meaning of their actions and other participants' actions and phrases.

• Verbalization and comprehension by communication participants of their activity meaning. This fact is confirmed in the texts: Students: *"…theoretically **understood and could** …, but consciously started doing it only now …"*, *"…**now I understand** how important it is…"*, *"… received the **experience that will help** us in future work …"*, *"…it is easier and funnier to work together …"*; Teacher: *"… here **I understood** that it's not just a good opportunity for students to practice in using just learnt lexical and grammatical material, but opportunity to revise the previous material …"* , etc.

• Value-conscious attitude of communication participants towards each other and themselves. The important feature of quality communication becomes the value-conscious attitude of participants to each other, which consists of motivation to listen and consider each participant's opinion, to put themselves in place of the other: *"Imagine yourself in his place, what would you do in this situation …"*, *"…do not interrupt, it is hard for him to speak…"*, to hear and understand the other: *"If I understand you correctly …"*, *"…by this you mean that …",* etc.

• Being in the state of self-talk. It shows in asking themselves multiple questions, verbalization of personal meanings of this or that educational situation, and finding pros and cons. Let us refer to the texts: *"Talking to the suggested candidate, Maxim asked questions and answered all of them by himself. …"*, *"Well, it's a creative approach to solving the problem" – I thought, "It's not bad…"*, *"…reasoning of this student baffled me at first and at this moment I got confused: "What is it?" and more important: "Where from and why?"*, etc.

• Intensity of the communication process. Observing the process of communication opening and its progress during collaborative activity, its intensity and saturation with thoughts, ideas, emotions of participants, who were changing fast, are emphasized, as well as flexibility in changing the communicative position by the communication participants: Students: *"…we spoke a lot, argued, speculated …"*; Teachers: *"…there came silence, some confusion was present, which was interrupted by a sudden question"*, *"… liked the idea and it was immediately caught by other participants of discussion …"*, etc.

• Formation of «the collective subject» of collaborative activity. Referring to reflexive texts of students, we note that when telling their feelings, impressions and emotions, students often use *"we"* instead of *"I"*: *"… **we discussed**, argued, agreed …"*, *"… **we decided**…"*, *"… thus it was easier and more convenient for us …"*, *"…**we were one team** …",* that tells about appearance and birth of "collective" subject of communication.

Further the research was related to establishing the typical empirical features of quality communication and collaborative activity changing under the effect of case-study technology. For this purpose we analyzed a number of precedents of case-study technology application, as well as reflexive texts of students and teachers involved in the lesson with this technology application. We found that among features of communication and collaborative activity quality changes, arising during this technology application, some of them have a steady repeating nature. Such features as:

- Appearance of personal initiatives and motivation to implement them in collaborative activity and communication
- Emotional involvement: diversity of emotional states and feelings of communication participants
- Diverse contacts and course of interaction of collaborative activity participants
- Search of meaning in their actions, statements, as well as in actions and statements of other participants
- Verbalization and comprehension of activity meaning by the participants
- Formation "the collective subject" of collaborative activity

The following features have an unsteady nature:

- Personal involvement in interaction, emergence of I-space in communication
- Value-conscious attitude of communication participants to each other and themselves
- Intensity of communication progress

It should be noted that researchers, studying the phenomenon of autocommunication, say that being in the state of self-talk, it is difficult to register the phenomenon by itself, however, we managed to observe it. This fact we referred to weakly expressed features. Thus, the research, conducted by us, allowed stating all selected characteristics of case-study technology educational potential that may have a steady, unsteady and weakly expressed nature. However, there are more features showing the steady nature of the qualitative changes than those expressing situationally.

Quality of involvement, provided by case-study technology, should be mentioned specifically. Besides personal and emotional involvement, we refer subject involvement to the features of such kind, which is expressed in motivation of students to build communication in a foreign language along the entire lesson. During communication process, all participants were involved in the discussion, even so-called "low-achieving" students, who preferred to remain silent during routine lessons. And though their phrases and expressions were not as long and complete, as of "high achieving" students, but desire to participate in the communication was indicative. Being *"involved"* and *"carried away"* during discussion, students focused their attention more on the content of statement, gradually going to its quality, when number of grammatical mistakes reduced and the words were selected better, according to the context, there appeared idioms, phraseological expressions and metaphors in speech. So, a conscious and, therefore, qualitative mastering of subject content took place.

Besides, we observed a range of features, characterizing appearance of transcommunication effects (Kabrin, 2005) in the collaborative activity and meaning-making, which confirm the communication entering a qualitatively new level. All participants of the collaborative activity, as a result of case-study technology application, turned out *"necessary"* and *"involved"* in the communication process.

4. Findings and Discussion

The empirical analysis of case-study technology educational potential allowed selecting a range of its characteristics, including: change of communication quality towards expansion of participants' composition and course of interaction, inclusion of partners of "different kind" (different age, status, personality, cultural samples, in the form of texts (situation description, newspaper advertisement, CV of applicants, statistical data, graphs and tables, etc., "superdynamic" progress of communication (fast change of events, thoughts, ideas and emotions), statements from the first person; quality of collaborative activity, characterized by such criteria as involvement of

collaborative activity participants in goal setting and allocating functions for the collaborative activity, analysis and reflection upon results and this activity process, formation of features of collaborative activity "collective subject", change of collaborative activity participants' position due to direct instruction or fulfillment to participation and organization of collaborative activity.

Moreover, we determined the conditions of creation of case-study technology educational potential to which we refer the following: provision of students with the right to choose the topic of discussion, method of activity, provision of opportunity to show the initiative, and actualization of participants' personal experience. A special condition is the teacher's position who is a participant and organizer of communication and collaborative activity, what is expressed in developing lesson assignments, aimed at involvement of participants in communication and collaborative activity.

5. Conclusion

Based on the results of conducted research, we summarized and systematized the knowledge about educational potential of case-study technology, and determined its features. Such educational potential is developed through specification of communication and collaborative activity as the subject of their participants' organization and influence.

Moreover, according to the performed research, we can say that using the educational potential of case-study technology at the lesson provides transition from situation of *"forced"* and *"prescribed"* speaking to situation of *"natural"* and *"free"* communication and, therefore, – changing the quality of participants' involvement in an educational process.

References

Bol'shaya Sovetskaya Entsiklopediya [Large Soviet Encyclopedia] (1975). Moscow: Soviet Encyclopedia.

Frankl, V. E. (1984). *Man's search for meaning*. New York: Simon & Schuster.

Fry, H., et al. (1999). *A Handbook for Teaching and Learning in Higher Education*. Glasgow: Kogan Page.

Fedorinova, Z.V. (2012). Ispol'zovaniye metoda keis-stadi dlya gumanitarizatsii obrazovaniya v tekhnicheskom vuze [The use of case study for humanitarization of education in technical universities]. *Vestnik Tomskogo gosudarstvennogo pedagogicheskogo universiteta* [Tomsk State Pedagogical University Bulletin], *4(119),* 90-92.

Fedorinova, Z. V., & Kalachikova, O.N. (2013). Application of case study technology for developing the humanities content for engineering education. *XIII Mezhdunarodnaya Nauchno-prakticheskaya konferentsiya "Lingvisticheskie i kulturologicheskie traditsii i innovatsii"* [Materials of XIII International Scientific and Practical Conference "Linguistic and Cultural Traditions and Innovations"], 156-159.

George, A. L., & Bennett, A. (2005). *Case Studies and Theory Development in the Social Sciences*. Cambridge, MA: MIT Press.

Granovskaya, R. M. (1988). Elementy prakticheskoy psikhologii [Elements of Practical Psychology]. Leningrad: Publishing House of Leningrad University.

Grant, R. (1997). A Claim for the Case Method in the Teaching of Geography. *Journal of Geography in Higher Education, 21(2),* 171-185.

Kabrin, V. I. (2005). Kommunikativny mir i transkommunikativny potentsial zhizni lichnosti: teoriya, metody, issledovaniya [Communication world and trans-communicative potential of a person's life: theory, methods, research]. Moscow: Smysl Publishers.

Korovina, I. A. (2010). Samoobrazovatel'naya deyatel'nost' studentov kak faktor uspeshnosti obucheniya [Self-study is a factor of successfulness in education]. *III Mezhdunarodnaya Nauchno-prakticheskaya konferentsiya "Innovatsionnyye tekhnologii v obrazovanii"* [III International Scientific and Practical Conference "Innovative technologies in education"]. Penza: Publishing house Privolzhsky Dom znany.

Leont'ev, D. A. (2005). Neklassichesky vector v sovremennoj psihologii [The nonclassical vector in present-day psychology]. *Postneklassicheskaya psihologiya* [Postnonclassical psychology], *1*, 74-94.

Mustoe, L. R., & Croft, A. C. (1999). Motivating Engineering Students by Using Modern Case Studies. *European Journal of Engineering Education, 15(6)*, 469-476.

Prozumentova, G. N. (2005). Perekhod k Otkrytomu obrazovatel'nomu prostranstvu. Fenomenologiya obrazovatel'nykh innovatsy [Transition to the Open educational space. Phenomenology of educational innovations. Part 1]. Tomsk: Tomsk State University Publishing.

Prozumentova, G. N. (2009). Perekhod k Otkrytomu obrazovatel'nomu prostranstvu. Tipologizatsiya obrazovatel'nykh innovatsy [Transition to the Open educational space. Typology of educational innovations. Part 2]. Tomsk: Tomsk State University Publishing.

Raju, P. K., & Sanker, C. S. (1999). Teaching Real-World Issues through Case Studies. *Journal of Engineering Education, 88(4),* 501-508.

Stake, R. (1995). *The Art of Case Study Research*. Thousand Oaks, CA: Sage Publications.

Slobodchikov, V. I. (2000). O ponyatii obrazovatel'noy sredy v kontseptsii razvivayushchego obrazovaniya [Concept of the educational environment in the concept of developing education]. *II Rossiyskaya konferentsiya po ekologicheskoy psikhologii* [the 2nd Russian conference on environmental psychology], 172-176.

Sartre, J-P. (1994). *Toshnota:izbrannye proizvedeniya* [Nausea: selected works]. Moscow: Republic.

Yin, R. (2009). *Case Study Research: Design and Methods* (4th ed.). Thousand Oaks, CA: Sage Publications.