BLENDED EDUCATION IN HIGHER SCHOOLS: NEW NETWORKS AND MEDIATORS

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Abstract. The paper presents a profile of blended education as a socio-technological network based on an analysis of their contexts of understanding in higher education. The empirical study conducted through the method of surveys with students and faculty members in departments of pedagogy in Bulgarian universities confirms the idea of blended education as a technology and as a world of mediation, as well as the concept of the changing role of mediators themselves. Still, it leaves the issue of its humanization open for discussion. It foregrounds the necessity of investment in forms of education in higher schools as a prototype of the socio-technological network.

Keywords: virtual reality of blended education; electronic and traditional; socio-technological network; human and non-human resources; mediations; mediators

1. Introduction

The paper explores the concept of blended education in the context of the theory of socio-technical networks introduced by Bruno Latour and Michel Callon. In their essence, these networks are heterogeneous and imply the combined action of human and non-human resources of people, technical objects and artifacts. The most important role in this process is performed by the mediators, which may vary in terms of code levels or backgrounds and as regards their system of representation as a type of power. Socio-technological networks are inconceivable outside virtual reality, which is their prototype. Virtual reality is a technological investment in education, however, it cannot guarantee its prosperity in its own self. This prosperity implies a humanization of the interrelations among the participants in the educational process. Yet, technology is a matter of investments in forms. The socio-technological network is a good opportunity to rediscover the process of investing resources in different forms of education and the necessity to start an organizational change in higher schools. Virtual reality is the new reality for the generations we

are now educating. According to Stoychev (2005: 98) the virtual world we are immersed in is nothing but voluminous pools of information, while the reality of what we are experiencing is mathematical in nature: a digital algorithm beyond our awareness of tangibility. The virtual reality, like any technological phenomenon, implies a certain measure of economic growth of the society itself and, at the same time, as part of the culture understood in its widest sense, it establishes a potential danger of spiritual regress in cases of wrongful use and ill-directed purpose. As an educational opportunity, virtual reality is a technology investment, but it could not radically change education in itself. In order to become an educational innovation, virtual reality should be a value, not just a space for developing learner's technical dexterity. Being the communication space of the future, virtual reality needs to transform the student from an anonymous subject into a personality, inasmuch as it is personality development that education aims at. It is true, however, that one characteristic of the means of computer communication is that they do not substitute for the other means of communication, that is, they do not create new networks. Rather, the overlap with and consolidate the existing social structures (Castells, 2011: 343). Blended education (traditional and electronic) at universities has at its disposal a variety of communication means of different orders, degrees of effectiveness and diverse purposes, all of which complement each other acting synchronically. In choosing between the balancing of two forms of education that occupy the extreme ends of the scale – traditional and electronic – and their complete opposition, it is always preferable to adopt „the golden mean". However, another problem occurs in this situation in that this type of synchronic action is set up in advance as a collective decision of the faculty members, but it is not necessarily guaranteed as an individual performance of students. As a form of education, blended education is always situated in the future, in that new educational technologies are connected with information technologies, which shift the emphasis onto knowledge as potential. What the educational technology entrusted with the task of change in the sphere of education needs to develop is a value aspect which will transform information into knowledge.

2. Literature Review: the Socio-Technological Network and Blended Education

Modern society is a *network society*. A key characteristic of networks is repeated and enduring exchange of relationships between the actors in the network (Podolny & Page, 1998). Based on its context of use, the concept *network* has a number of interpretations in scientific discourse. The concept "socio-technological network", however, in its strictly scientific use is related to the works of Bruno Latour in collaboration with Michel Callon and Steve Woolgar: "Networks are simultaneously real in their essence, interpreted as any other type of discourse and collective, like society" (Latour, 1994: 15). The term socio-technological network

was actively used and uniquely characterized in the theory of Michel Callon and Bruno Latour developed in the 80s of the 20th c. The specific trait that differentiates it from all other networks is the overcoming of the opposition NATURAL – SOCIAL. In this sense, "behaviour is thus not simply dictated by the affordances of a particular technology or artefact, but through participants interacting with both people and artefacts which may themselves also be part of other networks" (Walker & Creaner, 2009: 306). Within this network, there is an interaction of both human and non-human actors. These types of hybrid networks rely on mediators of all kinds, such as scientific articles, computer programs, etc. The role of a mediator can also be played by a social actor inasmuch as the most important condition for the existence of the network is its establishment and stabilization. In an attempt to clarify and expound on the actor-network approach, J. Law treats "everything in the social and natural worlds as a continuously generated effect of the webs of relations within which they are located" (Law, 2007). The main focus of this social movement is not the activity as a type of action, but the relation *activity – communication*, in which the agreements, the negotiations, and the contracts are new social messages. In his works, B. Latour discusses the reassembling of the social and the actor-network, where the goal of the actors is to be manifested as networks of mediation and the network is a world of mediations and negotiations of social actors where the action is completely displaced, but the goal is living together (Latour, 2007: 200). Exploring this process of transcending duality, J. Murdoch focuses on motivations which, in the actor-network theory are discussed in only the most general and abstract terms. In their desire to reject any qualitative distinctions between humans and nonhumans, Callon and Latour wish to steer clear of any specifically human motivations and are concerned to show that humans and nonhumans alike behave in similar ways, ways which depend upon the relations established within networks" (Murdoch, 1997).

The new information technologies of the 21st c. change key conditions of socio-technological networks, such as: 1) the relation *center – periphery*, which is maintained in the form of asymmetry. This facilitates the foregrounding of the system of representation, wherein a small number of people can represent the majority and exert a form of control. The reliability of this representation is a condition for the stability of the networks. One of the tendencies in the development of networks and network society is their isomorphism according to which their scientific, political and economic dimensions principally coincide; 2) *the role of the mediator* - a classic definition of the mediator states that it can be "anything that passes on form one actor to another and by doing so constructs both the form and the function of the relation established between the two" (Chalakov, 1997: 120). In the process it overrides the social actors in terms of their degree of importance. According to Schulz-Schaeffer, "[r]oles … are bundles of position-related behaviors where human actors react to position-related expectations of other actors" (Schulz-Schaeffer, 2016: 10).

The problem of the "mediator", however, is rather controversial. A mediator can be a computer program as an information product, the information, since it is the medium of the message, and the computer itself as an information processing machine.

Against the background of these changes in information networks viewed as socio-technological ones, Bulgarian education is going to great lengths to invest in new forms of education: electronic, distance, etc., which constitute a type of organization change in the educational process.

3. Blended Education as an Educational Form: Conceptual Frames and Context of Application

Due to its broad continuum, the term blended education does not have a unified understanding and there is no consensus on its context of use, which allows for the expressions blended education, hybrid education, mixed education and integrated education to be used interchangeably in specialized literature – a variety of combinations not all of which can be scientifically grounded.

Some see blended education as a relatively new methodology and a system of teaching and learning. It combines the inspiration and motivation of traditional teaching in the classroom with the fun and flexibility of e-learning to create courses that are accessible and motivating for today's adult students. This implies adequate distribution of hours spent in the classroom and online. Blended education at universities is an effective means of providing the best combination between students' work and the role of faculty members to correct the activities of online learners. It is an opportunity for effective group work, a medium for sharing experience, and, last but not least, it facilitates adequate social communication with varying degrees of subordination.

This combination of face-to-face training and the online opportunities provided by electronic platforms and training resources varies depending on the educational content, motivation and needs of students. It also includes the instructors' capacity to implement blended education in an adequate educational environment. Virtual reality preeminently favours the employment of educational models. The full-fledged design and realization of blended education requires that certain basic models for its application be specified in the form of conceptual frameworks. The latter facilitate its technological implementation in educational practice. Despite the opinion that "in their essence, models are abstract in nature they allow for an effective education which requires a fine-honed understanding of learners' needs, the study content, the target groups, and the organizational environment and conditions" (Hoehn & Rietsch, 2008: 7). These blended education models do not provide the whole range of options for its implementation, but represent a good basis for establishing a connection between theory and practice in students' education. According to J. Hoehn and P. Rietsch (2008), blended education is the

result of the convergence of two archetypal learning environments - the traditional face-to-face learning, on the one hand, and online training on the other. Although blended education can be seen in a variety of forms, the authors believe it is not a simple combination of online and offline (in person) training and education. The reason for this is the fact that education in the lecture hall needs to be adapted to educational goals through suitable educational forms (Hoehn & Rietsch, 2008: 8).

The authors define seven basic models of blended education depending on the accents and ways of combining the following contexts of understanding: 1) *blending which empowers* – focusing on the access to education and flexible learning, which in most cases is manifested by offering the same courses online and offline, and students are the ones to choose which type fits better their individual needs; 2) *enrichment blending* characterized by the introduction of systems for learning management (LMS), through which teachers promptly enrich their courses with a specific level of technology by including traditional teaching in the classroom with additional online resources; 3) *transformation blending*, which requires changes in the learning environment by employing educational and cognitive tasks whose solution requires a new level of communication between the entities; 4) *blending of components* – all the components of the program are independent and each of them is fully applicable independently of the others - i.e., for each module there can be a set of independent components (the context of modular training); 5) *integrated blending* – all components are integrated in the structure of the content and each component belongs to another or is based on other or others (context of the integrated education); 6) *blending through cooperation* – a version of integrated blending, which has an additional collaborative environment (online conferences and discussions, consumer groups and other social software); and 7) *expansive blending* – it involves formal education outside of the usual conditions (Hoehn & Rietsch, 2008: 10 – 11).

The idea for the realization of blended education is directly related to the tendencies in European educational space. To start with, these tendencies emphasize the transformation of educational environment into a learner-oriented one in accordance with the postulates of constructivism. They also underscore active learning based on social cooperation and accessibility of educational materials everywhere and at all times. Last but not least, they foreground the supplementing of traditional educational forms with the opportunities provided by electronic platforms and learning resources.

Blended education is characterized by its capacity to increase learners' motivation and interest. This process is predicated upon learners' active participation associated with their motivation and self-evaluation. This vision of the necessity for the student to participate actively in the cognitive process is certainly not a novelty. Contemporary conditions, however, demand that it should be transformed into a basic life philosophy and an instrument of personality development in the conditions of permanents change.

These changes affect the contemporary individual and redefine his/her personality development and the educational paradigm as whole. This paradigm is related to the formation of new consciousness and value orientation for everyone. The search for new approaches to the improvement of higher education and an adequate utilization of information and communication technologies is therefore a social and professional necessity. This will allow students to participate in the monitoring of the educational process and become part of an organized educational environment.

Using electronic educational platforms, students can determine the pace, place and duration of their studies on their own. The platforms are exceptionally flexible and facilitate the individualization of education with respect to the needs of the student and the specific character of the course. They give learners an opportunity to study in large groups but at the same time make it possible for them to assess their results individually. The immediate communication between the instructor and the students through the electronic portal gives valuable feedback and evaluation of the adequacy of the education, its effects, as well as significant points of orientation for its improvement. The students, on their part, have quick, easy and timely access to the course content, the inventory for evaluation and testing, and an opportunity for direct contact with the other participants in the education or with the instructor. Contemporary forms of blended education present the course content in an attractive way and adapt it so as to increase students' motivation.

4. Blended Education in Higher Schools in the Context of the Socio-Technological Network

The inclusion of blended education in the socio-technological networks discourse provides an opportunity to re-direct our efforts and attention from the activity for its own sake to the interaction *activity – communication* in the process of education. This claim is grounded in the concept of change as a main relation associated with knowledge. In this relation a shift is emerging from SITUATION – KNOWLEDGE – SITUATION, where knowledge is in the role of a mediator, to KNOWLEDGE – SITUATION – KNOWLEDGE, in which knowledge comes to be capital (Chalakov, 1997: 117).

In the context of socio-technological networks, blended education at universities requires certain significant changes, the most important of which are: 1) the occurrence of a new type of social behaviour imposed by the coordinated activity of humans and technical objects in the process of education; 2) the presence of (virtual) discourse orientation linked to the new zones of pedagogical power at schools.

Science can be a "catalyst" of knowledge capitalization through the system of representation seen as investment in forms (Chalakov, 1997: 22). Science is unique in handling heterogeneous networks by combining human and non-human actors based on this investment in forms. The joint action of human and non-human actors

leads to the establishment of a new type of networks like the socio-technological ones, which are a meeting point of all kinds of mediators. Even in education the most important characteristic of such networks is *investment where information can be capital*. The computer is a type of investment in forms to the extent to which it is also a mediator in the exchange of resources for control (Chalakov, 1997: 119) and blazes the trail for change in education. In this context what seems, on the surface, to be social is partly technical, and what may appear to be only technical is partly social (Tatnall & Gilding, 1999).

In sociological terms, new information technologies are a part of a socio-technological network whose stability is warranted through representation of power (Chalakov, 1997: 119). Any type of representation is part of the mechanisms of exerting power and taking responsibility. It implies the existence of a minority (faculty members) controlling a majority (students). Thus in the world of information technologies the question arises whether students will be reliably represented by faculty members who control the socio-technological network. In blended forms of education, information as a mediator faces the threat of becoming isolated from the process of pedagogical interaction.

In the context of blended education in socio-technological networks it is also important to overcome the dichotomy NATURAL (perception-based) and CULTURAL (language-based). This turns out to be a difficult goal because the "image" overpowers the "word" and "watching" subdues "reading". In the age of computers and internet, reading itself is subject to radical transformations. Reading comes to be aligned with writing in the form of interpretation because each reader re-writes the reading material as an author. Reading also becomes watching to the extent to which the latter takes the place of the act of reading, replaces it with the image and in the process "the reader learns new things but comes to know how they look in advance (Varzonovtsev, 2004: 94).

Gradually, reading stops to be the reading of literature (including scientific and academic content) and transforms into reading for reference (It is not a chance coincidence that modern course books are structured in this manner). Not only do electronic networks fail in stimulating the process of reading, but they also turn it into a triumph of presentations, where pictures, figures, tables and unrelated quotations determine the artistic and aesthetic taste of the disheartened reader. Such reading for information narrows the spiritual horizon of students. Even if operating in full swing, the socio-technological network does not have the capacity to stop this process and, as an environment for distance forms of education, it is actually bound to enhance this effect.

At a global level, the technological discourse shaping blended education cannot possibly be theoretical discourse shaping science for the mere reason that technologies (the application of science) are not science. The criteria of technology are a type of schemata, while the criterion of science is strictly related to the

essence of research. Information, however, can be reproduced as knowledge in the act of human communication, which is also a crucial factor in education as a social activity. As a way of thinking and as a mindset, culture is realized in the type of communication and its category structuring. In Grigorov's view, new alternative means, forms and channels for the dissemination of information may be one of the keys to understanding the communication mechanism of the change of epochs in human culture (Grigorov, 2009: 144). Thus, the structure of communication creates the structure of the social space, which, in S. Livingstone's terms is quickly changing to adapt to new communication channels. The author argues that as our field moves beyond the traditional dualism of mass and interpersonal forms of communication to encompass new, interactive, networked forms of communication whose influence may be traced across multiple spheres of modern life, it is commonly claimed that everything is mediated and that this represents a historically significant change (Livingstone, 2009: 12). Today, the new social interaction, as the essence of social space, has encoded a culture that irradiates non-thinking. The manifestation of this "non-thinking" is the belief that technology can form the basis for change, including changes in education. This space of flows (Casells, 2004: 343) has three layers: electronic impulses, communication centers and management teams. The new information paradigm, like any other, is a source of power. In the information society (informational for M. Castells) information is a result of a production process. In this way, technology dictates a culture whose codes are decoded as scientific without being such. The reconstruction of meaning as a scientific phenomenon is only possible through theoretical discourse (concepts) which has no analogue. These discourses can be subject to mass production neither as technologies (mass production of science) nor as education (mass production of knowledge). Blended education, like any new technology, has its educational and scientific potential at universities. However, the reliance on technology always creates a risk of dehumanization. It is only within man's discretion to decide whether he will convert his extended mind through the computer into a what is defined as a calculating ability to functionally coordinate existing goals and means, depending on the criterion of efficacy (Stoychev, 2005: 105) or into a search for truth. The last refuge of truth always remains ethic following the logic of the common ethos of living in the world (Gerov, 2010: 29). There is a real danger that communication through mediators in the learning process will focus on the mediator itself, ignoring the person. The human-machine is not and will not be an ideal for education. But the machine that serves man can be a cause in education. In the world of socio-technological networks, machines and people interact to trace new paths to the truth. The new vision of the social as the connectivity of the actors in the socio-technological network does not guarantee the coherence of the network, nor does it guarantee its security. But it foregrounds the problem of the world taking place in the process of learning as a social relation.

5. Research Methodology (Profiling Blended Education as a Socio-Technological Network)

The object of the present experimental study is blended education as a socio-technological network in the context of virtual reality as a human and technological phenomenon. The goal of the study is to analyze the contexts of understanding of the concept blended education as "a socio-technological network" in the conditions of higher education.

Research objectives

Among the main objectives of the present research are: 1) outlining the relation virtual reality – socio-technological network – blended education in higher schools; 2) expounding the essence, characteristics, and the models of blended education in higher schools; 3) deriving the parameters of the socio-technological network in the context of the new information and communication mediators; 4) studying blended education in higher schools as a socio-technological network; 5) conducting an experimental study of blended education in higher schools based on the new information and communication phenomena, such as virtual reality and socio-technological network.

Expected Results

The research will present indirect grounding and motivation of the difference between technology and science, perception and language in the context of blended education. It offers suggestions for new forms of investment in higher education through the concepts of virtual reality and the socio-technological network. Finally, the study puts forward a comparative empirical analysis of the attitudes and perceptions of faculty members and students concerning new technologies and the educational opportunities they offer.

Participants

The study is conducted with 30 university lecturers and blended education experts and 180 students majoring in education science trained in the conditions of blended education. The faculty members all have a university teaching experience of over 10 years, and more specifically, in the area of the application of Information and Communication Technologies in education. The students are between 18 and 20 years of age and study Pedagogy (Education sciences) or Pedagogy of the education in specific school subjects.

Data collection instruments

The research goal and the research objectives were realized through the survey method with an online questionnaire. A standardized questionnaire was used with the questions and their possible answers offered in advance online and in a specific sequence. The informants are required to choose the answer which best fits their opinion. There are 14 items constructed in the form of an evaluative question, which the informant may agree or disagree with to different degrees (Liker scale). In terms of its content, the questionnaire emphasizes the following issues: the relation blended education – network society; the dilemma between power and

humanization; the dilemma educational strategy - educational policy; the relation mediators – educational content – actors (participants); the dilemma reality – utopia; the dilemma tradition – innovation. In formulating the evaluative propositions (questions) the requirements for clarity, succinctness, concreteness and avoiding suggestion were followed. Upon constructing the questionnaire, we subjected it to a logical expert evaluation. The Cronbach's Alpha test was used to check the reliability of the questionnaire. Most authors adopt the view that if the value of Cronbach's Alpha is equal to or above 0.7, the scale that is being characterized is coherent and reliable. The value of the quotient is 0.897 for the whole questionnaire. This indicator statistically proves the high quality of the data collection instrument. The values of Cronbach's Alpha vary from 0.967 to 0.792. This demonstrates the reliability of the empirical information and shows that it can be used as an adequate source of empirical data which can be subject to further analysis.

Analysis of the Research Results

Before the detailed exploration of the results of the present research, it is important to present in brief the results of an earlier survey with university lecturers regarding the concept of the virtual network as a socio-technological one (Gyuviyska, Tsvetkova, & Tsankov, 2013). The study shows that 52% of the respondents consider the virtual network a hybrid. 28% believe it is homogeneous, 12% take the stand that it is coherent, and 8% think it is heterogeneous in character. The following socio-cultural metaphors represent the virtual network most vividly according to the respondents: labyrinth – 68%; journey – 35%; laboratory – 25%; and masquerade – 12%. The respective social personae acting in the virtual network are: a traveler – 56%; a tourist – 23%; a tramp – 42%. A large number of the respondents – 85% – identify the virtual network in an educational context as an opportunity for realizing the relation SITUATION – KNOWLEDGE – SITUATION, while only 15% associate it with the relation KNOWLEDGE – SITUATION – KNOWLEDGE. 75% of the informants share the view that the virtual network is oriented toward the "user of an educational service", for 25% it is associated with "the mediator of the educational service" and only 8% believe that is focused on "the source of the educational network". The respondents' opinions on the role of the virtual network in an educational context are diverse and numerous: for 56% it is an opportunity to realize learners' social attitudes; for 25% it forms technological competencies; only 12% think that we can use it to motivate students' behaviour and stimulate their interest. The following paths for reconsidering education through the opportunities offered by the virtual network are seen by the respondents: the manner of communication (64%), the mediator of information (43%), educational technologies (28%), study content (23%), study motives and interests (12%) and learners' value orientation and attitudes (8%).

The present study, analyzing blended education in higher schools as a socio-technological network, represents it as an interaction of human and non-human actors. This requires that allowances should be made concerning its hybrid character and the

new social effects it entails. The most important of these effects is the overcoming of the opposition between NATURAL (perception-based) and CULTURAL (language-based). The reorientation of the virtual network towards the situation that generate, realizes and capitalizes on knowledge facilitates an organizational change in education. At present, this change is being questioned due to the ineffective application of the educational opportunities of the virtual network.

The present study demonstrates a distinct difference in the answers of faculty members and students with respect to the question of the domination of the network society. 73% of the students give a positive answer and only 3% – a negative one. With faculty members the dynamics is different: only 23% answer the question positively and 45% – negatively. This shows a serious divergence between the attitudes of students and faculty members. The tendency persists in the next question concerning the relation between blended education and networks. Only 3% of the faculty members accept the overtness of this relation and mark it with "Positive", while 55% choose the answer "Fairly positive". Students are much more categorical: 45% of them give the answer "Positive" and only 25% – "Fairly positive". The question whether blended education is a conceptual frame of the educational process or an educational technology receives the following answers by faculty members: 35% "Fairly positive" and 33% "Positive" in favour of the domination of the conceptual frame. In students' answers this domination is reflected as follows: 48% "Positive" and 23% "Fairly positive". As to the option that blended education is a technology, 54% of the faculty members give the answer "Fairly positive", while 45% of the students choose the answer "Positive" and 33% – "Fairly positive". This means that faculty members preeminently consider blended education as a conceptual framework of the educational process, i.e., a science, while students tend to view it as a technology. What is of importance in this situation is the user of the educational service and students' persuasion that it is all about the application of a scientific idea because is blended education were a concept, the way faculty members see it, it is only one of a variety of concepts.

Students and their lecturers give similar answers to the question whether blended education is a matter of power or of humaneness. Both groups think that blended education is definitely not power – 65% of the faculty members and 69% of the students give a negative answer. This 'syndrome' is easy to explain against the background of the institutionalization of power and socialization, which are both regarded as natural states of the system and prevent the respondents from detecting the hidden forms of power. In counterpoint to the respondents' answer, blended education is not a source of humaneness according to 45% of the lecturers and 73% of the students. Additionally, there is a difference in the mindset and attitudes of the generations as to the role of the machines in human life. Faculty members tend to consider blended education a European educational policy – 66% answer "Positive". Students, on the other hand, predominantly adopt the view that it is an important

instrument of professional and personal realization – 77% positive answers. In the light of these findings, it is reasonable to conclude that to faculty members forms of education, even innovative ones, will remain a matter of administrative decisions, a process of measuring up to new expectations, or a way of convergence with the majority. In contrast, students endow these forms with significance and value of personal character. What is it that changes in blended education – the subject or the object? University instructors entrust the mediator with the most important role (43% positive answers) but think that the study content does not change – 45% negative answers. 53% of the students favour a change of the mediator and 74% – a change of the study content (*Figure 1* and *Figure 2*).

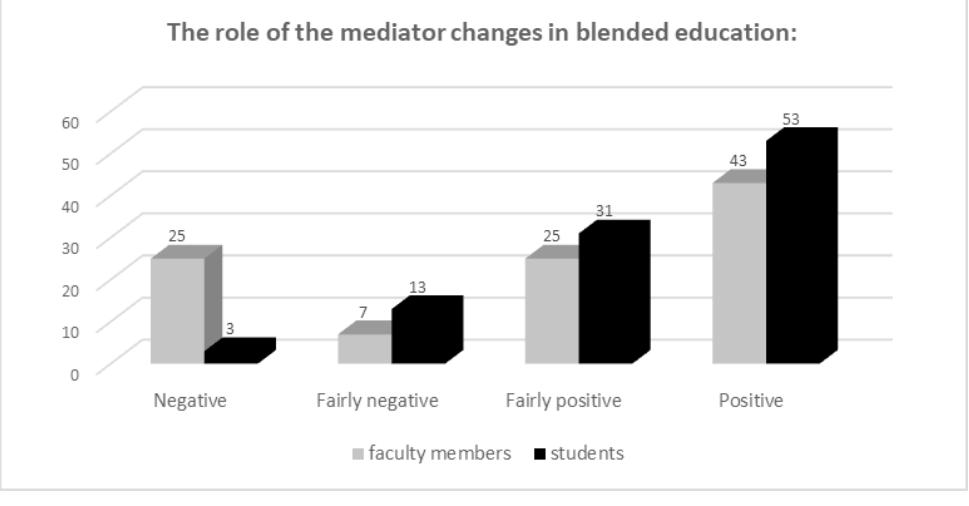

Figure 1. The role of mediators in blended education – students' and faculty members' perceptions

This substantial disparity in respondents' answers as regards the study content leads to the conclusion that students associate form and content much more categorically than their professors. As to the question whether the change concerns the position of the students or that of faculty members, the answers of both groups tend to favour a change in students' position: 66% of the instructors and 65% of the students answer positively. Concerning the change of the instructors' position, 12% of the faculty members and 3% of the students answer negatively. The analysis of the data referred to above shows that, in blended education, the subject – object relation preserves the status of the instructor, while significantly changing the role of the student.

The shift of the subject in blended education in higher schools preserves the status of the university lecturer but significantly changes the role of students. Is

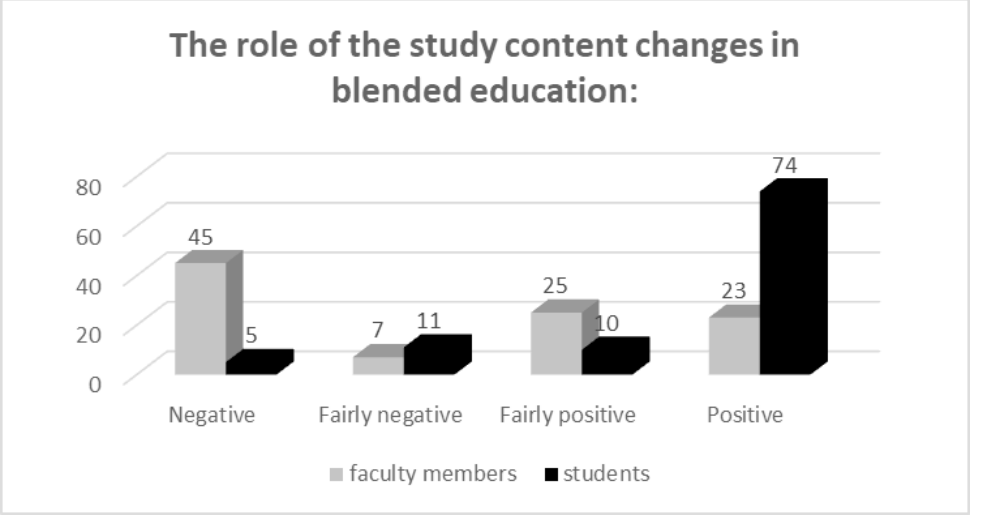

Figure 2. The role of the study content in blended education – students' and faculty members' perception

blended education in Bulgarian universities fact or fiction? 52% of the faculty members answer negatively to the question whether blended education in Bulgarian universities is for real, while 40% of the students give a positive answer. This means that the social actors in this process have different criteria and a different sense of the reality of the educational process. Finally, 45% of the instructors answer the question about the innovative character of blended education positively, 31% are "fairly positive" and students maintain this tendency with 77% of positive answers.

CONCLUSION

Blended education through computers, computer programs and electronic platforms implies the occurrence of new networks and new mediators at universities. Mediators cannot guarantee the existence of a socio-technological network. What its emergence is predicated upon is the imposition of instructor-representatives who can take responsibility for every single decision of theirs and control the network. This is not a new phenomenon in the student - instructor interaction in that it is part of the mechanisms of pedagogical power, which is, unfortunately, taken for granted by both professors and their students, who fail to consider it and act accordingly. What is really new in blended education is information itself and the opportunity for it to be transformed both in capital and in an investment in the future realization of students, as well as in a means of manipulation. As part of the educational space, new media create the threat of "a culture of distance", which disassociates students

and their instructors and changes their roles and positions. This change does affect the student, but to professors the reality of blended education is still evasive and is predominantly a matter of policy. Students see it as a good educational investment for their professional realization and, along with their professors, consider it an innovation. It is therefore plausible to conclude that investing in new forms of education through the prototype of the socio-technological network facilitates a dialogical and interactive communication between subjects and objects, an opportunity worth applying in education.

In summary, it is important to emphasize that virtual reality is associated with the technological progress of society and as such it serves as a basis for progress in education. It is a level of reality created by new information and communication technologies. As an interaction between a variety of mediators, artefacts, and actors, the socio-technological network is inconceivable outside virtual reality, which serves as its main prerequisite. As a new information and communication phenomenon it is a favourable condition for capitalization of knowledge, which implies new forms of investment in education. The reason why blended education is considered a socio-technological network is the opportunity this gives to optimize the process of education. Irrespective of the nature of the new mediators (computers, e-learning platforms, software programs) in blended education at universities, what turns out to be of crucial importance to its effectiveness are the social actors (students and educators) and their cooperation in the real and in the virtual world. The discrepancy between students' and lecturers' views on blended education in the context of the virtual reality and the socio-technological network is not a point of conflict. Rather, it is an indicator of a difference in their system of values whose overcoming is not in the power of technology.

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