

Capability Approach in Technology-Enhanced Tertiary Education: Looking for New Directions

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Abstract: The Latvian-Ukrainian project “*Gender aspects of digital readiness and development of human capital in regions*” (LV-UA/2018/3) highlighted some peculiarities in educator and student attitude to Information Technologies (IT) that is positive in major but currently their appropriate usage lacks behind the possibilities Digital Technologies (DT). This study, among others, raised two questions that are addressed in this article: “*Does gender significantly affect educator and student attitude to DT?*” and “*Is educators’ current digital competence a comprehensive and sufficient target to meet modern rapid changes?*” Some findings have pointed out essentialities in competence development and attracted the researcher attention to sources of attitudes, as well as challenged looking for a new direction to an appropriate pedagogical provision for further development of educator and tertiary student digital competence. The aim is to provide a theoretically-based introduction to the capability approach in using DT while building the capacity of the internal and external environment of higher education. The theoretical investigation draws on the theory of attitude sources and capability approach of educators and students; the empirical data illustrate the theoretical statements of attitude to IT. The empirical research methods and tools to illustrate theoretical considerations are questionnaires “*Personal cultural orientations*”, “*Cultural values scale*”, and “*Scale to measure attitudes toward IT*”; data processing followed the procedure suggested by the methodology of each tool. The research base is made up of 1013 respondents ($n = 260$ in Latvia; $n = 753$ – in Ukraine). The article advances arguments in favour of the capability approach to be discussed as a possibility to introduce a new pedagogical direction to further improve educators’ competencies.

Keywords: educator, student, gender, attitude sources, capability approach in university education.

Introduction

Current developments and total diffusion of DT in almost all spheres of human life are accompanied by lots of problems related to their usage, among these there is slow skills’ acquisition. For instance, implementation of DT at universities has jumped up from fragmentary use to improve teaching-learning in 2000 to a powerful tool that ensures virtual learning possibilities since 2010 (Rubene, Strods, 2017). These usually accompany rapidly changing societies and introduce misbalance in social processes; this research spots out only several of these related to education.

The context of traditional attitudes to gender roles in the world and involvement of women in jobs and education related to information technologies (IT) reveal the gender disproportion. The Global Gender Gap Report (2018) pays attention to the possible impact of digitalization on sustaining gender equality: involvement of women related to IT remains quite modest; among the employees of *Apple*, *Google*, *LinkedIn* females make up 30-40 % of the entire staff and an average of 15-20 % of technical specialists (Makarova, 2016); more than 50% of all university graduates in the EU are women while men graduated 5.7 times more in IT studies (European Commission, 2018). The traditional understanding of the ‘male’ and ‘female’ professions still interfere with career choices and IT jobs are widely considered as a playground for men (Barbieri et al., 2018); this largely affects women’s attitude to IT and challenges investigations.

One can observe educators attempts to provide as good assistance to their students as possible to *achieve a desired quality* of one’s competence; meanwhile, they experience some incomprehension that accompanies rapid transformations not only by ubiquitous presence of DT, but mainly by transforming teaching-learning, the character of tertiary process, and challenging new approaches based on a new professional philosophy and mind-set. The universities discover that what worked in the nearest past does not provide expected success in the present. Social changes cause threats to their autonomy, as well as anxiety if educators reach the desired quality of the university process and appropriate personal academic excellence. Noticeable

misbalance between their academic freedom coupled with responsibility and comparatively slow pace of the improvements in pedagogical provision, on the one hand, powerful governmental pressures, on the other, influence teacher and student attitudes and attract researcher attention to contexts of human capital developments (Biggins et. al, 2016; Dinkelman, Margolis, Sikkenga, 2016; Russell, 2019).

The changing nature of learning and teaching in a changing environment should be supported by positive attitude to technologies; their usage in many cases lacks behind the digitalized economy. The recently initiated competence approach promises to break the traditional ways of the tertiary process but its achievements are lower than the expectations and maintain a sense of uncertainty. Another powerful actor has entered universities and brings about a more serious gap - the young generation with a different mind-set, expectations and attitudes accompanied by the free usage of DT. In spite of their need for autonomy competent facilitators are vital (Blayone et al., 2018) to make their studies targeted. Higher education completes general comprehensive education and prepares the graduates for work that is demanding towards innovation and flexible responses to unpredictable environments, often in future. These challenge appropriate transformations from within and from outside the universities, as well as prompt scholars to look at educational improvements from an economic standpoint: profit-oriented economy does not fit the social developments; therefore education should consider the capability of educators and graduates to keep these two areas balanced (Sen, 2005; Nussbaum, 2011; Robeyns, 2016; Coeckelberg, 2011). Accents on understanding four pillars of learning (Delors, 1996) need their interpretation in the context of DT to initiate changes in pedagogy of the higher education.

Attitude's relation to motivation and the theoretical assumptions of *attitude sources* underpin tracing possibilities of current shifts in tertiary process by accentuating educator and student values and meaningful pedagogical provisions adequate to productive usage of DT; the assumption is based on attitudes' driving force by having motivation in its structure; therefore, improvements are possible by focusing on attitude sources (Collinson, 2012); the quality of interrelated education contents, processes, and contexts should lead to capabilities as specific learning outcomes (Hoffmann, 2006).

Another theoretical underpinning has been challenged by inconsistencies in comprehension that accompanies transformations by ubiquitous presence of technologies, as well as a number of educators that hold negative attitude to DT or are neutral to these – the emotional experience that is usually accompanied by a sense of unrealized opportunity, low self-esteem, unachieved expectations, and missing appropriate professional philosophy or mind-set. Hopefully, introducing of capability approach will attract educators' attention. The capability theory addresses human development and advices to use a more appropriate category that is *enhancement* (Coeckelberg, 2011); the educator accepted capability approach will challenge exploration of converting competencies into capabilities.

The aim of this study is to provide a theoretically-based introduction to the capability approach in using DT while building the capacity of the internal and external environment of technology-enhanced pedagogical process of higher education.

The Background Knowledge

Sources of attitudes. Educators' studying their practices was first discussed at the symposium of the American Educational Researcher Association in 1992. The idea of educators' reflection has spread slowly and does not demonstrate serious transformations of most programs (Loughran, Russel, 2016, 65-76). After 15 years the Association for Teacher Education in Europe has invested teacher educators' work (Svennen, van der Klink, 2009); nevertheless, there is little published research that deals with how educators develop their competence as practitioners and exercise their expertise (Zeichner, 2005; Russell, 2019). Meanwhile, researchers conclude that educators discover their voice through self-study and simulating the transmission in activities therefore become capable and powerful actors that encourage students' 'hearing, absorbing and retaining information' (Loughran, Russel, 2016, 66). Self-exploration, perceptual image, and meaningful values - these remind of educator attitude, self-enhancement, accepting innovations and practicing the capability approach in the context with the emerging new era of computing that brings with it fundamental differences in: how systems are built and interact with humans or how programmable systems are processed by humans, because Cognitive computing is about thinking itself. These build knowledge, transform learning, understand natural languages, reason and interact more naturally with human beings than traditional programmable systems

(Davis et al., 2016); therefore, challenge appropriate changes, subject educator and student attitude to DT in education and transform teaching accordingly.

Though the above-mentioned project is focused on gender gaps in using DT, its findings attracted the researcher attention to educator and student motives, values, and attitudes as powerful factors that gear human activity; these have also initiated considerations about a new pedagogical approach to transformative digital learning and teaching that challenge better usage of possibilities in the digitalised environment. The idea is confirmed by the well-known fact that one of the sources of attitudes is practice, especially successful practice (Collinson, 2012). In this respect, educators' transformative digital teaching-learning coupled with self-assessment and based on the capability approach might help moving outside the frames of formal education into practice, from competence to digital capability, and expand understanding of cognitive development by further enhancement.

Therefore, based on theoretical findings of the research the article focuses on four reasons for addressing educator and student attitudes to DT, consider attitude sources to improve tertiary curricula and motivate educators and students to identify and practice the capability approach in technology-enhanced tertiary process:

- values are deeply internalized and 'consciously or unconsciously held attitudes' (Burns, 1978, 75); this makes a background for consideration that the focus on attitude sources in tertiary curricula will accentuate the transforming value of capability approach;
- scholars create their self-knowledge of values to follow, identify attitudes, compare their capability with the most successful colleagues (Rallis, Rossman, 1995), accept cooperation;
- educators' capabilities and attitudes should be treated with high caution since attitudes are 'frequently associated with merits'; those who need more help to pass the threshold of basic capabilities usually need greater educational assistance (Ponce, Cancio, Sánchez, 2017, 79);
- final but not the least, educators are researchers, and their educational experience should be used to explore and self-evaluate their practices as a background for innovations.

The investigation did not aim at a deep exploration of the attitude sources; it is based on the recognition that attitudes can be more easily influenced by the external environment, they demonstrate a state of motives; therefore it focuses on the precedents of attitudes to DT and couples these to the category of *capability* and *capability approach*. V. Collinson (Collinson, 2012, 320-344) identified 14 groups of teacher attitude sources; the article spots out those four which can be considered the most important for educators, therefore included in the e-questionnaire open to all volunteer respondents.

The powerful contribution of inquiry in tertiary learning, educator reflection and self-study of the development of professional thinking, curiosity, open-mindedness, and intellectual responsibility; these demonstrate attitudes and develop them. Whereas respondents mentioned the importance of an inquiry and learning about IT, only a small number actively conducted inquiry as a source or refinement of values and attitudes.

Experiential or accidental use of competencies or followed role models represent doing something intentional or unintentional, 'trial and error' practices that alter values and attitudes and gear repeating what appears successful or avoiding what is unsuccessful. Respondents attributed much of their success to their accumulated life experiences, which is in line with the observations that 'attitudes, habits, and ways of judging' are often learned 'in the routines' of living (Gardner, 1981, 124).

Professional development, self-understanding, and others nowadays seem to involve grasping 'the whole picture' or seeing a bigger area of professional activities: the holistic self, the context knowledge, interdisciplinary education, emotional component in professional thinking and academic growth. Experienced professionals usually know more than they can put into words and respond to challenges of their work (Schön, 1992). This phenomenon suggests educators and researchers a promising object of investigating 'reflection-in-action' to explore sources of attitudes, motives of transformative digital learning and how this vital creativity might be fostered by innovative practices; the article suggests to consider the *capability approach*.

When *bridging tertiary teaching with learning or learning from teaching* researchers demonstrate awareness of how difficult it is to be able to know and measure the degree of influence that educator's teaching/assistance has on their educational practices: for instance, the graduate respondents expressed dissatisfaction with the contribution that formal studies provided to teacher education (Dinkelman,

Margolis, Sikkenga, 2016, 169-188); many students acknowledged that their reading and mutual discussions influenced them stronger and gave greater importance to the value of conducting formal studies while others preferred to have clear instructions and assistance. Much for conceptualizing theory and practice came from the process of reflection that helped to go further than repeating a learned mode of doing during the starting period of educator practices. Much of innovations start with clear attitude to them.

Challenging possibilities of the capability approach

Since the 1980s a capability approach to individual and social development has emerged, this considers economic growth as no more than a part and an instrument of social policy, especially related to human rights, justice, and participation; the latter again becomes topical. "It is people who matter... the real purpose of development is the growth of human capabilities" (Ponce, Cancio, Sánchez, 2017, 77). These considerations challenge exploration of how the competence approach can possibly be consummated. In pedagogical science, research often implement adaptation of the IT to improve the traditional university study, therefore the content of the educator teaching in practice is considered almost as a synonym for learning, and the research conclusions are limited to recommendations for improvement of teaching/tutorial methods within a traditional setting. Meanwhile, a new computation paradigm - Cognitive computing is opening the door of education with a new accent on pedagogical paradigm - intelligent machines simulate human brain capabilities to help societies solve the most worrying problems; it is a journey and not a destination (Davis et al., 2016) when education programs will be the key to make cognitive systems of educator and student capability grow. This is an accent that changes pedagogy and is not common with education yet, nevertheless it might be a new approach; therefore, the suggested transformation needs an academic discussion.

Since capabilities are a form of human power, the digital empowerment of educators is intrinsically significant for encouraging the wide usage of digital instruments by their students. The capabilities as an agent (educator and student) power to be and to do things ground interests in the opportunities to maintain, develop, and exercise them (Gilabert, 2014, 1-14), and possibly accelerate paradigm shift by at least borrowing some ideas from the capability approach.

The theory of *capability approach* with a focus on human freedom, dignity, social equality and attitude as a motivational resource of agency can facilitate bridging teaching and learning to meet the demands of the social spheres of human activities and transformative impacts of DT, or deduce educator and student abilities to better using opportunities; these demand essential life skills that are thought to be what ultimately positively shape agency, attitudes and behaviour, and have been proposed to be closely linked to capability (Hoffmann, 2006). Though the category of capability is being investigated more often in philosophy and economy it can be very useful in understanding the educators' academic preparedness in the context of their academic enhancement, freedom, responsibility, power, as well as general and professional human rights. These accentuate a need to step outside a program into the current reality and move accent from competencies to capabilities. Hopefully, this might bridge the state of matters with the emerging challenges of machine learning, the augmented reality, collaborative robots, and advanced human-machine interfaces, which enable new human-machine ecosystems with its crucial impact on education.

The term of human capabilities is plural and broad, this includes using the achieved competence to create new possibilities for further success, therefore deals with 'journey and not a destination' and demonstrates the background understanding of human enhancement. The capability approach ... "is one of those rare theories that strongly connect disciplines, and that offers a truly interdisciplinary language". This approach purports that a person's freedom to learn and achieve the best possible self-development is a matter of what educators and students are able to do and to be (Robeyns, 2017, 8-16). Therefore, the capability theory addresses human development by advising to distinguish between the traditional understanding of development (Vygotsky, 1978) to release human natural inherited possibilities and a more appropriate category that is *enhancement* (Coeckelberg, 2011) to empower by DT the multidimensional teaching-learning that educators and students are able to conduct as 'a joint venture', exchange their roles when educators learn from students and do it together in a mobile environment; when digital technology processes information, replacing the functioning of the human brain, but leaving the created by this process product for the human mind to grasp and understand.

Technology-enhanced tertiary education is another broad category that transforms education and seeks for being defined in the new context of *capability approach*. Both of these penetrate a pedagogical process through all its components. While the capability approach accentuates the learner individual capability to do and be in a changeable environment (Sen, 2005; Gilabert, 2014; Robeyns, 2017) the notion *technology-enhanced* is mainly related to empowering means that augment learning and magnify teaching by improving internal and external environment of a pedagogical process, produce synergy and better achievements; its wide usage demonstrates a divergent understanding among educators. Despite the fact that digital technologies do not replace the functioning of human brain, technologies significantly enhance their functioning (Daniela, Strods, Kalniņa 2019); this background understanding is used for the identification of didactic principles of technology-enhanced learning (Žogla, 2019).

During the conducted in two countries investigation, a number of educators and students acknowledged impact of DT on their working life. This calls for re-visiting the educator competencies by shifting focus to capability approach and their academic capacity.

Methodology

Recent investigation within the Latvian-Ukrainian project (*Gender Aspects of Digital Readiness and Development of Human Capital in Regions, LV-UA/2018/3*) the educator and tertiary student attitudes to digital transformative learning among others have raised the questions to propose a discussion: “Does the gender gap significantly affect educator and student attitude to digital technologies?” and “Is educator’s digital competence a comprehensive target to meet modern rapid changes? The article focuses on at least some findings to discuss further educational improvements.

The research tools and methods. The data collection and processing followed the procedures suggested by the methodology of the tools; the e-questionnaires were completed by volunteers and here only those items analysed which are related to the theme of this article. The questionnaire “*Attitudes towards Information Technology*” (Gokhale, Brauchle, Machina, 2013) addressed those involved in education. Respondents were asked to do rating by using a Likert scale (this only highlighted the preferable statements describing attitudes toward IT): *Practical Value of IT, Positive Effect of IT on Work Life, Negative Impact of IT, Gender Equality of IT, and Interest in Learning about IT*. The Cronbach's alpha coefficient ($\alpha = .857$) indicates good internal coherence. The interpretation of the data is partly based on the results of the *Cultural Values Scale* (Yoo, Donthu, Lenartowicz, 2011), completed by the same respondents. Data were encoded and processed in SPSS 25.0. The *Scale to measure attitudes toward information technologies* (Gokhale, Brauchle, Machina, 2013) was used. The methodology of the questionnaires identified the statistical significance depending on the profile of the respondents and a good internal consistency of the tools.

The participants. The participated institutions, as well as the authors of the questionnaires, provided the certificates of ethical accountability. The recruitment of the survey participants (faculties and students who use DT) was done on the volunteer base. The research base is made up of 1013 respondents; these are categorised in Table 1.

Table 1

Socio-demographic characteristics of respondents by country

Variables	Values	Ukraine (n = 753)		Latvia (n = 260)	
		Number	%	Number	%
Gender	Males	282	37	44	17
	Females	467	62	214	82
	No response, invalid	4	<1	3	1
Academic Status	Students	717	95	206	79
	Educators	36	5	55	21

Results

Related to attitude toward IT the data identify some differences between gender attitudes to DT: Latvia looks more positive about Gender Equality for all population and each of the gender groups while the

Ukrainian respondents demonstrate higher interest in learning about IT. The data confirm that there are differences between the respondent countries in three more factor ratings; these also do not demonstrate crucial differences that might considerably affect educational improvements at least introducing the capability approach – tendencies are similar in both countries; therefore some findings (Figure 1) are used here to illustrate the theoretical statements. More detailed data on the gender differences in two countries are published (Žogla, Prudnikova, Mykhailenko, 2019).

Figure 1 shows that Median stands for most differences for *Interest in Learning about IT*: Latvia $Mdn = 19$, Ukraine $Mdn = 21$. Mann - Whitney U Test identifies statistically significant differences in the ratings of the three criteria ($p = 0.000$ in all cases), where Latvian respondents more often than those of Ukraine agree with the statements about *Negative Impact of IT*. In general, there are no crucial gender differences in attitudes to IT. Statistically significant ($p = 0.000$) differences between genders were found in the *Interest in Learning about IT* ratings: men were more likely to have interest (Mean Rank 431.63) than women (Mean Rank 340.80). The findings confirm that, despite the similarities of historical educational experiences, selected educational models and trends of the future development in both countries, education in each country should take into account national specificities and cultural environments that are related to the socio-economic situation or the values held by the learners and appreciated by the communities. Therefore, this article continues with common considerations for the universities and work-force developments in Latvia by the focus on educator and student attitude to DT and leaves the major data to be compared, analysed deeper and published by the project.

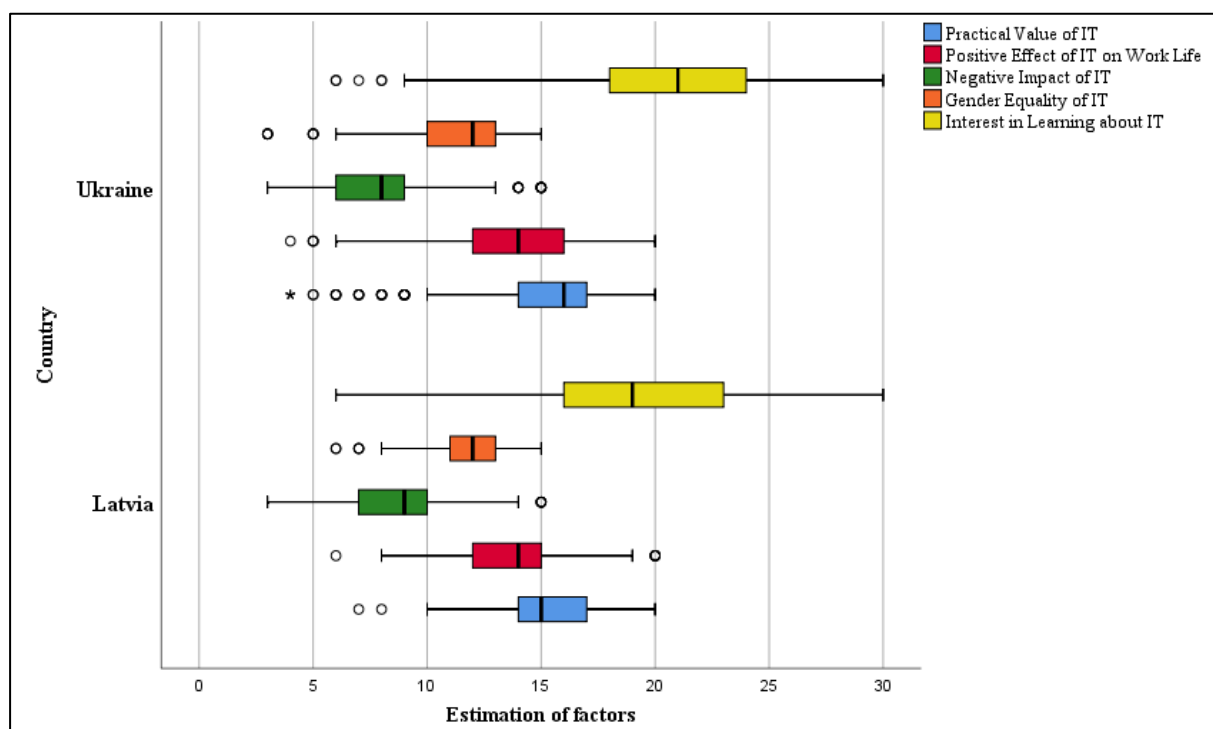


Figure 1. Estimation of factors by country.

Splitting the factor ratings into levels show that the lowest of which stands for negative attitude, the average level is neutral, and the highest level stands for positive attitude (Figure 2), about 1/3 of the respondents hold positive attitude, a large percentage of them remain neutral, but about 46% or 118 respondents have a negative attitude towards *Positive Effect of IT on Work Life*. Also, statistically significant differences ($p = 0.046$) were found in the *Positive Effect of IT on Work Life* assessments depending on the status of the respondents: educator negative attitudes are more pronounced (Mean Rank 486.46) than that of the students (Mean Rank 529.63). The assessment of statistical significance, which grounds on the averaging of the responses, however, has only technical sense; we cannot use these for more detailed essential conclusions; nevertheless, the data introduce into the state of matters and turn researcher attention to the sources of attitude to DT. This indicates the impact of the respondent status on the assessment: the new generation (students) feel more secure in using IT, the various new programs and IT opportunities do not frighten them, while the educator IT competence may be

comparatively lower or more severely assessed as underdeveloped for completing the educators academic duties when uncertainty and possibly wrong usage might cause some emotional threat of failure. The percentage of the respondents holding negative attitude to IT has several reasons: (a) the general collide of different mind-sets, visions, attitudes of educators and students that are influenced by the changing environment; (b) educators' previous experience when the didactic materials with IT had been developed at a lower quality make them aware of preparing these with DT, therefore, some of them do not feel confident about the result; (c) students start using a larger variety of DT earlier and with increasing speed if compared to the educators, and do it mainly in in-formal environments, while the educators' usage is stronger linked to the formal educational setting. This should be considered as a good possibility for creating educator-student learning communities to exchange experiences, use the priorities of the student skills to close the asynchronous gap.

The change of attitude takes place over a longer time; therefore, another topical gap appears - between students' readiness to operate freely or being and doing with DT and educators' more appropriate being or owning the transformations, making them happen and being change-makers in a pedagogical process. Respondents with a negative attitude toward DT need new positive experiences to change their attitudes. Conversely, those who are neutral are more convincing and, if supported, can easier decide for choosing digital team learning. These suggest re-addressing educator competencies and considering the term of capabilities by suggesting the capability approach.

Attitude is characterized by the respondent statements like this: *It is important that the instructions are detailed and I always know what I am expected to do; It is important to follow the instructions and sequence of actions closely to feel safe on the way to target; A standardized agenda is useful.* In total, more than 26 % of respondents disagree with these statements, 24 % agree, but almost half of the respondents – 49.5 % remain neutral. They demonstrated statistically significant differences ($p = 0.001$) depending on the status of the respondents: it is more important for students to know exactly what is expected of them and in what order (Mean Rank 125.00) than for educators (Mean Rank 94.54). This desire is related to the formal component of program acquisition. The findings suggest that today's students, being more familiar with DT, find transformational digital learning appropriate if a clear instruction is a condition for autonomous learning: learning can be properly organized, structured, more detailed; while educators follow the programs and accurately prepare the assignments, remind students of the formal demands towards academic results and achievements to which the students can proceed at their own pace, as well as provide two-way feedback. Student, as well as educator views indicates a potential to open the frames of formal programs, move a part of tertiary learning to real practice and therefore, enhance competences to sustain teaching and learning opportunities. This might release the process from bureaucratic systems of delivery (Tawil, Cougoureux, 2013); the acquired capability approach can fill in the gap.

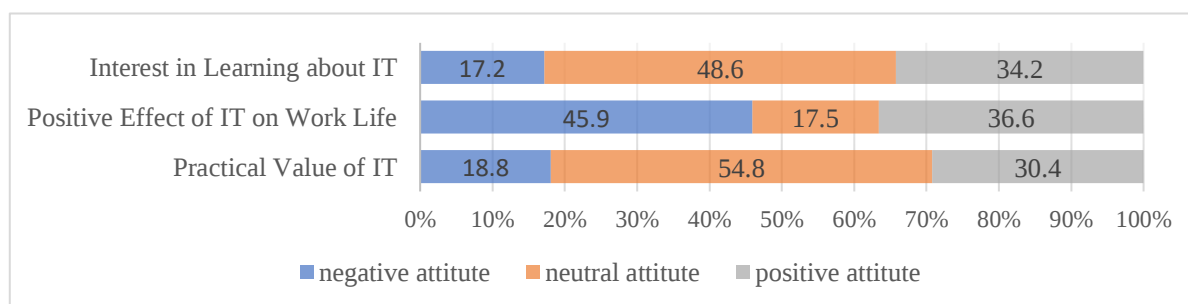


Figure 2. Latvian Respondents' Attitudes in Factor Assessments (%).

The article is limited in its scope; therefore, it addresses only some considerations that have been prompted by recent investigation of educator and tertiary student attitude to DT and which support introducing the capability approach. The learner empowerment at all ages and all levels of education is the direct promotion of capabilities through skills or competencies-based education challenged by the paradigm shift towards viewing human development in less economic terms (Hoffmann, 2006).

The capability approach is recognised to be in line with J. Delors (1996) four pillars of learning (Tawil, Cougoureux, 2013) and facilitating student learning; these when interpreted according to already

changed social environment are: (a) educator deep understanding of academic and professional knowledge (capability of knowing) that are fundamental for critical thinking, problem-solving, decision-making, well-informed action with full functioning of DT, as well as capability to transform competencies from an educational goal to a non-stop educational achievement; (b) educator concept of academic and professional abilities and agency coupled with appropriate personal qualities that include life skills for 'to be'; these are self-awareness and confidence in building a tertiary process that boosts educator and student capability (driven by motives, attitudes, values, needs); (c) experience of converting knowledge and skills (knowing and being) into agencies or academic and professional activities (learned doing) in educational setting by integrated internal and external environment, demonstrate these in activities and communication; (d) holding implied feeling of affiliation to the university or a professionals' group, a society and a culture, understanding and respecting individual differences (learned living together).

Discussion

Even if the initial understanding of *capability approach* has been related mainly to human dignity, freedom, justice including gender equality of individuals (Sen, 2005, 31) to pursue various goal-oriented activities, the approach can be applied to educational settings and by doing so can strengthen personalization of tertiary teaching-learning in a rapidly changing social environment.

Capability is a notion of psychology, while capability approach means its implementation in practice, a process of its on-going autonomous and/or assisted improvement and evaluation; therefore, it becomes a pedagogical notion and prompts important ideas that need their pedagogical considerations:

1. The capability approach in digital technologies-enhanced educational environments nowadays should meet more detailed understanding of integration with pedagogy by introducing a new looking at human development: from traditional understanding of human development as facilitation of one's inherited nature to technology-enhanced and more appropriate category of human cognitive *enhancement* that allows for augmented by DT enabling the acquired competencies to create new knowledge and skills.
2. The suggested capability approach might help educators and students better understand the crucial changes in social processes, especially in economy and education, go beyond the traditional pedagogical settings, reveal the interoperability of social processes and introduce new sources of attitudes to digital transformative technologies. There is a need for the improvement of the existing programs of formal and non-formal digital learning for the population that is considered a prospective work-force of a region.
4. Directions of shaping tertiary pedagogical process: (a) from including and involving learners to freedom of mutual engagement and participation; (b) from obligations of a formal educational process to freedom of accepting program and choice on the basis of personal meaningfulness and values; (c) value profiling in the context of freedom to choose and accentuate attitude to DT; (d) communication and cooperation of educators and students for synergy to maintain individual and collective values and rights, as well as changing resistance and control for acceptance of change.

Conclusions

The findings allow researchers to answer the research questions and to conclude:

1. Gender in Latvian tertiary education does not significantly affect educator and student attitude to DT; the aim of this article is achieved by limiting the concluding formulations to general tendencies in gender-related developments; the gender differences can be investigated in details for some specific purposes, for instance, creating programs to advance educator pedagogical capability in a technology-enhanced process.
2. The educator DT competence specified for pedagogical purposes should and can be improved. Another aim of this article was to trace possibilities of introducing the capability approach in using acquired competencies in DT while building the capacity of the internal and external environment of higher education by focusing on attitude sources. The capability approach in

building a technology-enhanced tertiary process is applicable in pedagogy and might introduce a real practice-oriented approach in higher education.

3. These accentuate a need to step outside a formal program into the current reality when pedagogy and the whole tertiary process is improved by real working processes instead of reducing the student practice according to norms of formal education; therefore, the accent from competence as an outcome of a tertiary pedagogical process should be moved to achieving capability of using acquired competencies in creating new knowledge and skills in a mobile environment.

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