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 the region" (LV-UA, Nr.LV-UA/2018/3) highlighted some peculiarities in educator and student attitude to digital technologies: attitude to IT might be positive but their appropriate usage lacks behind the possibilities. This study, among others, raised two questions: "Does the gender gap significantly affects educator and student attitude to digital technologies" and "Is educator digital academic and researchs' 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 approach to an appropriate pedagogical provision for further development of educator, tertiary and doctoral student digital competence. The aim is to provide a theoretically-based introduction to capability approach with the focus on attitude to digital technologies while building the capacity of the internal and external environment of tertiary process and bridging formal education with the demands of student future workplaces. The research draws on the theories of attitude sources and capability approach with a focus on attitude as a motivational resource of professional development of educators and students. The empirical research methods and tools: questionnaires "Personal cultural orientations", "Cultural values scale, and "Scale to measure attitudes toward information technologies"; data collection and processing followed the procedure suggested by the methodology of the questionnaires. 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.

Keywords: educator, student, attitude sources, and digital capability, gender.

Introduction

Current developments and total diffusion of digital technologies in almost all spheres of human life are accompanied by lots of problems related to acquiring appropriate usage of them to serve for appropriate to changes learning achievements and humans' better life. The pace of implementation of digital technologies at the University of Latvia: from technological tools to improve teaching-learning in 2000 to the integration of digital technologies in the study process to ensure virtual learning possibilities in 2010 (Rubene & Strods, 2016). These usually accompany rapidly changing societies and introduce misbalance in social processes; this research spots out only several of these.

The world context of traditional tendencies in attitudes to gender roles and involvement of women in related to ICT jobs; the gender disproportion exists also in education. *The Global Gender Gap Report* (2018) pays attention to the possible impact of digitalization on sustaining gender equality. Despite the development and total diffusion of digital technologies, the proportion of women involved in IT remains quite modest; for instance, 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). The gender gap in the number of ICT specialists in Europe keeps growing: 55,6 % points in 2005, 67,8% points in 2015 when men graduated 5.7 times more than women in ICT studies in Europe (Quirós, 2018). The traditional understanding of the 'male' and 'female' professions still interfere with career choices since ICT jobs are widely considered as a playground for men (Barbieri, 2018), this interferes with women's attitudes and challenge investigating educator attitude to ICT.

Educator, tertiary and doctoral student preparedness and the desired quality of their competences. One can observe educators attempts to provide a good assistance to their students as possible; meanwhile, they experience some incomprehension that accompanies rapid transformations. The universities discover that what worked in the past does not guarantee 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 achieve 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, and powerful pressures of government and political structures, on the other, influence teacher and student attitudes and attract researcher attention to the democratic context of human capital developments (Tawil, Cougoureux, 2013; Biggins et.al, 2016; Dinkelman et.al, 2017; Russel, 2019)

Educator and student attitude to digital technologies might be positive but their usage in many cases lacks behind the possibilities. The recently initiated competence approach introduces changes in creating an appropriate educational environment to break the routine and avoid distrust of pedagogical provision for building human capital in regions; these bother educators and students because the competence approach breaks the traditional ways of the tertiary process but its achievements are lower than the expectations. Despite being formal, educational institutions promote research and learning, the universities have always been at the forefront of investigation and innovations, and at the same time they are particularly slow to examine and make use of their potentialities, are implementing fragments of possibilities even those identified by their recent discoveries of supporting conditions like prioritizing team learning, fostering inquiry, facilitating dissemination of knowledge and skills, practicing democratic principles, maintaining human relationships in changeable social environment, and providing for members' self-fulfillment (Collinson, Cook, 2007).

The changing nature of learning and teaching in a changing environment with their promising possibilities for innovation, flexible responses to unpredictable environments, transformation of universities from within and from outside to sustain continuous improvements by having a look at education from the side of changing orientations in economy - profit-oriented economy does not fit the development of society, therefore education should practice the capability approach to keep these two areas balanced (Sen, 1999, 2005; Hussbaum, 2011; Robeyns, 2016; Coeckelberg et.al, 2010; Salais, 2019). Changing accents on understanding learning and its four pillars (Delors, et al, 1996), current social-political impacts and institutional delivery (Tawil & Cougoureux, 2013) initiate looking for comprehensive educational approaches. Since the 1980s a new approach to individual and social development has emerged that considers economic growth that is no more than a part of and an instrument of social policy. "It is people who matter… the real purpose of development is the growth of human capabilities" (Ponce, et.al, 2017, 77). These considerations challenge exploration of the practices of how topical educational approaches are being invented.

Often research in pedagogical science implement adaptation of the ICT 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.

Recent investigation within the Latvian-Ukrainian project *Gender Aspects of Digital Readiness and Development of Human Capital in Regions, LV-UA/2018/3)* of the educator, tertiary and doctoral student attitudes to digital transformative learning among others have raised the questions to propose a discussion: "*Does the gender gap significantly affects educator and student attitude to digital technologies*" and "*Is educator digital academic and research competence a comprehensive and sufficient target to meet modern rapid changes?* The article focuses on finding at least some answers, therefore traces applicability of the possible improvements to tertiary education, and suggest conclusions for discussion:

a) Theoretical assumptions of *attitude sources* to trace possibilities of current shifts in tertiary process by accentuating educator and student values and meaningful pedagogical provisions adequate to productive usage of digital technologies; the assumption is based on attitudes' driving force related to activity and possible improvements of the tertiary process by focusing on attitude sources (Collinson, 2012); the interrelated education contents, processes, and contexts must be of such quality that it leads to specific learning outcomes in the form of capabilities (Hoffmann, 2006).

b) Since capabilities are a form of human power, some forms of power may be intrinsically significant to promote educator faculties and achieve in catching up with the development of digital technologies and wide usage of these by their students. These capabilities as an agent power to be and to do things ground interests in the opportunities and abilities to maintain, develop, exercise them (Gilabert, 2014, 1-14), and possibly accelerate paradigm shift by at least borrowing some ideas from the capability approach.

c) The capability theory addresses human development by advising to distinguish between the traditional understanding of development (Vygotsky, 1978) and a more appropriate category of enhancement (Coeckelberg, 2010), as well as explores common and different features of competencies and capability approach. The freedom to do or have any particular thing can be substantially distinguished from actually doing or having that thing. Converting competencies into professionally appropriate doing anticipates

such enhancement by appropriate using opportunities and/or creating new possibilities for better achievements.

d) 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 development, transformative impacts brought about by the diffusion of digital technologies, closing gaps in exercising and enjoying human freedoms or deduce educator and student competencies in appropriate using of 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*).

The background knowledge: sources of attitudes

Educators' studying their practices was first discussed at the symposium of the American Educational Researcher Association (AERA) in 1992. After 15 years the Association for Teacher Education in Europe (ATEE) started an investigation and offered views on practices and research of teacher educators' work grounded in the traditions of educational explorations in the European countries (Svennen, van der Klink, 2009). The idea of educators' reflection has spread slowly and does not demonstrate serious transformations of most programs (Loughran, Russel, 2017, 65-76). There is little published research that deals with how teacher educators develop their competence as practitioners and exercise their expertise (Zeichner, 2005; Russell, 2019). Meanwhile, researchers conclude that educators and teachers, discovering their voice through self-study and simulating the transmission in activities are capable and suitable actors that encourage hearing, absorbing and retaining information long enough (Loughran & Russel, 2017, 66). In self-exploration, perceptual traits, perceptual image, and meaningful values form a view of one's activities and a background to self-evaluate them; these remind of educator attitude exploration and self-development.

Though the above-mentioned project is focused on gender gaps in using digital technologies, its additional findings attracted the researcher attention to educator and student attitude to digital transformative technologies and reminded the researchers of 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. The findings confirmed the well-known fact that one of the sources of attitudes is practice, especially successful practice (Collinson, 2012). In this respect, educator practical experience might well inform of their attitude to digital technologies, be a good starting point to develop this competence at a new quality and help moving outside the frames of formal education from digital competence to digital capability and introducing capability approach in education.

Therefore, based on theories and findings of the research the article focuses on four reasons for addressing educator and student attitudes to digital technologies, consider attitude sources to improve tertiary curricula and motivate educators and students to identify and practice the capability approach:

(a) values are deeply internalized and define personality, as well as consciously and 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; (b) scholars create their self-knowledge of values, identify attitudes and compare their capability with the most successful colleagues they know (Agne 1999; Combs, 1982; Rallis, Rossman, 1995); (c) 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 are those who need greater educational assistance (Ponce et.al., 2018, 79); (d) finally, educators are researchers, and this experience should be used to explore their practices as a background for innovative usage of digital technologies, discovering new approaches and creating appropriate possibilities of sustaining paradigm shift.

The investigation did not aim at a deep exploration of the attitude sources; it is based on the recognition that attitudes demonstrate a state of motives, therefore it focuses on the precedents of attitudes to digital technologies and couple these to the category of *capability* and *capability approach.*

Collinson (2012: 320-344) identified 14 groups of teacher attitude sources; this article spots out those which can be considered the most important for educators:

The powerful contribution of inquiry in tertiary and doctoral 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, only a small number actively conducted inquiry as a source or refinement of values and attitudes (Collinson, 2012).

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 Gardner's (1981: 124) observations that 'attitudes, habits, and ways of judging' are often learned 'in the routines' of living.

Professional development, understanding self, and others nowadays seem to involve grasping 'the whole picture' or seeing a bigger area of professional activities: the whole self and student, interdisciplinary education, emotional component in professional thinking and academic growth. Schön, D.A. (1992, 2017) argues that experienced professionals usually know more than they can put into words and respond to challenges of their work. This phenomenon suggests educators and researchers a promising object of investigating 'reflection-in-action' to explore nowadays 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.*

Bridging tertiary teaching with learning or learning from teaching. Dinkelman et.al 2017, 169-188) demonstrate awareness of how difficult it is to be able to know and measure the degree of influence that educator teaching has on their educational practices: the graduate respondents expressed dissatisfaction with the contribution that formal studies provided to teacher education. They acknowledged that their reading and mutual discussions influenced them stronger and gave greater importance to the value of conducting formal studies in teacher education (ibid, 173), 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 (ibid, 179). This calls for re-addressing the educator competencies, shifting focus on their academic capacity by exploring and creating new possibilities of empowering themselves and students.

Methodology

The research tools and methods. The questionnaire "*Attitudes towards Information Technology*" (Gokhale, et.al, 2013), aimed at those involved in education, was used to obtain results; data collection and processing followed the procedure suggested by the methodology of the questionnaires. Respondents were asked to rate, on a Likert scale (this does not determine the distance between the observing attitudes, but only highlight 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, et.al, 2011), completed by the same respondents. Data were encoded and processed in SPSS 25.0.

The research methods and tools: questionnaires *Personal cultural orientations* (Sharma, 2011), *Cultural values scale* (Donthu & Lenartowich, 2011), and *Scale to measure attitudes toward information technologies* (Gokhale et. al, 2013) - data collection and processing followed the procedure suggested by the methodology of the questionnaires that identified the statistical significance depending on the profile of the respondents and a good internal consistency of tools. The research base is made up of 1013 respondents (N = 260 in Latvia; N=753 – in Ukraine).

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 (students and faculties) was done on the volunteer base. The research base is made up of 1013 respondents (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%

The findings

Related to attitude toward IT these identify significant differences between genders: in 8 cases for Ukrainians and 6 for Latvians. However, Latvia looks more positive about Gender Equality than Ukraine, for all populations and each of the gender groups. Perhaps, this identifies a longer experience of Latvia's cooperation with the EU and some socio-cultural specifics, that might be connected with the different number of females employed in the IT-jobs in both countries. This allows for the conclusion that the gender differences are more pronounced in Ukraine than in Latvia, therefore this aspect can be left for a deeper investigation and another article.

The data demonstrate that there are differences between the respondent countries in three more factor ratings; these do not demonstrate crucial differences that might considerably athe ffect differences in educational improvements at least those related to the profile of this article – tendencies are similar in both countries.

Findings are reflected in Fig.1: *Negative Impact of IT* ($x^2 = .011$), *Gender Equality of IT* ($x^2 = .022$) and *Interest in Learning about IT* ($x^2 = .000$).
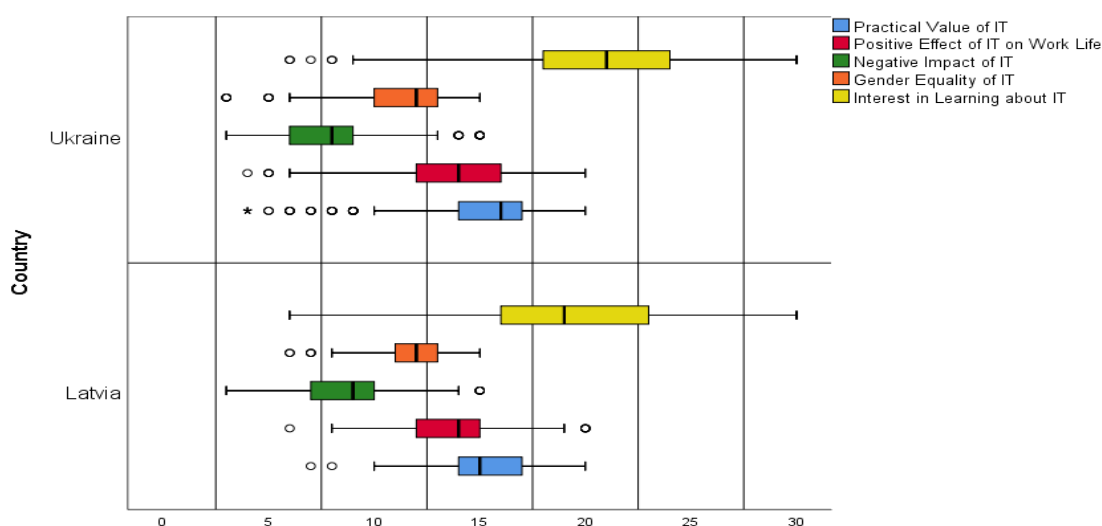

Figure 1. *Estimation of factors by country*.

Figure 1 shows that Median stands for most differences for Interest in Learning about IT: Latvia Me = 19, Ukraine Me = 21. Mann - Whitney U Test identifies statistically significant differences in the ratings of the three criteria (p = .000 in all cases), where Latvian respondents more often than those of Ukraine agree with the statements about Negative Impact of IT while the Ukrainian respondents are more positive to Interest in Learning about IT. The findings confirm that, despite the similarities of historical educational experiences, selected educational models and future development trends of both countries, education in each country should take into account national cultural specificities. Therefore this article continues with common considerations for further investigations and should be detailed for the specific cultural environment since attitudes as an important educational resource are related to the socio-economic situation and the values held by the learners and appreciated by the communities.

Identifying and analyzing this resource helps in making decisions about future pedagogical activities. Therefore, the attitude of 257 Latvian respondents (students and educators) towards IT and their value system was analyzed more detailed and presented here.

By splitting the factor ratings into levels, the lowest of which is negative attitude, the average level is neutral, and the highest level is positive attitude (see Fig. 2), about 1/3 of the respondents hold positive attitude, a large percentage of them remain neutral, but 45.9% or 118 respondents have a negative attitude towards *Positive Effect of IT on Work-Life*. Also, statistically significant differences (p = .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 digital technologies. 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 the educator academic duties, therefore uncertainty and possibly wrong usage might cause some emotional threat of failure. The change of attitude takes place over a longer time. Respondents with a negative attitude toward digital technologies need time and new positive experiences to change their attitudes. Conversely, those who are neutral are more convincing and, if supported, can easier decide for choosing transformative digital learning and participating in team learning. These suggest re-addressing educator competencies and consider the term of capabilities.
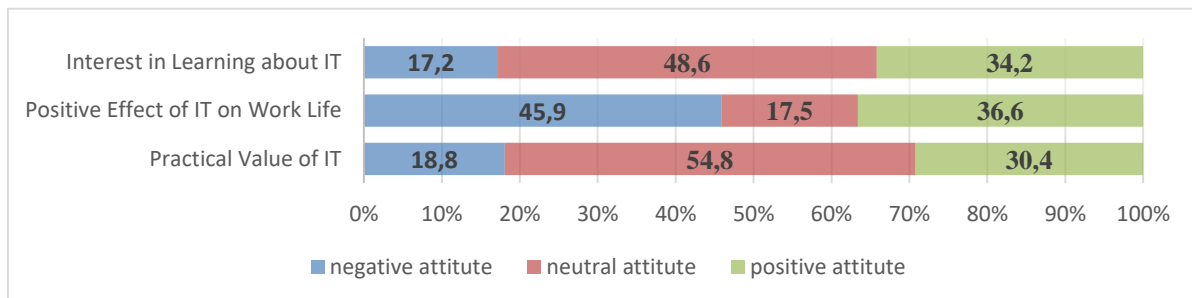

Figure 1. *Latvian Respondents' Attitudes in Factor Assessments (%).*

This analysis allows researchers for concluding that the percentage of the respondents holding negative attitude to IT has several reasons: (a) insufficient IT competence, which makes it difficult to prepare and use didactic materials with digital technologies and/or use them in the IT environment, as a result of which the respondent does not feel confident about the result; b) negative previous experience when the digital materials had been developed at low quality and made it difficult to achieve the desired results; c) respondent status (student or educator) and related to digital technologies values that each of them follows; d) students start using a larger variety of digital technologies earlier 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.

To better understand the relationship of attitudes to IT with the respondent value system, the questionnaire "Cultural values scale" (Yoo, et.al, 2011) was suggested to educators and students with the focus on avoiding the uncertainty that remained from the previous questionnaire. 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, 26.3% of respondents disagree with these statements, 24.2% agree, but almost half of the respondents - 49.5% remain neutral. They demonstrated statistically significant differences (p = .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, who are more familiar with IT environment, find transformational digital learning appropriate if coupled with clear instruction on the program: 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, indicate the potential 'to open the program frames' and enhance competences to sustain teaching and learning opportunities, "freeing educational process from bureaucratic systems of delivery" (Tawil & Caugaureux, 2013); the acquired capability approach can fill in the gap.

Conclusions and discussion: Why the capabilities approach is appropriate for tertiary education?

The article is limited in its scope; therefore it addresses only some considerations that have been prompted by recent investigation of educator, tertiary and doctoral student attitude to digital technologies to close the gender gap. This means that 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 development in less economic terms' (Hoffmann, 2006). Capability is a notion of psychology, while capability approach means the implementation of capability in practice, a process of its development and evaluation – a pedagogical notion. To meet the different needs of learners the capability approach has to develop a large variety of approaches that are implemented by a different set of pedagogical tools. The capability approach prompts some important ideas that need their pedagogical considerations related to tertiary education and practicing of the learner-centred approach:

1.	The initial understanding has been related mainly to human dignity with capability as the freedom of individuals to pursue various 'functionings' or activities, necessary for them to fulfill these free-doms including other human rights (Sen, 1999, 75) such as gender equality for women (Sen, 2005,31). The approach deals with essential life skills education that is seen as a comprehensive approach to the education of good quality, positively shape agency, attitudes, behaviour, and has been proposed to be closely linked to capability (Hoffmann, 2006).

2.	The approach is in line with Delors four pillars of learning in already changed social environment (Tawil & Cougoureux, 2013): (a) educator deep understanding of academic and professional knowledge (capability of knowing) that are fundamental for critical thinking, problem-solving, decision-making, and well-informed action with full functioning of digital technologies; (b) educator concept of aca-demic and professional abilities and agency coupled with appropriate personal qualities that include life skills for 'to be' - self- awareness, esteem, coping, and confidence, aiming at building an identity, valu-ing oneself, setting goals, other agencies (driven by motives, attitudes, values, needs); (c) experience of converting knowledge and skills (knowing and being) into agencies or academic and professional activ-ities (learned doing) in educational setting by integrated internal and external environment, demon-strate these in activities and communication; (d) holding implied feeling of affiliation to the university or a group, a society and a culture, understanding and respecting differences, related inter-personal abilities essential to define a person as a social being in constant interaction with the world (learned living together).

3.	Human capability is defined as the opportunity to achieve valuable modes of human functionings and in his/her activities demonstrate what a person is able to do and to be. Though the category of capability is being investigated more often in philosophy and economy it can be very useful in understanding the educatorse academic preparadeness in the context of their academic freedom, responsibility, as well as general and professional human rights. Understanding of opportunity in terms of capability allows us to distinguish between: (a) whether a person is aware of his/her actual ability to do things that are significant and therefore worth doing; (b) whether a person holds appropriate attitude and is able to convert his/her knowledge and skills into activities, and (c) whether a person possesses the means, instruments, permissions, or power to pursue and do what is actually valued even if doing and completing may depend on multiple circumstances. Thus, two persons can have very different substantial opportunities even when they have the same set of means' (Sen, 2005, 154).

4.	The capability perspective allows us to take into account the parametric variability in the relation between the means, on the one hand, and the actual opportunities, on the other. Differences in the capability to function can arise even with the same set of personal means (such as primary goods) for a variety of reasons, such as: (a) physical or mental heterogeneities among persons (related, for example, to disability); (b) variations in non-personal resources (such as the nature of public health care, education, societal cohesion and the helpfulness of the community); (c) environmental diversities (such as climatic conditions or social structures), (d) the multidisciplinary character of the capability approach has contributed to the normative basis for assessing the change or design of institutions, policies, and practices (Sen, 2005).

5.	The term of human capabilities is plural and broad, this includes achieved education; it is more frequently used in publications related to social phenomena like justice and freedom, areas of economy and politics. The capability approach …" is one of those rare theories that strongly connects disciplines, and that offers a truly interdisciplinary language". The capability approach purports that a person's freedom to learn and achieve the best possible his/her development is a matter of what educators and students are able to do and to be (Robeyns, 2017, 8-16), and the kind of multidimensional learning they are effectively able to conduct as 'a joint venture' by exchanging their roles when educators learn from students.

6.	The suggested capability approach might help educators and students better understand the crucial changes in social processes, especially in economic and education, go beyond the traditional pedagogical settings, as well as reveal the interoperability of social processes and introduce a new source of attitudes to digital transformative technologies. There is a need for quality digital learning materials that requires educator professionally high-quality understanding of student learning to choose an appropriate approach and improve personal digital literacy enhancement. The evaluation and improvement of the existing programs of formal and non-formal digital learning, development of new study courses that integrate or fully deliver distance digital learning for the population that is considered a prospective work-force of the region.

7.	Shaping the pedagogical process: (a) from including and involvement 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 value; (c) valuating profiling in the context of freedom of choice; (d) cooperation an communication for synergy to maintain individual and collective values, rights,.. (Biggins et.al, 2016)

Bibliography

1. Agn, K.J. (1999). Caring: The way of the master teacher. In.P. Lipka & T.M. Brinthaupt (Eds.) *The role of self in teacher development,* Albany: State University of New York Press.
2. Barbieri, D.L., Raffaele; Maxwell,Katherine; Mollard, Blandine; Karu, Marre; Salanauskaitė, Lina; Reingardė, Jolanta (2018). *Women and men in ICT: a chance for better work-life balance.* Luxemburg: Publication Office of the EU. DOI: 10.2839/310959
3. Biggins D., Holley D., Evangelinos G., Zezulkova M. (2016). *Digital Competence and Capability Frameworks in the Context of Learning, Self-Development, and HE Pedagogy.* Retrieved from https://www.slideshare.net/debbieholley1/digital-competence-and-capability-frameworks-in-the-context-of-learning-selfdevelopment-and-he-pedagogy-eleot-2016
4. Burns J.M. (1978). *Leadership.* New York: Harper-Row.
5. Coeckelberg M. (2010). Human Development or Human Enhancement? A Methodological reflection on Capabilities and the Evaluation of Information Technologies. *Ethics Information Technologies 13*(2), 81-92. Retrieved from https://link.springer.com/article/10.1007/s10676-010-9231-9
6. Collinson V. (2012). Sources of Teachers' Values and Attitudes. *Teacher Development 16*(3), 321-344. DOI: 10.1080/13664530.2012.688675
7. Combs, A.W. (1982). *A personal approach to teaching: Beliefs that make a difference.* Boston: Allyn & Bacon.
8. Delors, J. et al. (1996), *Report to UNESCO on Education for the 21st Century - Learning: The Treasure Within*, UNESCO, Paris.
9. Dinkelman T., Margolis J. y Sikkenga K. (2017). De professor de escuela a formador de professores: reconceptualizando la teoría en la práctica (From School Teacher to Educator: Reconceptualization of theory in practice). In T. Russel, R. Fuentealba, Y C. Hirmas (Comp.) (2017). *Formadores de Formadores, descubriendo la propia voz a través del Self-Study* (Educators, discovering their voice through the Self-Study) (pp. 169-188). Santiago, Chile. Retrieved from https://oei.cl/Oei/Noticia/formadores-de-formadores-descubriendo-la-propia-voz
10. Gardner J.W. (1981). *Self-renewal: The individual and the innovative society.* New York: W.W. Norton.
11. Gilabert P. (2014). *Human rights, Human Dignity, and Power.* Retrieved from https://www.academia.edu/34660672/Human_Rights_Dignity_and_Power.
12. Gokhale, A., Brauchle, P., Machina, K. (2013). Scale to measure attitudes toward information technology. *International Journal of Information and Communication Technology Education, 9*(3), 13-26.
13. Hoffman A. M. (2006). *The Capability Approach and educational policies and strategies: Effective life skills education for sustainable development.* AFD, Paris.
14. Hussbaum M. (2011). Capabilities, Entitlements, Rights: Supplementation and Critique. *Journal of Human Development and Capabilities 12*(2011), 23-37.
15. Latvia Demographics Profile 2018 (2019). Retrieved from https://www.indexmundi.com/latvia/demographics_profile.html
16. Loughran J., Russel T. (2017). Comenzando a entender la enseñanza como una disciplina In Russel, T., Fuentealba, R. Y Hirmas, C.(Comp.) *Formadores de Formadores, descubriendo la propia voz a través del Self-Study* (Educators, discovering their own voice through the Self-Study) (pp. 65-76). Santiago, Chile. Retrievedf rom https://oei.cl/Oei/Noticia/formadores-de-formadores-descubriendo-la-propia-voz
17. M a
18. Ronce R.S., Cancio J.A.P., Sanchez J.E. (2017). The Capabilities Approach and Values of Sustainability: Towards an Inclusive Pedagogy. *Journal of Innovation & Knowledge 3*(2) 76-81. https://doi.org/10.1016/j.jik.2017.12.008
19. Quirós, C. M., Esther; Pastor, Rafael; Carmona, Alberto; Sáinz, Milagros; Usúe, Madinaveitia Herrera. (2018). *Increase in the gender gap in the digital sector - Study on Women in the Digital Age.* Retrieved from https://ec.europa.eu/digital-single-market/en/news/increase-gender-gap-digital-sector-study-women-digital- женский вопрос: гендерные стереотипы в украинском ИТ. Образование. DOU.UA. Retrieved from https://dou.ua/articles/women-educationр
20. Ralhs S.F.Ross (1995). *Principles teacher's leaders of change.* Thousand Oaks, CA: Corwin Press.

21. Robeyns I. (2016). Capabilitarianism. *Journal of Human Development and Capabilities, 17*(3), 397-414. DOI: 10.1080/19452829.2016.1145631
22. Robeyns I. (2017). *The Capability Approach. An interdisciplinary Introduction*. Received from https://academia.edu/34225916/The_Capability_Approach_An_Interdisciplinary...
23. Rubene Z., Strods R. (2016). Transformations of Digital Culture in the Doctoral Studies in Pedagogy: The Case of the University of Latvia. *Acta Paedagogica Vilnensia, 38*, 143-158.
24. Russell T. (2019). Are Teacher Education Practices Really Changing? An Editor's Farewell. *Studying Teacher Education 15*(3), 255-259 DOI: 10.1080/17425964.2019.1675433
25. Salais R. (2019). *From competence to capability*. https://www.slideshare.net/Anact/4-salais-presentation
26. Schön D.A. (1992., e-format 2017). *The Reflective Practitioner: How Professionals Think in Action*. London: Routledge. https://doi.org/10.4324/9781315237473
27. Sen A. (2005). Human Rights and Capabilities. *Journal of Human Development 6*(2), 151-166. Retrieved from https://www.unicef.org/socialpolicy/files/Human_Rights_and_Capabilities.pdf
28. Sen A. (1999). *Development as Freedom*. New York: Anchor Books.
29. The Global Gender Gap Report. (2018). http://www3.weforum.org/docs/WEF_GGGR_2018.pdf
30. Vygotsky L.S. (1978). *Mind in Society*. Harvard UP, Cambridge.
31. Yoo B., Donthu N., Lenartowicz T. (2011). Measuring Hofstede's five dimensions of cultural values at the individual level: Development and validation of CVSCALE. *Journal of International Consumer Marketing, 23*(3-4), 193-210. DOI:10.1080/08961530.2011.578059
32. Zeichner K.M. (2005). A research agenda for teacher education. In M. Cochran-Smith, K.M. Zeichner (Eds.) *Studying teacher education: The report of the AERA panel on research and teacher education* (pp. 737-759). Washington, DC: American Educational Research Association.