THE SEARCH FOR AN APPROACH TO DEVELOP EDUCATORS’ DIGITAL TEACHING COMPETENCE

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ABSTRACT
Empirical analysis of educators’ competence revealed that there is a room for the development of educators’ digital teaching competency. The guiding question for the current study is: What approach would facilitate the development of educators’ digital teaching competence? The aim of the study is to analyze scientific literature on the ways of the development of digital competence underpinning elaboration of an approach to the enhancement of educators’ digital teaching competence. The research methods include literature analysis and theoretical modelling. The theoretical findings of the research allow shaping the socio-digital approach to the enhancement of educators’ digital teaching competence.

KEY WORDS: educator, digital teaching competence, approach, social interaction, social capital, human-computer interaction.

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Introduction

The current study is specifically sought to elaborate an approach to the development of educators’ digital teaching competence. Digital competence refers to a set of knowledge, skills and attitudes that one acquires through the relationship with the media during his/her life path and manages, in a more or less autonomous way, in the various contexts in the era of digital convergence (Grünwald et al., 2016). In light of this, digital competence is a necessary element for individual development which the educational system should integrate in order to ensure effective participation in 21st century. This skill level of the educators in the digital realm is their ‘digital competence’. Furthermore, the development of digital competence has a focus on education, which acts as a tool for ensuring social cohesion (Ala-Mutka, 2011). For this to happen, educators must be capable of training students to be able to use ICT as an inherent component in their personal and social development (European Commission, 2014).

Hence the analysis of the contemporary social-cultural environment emphasizes that the development of digital teaching competence is of a social nature as well as of a digital nature. Social nature of individual development in general was formulated already by Vygotsky (1962). The aim of the development is defined by Vygotsky as transformation of the external culture into the individual internal knowledge, skills and attitudes. That means that any change in the cultural development appears twice or on two planes: first on the social level (the external perspective) and later, on the individual level (the internal perspective) (Wells, 1994, p. 3). Social nature of individual development in general has been identified as gaining new experience in social interaction (Tiļļa, 2006), and learning as participation (Huber et al., 2007).

Social domains such as health, education, and human development have embraced the notion of empowerment, and continue to explore the use of digital technology as a facilitator of attitudinal or behavioral change (Rosser et al., 2009). Digital nature implies the use of digital devices in a variety of life situations (Grünwald et al., 2016) such as employment, learning, self-development and participation in society in general, cooperating with different networks and developing processes in particular. Consequently, the main principles of the development of digital competence comprise the process of social interactions as well as human-computer interaction.

The social interaction is built on the theory of social capital. Social capital is an economic idea that refers to the connections between individuals and entities that can be economically valuable (Gittell, 1998). Human development is influenced by cultural, economic, environmental, political, and social factors that affect people
Thus innovation in human development tends to focus on the development of social capital.

Human-computer interaction is the study of how people interact with computers and to what extent computers are or are not developed for successful interaction with human beings. Human-computer interaction as a field of inquiry necessarily evolves in response to changes in the technological landscape. HCI specialists focus on the issues are technologies learnable, usable, useful, reliable, comprehensible, ethical? Their concern is to assess whether technologies serve, engage, and satisfy people and extend their capabilities, or frustrate, thwart, and confound them (Miłaszewicz, 2015).

The principles of social and human-computer interaction contribute together to the emergence of socio-digital approach to the development of educators’ digital teaching competence. The socio-digital approach hereby emphasizes the impact of the education on the enhancement of social capital and as a result on the economy. Based on this premise, it is necessary to design and develop training actions for educators that address their digital competence. These actions should be designed and developed to meet the institutional needs motivated by the responsibility of having to train future generations for a digital society. This situation raises the question of what new skills future students should possess and what skills teachers in charge of educating those students must also master.

Hence the article is sought to answer the question: What approach would facilitate the development of educators’ digital teaching competence? The article has been prepared in the boundaries of the project “Programme on Education Efficiency” (PEESA) within EU Co-operation Programme in Higher Education (EDULINK II) that was specifically aimed at developing a theoretically grounded model of educators’ digital teaching competence development model.

1. The structure of digital teaching competence

The recent empiric study of educators’ competence (Grunwald et al., 2016) revealed that there is a room for the development of educators’ digital teaching competence. Digital teaching competence of educators is identified as an educator’s individual combination of abilities and experience (knowledge, skills and attitude) in teaching digitalization and digitization (Grunwald et al., 2017). Digital teaching competence of educators includes such dimensions as:

• experience in media and equipment,
• experience in courses, didactics and instructional design,
• experience in Learning Management Systems,
• experience in videoconferencing, experience in social networks, and
• experience in e-moderation.
Joint Research Centre worked out the framework of digital competence for educators (DigCompEdu) at all levels of education, from early childhood to higher and adult education, including general and vocational training, special needs education, and non-formal learning contexts as demonstrated in Figure 1 (Joint Research Centre, 2017).

![Image of the framework of digital competence for educators](image)

**Figure 1.** Overview of the digital competence for educators (DigCompEdu) framework (Joint Research Centre, 2017)

The framework aims to provide a general reference frame for developers of Digital Competence models, i.e. Member States, regional governments, national and regional agencies, educational organisations themselves, and public or private professional training providers (Joint Research Centre, 2017).

DigCompEdu considers six different competences areas with a total of 23 competences:

- Area 1 focuses on the professional environment;
- Area 2 on sourcing, creating and sharing digital resources;
- Area 3 on managing and orchestrating the use of digital tools in teaching and learning;
- Area 4 on digital tools and strategies to enhance assessment;
- Area 5 on the use of digital tools to empower learners;
- Area 6 on facilitating learners’ digital competence.

Areas 2 to 5 form the pedagogic core of the framework. They detail the competences educators need to possess to foster effective, inclusive and innovative learning strategies, using digital tools (Joint Research Centre, 2017).
In every case, it is clear educators need a level of competence that will allow them to use technology effectively and appropriately, as well as a sufficient level of skill development suitable for their students and the learning needs thereof. This skill level of the educators in the digital realm is their ‘digital competence’, with regard to which various international institutions have proposed ICT standards (EPICT, 2006; ISTE, 2008; UNESCO, 2008) which organise development of digital competence of educators in the form of the knowledge and skills that the educators should master in various areas. The paper follows Krumsvick’s approach (2009) which specifies that educators’ digital competence consists of four components: basic digital skills (Koehler et al., 2008; Ferreiro et al., 2013), instructional competence with ICT (Ottestad et al., 2014; Koehler, Mishra, 2008), and learning and training strategies and digital development.

2. Professional development in digital competence for educators

On a conceptual level, professional development of digital competence has quite a few definitions. Professional development can be said to include an employer that purposely develops employees’ competence, in relation to current or future work tasks (Nilsson et al., 2011). According to Nilsson et al. there are some key components in professional development activities:

1. First involves the type of work and the employee’s ability to act within his or her work role. Such work roles can more or less be based on routine or reflection, which either restricts or enables taking action within the work role.

2. Second is the employee’s possibilities for interaction with colleagues, and work team composition.

3. A third component are the properties of the professional development activities, where time set aside for the education, together with the quality of the education, is important.

4. A fourth component is the organizational culture, and specifically how it values professional development and individual responsibility.

5. Fifth, the employee’s own willingness and motivation for professional development is of great importance. An employee that is not motivated or does not want to learn and develop is unlikely to do so.

Further, Nilsson et al. argue that for professional development to result in individual learning, organizations must strive towards providing employees with time for reflecting on the professional development offered to them. Besides time for reflection – when pursuing individual learning – organizations should also allow room for errors and encourage personal initiative. Bush (2008) shifts focus from the actual activities of professional development, to a focus on the organizational
conditions for learning and developing knowledge. Huber (2007) discloses core principles as requirements for effective arrangements of the development of educators’ digital competence. According to the author professional development should be a purposeful, consistent and coherent process, reflecting the needs of educators at various stages of professional and organizational socializations.

The principle of *expediency* requires the process of competence development to be based on consistent analysis of needs for competencies. Needs analysis provides the crucial information to ensure that competence development is purposeful, appropriate, valid and relevant. According to the principle of *coherence* the process of development of educators’ competence consists of three phases: pre-service preparation; induction and in-service training. Development of digital competence should be integrated into all stages. According to the principle of *professional development* is tailored to career path. Educators need actively to maintain and further develop their professional competences throughout their careers, in an ongoing professional development process which at the same time supports the individual engagement and professional profiling. For professional development systems to enable all educators to acquire and develop the competences they need, three key system components are needed (Bolam, 2004; Bush, 2008):

- stimulating educators’ active engagement in career-long learning and competence development, in effective ways;
- assessing the development of educators’ competences, with tools that are aligned with the purpose and design of the educator competence model being used in each system;
- providing coherent, career-long appropriate and relevant learning opportunities, through which every teacher can acquire and develop the competences (s)he needs.

It is possible to stimulate educators to engage positively in developing their competences through a competence development plan that might (Huber, 2007):

- be based upon a clear model of educator competence with sound theoretical underpinnings, on which there can be consensus;
- promote educators’ self-reflection;
- respect individual educators’ different starting points and levels of interest by offering a mix of options, incentives and requirements;
- leave room for school autonomy in implementing continuous professional development plans.

A key question is: ‘how to inspire educators to be proactive, reflective professionals who take ownership of their own professional development?’ Educators vary in their learning styles, their level of engagement and their understanding of the benefits of acquiring and developing their competences. Therefore, their focus on internal or external stimuli for engagement in professional development will vary.
Educators' engagement in competence development can be stimulated by offering a mix of opportunities, incentives and requirements. The opportunities for competence development should meet the following conditions (Bolam, 2008): matching needs and demands at all levels – building a bridge between the needs of the educator and those of the school (and education system); accessibility, relevance and variety of opportunities on offer; proper coordination between the content of ITE, induction and continuous professional development, and the providers at each phase; being based on dialogue with stakeholders at all levels, to secure commitment and shared understanding; adequate provision of time and resources (e.g. substitute educators to cover for training absences).

For educators who are mainly stimulated by external factors, different material and non-material incentives can stimulate engagement in professional development; depending on the context, these may include: opportunities to develop as professionals; opportunities to fulfil other roles and take on wider school responsibilities; recognition by colleagues and education authorities; seeing the success of their students; the appreciation of the school leader; the respect of the local community; salary increases.

3. The socio-digital approach to the development of educators’ digital teaching competence

The project “Programme on Education Efficiency” (PEESA) within EU Cooperation Programme in Higher Education (EDULINK II) was specifically aimed at developing a theoretically grounded model of educators’ digital teaching competence. Training in digital teaching competence for educators is one of the pivotal activities of this study, and in this article the socio-digital approach has been elaborated. The socio-digital approach to the development of educators’ digital teaching competence has been based on the categories the digital skills are focused on (Iломаки et al., 2011):

<table>
<thead>
<tr>
<th>WAYS OF THINKING</th>
<th>WAYS OF WORKING</th>
<th>TOOLS FOR WORKING</th>
<th>LIVING IN THE WORLD</th>
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<tbody>
<tr>
<td>Creativity and innovation</td>
<td>Communication</td>
<td>Information literacy</td>
<td>Citizenship – local and global</td>
</tr>
<tr>
<td>Critical thinking, problem solving, decision making</td>
<td>Collaboration (teamwork)</td>
<td>ICT literacy</td>
<td>Life and career</td>
</tr>
<tr>
<td>Learning to learn, Metacognition</td>
<td></td>
<td></td>
<td>Personal and social responsibility – including cultural awareness and competence</td>
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In the process of professional development for educators the approaches, which are too focused on technical or instrumental aspects should be rejected in favour of training actions centred on the use of ICT at the educational level and for curricular development, while always remaining practice-oriented (Huber, 2007). Educational organisations, who seek to implement professional development activities in order to develop educators’ digital teaching competence could use the framework. The approach anticipates four inter-related stages:

I. **Organisation and management of professional development process in educational institution in order to enhance the digital teaching competence of educators:**
   - To establish management team and ICT coordinator, the function of them is to assess the teaching staff, plan and suggest training activities at the school, and to establish the professional development plan.
   - To establish ICT committee that would be comprised of the ICT coordinator, the coordinators of all the stages, and a member from the management team, it establishes the priorities to be pursued at the institutional level – expressed as objectives – in order to improve the quality of the education and to respond to teaching-learning situations in which the use of ICT could be improved.
   - Individual level: each educator expressed his/her particular training needs and priorities to the rest of the faculty.

II. **Educators’ role**
   - Understand the organisation of the skill-based curriculum and, more specifically, the role of digital competence as methodological competence.
   - Contemplate, share, and design work strategies for digital competence application in the teaching-learning process.
   - Be familiar with teaching-learning resources for digital work.

III. **Arrangements of professional development in digital teaching competence**
   - To analyse the skills-based curriculum and the changes implied by the educational organisation with regard to digital competence.
   - To identify and compile the objectives and the content of the various curricular areas which make specific reference to the digital competence of learners.
   - To design teaching-learning situations for content work involving the development of digital teaching competence while taking into account the scenarios in which they are developed, ICT resources and ICT tools.
• To analyse the use and potential for blogs, websites, and a virtual teaching and learning environment in teaching-learning process by proposing teaching-learning activities in which the educational community may participate.

IV. Assessment

• To assess how the objectives and content of the different curricular areas related to the development of digital teaching competence was identified.
• To assess the design of teaching-learning activities and situations for.
• To assess the selection of adequate resources and tools for teaching-learning activities.
• To assess the possibility of sharing experiences and working collaboratively with other educators at the educational institution in relation to digital teaching competence.
• To assess the application of new methodologies for digital teaching competence.

The following approach allows an educational institution to render systematic professional development process in the field of enhancement of educators’ digital teaching competence. This fact, though not the result of a requirement by the educational administration but instead arises from a process of raising institutional awareness to improve quality, hints at a curricular development born from a process of professional contemplation of one’s practice. The institution will have ‘up-to-date’ educators, who will have participated in an in-service professional development process based on the implementation of innovative methodologies. Additionally, there is evidence of the transfer of training results in the development of the institution’s curricular project, classroom programmes, and teaching materials prepared collaboratively. The school will have developed its own professional development plan, achieving some of the objectives defined to improve institutional quality in different areas. The institution’s culture of collaboration, based on the strategies used in in-service professional development, has generated internal work processes around which the training activities will be organised.

Conclusions

The findings of the present study serve as a source of shaping an approach to the enhancement of educators’ digital teaching competence. The theoretical findings allow shaping the socio-digital approach to the enhancement of educator’s digital teaching competence. A new research question is formulated: What is methodology
for the assessment of the efficiency of the socio-digital approach to the enhancement of educator’s digital teaching competence?

The present research has limitations. The limitation is the theoretical modelling conducted by involving only researchers. Therein, the results of the study cannot be representative for the whole area. Nevertheless, the results of the present research may be used as a basis of analysis of the enhancement of educators’ digital teaching competence in education institutions. If the empirical results of higher education institutions had been available for analysis, different results could have been attained. There is a possibility to continue the study.

Further research tends to focus on empirical studies to analyse the efficiency of the socio-digital approach to the enrichment of educator’s digital teaching competence. The search for relevant methods for evaluation of efficiency of the socio-digital approach to the enhancement of educator’s digital teaching competence is proposed. And a comparative research of more approaches to the development of educator’s digital teaching competence could be carried out, too.

**Resources**


Grünewald, N., Pfaffenberger, K., Melnikova, J., Zaščerinska, J., Ahrens, A. (2016). *A Study on Digital Teaching Competence of University Teachers from Lithuania and Latvia within the PEESA


Empirinių tyrimų duomenys patvirtina, kad šiuolaikiniai ugdytojai stokoja skaitmeninio mokymo(si) kompetencijos. Skaitmeninio mokymo(si) kompetencija straipsnyje apibrėžiama kaip ugdytojų žinios ir gebėjimai atsakingai taikyti IKT organizuojant ir vykdant mokymo(si) procesą bei atsakant į besimokančiųjų poreikius. Metodologinis straipsnio pagrindas glūdi socialinės sąveikos teorijose bei žmogaus ir kompiuterio interakcijos teorijose. Socialinės sąveikos teorijos pagrindu straipsnyje teigiamai, kad analizuojant skaitmeninio mokymo(si) kompetenciją svarbi moralinė dimensija, akcentuojanti santykius ir komunikaciją su kitaž Žmogaus ir kompiuterio interakcijos teorijos pagrindu straipsnyje pabrėžiama, kad technologijos turi tarnauti žmonių tikslams ir jų taikymas ugdymo procese turėtų būti pagrįstas, patikimas, naudingas, suprantamas ir etiškas. Todėl straipsnyje keliamas probleminis klausimas – koks modelis lemtų efektyvų ugdytojų skaitmeninio mokymo(si) kompetencijos tobulinimą(si).