

DIRECTIONS OF DEVELOPMENT OF CONTEMPORARY EDUCATION. CONSTRUCTIVIST APPROACH

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Purpose: The purpose of the article was to show directions for necessary changes in the organization process, education, favorable development of society information.

Design/methodology/approach: In the content done, review contemporaries' theory, scientific research results, and social expectations, pointing to the need for changes in educational implementation tasks. Indicated main directions activities influencing evolution approach to organization process didactic to ensure people teaching myself education expected competences.

Findings: As a result, the accomplished analysis presented recommendations for the organizer's educational activities.

Originality/value: The article has a character review.

Keywords: digital civilization, key competencies, education, constructivism.

Category of the paper: Literature review.

1. Introduction

For several dozen years, we have witnessed the next breakthrough technology, which is difficult to predict the development direction. Application increasingly newer ones and more advanced digital technology systematically change or replace previous ones forms activities man in various zones life. These changes may have a global character, introduce new activity models, social and business, and challenge education.

Reality created by technologies requires possession of a broad scope of competencies. This problem has been addressed many times and has returned to attention within the last dozen years, presenting it in many studies through recommendations reports. One of the most critical documents containing arrangements regarding needs in terms of changes in education is the *Council Recommendation of 18 December 2006 on competencies key in the process of lifelong self-learning* (2006/962/EC) and also the *Council Recommendation of 22 May 2018 on competencies key in the process learning of lifelong self-learning* (Text having meaning for the

EEA, 2018/C 189/01). A relevant step towards developing society information in Poland happened through self-development according to recommendations in 2019 and conclusions contained in *the Strategy OECD Poland skills* and elaboration *Integrated Strategy Skills 2030*. These works indicated main areas and directions changes necessary in Polish system education to ensure the young generation an excellent start to the future.

Competencies are instructions covering knowledge, skills, and attitude, allowing one to realize tasks appropriately (Filipowicz, 2014). The recommendations (Recommendations, 2018, p. 13) have a similar competencies definition. The document defines these competencies "as a connection of knowledge, skills, and positions. Knowledge is based on facts and numbers, concepts, ideas, and theories that are already well-established and help understand a specified field; skills are defined as capacity and possibility of implementation processes and using the existing knowledge to achieve results; attitude describes the readiness and tendency to act or react on ideas, people or situation." The mentioned document defined eight competencies necessary for smooth operation functioning in the developing world of computerized reality (Recommendation, 2018). They have familiar characters and are addressed to people functioning in society. Assumes that having them should constitute the basis for further personal development. Among the mentioned competencies, special attention is given to the return competencies, emotional, social, and in-scope self-learning skills, and digital competencies.

Education's new competencies require changes in how we understand education because the contemporary young generation is people born in the Internet era. "Most probably, the majority of students starting the learning process in schools will work in new types of professions that do not exist" (WhitePaper, 2017). That means that the current education system, especially teachers employed in it, must adjust to new civilization requirements and constant changes related to them in the social and economic environment.

2. Expectations to model education in digital civilization

Dynamic civilization transformations require permanent human activities and creative adaptation to the changing reality. For this reason, fundamental perfecting cognitive processes are related to reasoning and solving problems, thinking abstractly and deductively. Thanks to these abilities, humans may self-teach and build knowledge all life. It helps cope with everyday challenges and make appropriate decisions (White Paper, 2017). This is to underline the meaning of self-learning skills, acknowledging competence, and critical, influencing well-being units and her future. In contemporary education, there are duty assurances teaching conditions to develop this one skill. Teachers have a unique role in this area as they are directly responsible for the effects of education.

Being a teacher requires understanding the direction of civilization development in the variable world and their responsibility for future generations. Today, a teacher's role is comparable to that of a director and manager in organizations other than school. Like the principal, the teacher has to provide leadership, establish procedures influencing motivation, and coordinate and control activities teams engage in work above achieving educational goals. We say here about leadership by the teacher's process of teaching and learning (Arends, 1994, p. 41). On the other hand, referring to the role of the teacher as a manager of the process of achieving educational goals at a specific time by students, we can talk about the management of the self-learning process for students. Like in the educational process, "one of the essential management skills is purpose creation because brightly marked out purpose is necessary to know where is heading or goes along the trail and to power achievements evaluation" (Arends, 1994, p. 42). For this reason, to be able to direct self-teaching to students efficiently, especially attention returns on need possession by teachers, except current knowledge substantive also preparations including newest knowledge of the area psychology education and modern didactics, especially knowledge processes cognitive human and their conditions. This knowledge is necessary to be effective in designing and realizing classes didactic, consciously starting mechanisms necessary for learning students, taking into account their cognitive styles (Franken, 2005, p. 216), consisting of getting to know on your way (Mietzel, 2003, p. 206).

To effectively organize situations, educational knowledge is essential, like a human being teaching how to build your understanding. Explains the mechanism this process delivers through contemporary education constructivist theory learning (Klus-Stańska, 2010, pp. 263-275), which treats teaching as a specific process of research that relies on active getting to know reality, processing information, and broadcasting meanings (source). The key here scope stately tests conducted by Jean Piaget (constructivism individual), Leo Vygotsky (constructivism socio-cultural) (Mietzel, 2003, pp. 91-133; Klus-Stańska, 2010, pp. 263-285). The priority assumption adopted by researchers was that empowered people and arrangement conditions are decisive for the effective learning process. Belong to them:

- arousing motivation to learn in learners by stimulating cognitive curiosity, causing specific cognitive dissonance affecting attention processes and causing focus on particular learning content - in the learner's opinion, what is learned should be meaningful, i.e., interesting, important, and valuable,
- creating conditions for students to take up educational challenges, organizing space for learners to act and participate in academic situations that enable them to use their learning style while actively searching for answers to troubling questions and thus discovering new knowledge and giving meaning to new concepts,
- focusing on success and achieving students' satisfaction with learning outcomes,
- their use of teachers' feedback and support during problem-solving activities,
- organization work, teamwork, creation possibilities, teamwork, and sharing what they know as they process learning.

In a constructivist environment, they play a crucial role in relations between participants and process education based on mutual respect. This is necessary for building feeling and full commitment to the teaching process. The positive atmosphere and interpersonal relations depend on the teacher's attitude and adopted style management team (Mietzel, 2003, pp. 369-370). He's waiting to be a person:

- formulating challenges and motivating action, knowing her subject well, teaching it with enthusiasm, serving as a model for students to strive for internal rewards and the satisfaction that learning brings,
- organizing the educational environment and supporting learners, ensuring a balance between the preparation of students and what is required of them,
- encouraging thinking and creative problem-solving while providing academic and emotional support,
- person managing process learning myself students enabling modern methods and digital resources teaching (Mietzel, 353-419).

Justification parties above assumptions will be found in research conducted on ground psychology positive (Czapiński, 2008; Trzebińska, 2008).

Positive psychology is a science dealing with optimal human functioning and well-being. It focuses on the conditions related to building and developing a person's potential, a sense of satisfaction, and contentment with the undertaken activities. (Seligman, Csikszentmihalyi, 2000, pp. 5-14) During the research, it was noticed that feeling positive emotions during learning activities provides many benefits. They influence the feeling of pleasure, contentment, and satisfaction, ultimately increasing the sense of well-being and commitment to action. The effect expands the scope of attention, causing greater openness to new challenges and flexibility. There is an increase in creativity. These factors significantly influence the development of personal knowledge and competencies. They allow for a more objective assessment of the situation from different perspectives, which in turn promotes the development of empathy and cooperation. It also increases the level of self-control. Researchers have proven that feeling positive emotions triggers physiological reactions in the body that positively impact well-being and readiness to act.

It's worth noticing that psychology positively described factors influencing the commitment to action, defined as the phenomenon of self-determination and the state of flow (state of elation) (Csikszentmihalyi, 1993). This condition consists of a complete commitment to execution activities. It is a state of undisturbed joy and deep satisfaction with the decisions and actions taken. Accompanies ago lost feeling time and lack worries before failure. Psychologists are positive when they talk about "inferno" in a given action when he stops control time intended on his implementation.

Entering the flow state requires fulfillment of the following conditions:

- sense of purpose - action and his objective are For learner myself important . This affects satisfaction, favors building positive self-esteem, allows on crossing restrictions and achieving more and more ambitious goals, opens on following challenges,
- good relationships with other people and building a support network - creates a sense of security and inclusion, is a source of positive reinforcement, makes a good atmosphere for engaging in activities,
- positive, subjective feelings learner myself related to the possibility of obtaining support and information feedback originating from the teacher.

We will also find justification for the role of teachers as persons organizing and managing process learning students and responsible for their effects in theory communication (Dobek-Ostrowska, 1999). In progress communication in a relationship between sender-message-recipient, for the reaction and actions recipients in a significant way degree replies sender who to get the result in the form expected reaction recipient, must take into account:

- own predispositions and level of substantive and methodological knowledge,
- precise characteristics of the recipient (his predispositions and personal characteristics, foreknowledge, experience, operating environment),
- content of the message, its structure, language,
- conditions and method of transmitting the message,
- how to get feedback.

It's worth it here quote Jere Brophy, who stated that "more realistic it would strive to shape and maintain at your students motivation to teach thanks to work above material - the tendency to perceive this one work as sensible and valuable and as middle, thanks which achieves intentional benefits cognitive" (Brophy, 2004, p. 25).

3. Digital educational environment

I cannot forget that, within methodical preparations, teachers expect efficiency and openness to new technological solutions.

The popularization of digital technology can change how life and exercise tasks are performed in contemporary societies. This expansion of technology into space human induced the transformation of the digital economy, causing building society information to be considered one of the most critical tasks. In 1994, the report Europe and Global Society Information: recommendations to the European Council (Europe and the Global Information Society: recommendations to the European Council, 1994) was published. Another step was party in 2000 By Countries EU member states of the project *eEurope – Society Information For*

All (Europe – An information society for all – Communication on a Commission Initiative for the special European Council of Lisbon, 2000). Including alone year in our country left developed *Poland* program - *Action Plan on thing development society information in Poland on years 2001-2006*, in which, referring to the recommendations European, specified main directions development economic and social country.

In parallel, we specified new challenges For education. A groundbreaking document defining new requirements for competencies citizens' society information was published before *Recommendations of the European Parliament and of the Council of 18 December 2006 regarding competencies key in learning by myself all life*. It returned attention to the need for education competencies in IT.

In the following years, many studies regarding new competencies key issues, including the *Council Recommendation of 22 May 2018 on competencies key in the process of self-learning all life, Beyond the Horizon, Course on Education, future system development competences in Poland*, Foundation Economy and Administration Public 2020, *Shaping Digital Future Europe* opinion released By European Committee Economic and Social in 2020 (European Committee Economic and Social 2020), *New Vision of Education. Future Learning (Learning)* Microsoft Education, *New Pedagogies for Deep Learning*, Civic Education Center Foundation, 2021, *Marekt, Work, Education, Competencies* appeared. *Current Trends and Results Research* (May 2022) PARP, *AI as a shaping megatrend education. How do I prepare for chances and challenges socio-economically related to artificial intelligence?* IBE, Warsaw 2022, *The Future of Education and Skills: Education 2030. The Future We Want. OECD report*. Documents indicate the need for activities in the development of a digital education society. Europe covers two main areas: developing digital competencies for people teaching and educational use of technology for digital purposes, digital transformation, and teaching improvement.

A unique role in the implementation priority purpose strategy included in *the Plan activities in digital education for years 2021-2027* assigns teachers. The document underlines make them a special place in digital creation ecosystem education (EC, 2020). Teachers are a particular group of professionals from which the success process changes civilization. Vital are, therefore, competent teachers, including scope. The report *Digital Education in Schools in Europe* (Euridice, 2019) presented data from which it follows that in approx two-thirds of European systems of education (including Poland), digital competencies are treated as essential competencies included in the framework qualifications related to the professional teacher, at what level description areas and skills are varied. The common feature is the requirement possession teachers :

- 1) knowledge about how to be inclusive of technologies in your practices, teaching and learning,
- 2) skills in the area of effective use of technology in the educational process.

With assessment in mind competences digital people employed in the sector education systematically on level internationally take different initiatives. They developed many competence frameworks and self-assessment tools and programs training. These activities were prepared by the Joint Research Center (JRC) and published in the 2017 Digital Competence of Educators (DigCompEdu) report to introduce European frame competencies digitally for educators. A comprehensive model is intended to be a general reference source for model creators of digital competencies in EU member states. Structure DigCompEdu has defined digital competencies specific to the teacher's profession employed in every level of education (from kindergarten up to teaching higher education), particular institutions, and non-formal education (DigCompEdu).

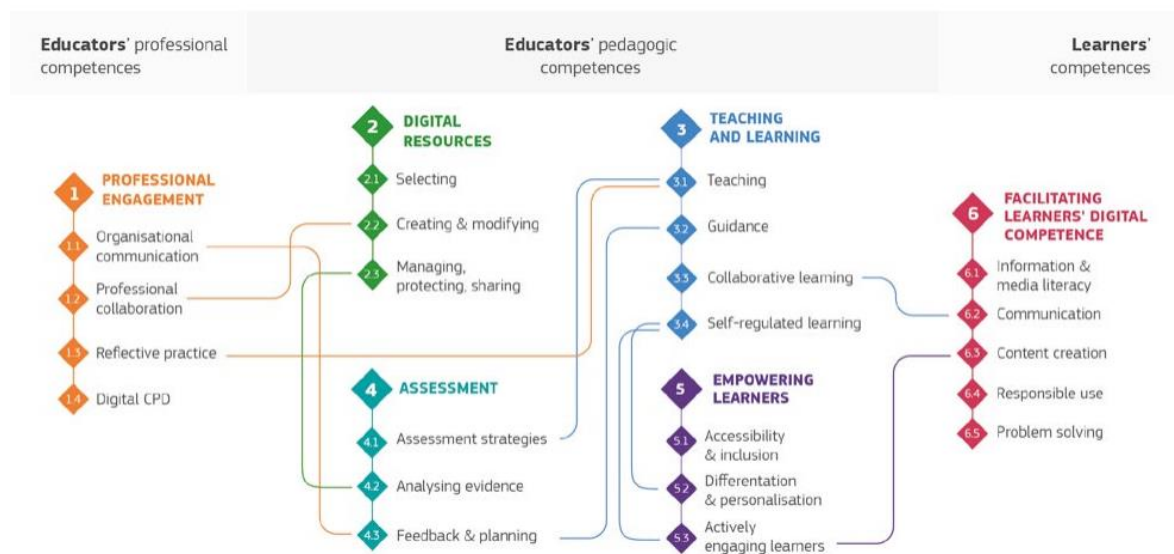


Figure 1 . DigCompEdu.

Source: Redecker, 2017.

DigCompEdu defines 22 digital competencies grouped into six areas:

1. Development - includes developing professional teachers and using various channels of digital communication, technology usage, digital collaboration, developing digital teaching skills, and supporting development by using digital technology (e.g., via participation in online courses, MOOCs, webinars, virtual conferences).
2. Creation and exchange of digital resources - includes competencies needed to be effective and responsible in using, creating, and sharing digital resources.
3. Managing the use of digital technologies in the process of teaching–learning (English: Teaching and Learning) – consists of the use of digital technology in the organization process of teaching and learning embraces, design, planning, and implementation of digital technology on various stages of educational and tends to improve efficiency learning to develop engaged, reflective and based on teamwork self-learning.

4. Assessment – considers skills using tools and digital supporting practices, such as formative and summative assessment. Dedicated use of technology in grades and assessment shaping of students' work progress targeted information feedback and individualized support by digital technology.
5. Learners - includes skills necessary to support the personal development of each student with attention to inclusion and strengthening individual talents. It focuses on using potential technology in reality strategy teaching and learning. I concentrated on the student, his possibilities, needs, pace of work, and interests, increasing students' commitment to the learning process and making learning in and out of school.
6. Supporting competencies of digital students (Facilitating Learners' Digital Competence) - applies activities teacher which indirectly develops students' digital competencies (design tasks demanding the use of digital tools to communicate myself and teamwork requiring the creation of digital, creative exploitation technology to solve specific problems).

4. Specific teachers' digital competencies

According to the Framework Catalogue Competence Digital developed in 2018 on job Ministries Digitization, competencies digital are defined as "harmonious composition knowledge, skills enabling life, self-learning, and work in digital society exploiting technologies. They fold on no:

- IT competencies,
- Information competencies,
- Functional competencies – are described as "based on IT and information competencies and constitute a ground for implementation-specific activities and achieving specific benefits thanks to the application of digital technology" (Framework Catalogue Competence Digital (Jasiewicz et al., 2018). Near competencies commonly contain competencies related to a specific social role.

In 2021, trial identification and the definition of specific teachers' digital competencies in social and academic roles were described. The research subject was based on experts' opinions – university employees, topic contemporary's expectations of specific digital competencies teachers, and teachers' academic. The researcher conducted qualitative tests using focused group interviews (FGI – Focus Group Interview) to meet the material.

During the research, we wanted answers to the following question: What are the specific digital competencies in teachers' social roles that have a relevant influence on the efficiency of their actions while fulfilling specified functions in society and being able to influence the functioning of the whole society?

Investigated trials, they constituted community experts, scientific and academic. Interviews was carried out using the MS Teams platform. Tests were conducted from 22 October to 5 November 2021. Based on carried out interviews, prepared models specific digital competencies for social "teacher" and "academic teacher" roles. Both models are presented below:

A. IT competences

- *The use of digital tools in the teaching process* **includes the knowledge and skills necessary to navigate the ICT environment efficiently, which is** diverse in hardware and software. It involves selecting solutions that meet the standards of teaching effectiveness and are adapted to students' age and cognitive abilities. Thanks to this, students' relationships with ICT tools are moderated by shaping their awareness of the digital environment's impact (including AI) on the learning space, which shapes preferences for searching and selecting information.

B. Information competences

- *The use of digital resources in the student learning process* - knowledge about digital resources necessary to implement the student learning process. It consists of using digital resources necessary to implement the student learning process and designing educational situations requiring active information processing, searching, selecting, evaluating, etc. It includes knowledge of the applications of AI and the ability to use AI correctly in a didactic manner.
- *Designing student experiences in a digital environment* – takes into account knowledge of how students function in the digital environment and includes the ability to plan and implement teaching tasks using design methods in educational processes using ICT.
- *Identifying and counteracting cyber threats in education*

C. Functional competencies

- *Shaping students' digital culture in learning processes* concerns knowing the digital culture, including knowledge and compliance with digital hygiene, and designing and conducting an educational process requiring students to process information from various sources while actively constructing personal knowledge. It includes shaping students' attitudes open to taking up challenges using ICT tools and promoting socially approved behaviors in the digital environment.
- *Developing students' digital competencies* - includes current knowledge about common digital competencies of citizens of the information society and development trends.

Specific model digital competencies for the social role of "academic teachers" contain the following competencies:

A. IT competences

- Using information and communication technology devices - includes knowledge and skills related to the operation and assessment of the possibility of using various digital devices to carry out teaching tasks in educating students and doctoral students.

B. Information competences

- *Use of information and communication technology devices* – considers using existing and creating scientific information resources in academic education, using scientific knowledge bases, constructing digital messages and disseminating them using available digital information channels, shaping students' information culture, and compliance with digital accessibility standards (WCAG).
- *Promoting the digitization of academic education* - includes activities aimed at disseminating solutions conducive to the effective use of ICT tools in education and promoting effective organizational and methodological solutions in the social environment.
- *They are identifying and counteracting cyber threats in academic education.*

C. Functional competencies

- *Profiling the interaction of an academic teacher* - a student/doctoral student through digital tools - includes designing the learning process of students/postgraduate students following the principles of modern didactics, enabling them to efficiently construct knowledge in the digital environment and awareness of new ICT solutions (e.g., methods, applications) and their inclusion in academic education.
- *Designing materials and effective management of remote education* - involves planning educational tasks and processes using digital platforms, knowledge of tools for implementing remote education and the methodology of designing educational materials and remote classes and conducting them, organizing the work of a dispersed team participating in the remote education process, coordinating processes digital and analog academic.
- *Engaging in the digitization of academic education is related to the attitude of a visionary teacher, which consists of identifying with the idea of the digitalization of education, believing in the rightness of implementing this action, and treating it as a moral obligation. An academic teacher manifests this attitude through a permanent analysis of the development of information technology and its impact on educational processes. This knowledge allows for the conscious implementation of new digital solutions in everyday academic practice and their evaluation and improvement.*

5. Summary

In the contemporary world a long time ago, he noticed the multifaceted influence of digital technology on changes in business, education, and administration. The second digital revolution, consisting of integrating man-technologies, was initiated in the middle of the first decade of the 21st century, and it remained named digital transformation. It doesn't rely only on exchanging analog solutions for digital solutions but on entering new, more effective, and more friendly to the user innovative services, models organizational (business), and responding to the information architecture.

Unusually helpful in raising awareness yourself. By the teacher's digital competencies development stage, incredibly functional areas may be a SAMR model developed by Ruben Puentedura. This model defines four horizontal inclusion technologies into the education process, characterizing the degree of use of technology at work by teachers.

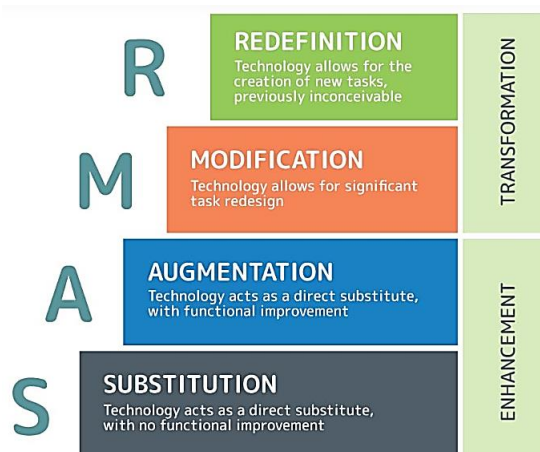


Figure 2. The SAMR Model Explained (With 15 Practical Examples).

Source: <https://www.3plearning.com/blog/connectingsamrmodel/>

You can suppose that the period of education implemented during the pandemic influenced the level of digital competencies of teachers and students. Obtained experience in the field organization remote education allowed proficiency in self-use of ICT tools. It also provides new knowledge not present earlier in school learning methods. Today's implementation model of modern education locks new organizational forms, educational models, teaching methodologies, models using digital and content tools, open and commercial training resources, support platforms education, open and commercial courses, and training, standardization programs, and educational content, and use social media in education.

Belong notices that everyone who wants to teach has many educational possibilities on the Internet. Resources develop dynamically and are increasingly popular because of personalized plans to create individual people. By all means, power takes advantage of getting richer digital offers. Education is necessary to develop among the teachers in progress. Education formal competence is required for self-realization.

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