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10

ICT in Educational Design
Processes, Materials, Resources

University of Zielona Góra

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ACTIVITY OF ONLINE LEARNERS

Abstract

In the face of interest in online learning at higher schools in Poland, caused to a large extent by the need of continuous learning, there is an immediate need to develop new didactic methods which will involve young people in the learning process and will allow them to become active members of learning communities. The authors of the current text share their own methodological knowledge as well as examples of good practices applied to the online environment. They notice the need to conduct extensive empirical research considering issues regarding active participation of online learners.

Keywords: cognitive activity, involvement, learners, teacher, online learning.

Introduction

Modern online learning should supply the learners not only with the access to thoroughly prepared electronic didactic resources, but should also – above all – care about active participation in the learning process and cooperation among the participants. The key factors are conditions appropriate for learning within the space of the Internet as well as students who are involved, active, continuously searching and able to cooperate. Students' online educational experience should not be formed in isolation and solitude, but in an educational community which will provide mutual support and motivation for action. The objective of the current article is to analyse active online learning methods, which are important for potential development of knowledge, skills and all dispositions of a young person. Moreover, methodological solutions which could increase students' involvement in online education are also suggested. An online learning method is perceived here as a teacher-students working arrangement applied consciously, systematically and multiple times among the space of the Internet in a given activity.

Learners' active participation – the key element of the learning process

The stage of development and complexity of the modern reality influenced the need for change in many areas of human life, including education. The vehemence and scale of the transformations enforce on individuals the necessity to adapt to changeable conditions and the necessity to continuously learn throughout their entire lives. Education limited only to the boundaries of schools is no longer able to meet modern educational challenges and cater to the needs of students developing in a dynamic world. The role of school is changing: it does no longer play the part of a transmitter of knowledge – as the latter undergoes constant development and is being updated (and/or outdated) – but teaches to search for knowledge, to create it, teaches how to learn and forms attitudes indispensable to make significant and valued decisions as well as to face the challenges of continuous education.

What is also undergoing changes is the psychological concept of a human being, and therefore – of a student. Within the foregoing body of research, psychologists described three ways of functioning of an individual in the world (J. Koziński, 2000), characterising the rules in operation with regard to the course of progression of cognitive and motivational processes. The behavioural approach, treating a human, a student, as an outer-contained organism, whose behaviour can be unrestrictedly modified thanks to the actions of an active environment and appropriate repertoire of methods and techniques, mainly punishments and awards, is fading into insignificance. Behaviourists created the idea of a reactive human, rejecting the narrative of independence directed by internal motivations and pursuits. In keeping with another approach, the so-called psychodynamic approach, the most essential role in human activity is played by motivational-emotional processes. Human behaviour depends on internal dynamic forces of an individual, the so-called drives, needs and inclinations which one does not always control and which can be contradictory. The most recent approach – the cognitive approach – describes human as a system processing information originating both from the external world as well as the information encoded in lasting memory as a result of previous learning. The proponents of this approach treat a human individual as an independent and creative system, able to generate information and knowledge. Thanks to these abilities, a human is perceived as an active being, changing their surroundings (natural environment and culture) and actively reacting to them. The basis for the changes in human behaviour is self-creation, which is understood as creating oneself following one's own design. In keeping with the cognitive approach, human is an independent and conscious subject, able to create themselves, their competences, motivations and emotions. The basis for self-development and self-creation is self-knowledge, comprising self-descriptions and self-judgements gathered as a result of one's own activity and relations with others.

Activity is the basic possession and the foundation of a person's existence, thanks to which it is possible to learn about the external world, to change it, to experience and express oneself (one's internal world); it is possible to "exist". A similar approach is presented by M. Tyszkowa (1990, p. 6), who believes that "activity is the basic quality of living beings, their way of existence"¹. According to *Słownik Języka Polskiego PWN* [*Polish Scientific Publishers' Dictionary of Polish*], being active means showing initiative, actively taking part in something. However, *Nowy słownik pedagogiczny* [*New Pedagogical Dictionary*] describes the term "activity" as follows: "1. in biology – the entirety of actions of an organism conducted in order to meet its life needs; 2. in psychology – a personal quality of an individual consisting in a greater than others' frequency and intensity of a specific type of action. A particular feature of human activity is participation in changing the natural and social-cultural environment, accordingly to human needs, aims and ideals" (W. Okoń, 2001, p. 19).

W. Okoń (2001, p. 19), maintains that multilateral activity, encompassing intellectual, emotional and practical activity, is one of the basic regularities of learning, and according to B. Nawroczyński (1967, p. 19) it is an obligatory condition. "Learning is a process which is extremely important and appears among humans (...) quite commonly. It leads to changes in an individual's behaviour, which are based on the individual's experience" (Z. Włodarski, 1992, p. 35). In parallel to the three concepts of a human (and, therefore, a student) described above, the learning process will be based on varying forms and sources of a student's activity. In behavioural approaches to learning, a change in behaviour is possible thanks to observation, repetition and exercise, which allow for required connections between stimuli and reactions to be formed. With regard to the psychodynamic approach, the sources of educational activity are internal conflicts, aspirations, needs, drives and expectations (K. Szewczuk, 2014, p. 71) expressed by force and longevity of a demonstrated activity. In the cognitive approach, learning is based on active and independent processing of signals originating from the outside, ascribing personal meanings and values to them and comparing them with one's own knowledge resources, followed by their application to direct one's own behaviour. By taking action, students independently construct knowledge in their minds and gain new skills (D. Siemieniecka, 2016). In cognitive learning theories there can be a distinction between transgressive and social-cultural approaches. In the transgressive approach, a learner's activity is based on decision processes moving "outside of provided information" (J. Bruner, 1978) forming the source of creativity (D. Siemieniecka, 2012a) and innovation. However, in the social-cultural approach, "development and learning are inextricably linked to each other, and have to proceed within social surroundings and with active participation thereof" (M. Ledzińska,

¹ All quotations from Polish translated by the translator of the current article.

E. Czerniawska, 2011, p. 38). Thanks to interactions with other people, learners gain, among others, skills such as communicating, reasoning, decision making and problem solving. The goal of development and learning is achieving the highest possible level of self-regulation.

The entirety of actions whose goal is to stimulate or intensify activity can be described as stimulation to activity. Characteristic symptoms of stimulating learners to activity are: active participation, initiative and independence (B. Hydzik, 1989, p. 256) in the areas of cognition, creation (D. Siemieniecka, 2012b, pp. 15-42), social, cultural and artistic activity (W. Okoń, 2001, p. 19). Pedagogical literature ascribes the role of stimulating learners to activity mainly to the teacher, indicating the meaning of their preparation in terms of subject-matter and methodology, a set of personal traits, emotional involvement and an appropriate attitude to students and the ability to organise didactic situations and to construct material and educational tasks stimulating thinking and acting. M. Chomczyńska-Rubacha (2006, p. 240-269), referring to a range of scientific research, highlights the necessity to properly organise a student's environment as a series of stimuli encouraging a student's active participation and increasing their readiness to learn. In the case of a virtual classroom, it will incorporate a set of external stimuli conditioning learning effects in an online environment. Referring to the remarks of the abovementioned author, among the basic elements of the learning environment, one can distinguish:

- 1) organisational culture, incorporating creations (rituals, roles, norms), values (desired states of things) and assumptions (ideas and beliefs, among others, about interpersonal relations, students' nature and their active participation, about knowledge, forming the basis of curriculum and organisation),
- 2) language and communication patterns – in the spirit of dialogue and mutual listening to one another, allowing precise thoughts and providing constructive feedback – everything working to allow the student to construct meanings and build structure to their personal knowledge,
- 3) order and discipline encompassing a series of set norms and rules regulating behaviours of the participant of the teaching-learning process, based on:
 - teacher's alertness regarding the correctness of student behaviours, both in the area of correctness of actions taken as well as relations among the members of the group and stimulating student focus and involvement in the task,
 - regulating pace and rhythm of work in accordance with possibilities and needs of particular students,
- 4) motivating functions of the learning environment, stimulating student activity and intensifying their strength of will to learn.

According to M. Chomczyńska-Rubacha (2006, p. 262-268), a school classroom motivates a student to learn by, among others, providing stimulation necessary

to maintain an appropriate level of active participation. Despite the move away from traditional frontal teaching, the figure of a teacher still remains the key element in providing stimuli motivating to face cognitive and learning challenges. What can be stimulating are the aforementioned teacher's personality, their involvement in the lesson process, an appropriate attitude towards a student and an appropriate quality of educational materials, problems posed as well as the organisation of task situations provoking a student to think and act. A teacher's "provoking" activities can incorporate creating a cognitive dissonance, stimulating the willingness to reduce the cognitive dissonance and reconstruct a student's personal knowledge, stimulating achievement motivation. The role of the teacher is to organise the learning environment in such a way that all the set objectives and activities undertaken can be "moved into the area of personal needs and drives of students" and that they constitute meaningful achievements and successes for the students.

Motivation is the major driving force in student's online activity, and therefore an online classroom, with the teacher at the forefront, should be treated as a professional force assisting the students in effective learning.

Methods of active online teaching in light of literature

Scientific activity of such researchers as J. Dewey (2002), J. Bruner (1971; 2006), L.S. Vygotski (1989), J. Piaget (1992) clearly confirm that a student's cognitive curiosity stimulates active participation in creating one's own knowledge. B. Holmberg (2007, p. 69-75) also points to the necessity to involve students in the assessment of usefulness of didactic materials and freedom of choice with regard to them. He resolves on properly designed instruction materials and interaction between the participants of an online learning process, which develops in a learner the sense of belonging to an educational group. However, Lehman and Conceição (R.M. Lehman, S.C.O. Conceição, 2014, p. 22) propose a variety of different methods which can be used while designing an Internet course. These comprise, among others:

- taking into consideration a possibility for the students to choose the tasks, which can influence a student's motivation,
- appropriate location of materials within modules or thematic units in order to maintain clarity of the course structure,
- determining set dates for tasks, consultations, tests, which is conducive to a sense of control over the teaching and learning processes both for the learners and for the teacher,
- enabling the students to organise and moderate discussion, which gives them a sense of control over the learning process and contributes to an even greater integration within the group,

- identifying similarities with the predecessor. The task can be conducted both in a synchronous and an asynchronous way.
- e) ***Why are we together*** – the goal of the task is to get to know one another. The participants, via discussion at the forum or at the chat, wish to know the reasons behind and motivations for the choice of the course.
 - f) ***An online survey*** – created with the use of appropriate tools of the learning management system (LMS) in order to determine deadlines, to familiarise oneself with learners' opinions, to conduct an introductory diagnosis of students' abilities and needs.
- 2) **Methods utilised for online contents presentation** – methods and tools used to prepare, edit and present didactic contents.
- Suggested activities:
- a) ***An online lecture (synchronous)*** – a synchronous lecture on the Internet which provides information in real time. It allows bilateral voice and video communication with the use of Internet cameras between the lecturer and students. This form assumes an active participation of all participants.
 - b) ***An offline lecture (asynchronous)*** – a lecture in a form of a video recording or a presentation published at a school server. Its advantage is “availability on demand”, meaning regardless of time and place. Its analysis can be enriched in a forum discussion.
 - c) ***Online storytelling*** – can be conducted in various forms, e.g. text, graphics, video, audio, animation or it can integrate all of the forms. It functions to stimulate motivation, reflection and to broaden the message. This method is eagerly used in language learning, where the learners can translate texts provided by the teacher simultaneously.
 - d) ***A presentation*** – consists in demonstrating to the learners the phenomena, events, processes and explaining their significant features with the use of multimedia (presentation software, narration, charts and graphic diagrams, video recordings etc.).
 - e) ***Instruction*** – a precise presentation of activities which the learners are supposed to do. It can exploit an instruction video online, instruction exercises (including text, multimedia, interactive).
 - f) ***Mindmapping*** – a non-linear method of organising information online, which means a method adaptable to various types of tasks and allowing to generate, gather, organise and provide structure to the contents of a specific theme. Learners can create a graphic network of terms, taking into account their conceptual generality and synonymous relations. The so-created mind maps can be discussed online; as a result of the discussion, created works can be further modified.

- g) *An online topics storage* – at the discussion forum, the learners can suggest problems worth learning about, can submit their own ideas.
 - h) *Interactive lessons* – contents presentation with the use of the *Lesson* module available on Moodle platform. It can be diversified with the use of single questions or a quiz.
- 3) **Methods based on online cooperation** – methods based on common actions, which contribute to developing key skills: teamwork, negotiation and communication. Learners share ideas, knowledge and experience, work at a determined pace, motivate one another and maintain continuous contact. Suggested activities:
- a) *An online project* – the method distinguishes the following phases: initiating the project, planning, project realisation and evaluation. Key skills are emphasised: communication, work planning and organisation, teamwork. Students are divided into groups comprising 3-5 people, and then the teacher familiarises them with the goals, form and progression of the project. They establish deadlines for preparing the outline, the project and its presentation. In their contacts with the lecturer, students can use various communication services. The teacher supervises the progress made by the learners by maintaining contact with them via the Internet, drafting a note showing the learners' progress, holding a discussion etc. After preparing the projects, the students submit them by the established deadline. The course instructor can publish the projects in the course and organise a public debate in which the learners have an opportunity to familiarise themselves with one another's works and evaluate them.
 - b) *An online debate* – the method allows analysing the problem from different points of view. The learners are supposed to assume an attitude towards a posed issue and prepare themselves for a discussion to defend their stances. After exchanging opinions, the students finally assume a common stance, based on the established rules for interaction.
 - c) *A weekly contest* – a task in the form of a contest where the goal and realisation date are clearly determined. Contests can also be suggested by the learners themselves. Contest winners obtain additional points. It is worth to exploit such an activity to encourage learners' active participation and to involve them through presentation of various ideas.
 - d) *A web quest* – is a type of a group project consisting in seeking a solution to a specific problem based on Internet resources. This method is designed in such a way so as to motivate the learners to use the information in a creative way, and not only to search for it on the Internet, and to facilitate thinking at the level of analysis, synthesis and evaluation. It is important for a student to be able to communicate with others, work

in a team, negotiate, search for information on a given topic, select and compile it. The structure of web quests is built with the use of the following elements: establishing the topic, introduction, tasks, process, resources and evaluation.

- 4) **Online opinion exchange and discussion** – a group of methods consisting in exchanging opinions by the participants of an Internet course with the use of available communication services.

Suggested activities:

- a) **Opinion forum** – the objective of this activity is to gather and evaluate positive and negative opinions on a given topic. It begins by sending an e-mail to the online group participants asking them to express their own opinion on a selected topic. After all opinions have been gathered, they are compiled and discussed at the forum in the Internet course. These activities can also function to support the learners to get to know one another better.
 - b) **An online discussion** – consists in discussing selected topics, posing questions, analysing problems and exchanging opinions in the group of online learners. Online discussions can be held in a synchronous or an asynchronous way (voice communicators, forum, webinar etc.). The learners can post at the forum, expressing their own experiences, worries, challenges, opinions and compare them with experiences of other course participants.
 - c) **Online experts forum** – contact with an expert e.g. during a webinar (within a specified timeframe), exchange of opinions; main conclusions are presented at the discussion forum.
 - d) **Online brainstorming** – action leading to finding common solutions in small groups, where ideas are expressed spontaneously and without judging them. Ideas are gathered and recorded. The following phases include ordering and dividing the statements, their evaluation and next publishing the proposed solutions either synchronously during a voice chat or asynchronously at a discussion forum.
- 5) **Games and simulations** – active learning methods where real-life problems and situations are reflected. These methods are extremely effective both with regards to conveying the learning contents as well as teaching multiple skills.
- Suggested activities:
- a) **Virtual trips** – a popular method of presenting on the Internet various interesting places, institutions, exhibitions and collections worth visiting. It can be made available as a WWW website.
 - b) **Simulation games** – consisting in the students recreating real-life problem situations with the use of e.g. virtual games.

- c) **Educational games** – include contents combined with elements of fun, which is more easily digestible for students. There is a possibility to design the game in the following form: interactive contents e.g. in the Flash format.
- 6) **Methods developing thinking through reflection** – a group of methods used to learn through reflection, which require a personal effort from the learners, supported by significant motivation. What is important is not only processing information, but also attempting to search and discover its meaning. Asynchronous communication can serve to draw conclusions and consider what is worth doing next. It can be more reasoned and measured. Suggested activities:
- a) **Bumper sticker** – an activity to be used at the end of the course or a thematic unit. The goal is to share one's reflections and experiences gained during learning. Learners are supposed to design their own bumper sticker, in which they express their thoughts on experience and knowledge they gained. They are supposed to present a solution in a form of a slogan or a saying. Additional points can be granted for interesting ideas and graphic presentation of the task. The exercise provides a lot of room for reflection and fun.
- b) **I didn't know that...** – at the end of each week the teacher initiates at the forum a thread named "I didn't know that..." and asks the students to share their opinions in this thread identifying new knowledge, skills and social competences they gained and how they apply them in practical situations.
- c) **More words...** – the teachers creates a folder within the course in which they systematically attach motivational quotations, interesting stories, poems, quotes which refer to analysed problems. These texts are supposed to be an opportunity for the students to reflect and ponder.
- d) **Picture analysis** – the goal of this activity is gaining feedback from learners about their experiences in a virtual classroom. The students prepare a digital image in which they refer to the contents of the course, their own emotions and feelings, strong and weak points of Internet classes. It can be prepared individually or in teams. At the end, it is recommended to present and compare the works and to discuss them.
- 7) **Methods referring to authentic or fictional situations** – an important premise for this group of methods is involving students in authentic educational tasks. Active participation through experiencing problems in real-life situations is the key to improve learning results and to gain a completely different view on education.

Suggested activities:

- a) **Case study** – consists in analysing and discussing a problem situation thanks to the application of acquired knowledge and experience to a new situation. The success of the class is conditioned by an adequate selection of the case study. Elements of the method include: familiarising oneself with the case study, asking questions at the forum regarding the case, analysing the description of the event, finding optimal ways to solve the problem, evaluating the course of the class.
 - b) **A pyramid** – in teams students gather information about a specific topic, and then they record acquired information, creating a pyramid and placing the facts according to a hierarchy, and present the results of their work.
- 8) **Evaluation methods** – function to test and assess knowledge, skills and social competences of the learners and their self-evaluation.

It is possible to carry out an on-line introductory, up-to-date and final evaluation of the students' progress. Students can be suggested to participate in various types of activities, e.g. problem tasks, closed/open tasks, knowledge tests, multimedia games, on-line storytelling, discussion forum, chat, quizzes, multimedia photo essay etc.

Learners in online education face the necessity to adapt to new learning conditions. To facilitate this process, it is recommended that teachers and internet course designers know and implement various methods of work which will translate to a high quality of education and positive learning experiences of its participants.

Online learners' activity in light of authors' own research

In the face of challenges of online learning existing for some students who have problems with internal motivation, organisation and time planning and who need support, selected researchers (X. Gu, Y. Shao, X. Guo, C.P. Lim, 2015, p. 26-34) emphasise the role of the instructor. Their presence, involvement and creativity condition success in learning via the Internet. The teacher is an important binding agent connecting particular elements constituting the process of online learning. However, Ho and Swan (C.H. Ho, K. Swan, 2007, p. 3-14), researching interaction problems in Internet environment, highlight the role of dialogue in the learning process, indicating that students achieving high learning results were more active in discussions. Moreover, research suggests that a positive perception of the Internet learning environment is conditioned by many factors, among others, the level of active participation and involvement of the teacher and the learners, their support and quality of their interactions. Additionally, there are accompanying phenomena and the context itself.

The abovementioned research finds confirmation in scientific enquiries conducted at the Didactics and Media in Education Chair of the Nicolaus Copernicus University in Toruń during the academic year 2013/2014 with the objective to learn about the active participation of learners and the methods applied to stimulate their activity in online education². The research included 136 students of Pedagogy at the abovementioned university. On the basis of the analysis of the empirical material, the following conclusions were drawn:

- active participation and involvement in online learning are conditioned by applying various methods stimulating students' active participation,
- important motivating factors for online students are the teacher, who directs their activity as well as the quality of educational materials available in the Internet course,
- the educators should care about: a friendly atmosphere, which will contribute to stimulate a sense of safety and comfort in the learners; observing and being consequent with regard to deadlines and verification of control essays, virtual consultations, formulating clear rules of conduct within the course,
- interactive presentations, graded tasks are the types of multimedia resources which actively engage in online learning,
- completing tasks, exercises, worksheets, cooperation with other course participants, watching other people, their way of thinking, ideas, creations were in the surveyed persons' opinions activities maintaining involvement during the course of the e-learning process,
- learning at one's own pace, individual contact with the course instructor via e-mail, chat, an array of additional contents, sources, tasks are indicated by the surveyed students as the key educational actions which make the online learning process individual,
- educational actions should include learners' personal experiences, express the possibility of creative thinking,
- learners watch one another's actions and imitate one another, which can be a factor resulting in their active participation in online learning, but also a reason to submit to other participants' way of thinking.

The conclusions drawn from this research show that online learning process requires complex support, resulting in a high-quality of education and successful realisation of determined objectives. It enforces the need to involve wise, ponderous practitioners of didactics into the process of arranging such an online environment, which will contribute to preparing a young person to create new knowledge, gain

² A detailed description of the research is included in the work entitled *Aktywność uczących się w przestrzeni Internetu* [Learners' active participation within the space of the Internet] by Skibińska, Kwiatkowska and Majewska, published by Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika, Toruń 2014, p. 59-121.

new skills, social competences, as well as to understand surrounding processes, including social, cultural and economic processes which take place in the modern world and undergo constant changes.

There also appears the need to conduct extensive empirical research regarding the issues of online learners' active participation in various educational centres throughout the country.

Final reflections

What poses a challenge for a modern teacher who applies online teaching methods is appropriate planning and implementation of active didactic methods. It is desirable to encourage learners to share their expectations and imaginations regarding what they want to achieve through participation in a course. What is also worth doing is educating learners that technology should not pose for them any barrier in learning. The more often students will use various technological solutions, the faster they will gain self-confidence and freedom in their application. What is also worth emphasising is the need to report potential problems fast. It is valuable for the teacher to initiate regular and varied contacts, but such ones which last a shorter amount of time. The contents and nature of these contacts can be personal, which allows for building friendly relations between the course instructor and their mentees. However, these contacts should not be too lengthy; one should avoid excess information. A valuable online learning environment is also conditioned by the dominance of synchronous meetings (webinars, chats, videoconference workshop etc.), which facilitate stimulating active learning through "enlivening" all the participants. Teachers should also remember that "beginnings" require planning and common effort, especially in the cases of students without any online learning experience. The first impression is invaluable, and it is therefore worth caring about a few significant elements, that is: the quality of contact with learners, the quality of e-learning materials and an opportunity to realise inspiring educational initiatives, which will encourage young people to self-development and (being a part of) community of online learners.

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