

Students' activation on Moodle platform

Izabella Bednarczyk¹, Bartłomiej Michałowicz², Leszek Rudak³, Dorota Sidor⁴

¹Centre for Open and Multimedia Education, University of Warsaw, ul. Smyczkowa 11/2A, 02-678 Warsaw, Poland, i.m.bednarczyk@uw.edu.pl. ²Centre for Open and Multimedia Education, University of Warsaw, ul. Smyczkowa 11/2A, 02-678 Warsaw, Poland, l.rudak@uw.edu.pl. ³Centre for Open and Multimedia Education, University of Warsaw, ul. Smyczkowa 11/2A, 02-678 Warsaw, Poland, b.michalowicz@uw.edu.pl. ⁴Centre for Open and Multimedia Education, University of Warsaw, ul. Smyczkowa 11/2A, 02-678 Warsaw, Poland, d.sidor@uw.edu.pl.

Keywords

Moodle, activation, e-learning, didactic methods, asynchronous learning.

1. EXECUTIVE SUMMARY

In the article, the main focus is put on non-standard methods of activating, possible to apply in asynchronous education with the usage of Moodle platform. There were methods presented without a context of a course which is the subject taught and the characteristics of the target group.

In comparison to traditional teaching, more time is needed to understand the task and expectations connected with the solution (it takes more time and is more difficult to ask for details through the Internet than in a traditional classroom) (Bekiaridis, 2004).

Structure of activating instruction for every type of method has the same schema, but takes the specific nature of the method into account. The general schema should include four elements: instruction how to do a task, way of result registration, the form of the result and way of its transfer to VLE, technical help for students.

We can distinguish three categories of activating methods: “do”, “search” and “create”:

- “do” - these are actions undertaken by a student according to what was defined by a teacher, who defines precisely the expected result of a task and describes step by step how to reach the desired solution. An instruction is a very detailed description of step-by-step procedure. Every step has to include all details necessary to perform it as well as to check on your own whether it was done properly. The most natural way of sending the result to the teacher in that method seems to be making video during the task performance. However the size of the video files and the time spent on completing the procedure can be a problem. That is why we should use other forms of registration of completing procedure.
- “search” - student's goal is to gain information beyond the course material. The teacher makes the type of information precise which should be found by a student so defines precisely the goal of searching. The instruction has to include description of a goal for searching resources. The easiest and most often used form of transferring the results of a task is a list of the found information resources: either in a form of list of links, or in a form of bibliography. However, more interesting way is to demand from student to present a list of next steps, which would lead to certain information finding.
- “create” - tasks do not restrict students to stereotype thinking on certain issue, but provoke them to individual creation. Student does not receive either ready procedures of acting or an example. He only learns the general parameters which “a piece of work” should meet. A piece of work or its image is not the only way to present the results of work over the piece. In case when the way of its construction is more important than the product itself, we can use registration methods based on control points.

Publication of the materials in virtual space does not guarantee their effective processing by the receivers (Bork 2001). An effective implementation of activating methods is connected with the precise task designing. Focusing only on the instruction is not correct. It is necessary to define carefully the way of solution presentation. Evading this element makes it difficult to achieve the set didactic goal.

2. Introduction

At the time of developing technology people spend long hours in front of a computer (games, messengers, surfing) which allows us to think that it is a very attractive medium. It is also known that an effective didactic process requires to maintain motivation of a student at the optimal level. It seems to be enough that transferring stationary classes to the Internet will be beneficial for an effective knowledge acquisition. However, every technology is a burden and blessing at the same time, not either-or, but both at the same time (Postman 1992). Enthusiasm accompanying new educational means makes place for boredom resulting from the necessity to adjust to computer-mediated communication. It brings need for including in the didactic process activating methods which allow to motivate students to work. Those methods engage student to seek answers or additional information on his own which will lead to the problem solution (Silberman 1996). *Learning occurs when people engage in appropriate cognitive processing during learning, such as attending to relevant material, organizing the material into a coherent structure, and integrating it with what they already know* (Clark, Mayer 2008, p. 36). So we can distinguish three categories of activating methods: “do”, “search” and “create”. “Do” is reading and consolidating new material, “search” - seeking and organizing new information, “create” - applying the acquired knowledge in practice (this division does not exhaust all types of activating methods).

In the article, the main focus is put on non-standard methods of activating, possible to apply in asynchronous education with the usage of Moodle platform (unless it was marked in other way, the indicated tools are from that platform). There were methods presented without a context of a course which is the subject taught and the characteristics of the target group (age, level, ICT skills). There were examples used which come from the e-courses conducted by the University of Warsaw, the place of the authors' work.

3. Designing activating methods

The activating methods described in this article which are used during courses, consist of four elements. The first two: theoretical introduction or initial example and formulating problem in a form of instruction for the performed work (depended on certain method) are designed by a teacher. Then, there is a sequence of student's actions leading to the solution of a task and sending the answer to the e-platform, and finally comment or grade from the person conducting. According to the article's assumption, there are universal schemas of methods described, without a context of a subject and a course. The authors consider only the structure of instruction. With such assumption, the described activating methods may be treated as widely understood tasks (open) which can be in different forms when being realized on the Moodle platform.

In practice of e-teaching, all tasks (open in particular) should be carefully designed, with taking account to all details. In comparison to traditional teaching, more time is needed to understand the task and expectations connected with the solution (it takes more time and is more difficult to ask for details through the Internet than in a traditional classroom) (Bekiaridis, 2004).

Structure of activating instruction for every type of method has the same schema, but takes the specific nature of the method into account. The general schema should include four elements:

1. Instruction how to do a task
2. Way of result registration
3. The form of the result and way of its transfer to VLE
4. Organization of technical help for students

Ad 1. Instruction how to do a task is the main part of an instruction which defines the factual side of a task and which is solved by a student. A teacher, when formulating an instruction, determines the

range of content or the topic learned by a student during task performance. It is an element of instruction schema, which really depends on the type of the applied teaching method.

Ad 2. Result registration is also an important part. It determines the teacher's expectations towards the task performance, which is the most important from the side of the level of the skills and knowledge acquired. To every instruction we can match many ways of result registration and at the same time change didactic goals, instructions and teaching methods. For every group of methods described below there will be examples of result registration showed.

Ad 3. The form of result registration depends mainly on the content of a task, but it always has to be in a digital form possible to be transferred through the Internet. If a task is realized with the usage of a computer, then a form usually suggests the used tools.

The way of result transfer to VLE has to be adjusted to the form of solution registration. Moodle platform provides teacher with a lot of tools for interaction with students. Each of those channels has its own specificity and may be applied in that context. The most universal and the easiest is the usage of open task as a place for sending a file with a solution. Such object is available only for a teacher. However, not all files sent in that way can be watched from the level of the platform (Internet browse). That is why it is worth considering to use other ways of sending the result. If the didactic process requires from students to see others' solutions, then the results can be transferred through workshops, on a forum and blog, and in case of a group work also wiki. For short and well structured answers we can use quiz with questions "short answer", a dictionary, questionnaire or even database.

When tools placed on the Moodle platform are not enough to send the result in a proper form, we can use outside object repositories such as Flickr or YouTube. Possibility for using Google Maps or Twitter is also important. The affluence of possibilities made available thanks to Moodle platform and generally available Web 2.0 services guarantee the opportunity to send even the most sophisticated works of students.

Ad.4 Task performance outside the computer environment requires additional process of digitalization. The easiest form of recording performed activities or created piece of work is a digital photo or audio/video recording made during working out the problem solution or after work completion. Materials found in resources outside the computer also have to be digitalized (e.g. using scanner). If such solution creates difficulties, then a description of the materials or objects created can be a solution. Result registration should be easy enough to minimize its influence on the skills within ICT range and easily available tools.

A necessary element of every described below method for activating students is organization of technical help. Literacy in using ICT may differ in every group of students. We cannot assume that participants know all necessary applications and files formats at the same level. We should remember that ICT is only a tool of e-education, not its main goal so it should not restrict the participants. That is why appropriate support should be prepared for them. Technical help should include minimum three elements: textbook for participant, technical forum and helpdesk. In the textbook, there should be applications described and ways of getting required files' formats. On a forum, a teacher or other students would help to solve problems connected with registration and sending solutions. Helpdesk would constitute temporary immediate help. It should be taken into account that technical forum and helpdesk are additional channels of communication which should serve for factual aims.

4. "Do"

Passive receipt of knowledge and "giving" model of teaching are not as effective as individual, practical working out the issue. Reading the process of experiment is not as effective as doing that experiment on your own. That is why it is worth introducing actions of "do" type during didactic process. These are actions undertaken by a student according to what was defined by a teacher. A

teacher not only defines precisely the expected result of a task. He also describes step by step how to reach the desired solution. Although the task is reconstructive, the engagement and time spent on it will result in an effective consolidation of the knowledge and accelerate the process of information acquisition.

In e-teacher's work such tasks can be met during classes which use outdoor software. First tasks, which are to introduce students with new functions and opportunities of applications, are usually based on instructions "step by step" (either in a text form or animation or a video). For instance, in ICT courses [kno-ict] there are activities based on picture processing in graphic programs. The task of students is to repeat individually during homework the methods they learned during e-classes; during mathematics classes [mat-hum] you can practice new issues thanks to a homework based on analysis of function charts accordingly to the given and described example.

Creative usage of the available internet tools allows to make the course attractive in an easy way and engage students to work harder. We can use for example Google Maps as in the course "Introduction to intercultural education" [wdem] where students created a guidebook to their own city or area, with indicating monuments, museums, hotels and restaurants. The planned route of a trip had to be placed on the internet maps and made available for other participants of the course.

Tasks of "do" type do not have to restrict to works connected with using applications. For example, a task not connected with a computer is a chemical experiment (and very easy) based on growing salt crystals [chemistry]. Despite the process of crystallizing is generally known and understood, and the experiment does not require great technical equipment, its effects are much more remembered than just reading about it. The students' success motivate them and everyday observation consolidates the acquired knowledge.

Internet is a huge medium and unlimited source of information. However, a person conducting a course provokes students to go beyond the web. The activity enforced by a teacher may be watching news programs on TV [pws]. Students analyze materials of different TV stations and take notes what a particular station focuses on, how much time is spent on the same topic on different channels. Reflections are proceeded by lectures and examples and students' work has certain, imposed in advance, scenario - own initiative is welcome but the minimum of expectations is described in the instruction.

Taking students outside the web allows to teach not only on the basis of generally available texts or reprint of a book or magazine, as in the "Internet, individual, society" [iis] course. Within the task, students had to conduct an interview with a person who does not use the Internet. When performing a task they replied on a set of questions given by a teacher, they had to ask them so they followed the procedure.

For methods of "do" types, an instruction is a very detailed description of step-by-step procedure. Every step has to include all details necessary to perform it as well as to check on your own whether it was done properly. It cannot be forgotten that a teacher will not be present during the task performance so he will not be able to correct possible mistakes immediately and clear up doubts. The role of a teacher has the procedure description, so it also has to include reactions to "unforeseen" situations.

The most natural way of sending the result to the teacher in that method seems to be making video during the task performance. A teacher can, while watching a film, check whether the procedure was done in an appropriate way with having all the required conditions. However, making a movie can be very difficult for a student. It requires appropriate equipment (although the availability of internet movie cameras, mobiles and digital photo-cameras with the function of recording moving picture is so huge that it is not the most important problem) and skills during recording (here it is

worth noticing that it's quite difficult to record a movie with yourself without professional equipment, additionally showing your actions), as well as its processing (e.g. removing unnecessary shots). The size of the video files is also important. Another problem is time spent on completing the procedure. That is why we should use other forms of registration of completing procedure.

Very good, illustrative form of recording a process is a system of control points. In the procedure description, some stages which will be recorded should be marked. For instance, in the procedure of software installation within (hypothetical) ICT course we can indicate situations where a student completing a procedure should "take shots from the screen". The result expected by a teacher will be then a collection of screens. Similarly, when doing a biological experiment (e.g. growing cyclamen from a seed) a student can take a photo of certain stages of its development by marking a date, and the collection of photos will be appropriate recording of the performed task. In such case, unfortunately, placing all photos on Moodle platform is quite complicated, so it is advised to use generally available service giving place for photo gallery, e.g. Flickr.

Both described above ways of recording your task performance have to be checked by a teacher (like the solution to an open task). However, we can plan the result registration so that to make it in a form of a quiz based on answering to several (closed - e.g. single choice) questions about the procedure. For instance, questions about chemical experiments may concern colour, temperature or scent giving off at certain stages of the experiment. With the appropriate choice of "control points" correct answers to such test (there should be only one attempt) may be the evidence for a correct task completion.

The appropriate choice of result registration form depends on several factors, out of which the most important is the didactic goal. If a student has to master all actions at the perfect level, the registration has to concern the whole procedure, so it is necessary to record a video. When it is only important to achieve certain stages through any method, then it is better to record only control points. Unfortunately, in case of long-term procedures, video recording is almost impossible. In such cases we can use a diary or a blog as a place of recording observations made at the time of next steps of the procedure. It is obvious that the teacher should check those notes regularly.

5. "Search"

The described here type of activating method is based on a well-known method "resource based learning" which the essence is to search resources.

Resource-based learning [...] provides a means of achieving both subject literacy and information literacy (the ability to use literature to discover new knowledge) at the same time. Learners are provided with or told to seek a wide range of resources and materials, typically with a teacher-specified goal in mind or within a specified subject area. (Dron, 2007, p. 140)

In activating tasks of „search” type, student's goal is to gain information beyond the course material. Person conducting makes the type of information precise which should be found by a student so defines precisely the goal of searching. A teacher can, but does not have to leave freedom in searching resources and/or methods of searching (Horton, 2006. pp. 195-205). When performing a task, a student can use generally available electronic media (Internet, radio, TV), traditional media (press, books), as well as direct interviews. Those types of methods formulates abilities to select information that is important in times of "information noise". It is essential in finding trustworthy resources and in the choice of more important, useful data and its verification. Thanks to such tasks, a student learn how to gain knowledge on his own and be responsible for his education which is important in life-long learning.

The example task of "interview" type from " Internet, individual and society" [iis] course may be also used as method of "search" type by different formulation of assumptions. Instead of action procedure (set of questions), a lecturer defines type of information which student should gain from the interviewed person. The result of work could be a recoding of the interview or its part including the desired information, in a form chosen by the lecturer (audio/video file, tape script).

The set of questions defined by a lecturer does not have to constitute the procedure of the task performance. It can be used as a description of the desired information which should be achieved by students. Then the basis for information seeking is a questionnaire and students choose resources that is interviewed person. A task can be an example where students were to find information on eating habits using ready questionnaire. After collecting the data, students transferred ready results on the e-platform. The questionnaire gives student method of searching, although it does not impose the choice of the interviewed people.

Complete freedom in choosing method of searching is given in case of a task based on finding an example which meet the criteria set by a teacher. In one of the courses, [km] a teacher asked students to find on the Internet a photo of the Eiffel Tower published with the Creative Commons licence. The method of searching such illustration and choice of resources depend completely on the student.

Another example are tasks where a student has to find certain information in certain databases, e.g. documents regulating EU cooperation with the international organizations in EUR-LEX database. The source is given by a teacher, however it does not define the method of searching (e.g. according to key words, dates, authors, types of documents) that broad database.

In case of "search" type methods, the instruction has to include description of a goal for searching resources. For example, in a form of formulating leading topic (e.g. "to describe methods for defining many exhibits coming from excavations"), instructions for searching additional materials (e.g. "to find legal basis for making certain decision"), historical research (e.g. "to follow the history of the development of applying informatics in economics"), etc.

The easiest and most often used form of transferring the results of a task is a list of the found information resources: either in a form of list of links, or in a form of traditional bibliography. We can present such list on a discussion forum or by answering to an open task, however every way has its serious disadvantages: in case of forum it is difficult to prevent from sources repetition, answers to open tasks - results are available in a form of database - thanks to that we avoid double records, but it makes database available for all students.

As often as the list of resources we can meet recording of the original form of information (downloading of the whole HTML pages onto the hard disc, making shots from the screens, scanning parts of books or magazines) and sending a file to Moodle platform. However, it is a form of result transfer advised in case of resources which do not require finding many resources - when a goal is to find a big quantity of information, recording your search may be more time and work consuming than search itself. It is worth thinking, before you choose form of transfer, whether the technical aspect of a task will not prevail its factual aspect.

When there are practical skills required (and checking) in effective searching, it is worth demanding from student to present a list of next steps, which would lead to certain information finding. Thanks to such formulating the way of result transfer, it is easy to check whether a student had found the source easily and quickly, or through indirect way or even by an accident. If searching is very time consuming, student can write down his next steps (stages) in a diary. An interesting solution is formulating questions by a teacher on searching and presenting them in a form of questionnaire which should be filled in. Such "supported" searching may be useful when we ask to perform a task students who hadn't mastered skills of selecting information completely and we want to check the reliability of their actions (e.g. thanks to a question "in what way did you verify the truthfulness of the gained data?", a student has to think it over whether during the process of searching he took into account the resources verification, and what follows, whether his work was performed properly). Presenting search results in a form of next steps (supported with a questionnaire or not) is useful in situations when it is more important to practise skills of effective searching than presenting certain data.

Focus on practice of skills is put in tasks where a student should present the result of his work in a form of synthetic description of resources types. Such description has to include information on what type of resources include or may include searched data. For example, when a student is asked to give types of resources where we can find information on town building from the second part of the 19th century, he should give a short description of town map, guidebooks or architectural recording from that time.

6. “Create”

Activating methods may be analyzed not only in a context of an environment where a student performs his tasks or because of using tools and ways of searching information but also due to the final result of a performed task. Such way of motivating student to act has been described by the authors of the article as manufacturing task, result of which is “piece of work” meeting all general assumptions set by a teacher. On the contrary to a reconstructive task, student does not receive either ready procedures of acting or an example. He only learns the parameters which “a piece of work” should meet, but they are formulated on a great level of generality. It means that a student is an author of a way of acting (procedure) as well as the final result.

Tasks of “create” type do not restrict students to stereotype thinking on certain issue, but provoke them to individual creation which is the key to education in its full understanding (Guilford, 1967). The lack of one correct solution undoubtedly helps to activate those students who, in fear of next failure, perform reconstructive tasks unwillingly or even do not begin them. Stages, a student has to go through when realizing this type of tasks, may be compared to a traditional model of Wallas (Wallas, 1926) which refers to a creative problem solving. The first one is preparation which is problem defining, the second one *incubation*, that is “growing” of an idea, the third one *inspiration* - discovering the solution, and finally *idea verification*, which in the context of this article means comparing the result to the general, known assumptions.

Activating method of “create” type is particularly useful in situations when a teacher wants to check whether student knows how to use theoretical knowledge in practice. In one of the courses [psyel] students were to place in a life context (by giving certain examples) learned in theory phenomenon of cognitive dissonance. Student received only general assumptions but the teacher did not tell them whether the example has to refer to them, or other people; if it should constitute the observation result or if should be gained by conducting an interview and finally whether the final result (example) has to be true or false.

Another example illustrating the usage of creative tasks is a situation where during classes students learn [kno-op] formal rules referring to filling in applications for gaining European funds, and then they received a task to prepare such application on their own. Students knew the general assumptions the correct application should meet, but they had to choose the area of actions on their own (e.g. the development of high schools, mobility of students and academic employees, institutional cooperation, etc) and to make up what project they want to get funds for. The next step was to get data necessary for completing the application and arguments for their ideas. Although, there were only general guidelines known, at the time of beginning the task realization, even the authors (students) could not foresee the final result.

An instruction prepared for method of “create” type consists of a set of criteria which student’s work has to meet. The generality of the criteria depends on many factors, among which the most important are: the didactic goal, the age of participants and the level of the general and detailed knowledge on the learned subject. Criteria have to be easy for checking even by not experienced student so that he has the opportunity to evaluate how much his choice refers to the assumptions set in the instruction.

The assumption of “create” method is to create an original piece of work. However, the character of the work can be quite different, it depends on the subject within which the piece of work is created, on the didactic goal, the range of knowledge and skills acquired by a student. We can say about a piece of work in a written form, computer program, material object, and even creative interpretation of music or poetry. Each of those pieces of work requires specific registration and specially prepared place to accept the result. In case of computer “products” (spreadsheet including mathematical model of a phenomenon, text file with an utterance, audio recording of a poem reading, etc) it is enough to have place for sending a file. So we can use open task (send a file) or even a forum - when other participants should know the works of their colleagues. Similarly, open task or a forum are enough to send a photo of a constructed object, although sometimes it will be easier to use outside service (see “do” method).

A piece of work or its image is not the only way to present the results of work over the piece. In case when, from the side of gaining qualification, the way of its construction is more important than the product itself, we can use registration methods based on control points, similar to those described in “do” methods. However, in this case it is more difficult for a teacher to indicate in advance the

stages which require recording. Actually, the choice of registration points should belong to the student, and that makes the tasks more difficult. However, such attitude has its deep didactic advantage. A student not only creates a piece of work but also analyzes the way of its creation, so he has to approach reflectively to his own effort. If it is the main educational goal of using “create” method, then this method for registration of the creation stages is even better than registration of a ready piece of work. So it is possible to enforce an author to analyze his work more deeply by indicating as a method of result registration “description of the creative process” and use diary for it or a blog from Moodle. This method of work registration, requiring from a student reconstruction and writing down all his steps leading to task completion, is in favour of reflection over your own way of thinking.

7. Summary

Publication of the materials in virtual space does not guarantee their effective processing by the receivers (Bork 2001), that is why it is necessary to plan the didactic process with the usage of different methods of teaching, which is not easy. An effective implementation of activating methods is connected with the precise task designing. Focusing only on the instruction is not correct. It is necessary to define carefully the way of solution presentation. Evading this element makes it difficult to achieve the set didactic goal.

8. Bibliography

Bekiaridis, G. (2004). *Online Assessment: Issues, Options and the Case for the Moodle LMS*. Researching Assessment Methods & Instruments for E-learning (RAMIE) Project, Education and Culture, Socrates/Minerva Action for ICT in Education.

Dron, J. (2007). *Control and Constraint in E-Learning: choosing when to choose*. London: Idea Group Publishing.

J. P. Guilford, J.P. (1967). *The Nature of Human Intelligence*. New York: McGraw-Hill.

Horton, W. (2006). *E-learning by Design*. San Francisco: Pfeiffer.

Wallas, G. (1926). *The Art of Thought*. New York: Harcourt, Brace.

Silberman, M. (1996). *Active Learning: 101 Strategies to Teach Any Subject*. Columbus: Allyn & Bacon.

Clark, R.C., Mayer, R.E. (2008). *e-Learning and the Science of Instruction: Proven Guidelines for Consumers and Designers of Multimedial Learning*. San Francisco: Pfeiffer.

Bork, A. (2001). *What is needed for effective learning on the Internet?*. Educational Technology and Society vol. 4 (3) pp. 139–144.

Postman, N. (1992). *Technopoly: The Surrender of Culture to Technology*. New York: Alfred A. Knopf.

A list of cited e-courses (Centre for Open and Multimedia Education, University of Warsaw)

[kno-ict] *Designing multimedia materials*, 2007.

[mat-hum] *Mathematics for humanists*, 2008.

[wdem] *Introduction to intercultural education*, 2006.

[chemia] *Chemistry in the eyes of non-chemist*, 2009.

[pws] *Psychology of social influence*, 2004.

[ijs] *Internet, individual, society*, 2005.

[psyje] *Psychology of eating*, 2004.

[km] *Multimedia communication*, 2009.

[psyel] *Psychology of e-learning*, 2007.

[kno-wn] *Organization of e-learning process*, 2008.