

ACADEMICS' ASSESSMENT OF STUDENTS' WEB 2.0 ACTIVITIES. CASE STUDY OF THE ECONOMIC PROFILE

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Abstract: *The evaluation is the way through which the universities demonstrate their own value, but also that of their graduates. Our present paper suggests a debate regarding the evaluation of students in economics in a web 2.0 world. More precisely, we are trying to offer an answer to the question: Do the students of economics have the necessary computer science abilities to learn and to be evaluated in a 2.0 web environment? The paper starts off with the presentation of fundamental principles of assessment and teaching done with Web 2.0 means and methods. The exemplifications are added to this structure as they had been presented in the specialized works of this domain. The paper then goes on to present the results of our prospective study. Through this prospective study we wanted to identify the attributes based on which we could create the next phases of our research into elaborating the behavior of the students as it is observed during the process of evaluation. This evaluation takes place in a world that is bombarded with synchronic and a-synchronic means of communication called according to acronyms such as web 2.0, 3.0 and maybe even 4.0. It is in this context that we consider that the main purpose of the present paper is to determine the state of being prepared/ unprepared characterizing the student in the use (acceptance) of the evaluation and assessment of certain softs for socialization. In order to achieve our purpose, we have carried out a survey based on which we were intending to obtain the students' level of perception regarding the evaluation system they are subjected to through web 2.0 means as well as their reaction to the web type of evaluation. The result we obtained demonstrated that the students are willing to participate at a declarative level, but they are not actually willing to be evaluated through web 2.0 means when it comes to practice. The end of the study is where we identified the need for a better means of informing and counseling both the students and the professors or other teaching staff in order to take full advantage of the Web 2.0 evaluation potential.*

Keywords: higher education in web 2.0; assesment in web 2.0; association rules; student profile

JEL classification: A29; I21; I29

1. Generally Introduction

The demands of the global economy based on knowledge are extremely high and the discussions (Boix-Mansilla,2011),(Radcliffe,2012) of the last few years that were developed both at the level of university and at the level of the employer's activity are centered on the abilities that are necessary in order to obtain a better workplace and to become a productive citizen. At the same time, the Romanian educational system of today is marked by the phenomena resulted from the shift from an industrial economy (which

was in turn replaced by agrarian economy) to the economy based on knowledge. The unprecedented development of the digital world by means of the Internet was added to this enormous change, and this latter transformation resides in the motivation to learn.

It is in this context that we have considered necessary to carry out this study starting off from (Wagner,2008) propositions related to the abilities and skills that are demanded by the jobs of the future, these being professional occupations that we do not even know the name of for the time being (Prensky,2001). The abilities proposed by (Wagner,2008) are the critical thinking and problem-solving, collaboration across networks and leading by influence, agility and adaptability, initiative and entrepreneurialism, effective oral and written communication, accessing and analyzing information, curiosity and imagination. According to Bohn, the acquisition of abilities, whichever these might be, is possible only through learning. Bohn is the one to state that the notion of learning is as actual as possible, 'Learning is evolution of knowledge over time". Therefore, the conclusion we have reached from our posture of actors in the system of learning is the fact that in the process of learning and of teaching which is typical of the new context, the evaluation is becoming a central component of this process. What follows highlights the evaluation of performances based on a series of specific methods that are accepted by all the ones who are involved in the teaching-learning process - from the lowest levels to the academic one – current observation and the verbal evaluation, oral examination, written examination, checking the subjects' level of knowledge through practical works, the report, the portfolio, checking their level of expertise and knowledge through projects, which in turn might contain formalized instruments of evaluation – questionnaires, tests, tests assessing knowledge, etc. It is imposed that the process of evaluating students be done with the help of web 2.0 instruments, as they are no longer considered a latest technology, so that one might discuss the practice that stays at the basis of their utilization. According to (Gray,2012), using the web 2.0 instrument was aimed at the capitalization of collective intelligence: as the users add new content and pages, they connect by means of connections (hyperlinks) to such an extent that other users discover the content and get connected to it. Furthermore, (Gray,2012) reaches the conclusion that the web is developing and growing in an organic manner as a reflection of the collective activity of its users. In (Apostu,2011) we support the opinion that the rational use of web 2.0 technologies in education leads students to the development of new abilities. According to (Apostu,2011), the blogs, wikis, e-portfolios and social networks are very effective instruments which allow the clarification of concepts and which facilitate establishing relevant connections and relations, as well as testing mental models. (Apostu,2011) drew the conclusion that these offer a public forum in which the cumulative process of forming concepts, refining, applying and revising are transparent for colleagues and teachers as well as professors or other educators.

Starting off from the results obtained by (Gray,2012) (Prensky,2001) (Wagner,2008) we wished to add the effects of web 2.0 instruments in the process of evaluating students specializing in economy through our study, by determining the students' degree of acceptance/rejection of the new technologies. More precisely, we have focused our efforts on the attempt to establish the economics students' perception and standpoint on the involvement of web 2.0 means in their evaluation, considering the fact that this implementation is unanimously accepted in the teaching process, which involves the extensive use of web 2.0 (even more so since the web 3.0 has been used and since a web 4.0 is currently aimed at).

The paper is structured in two large parts: the presentation of the ideas that exist in specialized literature (the domain of economic education with a strong emphasis on using IT&C technologies of the 2.0 generation), which are also linked to the evaluation of the web 2.0 and the final part, which consists in the actual presentation of the study, passing from this presentation of the used methodology to the obtained results.

2. Literature review

The field of education has always been subjected to certain pressures of adopting the newest technologies with the purpose of improving it, of making it more accessible or of responding to more needs. It is in this context that we have studied the specialized literature provided by the domain of informatics-economics education; the study has enabled us to identify the following practices and directions which we consider to be the guiding principles in this domain, no matter what changes are brought over by the development of new technologies:

- According to (Krause & Coates,2008;Zepke & Leach,2010), teachers and educators of all kinds and levels of education must find methods and means of raising students' awareness and of determining them to get involved in the learning process. Therefore, educators must find the motivation that students need in order to learn, but they must also create an environment in which the interaction among students as well as the interaction with the educator proves beneficial to them all.
- According to (Berglund & Lister,2010;Thadani et al,2013), retaining and memorising information is essential in the process of applying knowledge, so it becomes important that the students get involved in programming and implementing projects in order for them to develop practical programming skills, which are essential in any learning situation.
- According to (Resnick M. et al,2009;Rusk et al,2008), the aim of the teacher/educator is to assist students in implementing a functional program by providing the material with solved problems, therefore motivating the students in getting involved in the programming activity, doubled by the learning process.
- According to (Robins, Rountree & Rountree,2003), teaching programming languages imposes an approach in which the theoretical notions are combined with the practical ones, and it is in this context that the student learns and understands programming better.
- According to (Dolnicar et al,2009;McGarr,2009), a traditional course model is adequate to the knowledge transfer in that it provides a structured, standard manner.

(Chickering & Gamson,1987) have reformulated the principles for good practice in teaching by considering the fact that at present information technology is used in the learning-teaching process, the result of this fact being:

- "Encouraging the contact between students and faculty;
- Developing cooperation and reciprocity among students;
- Encouraging active learning; providing prompt feedback;
- Establishing deadlines for each task;
- Clearly presenting the minimum and maximum demands and expectations;
- Respecting the diverse talents and means of learning."

(Oblinger & Oblinger,2005),(Prensky,2001) also found in (Wagner,2015) talk about Millennials, the ones who were born starting with 1982, whose learning characteristics are defined as: "Abilities to fulfil more tasks; The preference for learning from photos, music and videos instead of the text; The preference for interactive and teamwork activities instead of individual study".

In (Gray,2012),(Malhiwsky,2010) and (Glenn,2008) we have a presentation of the impact and effect of web 2.0 technologies on the academic activity, offering detailed advice "on how to conduct assessment which comes to grips with the unique features of Web 2.0, its difference from previous forms of student writing and staff marking or its academic". There is much work to be done before we can be confident that using Web 2.0 for assessment is safe, fair, engaging and worthwhile for students and staff. Author's of this presentation might be considered supporters of the introduction of web 2.0 in academic education.

Starting from the so called classical concepts of the teaching-learning process and implicitly of the evaluation presented in the previous paragraphs, it is interesting to observe how these ideas were revisited and rephrased according to the latest technical evolutions as presented in (Bobby,2007) as follows:

- “Authentic: involving real-world knowledge and skills.
- Personalised: tailored to the knowledge, skills and interests of each student.
- Negotiated: agreed between the learner and the teacher.
- Problem oriented: original tasks requiring genuine problem solving skills.
- Socially constructed: using the student’s social networks.
- Collaboratively produced: produced in partnership with fellow students.
- Recognise existing skills: willing to accredit the student’s existing work.”

“The type of evidence that best fits this type of assessment would be:

- naturally occurring: already in existence or generated out of personal interest
- multimedia: existing in text, audio and video format
- digital: such as e-mail, instant message logs, blog posts, wiki contributions, audio and videorecordings
- distributed: may be scattered across various sources (such as web sites, blogs, inbox, iPod).”

We are of the opinion that all these classical to modern theories can be reunited in order to create a powerful instrument that has the purpose of developing a holistic frame that would render both the teaching process and the learning environment more efficient. All these will allow the learning-teaching process to be adapted to all the technologies resulting from Web 2.0, Web 3,0 and why not 4.0? In this context, we decided to present how we determined the degree of preparation characterizing the students in the economy department regarding the way in which they adopted the web 2.0 instruments in their evaluation.

3. Research methodology

The starting point of the research was represented by the launch of a complex programme initiated by the Ministry of Education and Research in Romania, 2001, whose main objective was to support the learning and teaching process in undergraduate institutions by providing them with the latest technologies. Therefore, we might draw the conclusion that the undergraduate Romanian learning system made its first steps in the digital world in 2001.

The most important results obtained by SEI up to the present are: a. The fact that numerous high schools benefiting from Ael, the eLearning solution created by SIVCO Romania, which is aimed at transforming the didactic process in an interactive and attractive activity that is easy to browse through, ultimately leading to a higher level of involvement from the students and to a faster assimilation of knowledge that would also remain in the students’ memories for a longer time; b. The didactic support provided for teaching includes interactive guidebooks, exercises, mock-exams, solving problems, educative games. The system is based on an electronic centre of knowledge using manuals and students’ books that are presented in an electronic format and offering a content that is more complex than the regular textual input.

The research is based on the method of the structured interview, using the questionnaire as an instrument. The questionnaire was used in the present research in order to identify the profile of the student who fits the web 2.0 evaluation process to the greatest extent. The questionnaire was applied in the winter of 2015 to a sample-group of 61 people, out of which 35 were of the female gender and 26 were male. All the subjects were registered in the regular teaching programme, specialising in economic studies, undergraduate level as well as subjects doing a Master's Degree. During this research, the method of transmitting knowledge that would later be evaluated by means of web 2.0 devices consisted of PowerPoint presentations, YouTube short materials, transmitting content through wiki, blogs, facebook (mostly addressed to the students and less involving the educators-students' relationship), the moodle platform. The practical part consisted in solving problems, either individually or in a group, creating reports, again individually or in a team, posting the individuals' or the groups' findings on moodle, wiki or blogs. The evaluation process made use of the variant of the multiple choice type of test in order to check their level of theoretical knowledge, and these multiple choice tests were launched on the moodle platform (which does not represent the subject of our current research). However, the feedback form of evaluation was also used (at least two feedback sessions for each of the solved assignment topics), offered by both the educator and the other colleagues. After the assignments were carried out according to the indications thus received, we were able to mark the work. Still, the mark in itself bore a reduced significance in our research.

The hypothesis to be researched are:

- Web 2.0 instruments are to be used in the evaluation process.
- The student accepts the use of web 2.0 instruments in the evaluation process.

After testing the above mentioned hypothesis, the study continued with determining the extent to which the students have both abilities to use Moodle as well as the necessary means to use it at any moment of time. This last result of the study was reached on basis of the findings in the questionnaire, which also helped us determine the instruments used by the student in order to access the Internet.

According to the answers provided by the students, over 89% of them have access to the Internet from home, so according to this information we considered that using the moodle platform as well as other web 2.0 instruments has all the premises to develop in good conditions. The study went on to determine the place and duration in classes, as the subjects were accessing the learning environment. This statistics was achieved based on statistics provided by the learning environment, and the results obtained are as follows:

- 30% of the students accessed the learning environment at the beginning of a study period, while 50% accessed the learning environment midway through the learning period.
- The time spent on solving assignments is of 11-20 hours (30%), followed by 1-10 (30%), hours 21-30 (15%) and by 31-40 hours (14%).
- The access to the platform was established to an extent of 26% from the university, 40% from home as well as from inside the university and the rest of 34% from other places.

According to previous behaviour and to the degree of knowledge regarding using the computer that characterised the subjects, two groups were formed:

- GR 1 – the students who HAD NOT used the moodle platform, nor wikis during high school, but have digital competences which are certified through ECDL diplomas or through the Baccalaureate certificate, HAVING NO knowledge of these concepts.
- GR 2 – students who HAD NOT used the moodle platform, nor wikis in high school, but who have digital competences that are certified by means of ECDL diplomas or by means of the Baccalaureate certificate, HAVING SOME notions regarding these concepts.

The profile which we have obtained for the two groups presents itself as follows:

Subjects in Gr 1 possess no knowledge regarding Moodle or wiki	Subjects in Gr 2 have knowledge about Moodle and wiki
<p>The profile of the high school they had graduated from is scientific, with an economic specialisation – 48%, respectively computer science/ informatics – 25% and 27 % of the participants coming from a different profile.</p> <p>Out of these, 56% have access to the internet from their telephones and from home, and about 63% of them use Facebook around 4 hours a day from their mobiles; the rest of 44% only have internet at home, not on the mobiles, and 54% of them use Facebook less than 2 hours per day.</p>	<p>The profile they have graduated is realistic sciences with a specialization in economy – 63%, and with 37% of them having graduated from informatics.</p> <p>Out of these, 76% have access to the internet from the mobile phones and from home, and 65% of them use Facebook for about 6 hours a day from their mobile phones; the rest of 24% have internet access only from home and about 54% use Facebook for less than 3 hours daily.</p>
<p>62% of the members of this group use the computer in order to communicate with friends and the rest use it not only for this purpose, but also in order to find information that is required for their further scientific research, such information being necessary in the understanding of the concepts that are required from them in courses, lectures and during laboratories or practical courses.</p>	<p>51% of the members of this group use the computer for communicative purposes, 40% for both communicating and accessing information that is required in courses, lectures and laboratories, while 9% provided inconclusive answers.</p>
<p>In this group, only 27% have heard of Moodle and wikis, while the others are only familiarised with Facebook and other socialising networks. However, one can notice that the reason for the orientation of 72% of the interviewed persons towards web 2.0 evaluation consists in obtaining feedback before receiving a mark from the educator or even from colleagues. Their choice is also motivated by self-evaluation through online courses provided by the Moodle platform or by wiki – given the fact that the assignments and tasks are posted weekly, at the requested time and date (unless they respect the deadlines, no feedback is provided, only the direct evaluation). The 28% who do not want to be evaluated through web 2.0 give the explanation that they wish to learn according to their own rhythm, without having to cope with weekly deadlines and fixed terms</p>	<p>In this group, the percentage of persons who have heard of Moodle and wiki during the learning process of high school is of 62%, while the rest have never heard of it or have answered inconclusively. However, 81% of the interviewees stated that they wish to be evaluated by means of the web 2.0 because this alternative offers the possibility of combining learning with receiving feedback. 19% wish to be evaluated this way because a constant rhythm of going through the material is imposed this way (a certain number of problems to be solved individually or in groups has to be posted on a weekly basis).</p>
<p>17% of the members of this group are supporters of classical/ traditional means of teaching, while 62% prefer computer-assisted learning and the rest wish for a</p>	<p>21% of this group's members are supporters of classical learning, while 45% are more interested in computer based learning and the rest wish for a combination of traditional</p>

Subjects in Gr 1 possess no knowledge regarding Moodle or wiki	Subjects in Gr 2 have knowledge about Moodle and wiki
<p>combination of traditional teaching with computer assisted one. That is to say, 28% would like courses to take place exclusively based on a 2.0 web system and want the exam to be organised in the traditional way, and 34% want to attend classroom courses and want the exam to be organised by web 2.0 means.</p>	<p>and computer based learning. 26% want the courses / lectures to be created and presented exclusively by web 2.0 means, with a traditional exam, and 45% want to attend classroom lectures and eventually sit a web 2.0 exam.</p>
<p>The profile of the student who has identified the web 2.0 evaluation as a means of applying the learning-evaluating process to their own learning rhythm is the following: The high school they graduated is a scientific, realistic one, with a specialization in computer science. They have access to the internet from their phones and from home; 35% of them have used the Moodle platforms, YouTube, Facebook and wikis in their learning process before and they prefer both the courses and the evaluations to be carried out by web 2.0 means.</p>	<p>The profile of the student who perceives the web 2.0 form of evaluation as a means of adjusting the learning-teaching process to their own learning rhythm is as follows: The high school these students come from is of the realistic profile, with a specialization in computer science, having internet access from their phones and from home and having used Moodle, wikis, Facebook and YouTube in the learning process before (a minimum of 45% and a maximum of 72%). This type prefers both the courses and the evaluations to be done in a web 2.0 context.</p>

Source: own composition

The study went on with creating and presenting an analysis correlating the number of hours dedicated to using the study support provided through web 2.0 (offered by Moodle, wikis, blogs and YouTube), accessing pages according to basic principles of the teaching-evaluating-learning act and results of more than 7 at the web 2.0 evaluation. Here are the conclusions we reached:

- In the group of students who are supporters of traditional learning, we calculated the Bavaris-Pearson correlation coefficient and obtained $r=0.58$, which indicated a moderate correlation, with an acceptable degree of association that was interpreted according to the interpretation provided by Colton (1974). The determination coefficient we obtained is of 0,35, which means that only 35 out of the 100 students of this group can be identified by the hours spent on the web 2.0 support.
- In the group of the students who prefer learning through web 2.0 we calculated the Bavaris-Pearson correlation coefficient and obtained $r=0.58$, which indicated a good correlation, with an average degree of association that is interpreted according to the interpretation provided by Colton (1974). The determination coefficient we obtained is of 0,27, which means that only 27 out of the 100 students of this group can be identified by the hours spent on the web 2.0 support.

The results of the study need to be interpreted by considering the fact that efforts are made at the European level in order to (Connolly, 2009):

- Create a network that would include education and the labor market with the purpose of improving the use of Web 2.0 domains in both areas,
- Create an empirical template with a view to evaluating the efficiency of Web 2.0 instruments,
- Analyse the needs of the ones who are interested, examine the case when Web 2.0 was used in the domain of education and of the labour market and, finally, in order to create a data basis that would comprise research, good practice guides and case studies in the domain.

According to the obtained results, WE CANNOT affirm that all the students are prepared (either factually or conceptually) to successfully respond to an evaluation that would be done by using web 2.0 methods. According to the results obtained by our study, the research hypothesis are fulfilled. To be more precise, the students are prepared to use the web 2.0 instruments in evaluation and they accept the use of these instruments in the evaluation process. The attributes of the student who will successfully face a web 2.0 evaluation are the following:

- The use of a touch screen mobile phone starting with the age of 15
- Digital competences that were evaluated with excellent or very good marks at the end of high school
- The fact that the use of facebook started around the age of 15 or more determines individuals to choose web 2.0 learning systems, or web 3.0

We are of the opinion that these attributes can be used in further research in order to enable us to generate the profile and behaviour of the student throughout the evaluation process done with web 2.0 means. Moreover, we consider that the research can be extended through the realization of a study referring to the reactions and results of the students who are evaluated by means of 2.0 web instruments, as well as to the degree of acceptance and preparation of the educator to create an adequate evaluation of the web 2.0 environment.

4. In conclusion

The European educational policies admit the importance of adopting the latest technological evolutions in education. Therefore, the abilities of using web 2.0 and 3.0 instruments receive an important dimension and it is implicitly believed that these have a considerable influence on numerous aspects of daily life. H. Gardner maintains the fact that the population has accepted the idea according to which the 2.0 education must respond to the following objectives and desideratum: "Development of new abilities, stimulating the multiple cognitive potential of the educated subject (The Theory of Multiple Intelligences, H. Gardner); developing the cognitive abilities at a superior level (Bloom's improved taxonomy)". Using Web 2.0 means allows the construction of contents through grouping individual knowledge, but it also involves looking for, selecting and filtering information, as well as structuring and presenting knowledge, which all represent just as many essential abilities for learning throughout one's entire life. Any web 2.0 learning environment contains a feedback component in the monitoring/ evaluation part. This component is transmitted to each participant who is taking part in the training. Moreover, there is an extra component containing clearly structured and transparent content that would allow for the progress of the trained subject and for the optimal evaluation to take place. In (Sadler, 2009) it is stated that "at the same time, there is pressure to uphold academic standards, for example by assessing essential learning outcomes rather than processes, based on optimal evidence of student achievement and reflected in grades that can be related to set standards". Therefore, if education is the best form leading to change, then change must be imposed by the evaluation system, and it is modern e-evaluation

systems that can do this thing best. After the study, we are of the opinion that “in spite of their fantastic potential, of their infinite possibilities to apply interactive methodologies and to transform education into a much more attractive form of learning, most of the suppliers of education (Europeans, Americans, Australians and more) do not sufficiently exploit this learning environment (SMART,2014).

The limits of the subject that we are studying are also caused by the criticism addressed to the method through which the users are the ones to re-create content. They state that there is a rupture between expertise, authority and quality contributions. These express the worries concerning trust, authenticity and credibility related to the passage from the written world to a digital world that is more ephemeral. The Web contains a considerable quantity of unfiltered information and many students fall in the trap of this undifferentiated mass. Not too much time will pass until the moment when the traditional sense of the notion of quality in superior learning will be abandoned with the transition towards web 2.0 learning (Apostu, 2011). Given this context, we consider that ours is one of the few papers addressing the academic practices that are adequate to evaluating the students’ learning, being demonstrated by the use of web 2.0 technologies.

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