BLENDED LEARNING IN HIGHER EDUCATION: A VIEW FROM WITHIN

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Abstract

Today's world is completely engaged in a new type of revolution: the digital one. Higher education is one important field which can benefit from the advent of digital technologies. Blended learning has emerged as a groundbreaking concept, which combines the student's traditional learning experience with the support offered by the computer, the teacher guiding him all the way.

The mission of Adapt2jobs, a project developed with the help of the European Union's structural funds, is to create a learning platform, where seven traditional courses from three distinct fields of study, developed by experienced academics according to the labour-market requirements, have been transferred to the digital medium by ICT (Information and Communication Technology) specialists. The project is intended to implement a piloting programme, which involves 210 students enrolled at the seven courses, and, eventually, to measure learning effectiveness by means of the tools developed as part of the learning platform.

A research methodology has been designed in order to assess the overall learning experience of the students involved in the project, and, thus, to provide valuable insights to teachers, who are given the opportunity to enrich their teaching methods and teaching philosophy, and to make them able to adapt to new ICT technologies in education. The feedback from students is collected with the help of two online evaluative surveys: a general one applied prior to Adapt2jobs learning experience, and a specific one, tailored for each course, applied at the end of the piloting stage. This allows us to make a comparative analysis between the students' expectations and their previous learning experience, which is mainly traditional, and the new type of learning experienced during the piloting months. Data collection is made via LimeSurvey, a digital open source which will assist us in interpreting students' responses. The survey variables have been selected to describe the students' past experience in using computer and online learning materials, to explore their perception of learning effectiveness on a personal level, and, on a more general level, to compare traditional learning with blended learning.

The paper's aim is to analyse the preliminary results available for the two surveys and, thus, to evaluate the implementation scheme proposed by the project and, therefore, the effectiveness of technology-mediated instruction.

Keywords: Blended learning, digitized courses, traditional courses, general evaluative survey, specific evaluative survey.

1 THE END OF TEACHING AS WE KNOW IT?

There is no doubt about it: the face of academic learning and teaching has radically changed in the early 21th century. Professors nowadays address a student who is no longer a passive subject, eager to attend traditional lectures, making notes, pencil in his hand, listening to his *magister*, hardly ever daring to interrupt him. Today's student is almost always accompanied by his smart phone, laptop, iPad or other smart devices that will assist him in in-class or off-class learning activities. This has increased the professors' awareness that technology can be put to use for the student's benefit, as well as for his own.

Blended learning is no longer a new concept for the academia. It combines the student's traditional learning experience with the support offered by the computer, the teacher guiding him all the way. One of the earliest and more precise definitions of the concept was offered in 2006 by Graham. According to him, blended learning combines two archetypal learning environments, once belonging to two independent spheres: the traditional learning and the new technologies [1]. There have also been other noteworthy attempts at defining the concept. A study of the State of Victoria, Department of Education and Early Childhood Development, mentions that "blended learning refers to the planned

implementation of a learning model that integrates student-centred, traditional in-class learning with other flexible learning methodologies using mobile and web-based online (especially collaborative) approaches in order to realise strategic advantages for the education system". [2] According to Watson, it combines online delivery of courses with traditional instruction in order to "allow thoughtful reflection, and differentiate instruction from student to student across a diverse group of learners." [3] Despite the various definitions, a common characteristic emerges: blended learning refers to the mix of traditional face-to-face learning with online learning.

Improved pedagogy and increased flexibility are often mentioned as the main advantages offered by blended learning [1]. It is high time educators operated a pedagogical shift from transmissive teaching strategies to more interactive ones, focused on the student's understanding rather than short-term memorisation and reproduction. At the same time, the transformation of the traditional learning space into a flexible environment, where the student can learn at his own pace and at his own will, can only be beneficial, especially for more mature students, who also have other commitments.

Having these two important aspects in mind, we have set out to develop a package of seven courses from three distinct fields of study: arts and architecture, social sciences, and economic sciences. In order to be able to do that, with the help of the European Union's structural funds, we set up a project, which we suggestively called Adapt2jobs, in order to emphasize our declared purpose of matching the labour-market requirements with academic curricula. Besides the scientific contents of the courses, we have also been interested in the delivery format. The traditional type of lecture, as appealing as it may seem to professors used to long-established conventional teaching, has been reconsidered. It is obvious that our students are no longer the erstwhile bookworms, who, when they do not passively attend lectures, spend their time in the library. A new generation has emerged, whose probably best description is that of "digital natives" [4]. By contrast, teachers are mere "digital immigrants", who speak an old-fashioned language which can hardly conceptualise the new realities brought about by digital technologies. Who are these weird young people we try to teach? Prensky describes them to the point: used to getting information quickly, in real time if possible, accustomed to multi-tasking and parallel processing, strongly preferring graphics to text, the virtual to the real, games to serious work [4]. To put it differently, professors and students nowadays no longer speak the same language. In order to bridge the gap, we have taken into account the possibilities offered by the advent of the new technologies. Yet, this does not mean that everything should be rebuilt from scratch. Knowledge is still knowledge, no matter the epoch, the medium, or the addressee.

Therefore, going back to Prensky's metaphor, we realised that it is only the language that we should change, the code that we should switch, and not the ideas we want to convey. The solution has been to transfer the scientific content of the courses to the digital medium. Our project partners, ITC experts from a well-established company with much experience in advanced eLearning, namely AeL Academic, eLearning solutions for education, assisted by experts in pedagogy, have provided the technical solution. Thus, starting from the seven courses initially written in a traditional format (*Strategies of communication for personal development, The management of cultural projects, Budget and treasury, International finances, The study of the market conjuncture, Contemporary technologies in architecture, Entrepreneurship and visual communication*), we arrived at seven digital versions, provided via a multi-functional portal (Fig. 1).
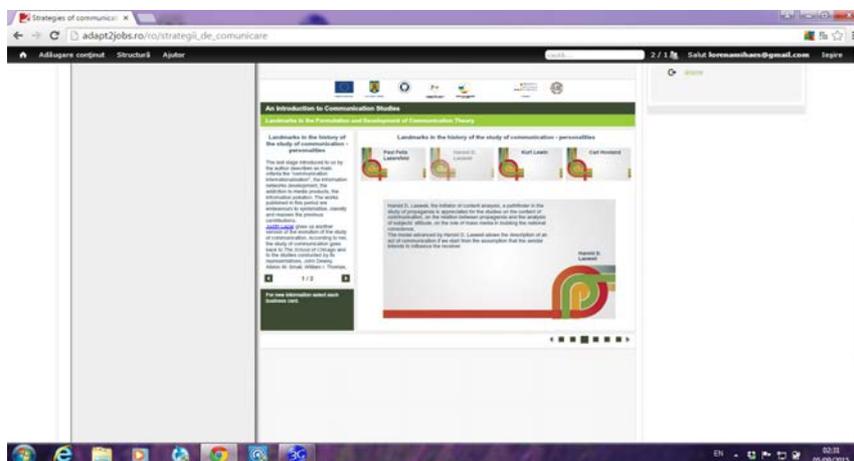

Fig. 1 Adapt2jobs portal - Strategies of communication for personal development

Accordingly, the student we address is supposed to access the course he has enrolled at and learn in a virtual classroom, at his own pace. He is given the opportunity to interact with the course instructor or his peers via a series of discussion tools such as the forum and he is provided with updates and assessment schedules in real time. Nevertheless, the professor does not disappear from the picture. Two face-to-face encounters between the professor and the students have been agreed upon as part of the tutoring activity. Besides that, other means of communication have been taken into account and put to use, such as e-mailing and Skype sessions.

The next step we have taken has been to recruit 210 students, already enrolled at a faculty belonging to one of the targeted fields of study, and to ask them to "test" or "pilot" the digitized courses. Prior to their piloting activity, they have been asked to complete an online general evaluative survey, with the view to measuring their opinion about computer-mediated instruction as compared to traditional face-to-face academic lecture. Besides that, we have been interested in sketching a portrait of the student in terms of his learning style in order to see what type of teaching would better fit his needs and preferences. At the end of the piloting stage, the student is asked to share his learning experience with us, by completing a specific survey, particularly tailored for the course he has studied. This allows us to make a comparative analysis between the students' expectations and their previous learning experience, which is mainly traditional, and the new type of learning experienced during the piloting months.

2 RESEARCH METHODOLOGY

Before the beginning of the piloting phase, we have developed a series of methodologies, among which a research methodology aimed at describing the stages of the evaluative study, whose purpose is the students' assessment of the seven digitized courses. The research methodology is quantitative and uses the online questionnaire as a tool for gathering information. Before identifying the most relevant questions for the survey, the project implementation team has considered the following aspects: the nature of information we want to receive (general and specific), the data-gathering techniques and their interpretation. Data-collection is exclusively made online, via LimeSurvey, a digital open source which will assist us in interpreting the students' responses. The survey variables have been selected to describe the students' past experience in using the computer and online learning materials, to explore their perception of learning effectiveness on a personal level, and, on a more general level, to compare traditional learning with blended learning. After collecting and interpreting the survey questions, a final report will be released, whose purpose will be to bring adjustments to the courses in what concerns their scientific content, the type of assessment they propose, as well as the digital form they are delivered in.

2.1 The general evaluative survey - preliminary data interpretation

The general evaluative survey is anonymous and is conducted among all students enrolled on Adapt2jobs digital platform, prior to their actual accessing of the courses. It is made up of four parts covering the following areas:

- the respondent's profile (age and gender category, field of study, year of study)
- general questions regarding the respondent's prior experience with technology-mediated instruction
- the respondent's learning typology
- the respondent's expectations regarding blended learning and, in particular, the course he has enrolled at.

175 students have answered this questionnaire so far (at the time this article is written, the piloting stage is not over yet, so we expect to collect more answers in the month to come). Basically, the survey's variables have been designed to allow an objective data collection by reducing as much as possible the data-collection errors. The preliminary data analysis has been conducted in order to explore to which extent our initial hypotheses will have been confirmed, to investigate the degree of correlation between different variables, and to point out the factors which explain the variance of some important variables such as: the student's learning typology, his expectations regarding the new learning environment effectiveness, etc. The data have been analysed using Sphinx IQ software and some of the relevant preliminary results have been made available by the project team. For the present paper, the overall relevance criterion has been applied so as to select the results which will be publicly presented.

2.1.1   The respondent's profile

The survey results confirm the fact that the students' profile is in line with the project's indicators in terms of age category, field of study and year of study (Fig.2).
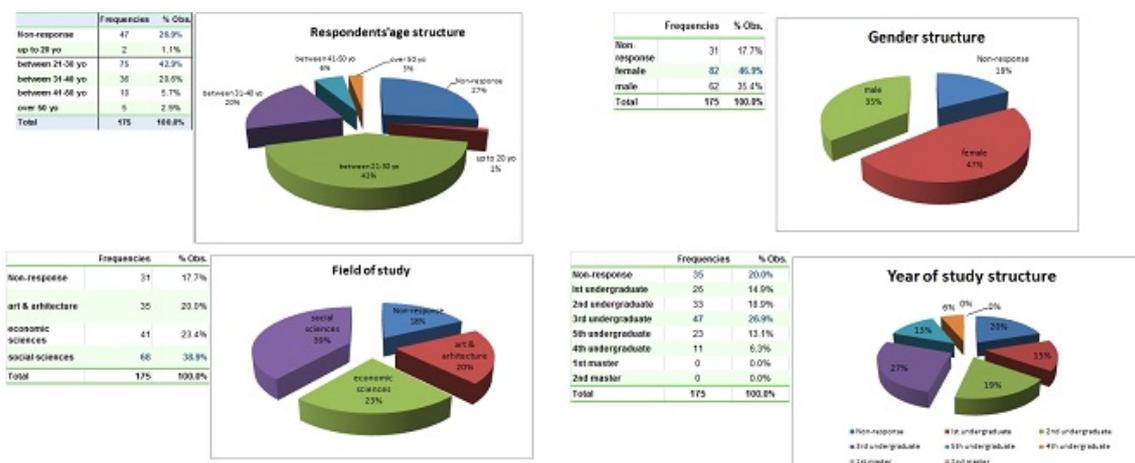

Fig. 2 The respondent's profile

42,9 % of the respondents are undergraduates, aged between 21-30. 47% are female students, a gender distribution in accordance with the ethical code of the project, which stipulates gender equality in what concerns the number of the recruited students. We obviously address a category of students belonging to the millennial generation, whose portrait we have sketched above.

2.1.2   The respondent's prior experience with computer-mediated instruction

When asked about their previous experience with computer-mediated instruction, the majority (53.1%) respond that they have a large experience with it, while only a small number (24%) admit that they have only occasionally used the computer when learning. This distribution of the respondents' answers can be considered satisfactory enough in order to set out the piloting stage of the project, because the recruited students are able to appropriately use the learning tools designed in the previous stages of project implementation. In close connection with students' familiarity with the e-learning space, we have been interested to see whether they are able to use English, the lingua franca of technology and research of various kind. 36.6% answer that they have a good English knowledge, while 32.6% declare that their English is excellent. The students' good level of proficiency in English has made us confident that additional learning materials provided in English will not be a problem for them. Besides that, one of the seven courses, *Strategies of communication for personal development,* is entirely written in English, which requires a student with at least B2 level of English competence.

2.1.3   The respondent's learning typology

The way students learn is of utmost importance for the type of courses we propose to them. A scale has been employed to capture the extent to which students rely on their auditive/visual memory, on the understanding of what they study, and on an analytical or synthetic approach to the learning material. The preliminary results show the fact that the majority of students selected to pilot the project rely on visual memory and on understanding the ideas when studying (Fig.3). As expected, "visual" is, indeed, the buzzword in today's pedagogy - what students see has a more immediate impact on them than what they hear.

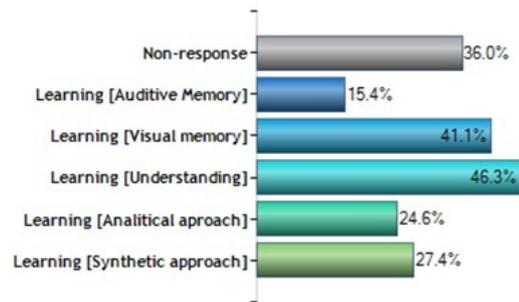| Respondents marked 5 - high extent	Frequencies	% Obs.
Non-response	63	36.0%
Learning [Auditive Memory]	27	15.4%
Learning [Visual memory]	72	41.1%
Learning [Understanding]	81	46.3%
Learning [Analytical approach]	43	24.6%
Learning [Synthetic approach]	48	27.4%
Total	175	

Fig. 3 The respondent's learning typology

2.1.4   The respondent's expectations

The recruitment of students for this project has completely been made on a voluntary basis. Therefore, we have been interested to find out why they decided to enrol at the courses and what their expectations about computer-mediated learning are. An overwhelming majority (62.9%) declare that the main reason for their enrolment is because they want to acquire new skills. Equally, they are interested in broadening their horizon and think that the courses might give them the opportunity (Fig.4).

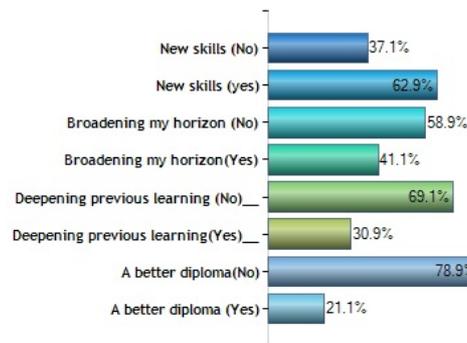|	Frequencies	% Obs.
New skills (No)	65	37.1%
New skills (yes)	110	62.9%
Broadening my horizon (No)	103	58.9%
Broadening my horizon(Yes)	72	41.1%
Deepening previous learning (No)	121	69.1%
Deepening previous learning(Yes)	54	30.9%
A better diploma(No)	138	78.9%
A better diploma (Yes)	37	21.1%
Total	175	

Fig. 4 Students' expectations prior to project enrollment

41.1% of the students expect to learn easier if learning is accompanied by multimedia materials, 50.3 % think that the highlighting of key information together with personal planning of the learning materials will also help them (51,4%). 27.4 % believe that they will not need any further explanations from the professor in order to understand (Fig. 5).

|	Frequencies	% Obs.
Non-response	43	24.6%
how/understand by myself no teacher	48	27.4%
how/Organize personally the learning materials	90	51.4%
how/I need to repeat to memorize	33	18.9%
how/taken info what & how is given	14	8.0%
how/difficult to remember without unders	71	40.6%
how/long focusing is not a problem	49	28.0%
how/linking & correlations with previous	19	10.9%
how/link theory with practical issues	67	38.3%
how/ constant effort during semester	44	25.1%
how/highlighting key concepts	88	50.3%
Total	175	
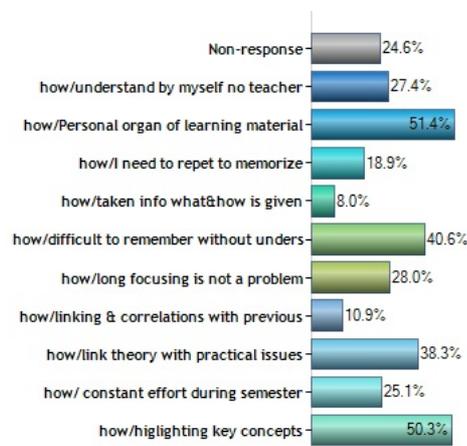
Fig. 5 How students learn

When it comes to how students learn, the preliminary results indicate learning patterns that support our project objectives. The majority of respondents say "we prefer to organise the learning materials by ourselves", by "highlighting the key concepts". They also declare that they prefer to "understand first what they are supposed to learn" (40,6%) and, definitely, their learning become more efficient if they "link theory to practical issues" (38,3%). The inquiry into the way students generally learn reveals the appropriateness of computer-based instruction for our students, as well as the fact that the digitized courses have been appropriately designed, for at least several reasons: the visual elements prevail; the hyperlink texts, included in the course content in order to explain the key concepts, are more than useful for students; the practical exercises inserted immediately after a theoretical concept/method is introduced, help students to link theory with practice. The evaluative study we conduct among students aims at identifying how the student's learning profile influences their evaluation of the digitized courses in what regards the scientific content of the courses and their objectives, the visual and multimedia elements that support the learning process, the usefulness of highlighting the key concepts, the need of teacher's help, the linking of theory with practice, or the effectiveness of the intermediary assessment. Using statistical instruments Cronbach has been calculated (0.71 for learning profile and 0.93 for the evaluation profiling), and a matrix of correlation has been generated. Fig. 6 shows the relation between variables, while Fig. 7 correlates the learner's profile to his evaluation of the courses.

Fig. 6 The relation between variables

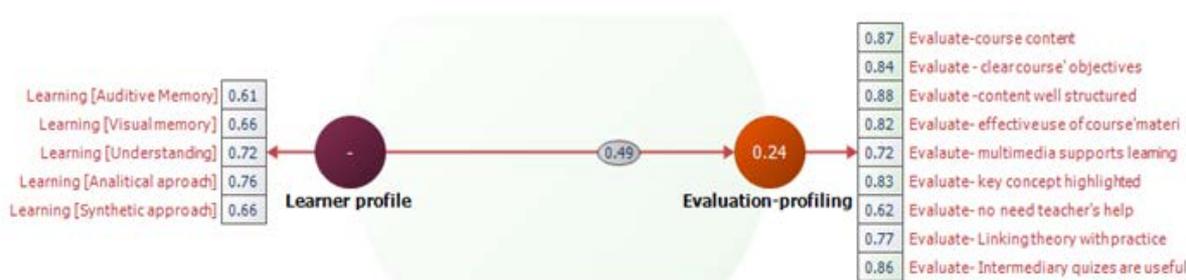| Name	Equation	Manifest variables
Learner's profile		Learning [Auditive Memory] ; Learning [Visual memory] ; Learning [Understanding] ; Learning [Analytical approach] ; Learning [Synthetic approach]
Evaluation profiling	= +Learner's profile	Evaluate - course content ; Evaluate - clear course objectives ; Evaluate - content well structured ; Evaluate - effective use of course materials ; Evaluate - multimedia supports learning ; Evaluate - key concept highlighted ; Evaluate - no need of teacher's help ; Evaluate - linking theory with practice ; Evaluate - intermediary assessment quizzes are useful

Fig. 7 Evaluation of the courses based on the student's learning profile

The following table describes the relations between latent variables, as well as the correlations between the manifest variables in a reflective case, or the contributions of manifest variables in the formative case (Fig 8).

Fig. 8 The relation between latent variables

	Variance explained	Concordance	R²	Communality	Redundancy
Learner's profile	0.47	0.81	0.00	0.47	0.00
Evaluation-profiling	0.65	0.94	0.24	0.65	0.16
Mean	0.58	0.88	0.24	0.58	0.16

Finally, the emerged model is :

Evaluation profile = +0.49 * Learner's profile

As a preliminary conclusion, the overall evaluation of the courses, on different aspects (content, objectives, visual elements, intermediary assessments, etc.) is highly dependant on the learner's profile, namely his own learning specificity. This conclusion enables the project team to come back and improve the digitized courses, while focusing on those course tools that will better help students to increase their learning effectiveness. Tailored courses will be more beneficial in the context of implementing the concept of student-centered learning.

The detailed report of the general evaluative survey will be available to the public by the end of the year on www.adat2jobs.ro. The general assessment of the overall experience is important in order to set up an articulated strategy to improve the curricula and the ways in which it is delivered. The project team has also focused on the specificity of each of the targeted fields of study and disciplines. Specific questions have been developed in order to gather more specific information that can portray the blended learning experience of students during the piloting stage. For the time being, preliminary results are available only for the course *The study of the market conjuncture,* and some interesting findings will be briefly presented next.

2.2   The specific evaluative survey - preliminary data interpretation

The piloting methodology postulates that students should answer a general evaluative survey in the beginning, and a specific evaluative survey in the end. Our purpose is to compare results and, thus, to evaluate the implementation scheme proposed by the project and, therefore, the effectiveness of blended learning. So, seven questionnaires have been designed, one for each digitized course, each step of the learning process being scrutinized and evaluated by the students. Following that, seven online surveys have been implemented and made available for the whole duration of the piloting stage of implementation so that the students might fill them in at the end of their activity. Although the surveys are especially tailored for each course, according to their specificity, there still exists a common framework of interrogation: the way students learn using the project tools, and what competencies and skills they think they have acquired. The following preliminary data taken from the evaluative survey of *The study of the market conjuncture* show the fact that students understand correctly the requirements (33%), and they have a clear vision of how to use the methods and techniques presented in the digitized courses (33%). They also find the attached exercises as useful practice (46.7%), which makes them confident in their ability to adapt easier at the labour-market realities (Fig.9).
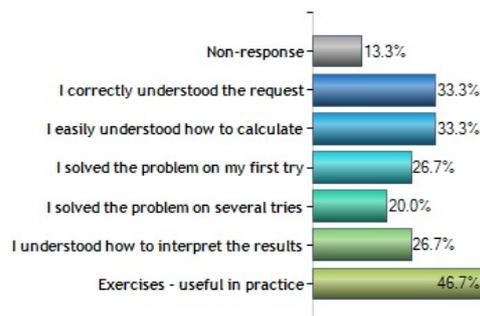

Fig. 9 The outcomes of students' learning experience

As for the skills and competences acquired during the piloting months, most of them (60%) point out that they have learnt to appropriately use procedures and they have now a better ability to interpret economic data. 53.3% say that they can now correctly identify opportunities and limitations, and are able to easily recognize relevant information (Fig 10).
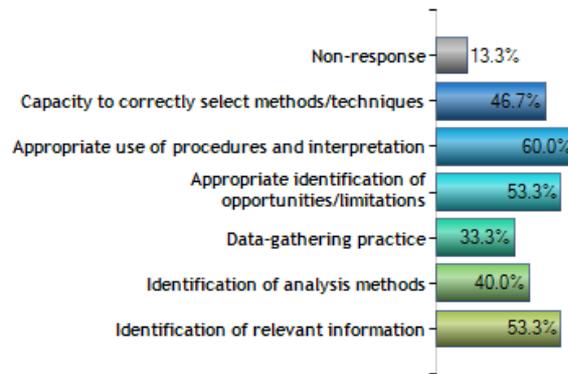
Fig. 10 Skills and competences acquired during project piloting

3 CONCLUSION

But for the tutoring meetings, the students who pilot the seven digitized courses do it entirely off-campus. However, our declared purpose in what regards the future range of academic curricula, is to bring technology inside the classroom in order to assist the professor in his teaching activity. This is, in fact, our idea of blended learning for higher education: courses taught as smart classrooms to a generation of digital natives for whom technology can be turned into an enabler.

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