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Procedia - Social and Behavioral Sciences 197 (2015) 1121 – 1125

Procedia
Social and Behavioral Sciences

7th World Conference on Educational Sciences, (WCES-2015), 05-07 February 2015, Novotel
Athens Convention Center, Athens, Greece

Information Technology-Assisted Teaching In The Field Of Geodesy: Mentor – Debutant Co-Operation

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Abstract

The purpose of this paper is to analyse and assess the information technology-assisted teaching process of a debutant teacher, by following the advice of a mentor and using new teaching methods in the subject area of algorithms for geodetic networks analysis within the framework of the mentoring program "University school for initial and continuous training of the teachers and trainers in the field of technical and engineering specializations – DidaTec", POSDRU/87/1.3/S/6089. As a result of the mentor – debutant meetings, evaluation reports were prepared by the debutant establishing the adequate teaching process and methods to be used; the design and development of a seminar material in electronic form, with the specific structure of blended learning and e-learning.

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Peer-review under responsibility of Academic World Education and Research Center.

Keywords: education, mentor, debutant, geodetic;

1. Introduction

The field of information technology-assisted teaching and learning is relatively new in our country and, as with any other endeavour that involves an optimization of pedagogical activities alongside the electronic progress, it is important to constantly monitor as well as assess it after a given period of time.

There are numerous studies and theories related to teaching methods and the path teachers follow during their university career. Our analysis focuses on describing, on one hand, the manner in which the field of geodetic

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engineering is presented on online platforms and, on the other hand, the relationship between the newly qualified teachers and their mentors, given this new context, one that comprises some “blended learning” and “e-learning” sessions. Through the initiation of young teachers and their participation to courses such as “University school for initial and continuing training of teachers and trainers in the field of engineering and technical specialties–DidaTec”, POSDRU/87/1.3/S/60891, where both newly qualified teachers and mentors partake, one intends to implement new teaching methods, adapted to the new technologies, thus leading to the enhancement of the teaching process in universities.

2. The newly qualified teachers

Newly qualified teacher is a term defining a person who was awarded at least a Bachelor’s Degree and who is required to attend psycho-pedagogical courses in order to acquire the basic and theoretical notions necessary to teaching. The beginning of the career in higher education coincides with one’s shaping as a teacher, with the balanced mix of specialised knowledge and passion one has to transmit and teach to others, namely the students. Both the path the newly qualified teacher chooses and the end result of his achievement depend on his temperament as well as on his skills (Enseignants et chercheurs, 2015). These variables establish the method of teaching and of transmitting the knowledge to students, as the course content must be available in an explicit form. The present times require a transfer of the theoretical and concise formats of the courses onto the online medium through some platforms, representing a new challenge for the newly qualified teacher, as a novice, as well as for the mentors (Best Practice KFH, 2011) (Fig. 1.)

The newly qualified teachers try to integrate the personal daily experience into their professional one through practical examples such as instruments used frequently for socialising – teleconferences, specialised forums, chats, e-mails; instruments used for web navigation – search engines, official websites of university institutions, research institutes, specialised firms, libraries, data bases, etc. Thus, the young teacher makes good use of the electronic resources he is familiarised with in order to reduce barriers, because the courses and the seminars in the field of geodetic engineering transposed in “blended learning” or “e-learning” formats are definitely a novelty.

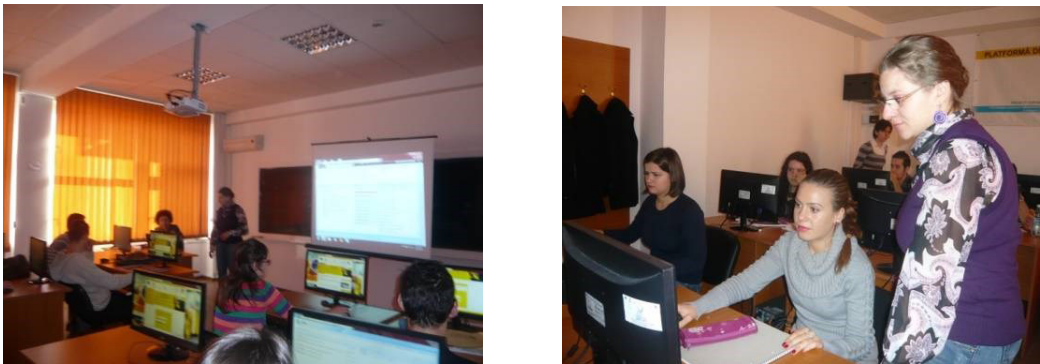


Fig. 1. The media room for accessing the online platform

The new didactic context where platforms are used for teaching courses and seminars of the „blended learning” and „e-learning” types can be beneficial to the newly qualified teacher in his relationship with students, by avoiding communication issues. The lack of experience, the uneasiness and emotions which can be easily noticed during the face-to-face sessions, cease to be a problem or a limit. This precise location of the newly qualified teacher in front of the computer and of a virtual audience provides himself with a private space in which he or she can solve situations of some nature, actual problems which might arise and also offers students who find themselves in a similar medium the proof of a certain management of the content taught. Thus, the newly-qualified teacher is able to ensure teaching quality by challenging students to closely analyse the new teaching material, which needs to be correlated with the previously acquired knowledge. This approach of teaching requires an increased degree of reflection of the teaching

material through of the newly qualified teacher. The material has to be brief and accompanied by graphics, tables, formulae, etc., in such a manner that the student can benefit from information that is not confusing or leading to different interpretations (Fig. 2).(Giurea &al., 2014, p.13).

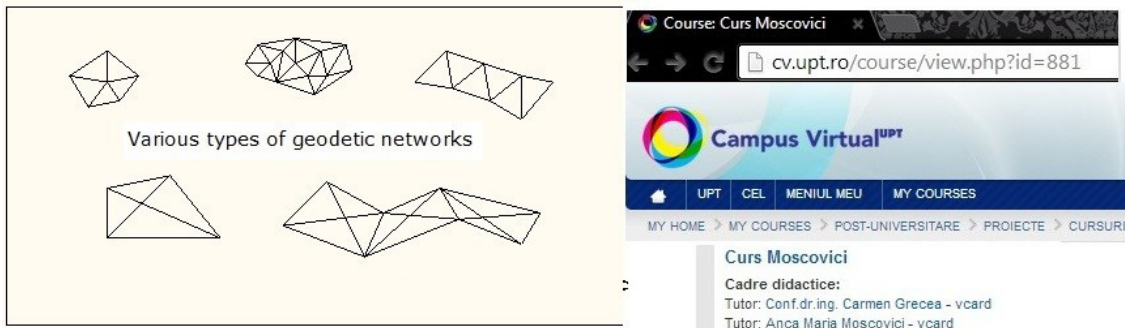


Fig. 2. Explicit models of geodetic networks uploaded on the platform

It is necessary that the newly qualified teacher takes responsibility on the accuracy of the information he or she presents and the degree of originality of the examples and problems proposed. Furthermore, the novice needs to be certain that the pedagogical virtual relationship is open to dialogue and to an exchange of opinions as well as to his or her readiness to answer all the questions or comprehension issues students might have. (Best Practice KFH, 2011) The role of a classic face-to-face seminar has, namely that of revising the theoretical part of the course through practical explanations and tasks derived from students' needs, must not be discarded. Even in an online learning environment, the teacher-student relationship should not change radically, but only adapt to a new reality, one belonging to a physical distance and a virtual closeness at the same time.

3. The mentor's role

The professional insertion into the academic field of newly qualified teachers, given the context imposed by the technological progress, emphasizes, to a greater extent, the mentor's role. The mentor is constantly facing the challenges emerging from the advancement of pedagogical methods and must be willing to embrace the novelty, to be able to foresee on which of these methods and technologies he should rely on and take advantage of these new instruments.

The topics approached in the meetings between the debutant and mentor are very useful, as the suggestions and observations of the mentor are easily integrated and followed as he has a vast experience both in the specialty domain and teaching.

The core of the mentor-debutant relationship is the ability and willingness from both sides to build together a transfer from the initial training, mainly theoretical, solid, but rigorous, to a more practical, illustrative and open one, through constant adaptability.

The mentor or the tutor acts as a support in the professional field (in our case geodetic engineering) for a newly qualified teacher, as a more experienced colleague who shares part of his didactic experience (gained through teaching, lifelong learning, exchanges between universities, workshops and summer-schools and notably through his own reflection on issues encountered during his/ her work with generations of students). This leads to a strong connection between the two, as their work involves both a supportive and collaborative relationship, the main instrument in the relationship between the experienced and the novice is the activity of mentoring.

The activity of mentoring imposes the setting of a meeting agenda which we drew up during the project entitled DidaTec. During these meetings, one considered a logical order imposed by the initial training of the newly qualified teacher (a theoretical one) and, by gradually achieving the competence proposed, a practical training. The

debutant should start by bringing up-to-date the specialised bibliography, drawing up some materials and documents necessary to the teaching by following a given pattern (seminar planning according to the mentor's courses, establishing the general and specific competences students are required to achieve, correlating the content and the competences in question, etc.), establishing some criteria and norms in the development and applicability of the pedagogical competences. The transfer between the theoretical training and the practical one is represented by the assisted lessons during the seminar and the observation of the newly qualified teacher by the mentor. Given the new context of the online platforms, this stage requires an analysis of the interaction between the newly qualified teacher and the experienced teacher in the virtual environment, but also the assessment of the manner in which the transmission of information and explanations reflects in the students' knowledge.

The choice of a mentor is extremely important as one takes into account the following before making the choice: the teaching experience, the pedagogical competences, the personality, the desire and ability to share knowledge and personal experience so as to help a newly qualified teacher develop from a professional point of view. (Jaworski, & Watson, 2014) The mentor's knowledge must match the field in which the debutant teaches, namely that of geodetic engineering. The former has the skill to determine the latter, the novice, to refine and understand the observations and the actual advice made by the mentor as a result of the assisted seminars, face-to-face and long-distance ones ("blended learning"). Another quality with which the mentor must have is that of having the skill to communicate with both the newly qualified teacher and the students to whom the latter is teaching. The monitoring must be performed in a double way as it is the students that are the beneficiaries of the teaching. The feedback students give helps improve the teaching as the mentor has the experience and authority to identify, prevent and remedy certain problems, inadvertences, drawbacks.



Fig. 3. A meeting between a mentor and newly qualified teachers

In case a mentor tutors more than one newly-qualified teacher, he or she might involve them in an analysis group in order to offer them the possibility to express their own points of view on the professional training and bring actual arguments regarding the issues they have already been confronted with. (Fig. 3) The mentor can also assist them in the development of collaborative projects, based on brainstorm, reflections and questions raised by the others, so as to present theoretical models connected to the topic under discussion. If the newly qualified teachers succeed in establishing connections between the situations presented and their own practice, and afterwards discussed the conditions of success, the limits and the advantages of the several devices used during the geodetic engineering seminars, then one can state that the teaching process has been improved.

4. The online platform

The drawing up of some „blended learning” scenarios implies a combination between classic and modern methods, as it involves a mixed method of teaching. The novice will alternate the on-line sessions with the ones

face-to-face. A desirable format would be one in which an introductory seminar is uploaded on the platform and then followed by a meeting with the teacher.

Following the meetings between the mentor and novice, evaluation reports were prepared by the debutant establishing the adequate teaching process and methods to be used, the integration of the instruments and of the information technology in teaching scenarios for “blended learning” and “e-learning” in the field of engineering sciences. Furthermore, the debutant proceeded to the planning and development of a seminar material regarding of geodetic networks, in electronic format, with the specific structure of blended learning and e-learning”.

Such a seminar was uploaded on the online platform, the map of Romania being presented at first. The students had the possibility to notice the types of geodetic networks at a national level, with clarifications as to which category they belong (Gorghiu&Gorgiub, 2014,p.38).

5. Conclusions

Although previous studies from literature claimed that all the teaching styles based on new methods do nothing but make use of the old practices, the difference lying only in the new instruments, the assessment performed on the information technology-assisted teaching process within the framework of the mentoring program DidaTec led to different conclusions. The analysis performed showed that the use of new technologies imposes new challenges from a pedagogical point of view too and emphasised the importance of the monitoring and evaluation of the impact the courses have, on both teachers and students, in order to achieve high quality education.

Furthermore, the study showed that the mentoring program led to the development and implementation of new teaching methods and the creation of constructive links between the debutant teaching staff and the experienced one. The resulting conclusions of the study will help hereafter the debutant both in structuring the information to be thought and in using modern teaching methods.

Acknowledgements

This work was partially supported by the strategic grant POSDRU/159/1.5/S/137070 (2014) of the Ministry of National Education, Romania, co-financed by the European Social Fund – Investing in People, within the Sectoral Operational Programme Human Resources Development 2007-2013.

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