DIGITAL BADGES FOR STUDENTS' ASSESSMENT AND RECOGNITION – A UNIVERSITY CASE

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Abstract

The main goal of the paper is to describe current practice and experience of one university in application of digital badges with particular attention to two research questions: What are the purposes of issuing digital badges to students? How digital badges are used in fully online or blended learning studies referring to student's assessment and recognition? A case study design has been selected in order to analyse real-life issues and practices. Virtual learning environment and characteristics of meta data of digital badges have been analysed. The results of the analysis indicate that majority of digital badges were issued in order to assess students' knowledge, skills, and competencies while the rest of the digital badges were issued to acknowledge personal features ant to motivate. However, recognition using digital badges does not take please at the University. Findings indicate that teachers need trainings on the development and application on digital badges in order to offer transparent procedures when the system itself gives digital badges to students after their fulfilment of predefined criteria to make assessment process more objective.

Introduction

The word and the concept of "badges" have been used for many centuries (Araújo, Santos, Pedro, & Batista, 2017; Halavais, 2012), by different civilizations and with different meanings. However, one can start with the definition given by Mozilla, 2014 (referred by Araújo et al., 2017; p.27): badge is a "symbol or indicator of an accomplishment, skill or interest" as it applies to several contexts where they had been used, primarily as a physical artefact (e.g. used on cloths by the armies with a wider circulation during the fourteenth century), and nowadays in learning environments and on online spaces. In what education is concerned this concept has gained a worldwide interest only since 2010 (Gibson, Ostashewski, Flintoff, Grant, & Knight, 2013).

Given the scope of our study, digital badges in Higher Education (HE), one will discuss now this context by exploring, based on recent literature, DB meanings, potential, the

variety of ways they have been used, as well challenges they are still experiencing. One should notice, since now, that there are a considerable number of studies which already refer the use of DB in HE. A search of "Digital Badges + Higher Education" on Scholar google, done on 13th of January 2019, and since 2016, shown 18 600 results in 0.08 s. This may be an indicator that justifies what Stefaniak and Carey (2019) affirms, that "badges are growing in popularity" in HE (p.5). Researchers and practitioners have offered solutions how to introduce DB, what information has to be embedded in metadata of DB, how the learner can earn DB, what technical standards allow sharing digital badges with others. Nonetheless, each university implements DBs differently and solves emerging problems in its own way.

The main research questions of the paper are:

- What are the purposes of issuing digital badges to students?
- How digital badges are used during fully online or blended learning studies referring to student's assessment and recognition?

Background

Digital badges potential can be seen as having an effect in increasing (a) students' achievement (Mah, 2016), (b) students' motivation (Iwata, Telloyan, Murphy, Wang, & Clayton, 2017), and (c) opportunities to peer review and feedback (Stefaniak & Carey, 2019).

Stefaniak and Carey (2019) refers three main ways of implementing digital badges, namely at an individual course-level, program-level and at a university-level, respectively: when a digital badge is introduced in a given course and any student may choose to earn a digital badge; when a given program adopts digital badges and teachers of different courses may choose to use them in theirs courses; and when a digital badge is adopted by the university thus incorporating digital badges in its learning management system.

The traditional university setting is trusting more paradigms of academic credentialing and educational assessment and is not particularly keen on including a new type of credentials in the form of digital badges that are transforming education and learning (Casilli & Hickey, 2016). Nevertheless, the use of digital badges in HE have been studied with different purposes (Abramovich, Schunn, & Higashi, 2013), namely (a) to influence students' engagement and learning (e.g. the earning of a DB may motivate a student to learn), (b) to asses learning (e.g. in classroom) in formal and less formal (autonomous work) contexts (Abramovich, Schunn, & Higashi, 2013), (c) to certify by giving a micro-credential to a students' achievement and (d) to value academic and professional development in particular to enhance employability.

Given the focus of our study – the use of digital badges for students' learning assessment and recognition, one will develop further the topic of using digital badges for assessment and recognition.

Digital badges have been successfully tested in university graduate research programs to assess acquisition of necessary research skills and serve as a certain roadmap to skills necessary to attain during research studies that are not too structured in terms of constant course work (Mewburn, Freund, & Rutherford, 2014). Besides, introduction of digital badges in education bring transparency to teaching, learning and assessment, reveal identifiable and detailed learning aspects for all stakeholders and provide a new mechanism to recognize skills, experience and knowledge through an open, transferable and stackable technology framework (Gibson, Coleman, & Irving, 2016).

Theoretical findings demonstrate that DB at Universities are issued for different purposes and on different levels as shown in table 1

Table 2:   Digital badges at Universities are issued for different purposes and on different levels

Level	Purpose
University Programme	To award teachers and/or students for activities in Learning Management system. 1. Encouragement of motivation 2. Assessment of learning achievements 3. Certification through micro-credentials
Course	4. Recognition of skills, experiences and knowledge gained outside academia.

At university level teachers could be awarded for different purposes as for example for development of online learning courses, students – for their volunteering in different events or mentoring other students during their studies or taking care for foreign students' integration into the university community. On program or course level students could be awarded digital badges with the purpose of motivation and engagement in learning. The feature of digital badges to provide evidence in the form of digital credentials (usually on the course level) could be attractive for higher education students, who are willing to demonstrate specific skills to the employers that are not otherwise visible in the official university transcripts. And finally, badges have a potential to measure students' learning assessment and recognition of skills, experiences and knowledge gained outside academia.

Methodology

Considering the research questions of the study, a case study design has been selected. Case study allows researchers to analyse real-life issues and practices by employing and combining various data collection and analysis techniques and providing holistic understanding of the phenomenon analysed.

The unit of the case study is comprised of 13 different study courses and datasheets, generated by virtual learning environment analytical tools, where digital badges were created, activated, and issued to students. The courses for analysis have been selected with the assistance of a Moodle administrator. All of the analysed study courses belong to either humanities or social sciences. Besides, the analysed courses are designed for blended or fully online learning mode.

Digital badges are created and used in virtual learning platform, i.e. Moodle, and, once they are issued, they can be seen by all Moodle users. Teachers and administrative bodies are responsible for creating digital badges that are given to students, whereas, administrative bodies establish digital badges for teachers. In order to create and activate a digital badge, a teacher has to fill out a template that is provided within the virtual learning environment: they have to name the digital badge, add its description, image, and, finally, select its expiration date. This description later serves as the metadata for a digital badge.

Once the criteria are set and the digital badge is created and activated, it can be categorized in terms of its purpose, i.e. to motivate, to assess, or to recognize certain features, skills, or competencies. A note should be made that the institution that is being examined provides a training course for teachers who are willing to create digital badges in their study courses. However, the participation in the training course is voluntary.

The data collection method is analysis of the database of a virtual learning environment. There the digital badges were established and used in the teaching and learning process. Virtual learning environment was used as the database to collect evidence of digital badge design and application for students' motivation and recognition. A careful examination of the metadata of digital badges was performed in order to find out information on their type and purpose. This allowed exploration of the main reasons for what purposes digital badges are being issued to students. The data sheets that were used for the analysis were generated by the analytics tools of the virtual learning environment in order to find out how digital badges are used during fully online or blended learning mode referring to student's assessment and recognition. To get clear data on how digital badges are used content analyses of meta data of digital badges were used.

Considering the fact that the vast majority of digital badges have been created and issued in social sciences and humanities, the research is only going to focus on these two study fields. The sample for the document analysis is 13 different study courses, taught starting fall semester of 2015 up to fall semester of 2019, in two different study fields.

Findings

At the university were investigations are made, both students and teachers are being awarded with digital badges. Digital badges can only be seen by users (e.g. students, teachers, administrators, staff members) of the University's Moodle platform. Unless the Moodle platform user decides to transfer one's earned digital badges to any of the open digital badges collection systems, there is no possibility for outsiders to observe one's achievements that have been listed through digital badges. As a result, a remark can be made that here the Moodle system is closed and recognition of digital badges is still only within institution. Besides, it is very important to stress the fact that digital badges are only valid for a definite period of time.

Teachers can create and reward students with digital badges. Students usually receive digital badges for course activities or fulfilment of particular requirements. Digital badges that students were awarded can be seen by all users on University Moodle platform. It should be noted that teachers not only create digital badges by composing the description, choosing image, setting the criteria that have to be fulfilled in order to receive it, but also they often are the ones deciding on who are going to be awarded with digital badges. Thus, it might be rather subjective, in comparison to a more objective assessment procedure when the system itself gives digital badges to students after they fulfil predefined criteria.

The content analysis of metadata descriptions of digital badges revealed the fact that digital badges are usually awarded to students for the following reasons: for acknowledgement of soft skills, personal features, such as thoroughness, punctuality, activeness, then for motivation/encouragement, and, finally, for assessment. Thus, different categories of digital badges for students have been determined. The representation of these categories of digital badges in our case was: 200 digital badges for assessment, 77 digital badges for motivation and soft skills.

The purpose of the majority of digital badges that were issued to students was to help to assess students' knowledge, skills, and competencies. For example, in most cases, a student who was awarded a badge belonging to the category assessment, received it for participation and offering insight within the class online forums, may get his/her final or midterm grade raised by a significant amount, as much as up to ten percent in some cases. Then, digital badges are used to acknowledge students' features, skills, and qualities. The content analysis has suggested that digital badges, belonging to the category of acknowledgement, refer to a particular feature, skill, or competence that is being acknowledged. For example, a teacher awarded a student with a digital badge for punctuality in order to show that the student always submits assignments on time. And, finally, through establishment of categories, it has become obvious that digital badges can

be used as tools to motivate/encourage students in their study process. There was a large group of digital badges with the title and/or metadata descriptions suggesting that the main purpose of these badges is to motivate/encourage students to continue with their course work, to try harder, and to encourage if the student (i.e. digital badges for active participation, involvement, thoroughness).

It worth to stress that analysis of virtual learning environment confirms that not a single student transfer any digital badge from other virtual environments. And this allows us to state that recognition using digital badges does not take please at the University study courses nor programs level.

The analysis of metadata descriptions of digital badges have indicated that students can be awarded with digital badges that serve as admitting their particular features such as active involvement in course activities, punctuality in completing tasks, creativity overall and creativity in preparing presentations, and thoroughness in doing homework assignments. 40 digital badges that have been used to indicate qualities in students have been issued. Besides, the document analysis has shown that some digital badges to admit features such as collaboration, leadership have been created; however, none of the students have been awarded with them. Finally, in order to receive such digital badge, student has to demonstrate the skills and abilities and then the teacher decides whether to give the award or not. Thus, even though the digital badge itself has been established, it does not mean that the students will be awarded with them; certain criteria that are indicated in the metadata description of digital badge have to be fulfilled.

Analysis of digital badges on virtual learning platform has demonstrated that most of these badges are created using non-official pictures, and in many cases the title of theses badges sounds rather informal. Thus, a note should be made that a vast majority of these digital badges seem to be rather unprofessional and informal. Besides, often the title of the digital badge and its description are the same and metadata descriptions are also rather poor and lacking details when and why this kind of digital badges are being issued. In some cases no explanations or criteria for earning badges are provided at all.

Conclusions

The case analyses of existing application and practices of DB at university reveal the purposes of issuing digital badges to students. The vast majority of digital badges that have been issued to students is to help to assess students' knowledge, skills, and competencies the minority of DB demonstrate willingness of teachers to admit soft skills, personal features of students, to motivate them to study. Unfortunately, recognition of knowledge, skills, and competencies gained in other environments that do not belong to the university using DB do not take place at the University.

Virtual learning environment analysis proves that digital badges are used in fully online or blended learning studies. In most cases not the system but teachers decide whether to give the award or not while this might be rather subjective. As a contrast a more objective procedure could be suggested when the system itself gives digital badges to students after they fulfil predefined criteria. Digital badge metadata analysis confirms a rather poor and detail lacking descriptions about when and why digital badges are being issued.

All those findings indicate that teachers desperately need training in preparing data, describing results, and employing virtual learning platform to create digital badge based on evidences.

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