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STUDENT PERCEPTIONS OF THE FIRST DIGITAL BADGING EXPERIENCE AT COSTA RICA'S STATE UNIVERSITY OF DISTANCE EDUCATION

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Abstract

This full paper shows the perception of a group of students at the Costa Rica's State University of Distance Education, UNED, who received their first digital badge after participating in a course/workshop aimed at developing basic research skills. The course/workshop was offered by UNED's Student Observatory based on its ***Guide for formative research***. A questionnaire was designed consisting of close-ended and open-ended items. The instrument was built upon researchers' main concerns and upon insights from other studies on this topic available in the literature. After a revision process, the final version of the questionnaire included six demographic variables and 40 items to delve into particular dimensions of the students' experience with digital badges and skill development. Results show a considerable positive impact of the course/workshop content, methodology, tasks and evidence required on the motivation of students toward the development of research skills; data also shows that the used and implementation of digital badges increased students understanding of the value and importance of skills for labour markets.

Keywords:

Digital badges; micro-credentialing; skill; distance education; research

Introduction

The increasing development of online education has a significant impact on traditional teaching models, the management of the academic offer or products and services in higher education institutions around the world, and on the not-always-clear traditional distinctions between formal, non-formal and informal learning (Brown et al. 2020; Brown et al., 2021). In addition, there have been a rapidly change in the nature of labour markets, a growing uncertainty in future employment outlooks within the framework of the Fourth Industrial Revolution, and negative effects on the economy caused by worldwide contingency measures against COVID-19. As a consequence, there have been an exponential demand for flexible, open and accessible mechanisms for the development and acquisition of new skills and training in emerging knowledge-oriented fields to satisfy the immediate requirements of different productive sectors (Orr, Pupinis and Kirdulytė 2020). At the international level, the systematic incorporation of micro-credentials to academic products and services in higher education has been seen as a promising alternative to traditional credentials and certifications to respond to current challenges and to contribute to the human and economic development of contemporary societies. However, there are still questions about what micro-credentials should be defined, what degree of endorsement do they receive from the different social actors, and what quality assurance processes support them (Orr, Pupinis and Kirdulyte 2020).

In December 2020, the European Commission published *A European approach to micro-credentials*, a document that constitutes a first step on the path towards the widespread adoption of micro-credentials by EU higher education institutions and the creation of an Area of European Education by the year 2025. According to this proposal, a micro-credential will be understood as scalable evidence of the results obtained throughout a short learning experience (European Commission 2020). Since 2021, a team of the Universidad Estatal a Distancia of Costa Rica (UNED) has been working in collaboration with the National Institute for Digital Learning (NIDL) of the University of the City of Dublin in Ireland on a joint agenda to develop a framework for UNED and Costa Rica

compatible with the European approximation that will allow UNED to design, implement and use micro-credentials in the short, medium and long term. It is expected that this framework will have a positive influence on different dimensions of the institutional and national delivery of higher education, and will enable the active participation of UNED in the global discussion on the latest trends in distance education. Through the adoption of micro-credentials, UNED expects to strengthen its digital transformation process, to generate an innovative offer of services and products, to promote further collaboration and mobility between UNED and the European Education Area, and to provide open and flexible opportunities for updating, requalification and lifelong learning credentialing at a time when the country faces high rates of unemployment and inequality (OECD 2021a, 2021b), an urgent economic recovery (PEN 2021a) and its worst educational crisis in several decades (PEN 2021b).

As part of this work, a first experience of micro-credentialed skills development was carried out at UNED through the implementation of digital badges in order to develop learning about the design and issuing of digital badges with a group of students from the institution related to UNED's Student Observatory. This first experience was carried out as part of the course/workshop *Research Kit*, aimed mainly at UNED's students, with the objective to bring the participants closer to basic but key concepts of the research process and to help students develop research skills and abilities. The course/workshop, includes activities and tasks related to the first stages of a research project including theme choice, problem statement, search for academic literature in databases, research justification and background, and the statement of a research objective, from a formative research approach. The workshop course/workshop aims to develop specific skills based on declarative, procedural and attitudinal competencies described in the *Guide for formative research of the UNED's Student Observatory* (Aguzzi, 2021).

The course/workshop was offered in an online format, in synchronous sessions through the Zoom platform, and was supported by readings, complementary materials, and the development of specific tasks and evidence. This course/workshop lasted 6 sessions. The participants dedicated a total of 20 hours to develop all the activities proposed (12 hours of synchronous session and 8 hours of asynchronous work). Once they completed all the activities satisfactorily, and according to the established deadlines, the participants received a digital badge as a micro-credential for 20 hours.

The purpose of this full paper is to show the feedback of the participants in the first course/workshop in relation to the use of digital badges and the research-related skills they were able to developed.

Method

Participants

Eighteen online learners (16 women, 2 men) between ages 21 and 55 (M = 34.56, SD = 9.32), who earned digital badges after successfully completing the course/workshop *Research Kit* at UNED, voluntarily and anonymously participated in the study. Eight respondents were undergraduates studying Education (n = 6), Business (n = 1), or Police Science (n = 1), whereas the remaining 10 respondents were graduates pursuing degrees in Education (n = 4), Business (n = 2), Police Sciences (n = 1), Engineering (n = 1), Law (n = 1), or Natural Resource Management (n = 1). Participants were distributed all over the country; 7 of them were based in rural areas of Costa Rica and the other 11 were living in urban areas.

Instrument

To investigate participants' understanding and perceptions of digital badges and their perception of research skills development, a questionnaire was designed consisting of close-ended and open-ended items. The instrument was built upon our concerns as researchers and upon insights from other studies on this topic available in the literature (Hartnett, 2021; Iwata et al., 2019; Piedra, 2021; Zhou et al., 2019). After a revision process, the final version of the questionnaire included six demographic variables and 40 items to delve into particular dimensions of the students' experience with digital badges and research skills development.

Procedure

After successfully completing course/workshop *Research Kit* activities and receiving their corresponding digital badges, a request for voluntary participation was sent by email to the all the students. A total of 18 students anonymously self-completed the questionnaire, which was made available online through UNED's *Lime Survey* platform. The data collection period took place between March 20 and 25, 2023.

Data Analysis

Given our target population size (N = 18) and to improve interpretability, we report all the study results using the response frequencies for each question in the instrument.

Results

Assessment of the course/workshop Research Kit

When asked about their previous knowledge in relation to the research skills needed for the course/workshop, most students did not feel sure or felt that did not have any previous knowledge at all. However, after developing the different tasks and delivering all the evidence required, students felt more motivated toward research in general, and reported having enhanced their level of skill development.

Table 1: Attitudes towards the contents of the course/workshop *Research Kit*

Item	Yes	No	Not sure
Before participating in the Research Kit Workshop, did you have any knowledge about the effective choice of research topics?	4	4	10
Before participating in the Research Kit Workshop, did you have any knowledge about the correct approach to a research problem?	6	4	8
Before participating in the Research Kit Workshop, did you have any knowledge about the development of a justification for a research problem?	4	4	10
Before participating in the Research Kit Workshop, did you have any knowledge about the development of a background for a research problem?	6	5	7
Before participating in the Research Kit Workshop, did you have any knowledge about the effective search for bibliographic references in research?	4	2	12
Before participating in the Research Kit Workshop, did you have any knowledge about the correct approach to a research aim?	2	3	13
Do you consider that the evidence collection strategy used to assess your learning during the Research Kit Workshop were effective?	18	0	0

Note. $N = 18$.

Table 2: Motivation towards research skills development

Item	Highly motivated	Somewhat motivated	Poorly motivated
Did the activities carried out in each step of the *Research Kit* motivated you towards the development of research skills?	15	2	1

Note. $N = 18$.

Table 3: Perceived positive aspects of the course/workshop *Research Kit*

Positive aspects	n	%
Increase in motivation towards the research process	13	22.41
Increase in interest in participating in research experiences	13	22.41
Development of research skills not enhanced until that moment	12	20.69
The work methodology applied during the workshop	11	18.97
The reference material used during the workshop	9	15.52

Note. $N = 18$.

Most students reported positively on the quality of the course/workshop, and most of them highlighted the methodology used as innovative. They found the tasks required as effective and logically connected to the topics and skills developed.

Understanding of digital badges

Only two of the participants in the study had knowledge about digital badges and had earned at least one before taking the course/workshop *Research Kit*.

Future use of digital badges

When asked about the future use of the digital badges they have earned through the course/workshop, 14 students reported that they will include the badge into their CV or résumé; 11 respondents mentioned that they will include the link to the badge when applying for a job; 10 of them indicated that they will include the badge into their LinkedIn profile; 6 participants said that they will include the badge into their profile in other social networks (not LinkedIn); and 2 learners were unsure about how to use their digital badges in the future.

Table 4: Intended future uses for digital badges

Digital badge use	*n*	%
I will include the badge into my CV or résumé.	14	32.56
I will include the link to the badge when applying for a job.	11	25.58
I will include the badge into my LinkedIn profile.	10	23.26
I will include the badge into my profile in other social networks (not LinkedIn).	6	13.95
I am not sure about how I will use the badge.	2	4.65

Note. N = 18.

Impact of digital badges

On a 4-point scale, we asked participants about the degree of motivation and impact that they associate with this digital badging experience. The 18 learners mentioned they were highly (n = 14) or somewhat (n = 4) motivated during the course/workshop activities given the possibility to earn the digital badge. Furthermore, all students considered that the badge will have a major (n = 14) or moderate (n = 4) impact in their future academic or professional development.

Interest in earning further digital badges

All respondents indicated that they will be interested in earning new digital badges in the future. Eight students gave also additional reasons for their interest in digital badges, such as further personal and career development (n = 4), showcasing newly acquired skills (n = 3), or upskilling (n = 1).

Perceived value of digital badges

When asked about the strengths perceived in digital badges as proofs of learning outcomes, participants considered that digital badges increase motivation in the learning process (n = 15); interest in participating in learning experiences (n = 13); and that they allow recognition of digital learning (n = 13), skill development (n = 12), professional development (n = 10), academic achievements (n = 9), formal learning (n = 6), and non-formal learning (n = 1); and that they are easy to share (n = 11), to store (n = 10), and to showcase (n = 7).

Table 5: Perceived strengths of digital badges

Strength	n	%
Increase motivation in the learning process	15	14.02%
Increase interest in participating in learning experiences	13	12.15%
Allow recognition of digital learning	13	12.15%
Allow recognition of skills development	12	11.21%
Easy to share	11	10.28%
Easy to store	10	9.35%
Allow recognition of professional development	10	9.35%
Allow recognition of academic achievements	9	8.41%
Easy to showcase	7	6.54%
Allow recognition of formal learning	6	5.61%
Allow recognition of non-formal learning	1	0.93%

Note. N = 18.

Challenges for digital badges

Regarding the challenges that digital badges might face in the near future as proofs of learning outcomes, respondents indicated that they perceive, as major concerns, the lack of understanding (n = 12), formal recognition (n = 8), credibility (n = 7), regulation (n = 3), and visibility (n = 3). Additionally, some students mentioned that they prefer printed certificates (n = 2), that the use of digital badges seems inconsistent (n = 2), or that they simply don't know enough about the topic (n = 3).

Table 6: Perceived challenges for digital badges

Challenge	n	%
Lack of understanding	12	30.00%
Lack of formal recognition	8	20.00%
Lack of credibility	7	17.50%
Lack of regulation	3	7.50%
Lack of visibility	3	7.50%
I don't know	3	7.50%
Printed certification is preferable	2	5.00%
Inconsistent use	2	5.00%

Note. N = 18.

The data shows a considerable positive impact of the course/workshop content, methodology, tasks and evidence required on the motivation of students toward the development of research skills, and data also shows that the used and implementation of digital badges increased students understanding of the value and importance of skills for labour markets.

Discussion

This study shows the perception of a group of students at a Costa Rican distance higher education institution, who received their first digital badge after participating in a course/workshop aimed at developing basic research skills. The analysis shows the relevance of micro-credentials as a innovative way to bridge formative research, learning, and the generation of new skills in short learning experiences that are perceived as significant for the productive sectors (Brown et al. 2020; Brown et al., 2021; European Commission 2020 Orr, Pupinis and Kirdulyte 2020).

The findings shown in this study contribute to the current discussion in the field of online education, specifically, in distance teaching-learning models and the need to redefine conservative distinctions between formal and non-formal learning (Brown et al. 2020; Brown et al., 2021), particularly in the generation of new skills (Orr, Pupinis and Kirdulytė 2020). In addition, it is considered especially important to share empirically data related to experiences around micro-credentials in a Latin American context where the subject is relatively new and remains unexplored.

This study also shows how students perceived receiving the micro-credential as positive, and how they feel motivated to include their digital badges in their CV, and how they perceive that the skills that they developed in this short learning experience (European Commission 2020) and was certified with a micro-credential might help them get integrated into their labour field of interest. This perception is consistent with the practical incidence of the implementation of micro-credentials, not only in higher education institutions, but also in the different productive sectors where highly-trained students in various skills are required (Orr, Pupinis and Kirdulytė 2020). Students also reported positive comments regarding the development of skills in a virtual environment in the specific area of formative research. The students, at the beginning of the course, showed unsure or totally ignorant about the different stages of the research process and micro-credential; however, once the course/workshop was completed and the certification was obtained, the comments were very positive regarding the development of micro-credentialed certified research skills.

Finally, this study evidenced the lack of knowledge of the students who participated in this experience about micro-credentials, although students found themselves highly motivated with the integration of micro-credentials as a certifying strategy, and how micro-credentials were incorporated in a virtual environment together with the tasks required and specific skills developed. These results demonstrate the need to continue conducting research on the use, design and application of micro-credentials in the online and distance higher education and its incidence in teaching and skills development for labour markets.

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