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Empowering Faculty Training Amidst COVID-19: Digital Badge as a Potential Pedagogical Tool

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Cover Page Footnote

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GOOD PRACTICES

Empowering Faculty Training Amidst COVID-19: Digital Badge as a Potential Pedagogical Tool

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Abstract

Purpose: **Digital badges, electronic icons that signify an achievement, represent a novel innovation providing evidence of skill mastery. This study aims to examine the influence of digital badges on faculty motivation and learning in the context of online learning and assess their perceived authenticity during COVID-19 pandemic.**

Methods: **A Cross-sectional study was conducted at Hawler Medical University in June 2020. About 120 Teachers from five colleges of the university who completed an online three level Zoom training program were awarded digital badges based on their ability to use digital tools in e-learning. A questionnaire was used to collect data on participants' perceptions, and the collected data was analyzed using SPSS.**

Results: **The study found that digital badges had a significant influence on participants' motivation and learning, with 91.5 % feeling motivated and 90.6 % reporting improved understanding. Most participants (90.6 %) found digital badges authentic and practical. The majority of participants intended to use digital badges for their work portfolio (78.3 %) and professional development documentation (73.6 %), while only 34.9 % planned to share them on social media.**

Discussion: **The study highlights the significant role of digital badges in motivating and enhancing the professional development of medical faculty, particularly during the COVID-19 pandemic. It emphasizes how digital badges help learner to set goals, receive feedback, and track their progress. However, it noted that some participants still prefer traditional certificates, and they recommend providing a variety of recognition options. Additionally, the research underscores the practical implication of digital badges in providing a possible solution for self-paced faculty training.**

Keywords: Digital badges, Faculty development, Medical education, Motivation

1. Introduction

In recent times, there has been a significant increase in the integration of technology in academic settings owing to novel advancements in the provision of information to learners. The use of technology in an effective manner provides the benefit of customized instruction based on different learning styles, resulting in improved participation in learning activities [1].

Digital badge are electronic icons that demonstrate an achievement related to particular short self-paced courses that provide opportunities to acquire new and/or improve existing skill and granted to individuals who have demonstrated proficiency in specific skills, provided proof of experiences, or exhibited professional accomplishments [1–4]. This badge system effectively incorporates new technology in academic environments, as it employs a reward-based model that reinforce positive behavior and relies on individual evidence of completed tasks to offer employers a comprehensive impression of the individual's skillset [1]. Digital badges are gaining significant interest as an innovative instructional and credentialing strategy in higher education, particularly for faculty development programs, as they provide evidence of outcomes in a learner-centered approach [5,6].

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In the context of medical education, the use of digital badges in faculty training aligns with current trends and challenges by addressing the need for flexible, personalized, and verifiable professional development. It supports the transition to self-paced and competency-based learning, acknowledges the importance of continuous skill updates, and offers a concrete way to recognize and document achievements in a dynamic healthcare environment. By engaging and motivating faculty, digital badges contribute to lifelong learning and foster a culture of excellence in medical education [5,7]. Although the literature on digital badges in education is expanding, only a limited number of studies have implemented and investigated the efficacy of digital badging systems [8]. Therefore, further exploration into micro-credentials and faculty development specially those involved in health profession education is needed. Due to the busy schedule of health care professionals, they need training that offers easily understandable and concise information that is delivered just-in-time to prevent cognitive overload [9].

The global reach of COVID-19 has hindered medical education universally and forced educators and administrators to think critically to find solutions to reshape education using online tools. However, in low and middle-income countries, the challenges are accentuated, marked by pronounced barriers such as limited access to requisite information technology infrastructure and inadequate governmental support [10]. Moreover, the abrupt transition amplifies the difficulties associated with faculty development within a condensed timeframe.

This study aims to provide a possible solution to challenging situation such as COVID-19 by investigating the potential of digital badges as an effective pedagogical tool for faculty training and to assess its perceived dependability as a method of verifying digital competencies among faculty members.

2. Methods

2.1. Study design and setting

In June 2020, a cross-sectional study was conducted at Hawler Medical University. A cross-sectional design had been chosen to swiftly capture participants' immediate perceptions post-online training, aligning with the urgency of faculty development during the COVID-19 pandemic. This approach efficiently assessed the immediate effectiveness of digital badges in enhancing participants' proficiency in e-learning tools in the context of transitioning to online education.

2.2. Study participants

One hundred twenty teachers and facilitators who are teachers in one of five colleges in Hawler Medical University including (Medicine, Dentistry, Pharmacy, Nursing and Health sciences) had participated in an online training on Zoom software through digital badge experience. Detailed information on demographics of participants were shown in Table 1. The participants were invited to take part in a survey, informed of its purpose, and provided written consent.

2.3. Description of the digital badge

Due to the COVID-19 pandemic, the traditional faculty development programs and workshops were discontinued, and the educational process transitioned to an online format using Zoom software. This shift necessitated training a large number of teachers to effectively utilize this software. To address this need, the researchers developed a digital course using the Moodle platform and its digital badge feature.

The digital course focused on teaching participants how to use Zoom meetings and was divided into three levels.

Each level of the course featured specific learning objectives. The Bronze Badge focused on creating a Zoom account, the Silver Badge included tasks such as scheduling meetings, sending invitations as the host, and using audio and video tools, while the Gold Badge encompassed creating breakout rooms, utilizing the whiteboard feature, and providing nonverbal feedback and reactions. These objectives were meticulously crafted to evaluate participants' proficiency in utilizing digital tools for e-learning purposes.

Table 1. Demographic characteristic of the sample.

Variable	No.	Percentage
Gender		
Male	63	59.4
Female	43	40.6
Academic title		
Assistant lecturer	17	16
Lecturer	49	46.2
Assistant Professor	31	29.2
Professor	4	3.8
No title	5	4.7
Age		
20-29	1	0.9
30-39	11	10.4
40-49	57	53.8
50-59	30	28.3
60 and more	7	6.6
Total	106	100

The course was self-paced, allowing participants to determine the duration based on their availability. Instructional materials, including PDFs with illustrations and recorded sessions on YouTube, were provided to support their learning journey. The Moodle platform streamlined the organization of these materials into a structured course format.

Participants were enrolled in an e-class and given a study guide through Moodle (Fig. 1). Upon

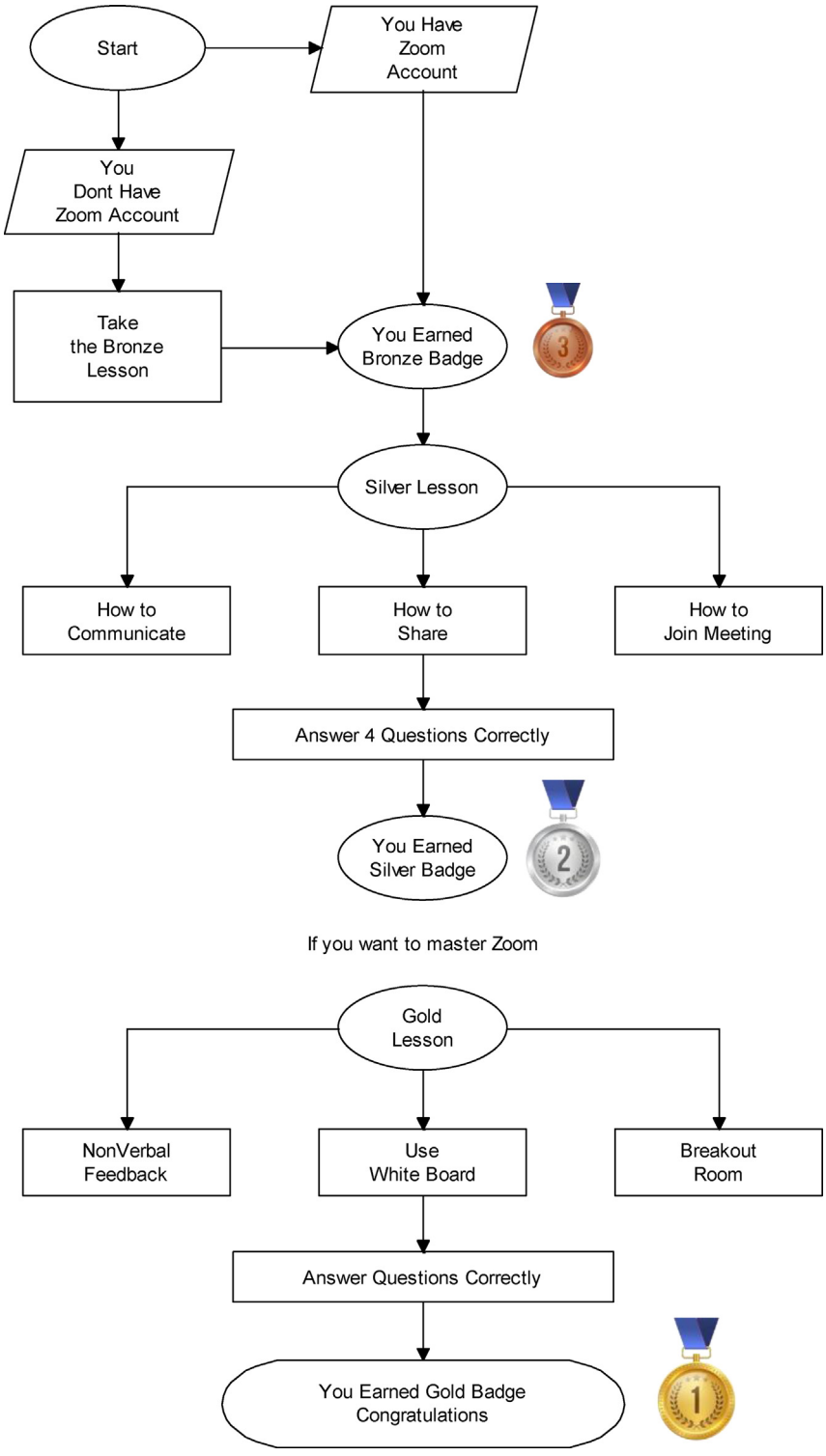

Fig. 1. Study guide provided for each participant.

completing each level, participants became eligible to receive a digital badge (Bronze, Silver, or Gold), obtainable through Moodle. Badges were awarded upon successfully demonstrating learning outcomes, a process overseen by the Moodle administrator and the facilitator, who tracked participants meeting the necessary criteria (Fig. 2).

Integration with participants' teaching practices was achieved by incorporating Zoom tools into their teaching activities. This ensured a practical application of the acquired skills in their educational endeavors.

2.4. Data collection and analysis

Upon completion of the learning program, all participants were invited to fill out an online questionnaire that had been adapted and validated from previous studies [1,3,11]. This adaptation involved a rigorous process to ensure its relevance to the specific context of the study. To assess the reliability of the questionnaire, internal consistency was measured using Cronbach's alpha. The calculated alpha coefficient, which represents the degree of internal consistency among the questionnaire items, was 0.95. The questionnaire composed of two distinct sections: the first section gathered demographic data, while the second section composed of 19 items that was designed to explore the participants' perceptions of the digital badge experience using five-point Likert scale where1mean strongly disagree and 5 mean strongly agree. Descriptive statistics were tabulated for all Likert scale questions. Prior to completing the questionnaire, written consent was obtained from each participant. The questionnaire was administered via Google Forms, and the data collected was analyzed using SPSS version 20.

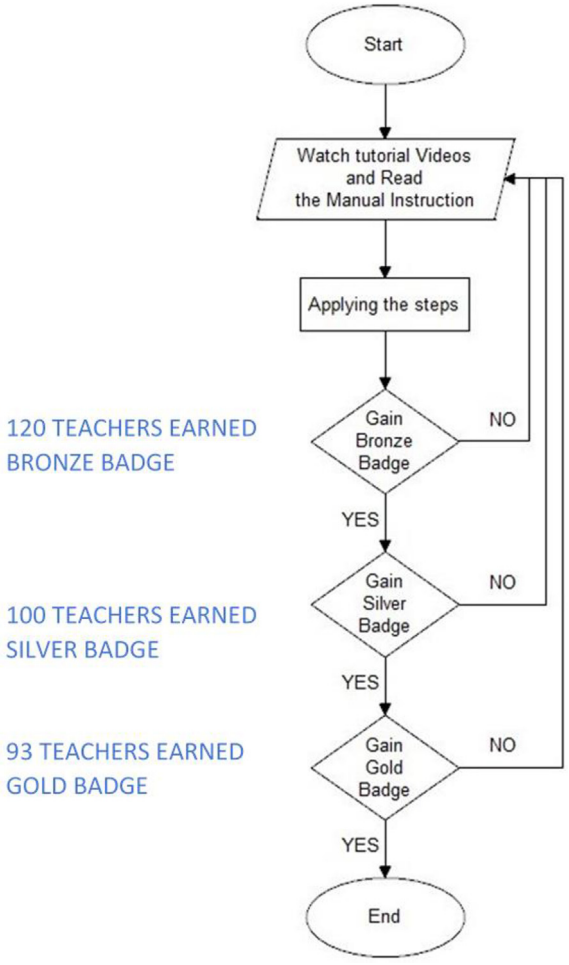

Fig. 2. The process of earning digital badges. The participants watch tutorials in Moodle for each level followed by steps applying what learned and provide documents for that to earn each badge level.

2.5. Ethical consideration

Research Ethics committee of the author's institution reviewed and approved the study protocol with meeting code 6/5 on 23rd June 2020. A written informed consent obtained through Google form. The confidentiality of the participants' information was maintained.

3. Results

A total of 116 teachers responded to the survey questionnaire, but only 106 gave their permission to use the survey response for research purpose out of 120 teachers who earned digital badges (88.3 %) response rate. Most respondent were male 63 (59 %) and those who have academic title of lecturers 49 (46.2 %), additional baseline information are shown in Table 1. It is worth to mention that 120,100,93 teachers earned Bronze, Silver and Gold badges respectively.

The results suggest that digital badge experience has a significant influence on participants' motivation, with a majority (91.5 %) reporting feeling motivated by the prospect of receiving a digital badge. The findings also suggest that digital badge experience influenced participants' learning, as 90.6 % stated that it assisted them in better understanding the course material. The study found a high level of satisfaction with digital badges, with 90.6 % of participants declaring them to be authentic and practical, and 88.7 % expressing a desire to earn more badges. However, a reasonable number of participants 21.7 % and 7.5 % were neutral or disagreed respectively with the statement that they would prefer a digital badge over a paper certificate of completion. Table 2 provides information on detailed participants' perception on digital badge experience.

Table 2. Participants perception on digital badge.

Statements	Disagree and Strongly Disagree No (%)	Neutral No (%)	Agree and Strongly Agree No (%)
I am competent with the use of technology	4 (3.8)	26 (24.5)	76 (71.7)
Motivation			
I was happy to receive a digital badge for completing this development program	4 (3.8)	8 (7.5)	94 (88.7)
I felt encouraged when I received the badge	4 (3.8)	13 (12.3)	89 (83.9)
I felt motivated when I received the badge	3 (2.8)	6 (5.6)	97 (91.5)
I would complete an activity to the highest degree to be awarded a digital badge	3 (2.8)	11 (10.4)	92 (86.8)
Effect on learning			
Digital badges can help me better understand course material	4 (3.8)	6 (5.6)	96 (90.6)
Digital badges helped me to focus on specific learning objectives	3 (2.8)	14 (13.2)	89 (83.9)
Digital badges allowed me to look deeper into course competencies	4 (3.8)	14 (13.2)	88 (83)
I worked extra hard to earn the badge	16 (15.1)	1 (0.9)	70 (66)
Satisfaction			
I want to earn more badges from this institution.	3 (2.8)	9 (8.5)	94 (88.7)
I want to earn more badges from other institutions if available	7 (6.6)	16 (15.1)	83 (78.3)
The badges seem authentic (practical) to me.	3 (2.8)	7 (6.6)	96 (90.6)
I would rather earn a badge than a certificate of completion (on paper) for professional development activities.	8 (7.5)	23 (21.7)	75 (70.7)
I am satisfied with the digital badge I received	6 (5.6)	14 (13.2)	86 (81.1)
I feel that the digital badge is recognition of the program I completed	5 (4.7)	11 (10.4)	90 (84.9)
Digital badges should be implemented in other courses	3 (2.8)	17 (16)	86 (81.1)

Regarding participants responses on intended use of digital badge, majority of them 78.3 % indicated that they will print the pdf and use it for their work portfolio. An equivalent number (73.6 %) claimed that they will use it for their continuous professional development documentation. Though, only 34.9 % stated that they will share the digital badge in their social media accounts (Table 3).

4. Discussion

Digital badges offer valuable contributions to the training and professional development of medical faculty and healthcare professionals by providing motivation, skill validation, self-paced learning, career advancement, and networking opportunities. This study aimed in providing a description of the implementation of digital badges as a means of enhancing faculty development at time of COVID-19, as well as an examination of the perceptions held by the faculty members regarding their utilization.

The ongoing COVID-19 pandemic has accelerated the digitization of various sectors that were not prepared, including education and training. The use of digital technologies in education and training is showing promising results, supporting the development of learning materials, changing pedagogies, and forms of assessment and certification [12]. Among these promising tool digital badge which is a visual representation of an accomplishment or skill that has been earned by an individual [13].

The concept of self-directed learning has been identified as an appropriate strategy for physicians

Table 3. Intended utilization of digital badge by the participants.

Statements	Disagree and strongly disagree	Neutral	'Agree and strongly agree
I will print the PDF file as a certificate to add to a physical portfolio (such as a work portfolio or annual performance review).	5 (4.7)	18 (16.9)	83 (78.3)
I plan on using digital badges in conjunction with a portfolio of work or artifacts to document my professional development work.	8 (7.5)	20 (18.9)	78 (73.6)
I intend on sending a link to the badge or my portfolio to others (such as potential employers).	12 (11.3)	27 (25.5)	67 (63.2)
I will send the badge to my social media accounts. (e.g, Facebook or LinkedIn … etc)	42 (39.6)	27 (25.5)	37 (34.9)

to engage in continuous professional development, especially considering the time constraints commonly reported as a barrier among physicians [14]. Adult learners, in particular, find ownership of the learning process motivating and it may also improve learning outcomes [15], According to our study, the use of digital badges in a Zoom software competency course had a substantial influence on participants' motivation and learning. Prior studies that have noted the importance of digital badges as an assessment tool while also enhancing learner motivation [16]. They can help learners identify their strengths and areas for improvement, provide feedback on specific knowledge, skills, and attitudes, and track their progress towards competence and mastery. Furthermore, intrinsic motivation is linked more with competitive attitude of the person [17], of which drive engagement through creating a competitive element to learning. Moreover, when someone is naturally motivated and enjoys a bit of competition [17], digital badges make learning more interesting. They add a competitive aspect that boosts engagement during the learning process [18].

Another finding was the effect of digital badge on learning process, since learners are responsible for collecting and presenting evidence of their progress, digital badges may be useful in developing skills related to lifelong learning and mastery of information. Furthermore, digital badges are becoming more popular in education because they may help students set goals, motivate them to complete their work, and improve their performance [19].

However, It is important to note that some participants continued to favor conventional forms of recognition, such as paper certificates, which emphasizes the necessity of providing a variety of recognition options to accommodate learners' varied preferences. This preference may be explained, in part, by worries expressed by some employers about the credibility of digital badges [20]. Another explanation could be that those in the older age group still find it challenging to navigate digital platforms and hence, prefer traditional paper certificates.

In addition, a number of study participants valued the feedback they got about their performance and progress because it helped them feel more confident [21].

While the results showed that the participants intended to use the digital badges they earned in different forms, a small percentage preferred to share them on social media. This contrasts with the findings of Dyjur and Lindstrom, who reported a higher willingness to share digital badges on social media among participants [11], this might be explained by increasing uncertainty around technology in education and the manifest complexity of its social impact [22].

The findings of this study have practical implications for medical faculty development and training programs. By integrating digital badges into existing medical education curricula or faculty development initiatives, institutions can enhance the quality of teaching and learning, recognizing and documenting faculty achievements, promoting lifelong learning, and fostering a culture of excellence. However, it is important to acknowledge certain limitations of the present study, including the reliance on self-reported survey data, the absence of qualitative methods, and the generalizability constraints associated with data from a single institution. Nevertheless, considering the urgent need for faculty training in response to the COVID-19 pandemic's impact on education, these findings offer valuable insights.

5. Conclusion

Digital badges can significantly influence learners' motivation, but it is essential to offer recognition options that meet diverse preferences. Future research is required to investigate the impact of digital badges in a variety of educational settings and on prolonged timeframe and with a variety of learner populations, including medical students.

Ethical approval

Research Ethics committee of the Hawler Medical University reviewed and approved the study protocol with meeting code 6/5 on 23rd June 2020.

Conflicts of interest

Non-declared.

Data availability statement

The authors confirm that all data generated or analyzed during this study are included in this published article.

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