Perceived Learning Management System Effectiveness, Teacher's Self-Efficacy, and Work Engagement: Groundwork for an Upskilling Plan

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ABSTRACT

This study explored the perceived effectiveness of the Learning Management System (LMS), self-efficacy, and work engagement. The researcher made use of descriptive-quantitative design with questionnaire as the main instrument of gathering the data. A total of. 107 faculty teachers from three Higher Education Institutions in the Philippines that are using Canvas LMS were chosen through convenience sampling. Online questionnaires were used to collect data, and descriptive statistics were employed to analyze demographic information. Based on the results, teachers reported high levels of perceived LMS effectiveness, teachers' self- efficacy, and work engagement. Significant differences were found in perceived LMS effectiveness based on gender, with males ranking higher than females. Differences were also observed across age groups and the duration of LMS usage. Correlational analysis indicated positive relationships between perceived LMS effectiveness, teachers' self-efficacy, and work engagement. Through regression analysis, it was revealed that teachers' self- efficacy significantly predicted perceived LMS effectiveness, and the combined effect of perceived LMS effectiveness and teachers' self- efficacy significantly predicted work engagement. Moreover, teachers suggested vast areas for upskilling in terms of LMS features, Assessment, Professional Networks, and Support and Instructions. The study identified areas of concerns in the dimensions of perceived LMS effectiveness, teacher's self-efficacy, and work engagement that served as the bases for recommended faculty upskilling plan for online and hybrid instructions.

Keywords: LMS, perceived LMS effectiveness, self-efficacy, work engagement, upskilling plan.

INTRODUCTION

In the ever-evolving landscape of contemporary education, the integration of technology has become an indispensable cornerstone, ushered in by the advent of Learning Management Systems (LMS). These systems stand as pivotal tools, orchestrating effective teaching and learning by providing a digital infrastructure that redefines educational landscapes. Within this transformative context, this study embarks on a meticulous exploration of the intricate interplay among perceived learning management system effectiveness, teacher's self-efficacy, and work engagement. This exploration lays the foundation for a comprehensive faculty upskilling plan, aiming to unravel the multifaceted relationships and dynamics inherent in the intersection of these variables. By doing so, the research not only contributes to the theoretical understanding of these key elements but also fosters advancements in educational practices and professional development.

This study seeks to provide a critical understanding of the contextual dimensions shaping educators' integration of technology. Examining the age distribution offers insights into generational contexts and potential influences on technology adoption, while an exploration of gender demographics identifies variations in teaching approaches. Investigating the duration of Learning Management System (LMS) usage sheds light on teachers' experience levels, impacting their perceptions and effectiveness in leveraging technological tools. Additionally, a comprehensive evaluation of Canvas LMS effectiveness, encompassing content and user management, communication, monitoring, and evaluation, provides nuanced insights crucial for targeted improvements. Delving into self-efficacy across instructional strategies, classroom management, and student engagement offers a panoramic view of teachers' confidence, while examining work engagement captures the essence of their professional dedication. Investigating potential variations in perceived LMS effectiveness, self-efficacy, and work engagement based on demographic factors enhances understanding and informs targeted interventions, contributing to a nuanced comprehension of the intricate interplays shaping the educational ecosystem. Assessing the predictive power of self-efficacy and perceived LMS effectiveness on work engagement informs the development of strategies to enhance teachers' professional commitment.

Moreover, equipping faculty teachers with the necessary tools and knowledge is paramount to effective learning facilitation. Teaching demands not only internal qualities but also up-to-date skills to meet the evolving demands of our times. Furthermore, the global impact of the COVID-19 pandemic on education has underscored the need for adaptability (OECD, 2020). Amidst this backdrop, the integration of technology, particularly Learning Management Systems (LMS), has emerged as both popular and indispensable.

Furthermore, this study seeks to establish baseline data on instructors' self-efficacy, work engagement, and perceptions of Canvas effectiveness. By investigating their interrelation, it aims to shed light on these crucial factors. Additionally, insights into current levels and enhancement ideas will be invaluable for formulating an upskilling plan. This plan advances the professional journey of teachers. Notably, the study aligns with CHED Memorandum Order No. 06 s. of 2022, guiding successful flexible learning implementation during the pandemic in the Philippines (Commission on Higher Education, 2022.).

REVIEW OF RELATED LITERATURE

Learning Management System

Learning Management Systems (LMSs) play a pivotal role in higher education institutions, offering flexible access to learning content, centralized resources, performance tracking, and improved communication. Despite widespread adoption, users continually demand enhancements to LMS features (Brown et al., 2015). LMSs fall into three main categories: proprietary (e.g., Blackboard, D2L, eCollege), open-source (e.g., Canvas, Moodle, Sakai), and cloud-based, with each having distinct characteristics and purposes (Dobre, 2015). Notably, cloud-based LMSs, utilizing platforms like Google Drive, Dropbox, Skype, Flickr, and YouTube, offer simplicity and cost-effectiveness in leveraging cloud resources.

Recent studies emphasize the positive impact of LMSs on learning convenience and outcomes, highlighting their interactive environment and accessibility (Kurata et al., 2018). However, the success of an LMS depends on faculty members' investment and proficiency in managing the system (Ghilay, 2017). Faculty members express the need for guidance to meet student expectations effectively.

Evaluating LMS implementation success involves technical aspects, return on investment, and learner satisfaction, but fewer studies focus on users' actual experiences with LMS for learning and teaching (Arbaugh, 2007). Ghilay (2019) delves into professors' perspectives on Moodle LMS, categorizing their

activity levels into low, medium, and intensive. Low activity involves basic usage, while medium activity includes managing authorizations and launching course sites. Intensive activity encompasses complex tasks like designing formatted pages, Computer-Assisted Assessment (CAA), and monitoring learners' activity. Moreover, he further assessed teachers' perceived Moodle LMS effectiveness, focusing on content management, user management, communication, monitoring, and evaluation, as well as the level of service provided to learners. Understanding these aspects is crucial for enhancing LMS implementation and guiding educators in utilizing these systems effectively. Overall, the evolving nature of LMSs continues to shape the educational landscape, emphasizing the importance of user experiences, faculty engagement, and continuous improvement.

Perceived LMS Effectiveness

The study by Ghilay (2019) focuses on assessing teachers' perception of LMS effectiveness across various dimensions, including content management, user management, communication, monitoring, and evaluation, as well as the level of service provided. Content management involves the lifecycle of digital content, encompassing text, images, audio, video, and multimedia (TechTarget, 2022). User management in a Learning Management System (LMS) pertains to tasks related to user accounts, roles, and permissions within the platform (Frontegg, 2023).

Effective communication is highlighted as crucial for learner-centric pedagogy and student success, enabling collaboration, idea exchange, problem-solving, and immediate access to assistance (Nimritta, n.d). Monitoring and evaluation involve data gathering, analysis, and assessing whether program goals are achieved (Frameworks, n.d). The level of services provided to students encompasses learner support and resources for educational transactions in distance education (Garrison & Baynton, 1987).

Canvas LMS

According to Endozo et al. (2019), Canvas is one of the world's most dependable learning management systems due to its reliability. It is a collaboration network with over 30 million users worldwide for universities, industry professionals, teachers, and students. It provides a dashboard for learning outcomes, peer evaluation, and e-portfolios, as well as real-time face-to-face communication features like video chat and screen sharing. Canvas also includes the application Speed Grader, which accepts a variety of web-viewable formats, including essays, blogs, and videos (Instructure Community, 2015).

Proficiency in Canvas use, including features like quizzes, modules, assignments, pages, and discussions, is evaluated as tools to determine effectiveness (Instructure Community, 2015). The study suggests a correlation between teachers' sense of effectiveness and their enthusiasm, dedication to teaching, and likelihood to remain in the profession (Allinder, 1994). Teachers' objectives are categorized into transactional and transformative, with the latter described as effective and unique. Enhancing staff skills is considered a key strategy for improving an organization's ability to meet long-term goals.

Self-efficacy

Self-efficacy, defined as an individual's belief in their ability to accomplish tasks or achieve goals, is crucial in education, particularly for teachers. Nurindah and Jafar (2019) emphasizes the significance of teachers' confidence in influencing student performance for effective instruction. Teacher efficacy in instructional strategies, classroom management, and student engagement, as outlined by Tschannen-Moran and Hoy (2001), is a key aspect of measuring self-efficacy.

Instructional strategies involve practices to help students become independent, strategic learners, improving attention, organization, and self-monitoring (Health and Life Skills Guide to Implementation (K–9), 2002).

Classroom management, focusing on fostering self-control, is linked to academic achievement, teacher effectiveness, and behavior. Evertson and Weinstein (2006) highlight its dual goals of promoting social and moral development and maintaining a conducive learning environment.

Student engagement, defined as the investment of time and effort by students and institutions to enhance learning outcomes, is a multifaceted concept with affective, behavioral, and cognitive dimensions (Trowler, 2013).

In the context of Bandura's Social Cognitive Theory, self-efficacy is a key personal variable, predicting positive performance outcomes across various subjects (Schunk et al., 2008). Usher and Pajares (2008) affirm that self-efficacy is a robust predictor of academic achievement across different academic areas and levels. Overall, fostering teachers' self-efficacy is pivotal for effective education, impacting instructional strategies, classroom management, and student engagement.

Work Engagement

Work engagement is a positive emotional and cognitive state in the workplace, comprising vigor, commitment, and absorption. Vigor, characterized by high energy levels, mental resilience, and perseverance, influences instructors' willingness to exert effort and face challenges (Hakanen et al., 2006). Instructors' perceptions of web-based Learning Management System (LMS) usability are enhanced by factors like information quality, service quality, subjective norm, and self-efficacy (Motaghian et al., 2013).

Teachers' work engagement is multifaceted, encompassing emotional engagement, social engagement with colleagues, cognitive engagement, and social engagement with students (Klassen et al., 2013). Emotional engagement reflects teachers' attitudes, commitment, and emotional responses to their work. Social engagement with colleagues involves relationship-building, impacting teachers' energy levels. Cognitive engagement pertains to the attentiveness and investment in work, while social engagement with students is considered fundamental to teaching, influencing teachers' energy levels.

Research traditionally adopts a between-person approach, highlighting mean level differences in work engagement due to working conditions, personal traits, and behavioral strategies (Bakker et al., 2014). However, recent studies indicate work engagement fluctuates within individuals over time and circumstances, with peak engagement during challenging work episodes, well-recovered evenings, and access to various resources (Reina-Tamayo et al., 2017).

Roles of Gender in Technology Adoption, Self-Efficacy and Work Engagement

Gender plays a role in technology adoption, with studies showing varied attitudes among participants. While some women don't perceive themselves or others as computer novices, males may hold gender-biased views of technology (Nelson and Cooper, 1997; Young, 2000). Regarding self-efficacy, Sawari and Mansor found no significant gender differences, but Hartzel (2003) argued men tend to have higher self-efficacy, impacting marketing and training strategies. In terms of work engagement during the COVID-19 pandemic, Rozman et al. noted significant gender-based differences, with women experiencing decreased engagement and emotional exhaustion due to personal life interference (Gupta, 2020). The pandemic-induced anxiety is linked to a substantial decrease in work engagement (Hu, et al., 2020).

Roles of Age in Technology Adoption, Self-Efficacy, and Work-Engagement

Age correlates negatively with technology acceptance, but digital literacy in older adults can be improved through exposure and education. Despite challenges, older adults show a positive attitude toward technology in daily life and healthcare. In terms of self-efficacy, individuals over 65 exhibit higher self-esteem,

particularly in self-efficacy, mediated by role accumulation. Regarding work engagement, employees over 50 score significantly higher, especially in absorption and commitment, while younger and middle-aged employees experience more exhaustion. Different job requirements and resources predict burnout and work engagement across age groups (Ha & Park, 2020; Douglas & Roberts, 2020).

Relationships among Perceived Technology Effectiveness, Self-Efficacy, and Work Engagement

Numerous studies explore the intricate relationship between self-efficacy, technology adoption, and work engagement. Davis (1989) suggests that perceived ease of technology use is predicted by self-efficacy, with high computer self-efficacy correlating to active engagement and success in computer-related activities (Compeau & Higgins, 1995). Arpaci (2017) extends this, asserting that self-efficacy positively influences the perceived ease of use in distance education tools. Additionally, studies like those by Moreira-Fontan et al. (2019) and Devi and Iyothsna (2014) examine the connection between work engagement and technology, emphasizing how ICT-related factors strongly impact engagement, yet the frequency of ICT use may negatively correlate with work engagement. Salonova and Llorens (2009) find a significant and negative correlation between ICT use frequency and work engagement, while Ter Hoeven et al. (2016) note that ICTs can enhance work engagement when linked with increased efficiency and accessibility in work communication.

Concerning educators, Tweed (2013) suggests that hours spent with technology do not significantly impact classroom technology use or teachers' self-efficacy, challenging common assumptions. Lisbona et al. (2018) stress the relationship between self-efficacy and work engagement, asserting that belief in one's competence is vital for vitality and job motivation. Research also indicates a positive feedback loop, where self-efficacy enhances engagement and vice versa (Salanova, 2008; Xanthopoulou et al., 2009).

The COVID-19 pandemic underscores the importance of robust online learning systems (Lederman, 2020). Ningias and Indriani (2021) focus on the self-efficacy beliefs of online learners, finding confidence in implementing online lecture delivery strategies. Learning management systems (LMSs) are crucial but their efficacy depends on design and instructor training. The World Economic Forum anticipates a need for new skills by 2022, emphasizing the role of blended learning in education. The pandemic has accelerated the adoption of technology in education, akin to transformations seen in the healthcare industry. Schools, colleges, and universities must embrace upskilling and innovative solutions to address future challenges (Lederman, 2020).

Up skilling

Cohen (2019) emphasizes that upskilling is crucial for organizations to attract and retain top talent and effectively serve customers. Recognizing the changing job market and technology trends, employees need to undergo retraining for higher-paying positions. Peters predicts a rise in industrial robots and human-machine augmentation by 2025, indicating the advancing technological landscape. Digital globalization, with concepts like same-day delivery and robotics, underscores the need for reskilling to meet evolving workforce demands.

The profound impact of Artificial Intelligence (AI), as defined by Kaplan and Haenlein (2019), is acknowledged. AI has the potential to supplement or replace human tasks through interpretation, learning, and flexible adaptation. Evans (2022) distinguishes between reskilling, involving acquiring new, unrelated skills for a different job or career change, and upskilling, focusing on acquiring additional skills to enhance performance in the current role.

Implementation of Canvas LMS in the Philippines

Philippine educational institutions are actively embracing technology to enhance teaching and learning, with

a focus on utilizing learning management systems (LMS) such as Canvas for blended and flipped classrooms. Canvas, a widely adopted LMS, played a crucial role in transforming education delivery in the country. The first Canvas community user group meeting at De La Salle University brought together educators from various institutions, including Baliuag University (BU), which adopted Canvas for blended learning before the pandemic.

BU's Canvas implementation facilitated scholarly interactions, collaboration, and communication within the BU community. The university provided comprehensive training for educators through Champions with subject-matter expertise and self-paced resources within the LMS. BU also introduced Canvas to students through various channels, monitored user feedback, and evaluated technical infrastructure before widespread adoption.

Centro Escolar University-Malolos transitioned from Moodle to Canvas, utilizing the CEU LEAPS learning management system for online classes. The Technological Institute of the Philippines (T.I.P.) conducted its Summer Classes 2020 digitally via Canvas, aligning with flexible learning initiatives during the COVID-19 pandemic. T.I.P. continued its proactive approach with the T.I.P. LEADS program, leveraging Canvas LMS to address challenges in the new normal since 2021.

These initiatives demonstrate a commitment to adopting innovative teaching and learning methods, fostering engagement, and ensuring seamless transitions to digital platforms. Moreover, the study aims to establish baseline information on teachers' self-efficacy, work engagement, and perceived LMS effectiveness. Exploring the interaction among these variables, the research aims to inform the development of an upskilling program. The study recognizes upskilling as a continuous education process that helps employees advance within their current career paths and leveraging their knowledge in their best practices at school.

Significance of the Study

While significant strides have been made in the exploration of teachers' self-efficacy and work engagement over the past millennium, the enduring relevance of many findings underscores the persistent nature of challenges faced by educators. However, this study distinguishes itself from existing research by introducing a novel perspective, integrating the evaluation of perceived learning management system (LMS) effectiveness and the imperative of upskilling into the equation. Unlike previous studies conducted by renowned psychologists and educators, experts in the field, this specific investigation seeks to carve its unique niche.

By delving into the impacts of teachers' perceived Canvas effectiveness, self-efficacy, and work engagement, this study aims to contribute substantively to the existing body of literature. It recognizes the evolving landscape of education and the contemporary challenges faced by educators. Through this research, we aim to shed light on the nuanced interplay between these variables and provide a fresh perspective that goes beyond the confines of established theories.

Moreover, this study aspires to offer practical insights by laying the groundwork for a tailored upskilling plan. Recognizing the necessity of adapting to the dynamic educational environment, the research endeavors to bridge the gap between theoretical knowledge and actionable strategies. The findings are anticipated to be instrumental in informing educators, administrators, and policymakers about the specific areas that warrant attention for the enhancement of teaching effectiveness and overall well-being.

In essence, this study not only aims to expand the scholarly discourse but also aspires to catalyze practical advancements in the professional development of educators. It seeks to be a catalyst for positive change by uncovering meaningful correlations and providing a roadmap for upskilling initiatives that can yield tangible

and valuable results in the educational landscape.

The study is important and beneficial to the following stakeholders:

School Administrators. The result of the study will serve as the basis and reference for the school in establishing new plans or programs that could address challenges regarding teachers' perceived Canvas effectiveness, teachers' self-efficacy, and teachers' work

engagement. In addition, teachers' suggestions and lived experiences will serve as the basis for an upskilling plan for the faculty members. For this study, upskilling in the use of Canvas LMS is sought to be beneficial and could resolve existing challenges.

Teachers. They will be educated on the impact of teachers' perceived Canvas effectiveness on their work engagement. In addition, they will also be aware of the importance of teachers' self-efficacy on perceived Canvas effectiveness and teacher work engagement. As a result, teachers will have better experiences, which may lead to better performance and academic success for students.

Students. When faculty members are engaged and have a positive perception of Canvas LMS usage, then students will benefit as well. It will be manifested and translated into students' academic performance and students' learning engagement through the use of an up-to-date learning management system.

Future Researchers. They will become more informed about the different insights about teachers' perceived Canvas effectiveness, teachers' self-efficacy, and teachers' work engagement. This study will serve as a basis for future researchers to have more perspectives on how to address challenges in teachers' perceived Canvas effectiveness, teachers' self-efficacy, and teachers' work engagement. In addition, researchers will find more ways to design and implement teachers' upskilling in the integration of Canvas LMS. This will also add contributions to the literature because of the limited studies about the impact of teachers' perceived Canvas effectiveness on teachers' work engagement; the effects of teachers' self-efficacy on teachers' perceived Canvas effectiveness and teachers' work engagement; and the influence of other factors in the process.

Theoretical Framework

This study is anchored on the Self Determination Theory. It is a work of psychologists Edward Deci and Richard Ryan, who first introduced their ideas in their 1985 book Self- Determination and Intrinsic Motivation in Human Behavior. They developed a theory that suggests people tend to be driven by a need to grow and gain fulfillment. According to the Self-Determination Theory, people need to feel the following to achieve psychological growth: autonomy, competence and connection or relatedness (Ryan & Deci, 2020).

Autonomy. People need to feel in control of their own behaviors and goals. This sense of being able to take direct action that will result in real change plays a major part in helping people feel self-determined.

Competence. People need to gain mastery of tasks and learn different skills. When people feel that they have the skills needed for success, they are more likely to take actions that will help them achieve their goals.

Connection or relatedness. People need to experience a sense of belonging and attachment to other people.

Self-Determination Theory (SDT) can be a highly relevant theoretical framework for studying the relationship between perceived learning management system (LMS) effectiveness, self-Efficacy, and work engagement in the context of developing an upskilling plan. SDT is a prominent theory in the field of motivation and psychology, and it provides a comprehensive understanding of human motivation and

behavior. SDT is applied in this study through the following:

Autonomy, Competence, and Relatedness. SDT proposes that three basic psychological needs drive human motivation and well-being: autonomy, competence, and relatedness. Autonomy refers to the desire to have control and choice over one's actions; competence is the need to feel capable and effective in one's activities and relatedness is the need for social connection and belongingness.

Perceived Learning Management System Effectiveness (LMS). According to SDT, individuals are more likely to be motivated and engaged when their basic psychological needs are fulfilled. Perceived LMS effectiveness can influence the satisfaction of these psychological needs. If teachers perceive the LMS as supportive of autonomy (e.g., providing choice in learning activities), competence (e.g., offering effective learning resources), and relatedness (e.g., fostering interaction with peers and students, they are more likely to be motivated to engage in upskilling activities.

Self-Efficacy. Self-efficacy refers to an individual's belief in their ability to successfully perform specific tasks or achieve certain goals. In the context of upskilling, teachers with higher self- efficacy are more likely to take on challenging learning tasks, persist in the face of obstacles, and achieve better learning outcomes. SDT supports the idea that teachers with higher self-efficacy are more likely to experience a sense of competence, leading to increased motivation and engagement.

Work Engagement. Work engagement refers to the level of enthusiasm and dedication an individual has towards work-related activities. When individuals are engaged in their upskilling efforts, they are more likely to invest time and effort into learning, seek out opportunities for growth, and apply their new skills effectively in the workplace. SDT suggests that work engagement can be enhanced when teachers feel a sense of autonomy, competence, and relatedness in their upskilling journey.

Upskilling Plan. Using SDT as a theoretical framework can help in designing an upskilling plan that addresses the psychological needs of teachers. By incorporating elements that promote autonomy, competence, and relatedness in the learning process, such as offering choices in learning activities, providing constructive feedback, and facilitating collaboration among teachers, then motivation and engagement of individuals can be increased in the upskilling plan.
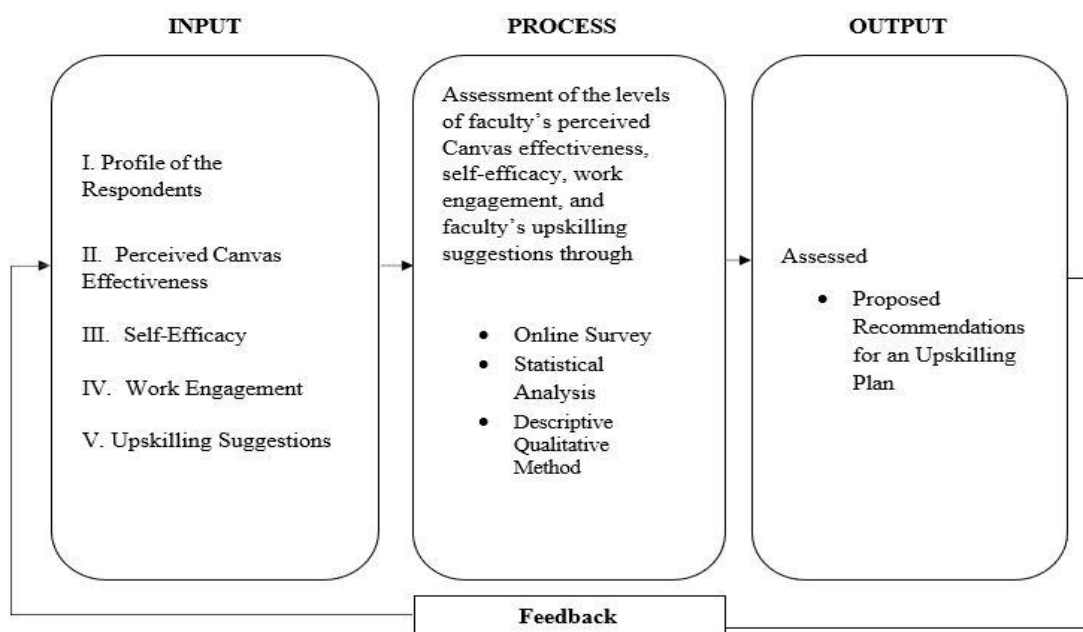
Conceptual Framework

Figure 1. The Conceptual Framework of the Study

Figure 1 shows the conceptual model of the study the perceived Canvas effectiveness, self-efficacy, and work engagement, and groundwork for the faculty upskilling intervention plan.

The first frame presents the input of the study that includes the profile of teachers such as gender, age, duration of Canvas usage and Canvas trainings attended; perceived Canvas effectiveness with respect to user management, content management, communication, monitoring and evaluation, and level of service provided to students; self-efficacy in terms of instructional strategies, classroom management, and student engagement; and work engagement in terms of emotional engagement, social engagement with colleagues, cognitive engagement, and social engagement with students.

The second frame presents the process of the study that involves assessment of the levels of faculty's perceived Canvas effectiveness, self-efficacy, and work engagement; the significant difference of faculty's perceived Canvas effects, self-efficacy, and work engagements in terms of gender, age, and duration of Canvas usage; and relationships between perceived Canvas effectiveness and work engagement. Self-efficacy and perceived Canvas effectiveness and self-efficacy and work engagement are also considered. It also analyzes the descriptive responses of participants with regard to upskilling suggestions.

The third frame presents the output of the study which includes the assessed levels of faculty's responses. It also presents the proposed recommendations for a faculty upskilling intervention plan.

The arrows from the input to the process and to the output show the connection and transformation of the profile and aspects with the actions taken into the results that are considered as output.

The arrow from the output to the input represents feedback which reflects the continuity of the flow or loop and the interconnectedness of the elements.

STATEMENT OF THE PROBLEM

This study aims to comprehensively investigate the perceived effectiveness of Learning Management Systems (LMS), teacher self-efficacy, and work engagement to formulate a robust upskilling plan for educators. Specifically, the research seeks to delineate the demographic profile of teachers, considering factors such as age, gender, and the duration of LMS usage. The investigation will gauge the level of teachers' perceived effectiveness of the Canvas LMS across key dimensions, including content management, user administration, communication, monitoring and evaluation, and overall service provision to learners. Additionally, the study will assess teachers' self-efficacy, covering instructional strategies, classroom management, student engagement, and an overall average.

Furthermore, the research aims to evaluate teachers' work engagement, examining emotional engagement, social engagement with colleagues, cognitive engagement, social engagement with students, and an overall average. The study will explore potential variations in teachers' perceived LMS effectiveness, self-efficacy, and work engagement based on age group, gender, and the duration of Canvas usage.

The research will also investigate whether there is a significant relationship between teachers' perceived LMS effectiveness and their self-efficacy, teachers' perceived LMS effectiveness and work engagement, as well as the relationship between teachers' self-efficacy and work engagement. Moreover, the study will assess whether teachers' self-efficacy predicts their perceived LMS effectiveness and whether both perceived LMS effectiveness and self-efficacy predict teachers' work engagement.

Based on the insightful findings derived from this study, recommendations will be proposed for the development of a faculty upskilling plan, aimed at enhancing the proficiency of educators in utilizing LMS,

boosting self-efficacy, and fostering greater work engagement within the academic setting.

Hypotheses of the Study

Ho_1: There is no significant difference in the teachers' perceived Canvas effectiveness in terms of age.

Ho_2: There is no significant difference in the teachers' perceived Canvas effectiveness in terms of gender.

Ho_3: There is no significant difference in the teachers' perceived Canvas effectiveness in terms of duration of Canvas usage.

Ho_4: There is no significant difference in the teachers' self-efficacy in terms of age group.

Ho_5: There is no significant difference in the teachers' self-efficacy in terms of gender.

Ho_6: There is no significant difference in the teachers' self-efficacy in terms of the duration of Canvas usage.

Ho_7: There is no significant difference in the teachers' work engagement in terms of age.

Ho_8: There is no significant difference in the teachers' work engagement and gender.

Ho_9: There is no significant difference in the teachers' work engagement in terms of the duration of Canvas usage.

Ho_{10}: There is no significant relationship between teachers' perceived Canvas effectiveness and teachers' self-efficacy.

Ho_{11}: There is no significant relationship between teachers' perceived Canvas effectiveness and work engagement.

Ho_{12}: There is no significant relationship between teachers' self-efficacy and teachers' work engagement.

Ho_{13}: Teachers' self-efficacy does not predict teachers' perceived Canvas effectiveness.

Ho_{14}: Teachers' perceived effectiveness and teachers' self-efficacy do not predict work engagement.

METHODS

Research Design

This study employed a descriptive correlational design, utilizing descriptive statistics, measures of central tendency, measures of dispersion, and correlation to examine relationships between variables. It focused on quantifying the connection between teachers' perceived LMS effectiveness, self-efficacy, and work engagement through a descriptive-correlational research design. This involved employing simple linear or multiple regression for predictions. The study also outlined a faculty upskilling intervention plan. In addition, a qualitative approach was employed, using a descriptive qualitative method to gather teachers' perspectives on upskilling, informing the development of the faculty upskilling plan. Overall, the research aimed to understand the relationships among perceived LMS effectiveness, self-efficacy, and awork engagement, and the upskilling plan which were the bases for the faculty upskilling plan.

Participants and Sampling Procedure

The study involved participants from three selected distinct higher educational institutions in the Philippines——all utilizing the Canvas Learning Management System in the 2022-2023 academic year. Faculty members from various departments within these institutions participated voluntarily, chosen through convenience sampling, reflecting a non-probability approach based on accessibility. To address potential biases and statistical issues, the researcher applied tests for homogeneity and normality. The G-Power 3.1 calculator determined the sample size, emphasizing a power analysis aiming for at least 0.80 power at a 0.05 significance level. Statistical treatments, including Pearson Product-Moment Correlation, t-test, Analysis of Variance, and Linear Regression, considered effect sizes from medium to large. The study determined that 107 respondents were sufficient to achieve 80% power at a 0.05 significance level with a medium to high effect size. This comprehensive approach ensured the study's validity and reliability despite the inherent limitations of convenience sampling.

Instrument

The research methodology employed for this study utilized an online survey divided into four sections, aiming to comprehensively assess various dimensions: perceived effectiveness of the Learning Management System (LMS), teachers' self-efficacy, work engagement, and suggestions for upskilling.

The first section, adapted from Ghilay's (2019) research, evaluated teachers' perceptions of Canvas across content management, user management, communication, monitoring and evaluation, and overall service quality. Modifications were made for clarity and relevance, with expert insights guiding the transformation of original phrases into clear statements. The questionnaire structure addressed specific dimensions, ensuring alignment with the study's objectives.

The second section, inspired by Tschannen-Moran and Hoy (2001), focused on assessing teachers' self-efficacy in instructional strategies, classroom management, and student engagement. Revisions were made to enhance clarity and relevance, with professionals in the field contributing to question refinement. Precision was emphasized, such as substituting "children" with "students" and replacing "problem students" with "misbehaving students."

The third section, adapted from Klassen et al. (2013), gauged teachers' work engagement across emotional, social (colleagues and students), and cognitive dimensions. Adjustments were made for clarity, such as modifying "I find teaching fun" to "I enjoy teaching," based on expert recommendations, ensuring alignment with the study's objectives.

The fourth section, a qualitative component, collected teachers' suggestions for improving LMS experiences. The entire questionnaire underwent rigorous validation, including expert reviews, a pilot run with 20 respondents, and consultations to ensure face validity. Permission was obtained from the original authors for instrument usage.

Five experts from Baliuag University validated the instrument, indicating a Kappa of at least 0.6 for each item, affirming the questionnaire's validity. A pilot run with 20 respondents from Baliuag University preceded the internal consistency or reliability assessment. Reliability, measured through Cronbach's alpha, indicated all items in the questionnaire had a Cronbach alpha of at least 0.7, affirming the scale's reliability.

In summary, the research methodology embraced a comprehensive approach, combining quantitative and qualitative elements. The survey sections, adapted from established studies, were meticulously refined for clarity, relevance, and alignment with the study's objectives. Rigorous validation processes, including

expert reviews, face validity, and reliability testing, strengthened the credibility of the instrument. The research methodology ensured a robust foundation for capturing teachers' perceptions of LMS, self-efficacy, work engagement, and valuable suggestions for upskilling in the higher education context.

Data Gathering Procedure

The researcher submitted Chapter II of this dissertation to Baliuag University's Ethics Review Board. It was approved by the ERB and it adhered to the rules mentioned in gathering information It also followed the Data Privacy Act of 2012 in terms of giving consent, confidentiality, sympathy and candor to participants. Moreover, the researcher asked permission from the Presidents or Vice Presidents of Academic Affairs of Baliuag University, Centro Escolar University-Malolos, and Technological Institute of the Philippines-Quezon City before administering the Google Survey that is based from this instrument and measures the faculty's level of teachers' perceived Canvas effectiveness, teachers' self-efficacy, and teachers' work engagement.

Data Analysis and Statistical Treatment

The study involved the comprehensive coding of data, assigning numeric values to demographic variables such as age, gender, and duration of LMS usage, as well as using Likert scales for perceived Canvas effectiveness, self-efficacy, and work engagement. A 4-point Likert scale was employed, and specific values were assigned for interpretation purposes. The perceived Canvas effectiveness dimensions, including content management, user management, communication, monitoring and evaluation, and service provided to students, were averaged to derive a general mean. Similar procedures were applied to self-efficacy (instructional strategies, classroom management, and student engagement) and work engagement dimensions (emotional engagement, social engagement with colleagues, cognitive engagement, and social engagement with students). Descriptive statistics, such as mean and standard deviation, were used to analyze the demographic profile of faculty members. The study utilized a two-tailed hypothesis test with a 0.05 significance level, requiring four assumptions: independence, normality, homogeneity of variances, and the interval or ratio nature of variables. The Shapiro-Wilk test was employed for normality, and parametric tests like t-test and ANOVA were utilized, considering assumptions like independence and homogeneity of variances. Post hoc tests using Tukey HSD were conducted to identify significant differences among age groups. Correlation analyses, both Pearson and Spearman's rho, were employed to assess relationships between variables, with regression analyses used to investigate predictive relationships. The study also incorporated a qualitative aspect, using descriptive qualitative methods to analyze teachers' upskilling suggestions for enhancing their LMS experience. Overall, the research employed a well-structured mix of quantitative and qualitative methods, ensuring a comprehensive exploration of teachers' experiences with LMS and the factors influencing their perceptions, self-efficacy, and work engagement. Furthermore, the data were analyzed using the SPSS or the Statistical Package for the Social Sciences. Because the paper needs to know about the participants' experiences, the research ensured that their participation was honest.

It also adheres to the 2012 Philippine Data Privacy Act, a comprehensive and stringent privacy law "to preserve the fundamental human right to privacy and communication while ensuring the free flow of information to foster innovation and economic growth" (Republic Act. No. 10173, Ch. 1, Sec. 2.

RESULTS AND DISCUSSIONS

The following are the data obtained from the 107 faculty teachers comprising of 54 females and 53 males from X, Y, and Z Higher Education Institutions. They were asked to answer the questionnaire about perceived LMS effectiveness, self-efficacy, work engagement, experiences, and suggestions in using LMS. It aimed to identify the impacts and interactions among teachers' perceived LMS effectiveness, teachers' self-efficacy, and teachers' work engagement. It also hopes to provide a basis for an upskilling plan that is

needed to attain valuable results in improving the teachers' perceived LMS effectiveness, self-efficacy, and work engagement.

Demographics of the respondents

The demographic showcases the distribution of teachers according to their sex. There are fifty-four (50.5%) of teachers are females and fifty-three (49.5 %) are males. Then, the second characteristic showcases the distribution of teachers according to the schools. There are fifty-two (48.6%) of the teachers are from X Higher Education Institution, twenty-seven (25.2%) are from Y Higher Education Institution and twenty-eight (28 %) are from Z Higher Education Institution. Moreover, the third characteristic showcases the distribution of teachers according to their age group. There are 24 (22.4%) whose ages ranged from 20 to 29, (31.8%) have ages ranging from 30 to 39, 21 (19.6%) have ages ranging from 40 to 49, 17 (15.9%) have ages from 50 to 59, and 11 (10.3%) are at least 60 years old. Lastly, the fourth characteristic showcases the distribution of teachers according to their duration of LMS usage in years. There are 19 (17.8%) teachers who have been using Canvas LMS for less than two years, 40 (37.4%) teachers who have been using Canvas LMS for two to four years, and 48 (44.9%) teachers who have been using canvas LMS for more than 4 years.

Mean and Standard Deviation Interpretation for Respondents' Levels of Perceived LMS Effectives according to its Dimensions

The findings show the mean and standard deviation of teachers' perceived effectiveness of the Learning Management System (LMS) across various dimensions, highlighting an overall high level of effectiveness. Among the dimensions, Content Management received the highest mean score (M = 3.67, SD = 0.295), followed closely by Monitoring and Evaluation (M = 3.67, SD = 0.307) and Level of Services Provided to Students (M = 3.63, SD = 0.318). User Management received a mean score of (M = 3.60, SD = 0.329), while Communication had the lowest mean score (M = 3.58, SD = 0.397). The overall General average perception of Canvas effectiveness was also high (M = 3.63, SD = 0.286, N = 107), with low standard deviations indicating consistent perceptions among teachers.

While the findings generally highlight positive perceptions, areas of concern include User Management and Communication, which exhibit comparatively lower perceived effectiveness. Communication within the LMS involves managing forums, message types, and channels, influencing learner-centric approaches. Challenges in online communication include inadequate conveyance of complex topics, misinterpretation due to the absence of nonverbal cues, language barriers, and a lack of real-time interactivity. Time zone differences, technical issues, delayed responses, and overcrowded forums further impact effective communication.

User Management in LMS, focusing on administration of user accounts and permissions, faces challenges outlined by Boettcher and Conrad (2016). These challenges include complexities in large-scale institutions, managing user onboarding and offboarding, assigning roles and permissions, customization, integration of user data, efficient communication, and adherence to retention policies.

In summary, the study underscores positive perceptions of Canvas effectiveness but identifies specific challenges in communication and user management within the LMS, shedding light on critical aspects that warrant attention and improvement for a more holistic educational experience.

Mean and Standard Deviation Interpretation for Teachers' Self-Efficacy according to its Dimensions

The findings show the mean and standard deviation of teachers' self-efficacy scores across various dimensions and as an overall general average. The findings reveal high levels of self-efficacy among the 107

respondents, with low standard deviations indicating consistency in self-efficacy perceptions across dimensions and overall.

Classroom management emerges with the highest mean score (M = 3.61, SD = 0.297), closely followed by student engagement (M = 3.59, SD = 0.284) and instructional strategies (M = 3.58, SD = 0.318). The overall general average of self-efficacy is also high (M = 3.59, SD = 0.276, N = 107), emphasizing a consistent level of self-efficacy among teachers.

However, instructional strategies and student engagement are identified as areas of concern due to their comparatively lower mean scores within teachers' self-efficacy assessments. Instructional strategies encompass techniques employed by educators to cultivate autonomous and strategic learners. Challenges in this dimension may include mastering diverse strategies, adapting to student needs, navigating evolving educational landscapes, and grappling with resource limitations.

The findings resonate with the assertion that instructional strategies encompass diverse practices like varied assessment usage, adapting lessons, addressing challenging inquiries, and providing challenges for capable students. Challenges in instructional strategies impact teacher self-efficacy, leading to feelings of self-doubt and inadequacy.

Student engagement, another area of concern within teachers' self-efficacy, involves investment in time, effort, and resources to enhance learning outcomes. Within teachers' self-efficacy, student engagement encompasses practices like fostering students' belief in their academic potential, motivating disinterested students, and nurturing creativity. Challenges in student engagement can create a negative feedback loop, undermining teachers' confidence and contributing to less engaging teaching practices.

These difficulties highlight the complex relationship between student engagement and teacher self-efficacy. Teachers who struggle with engagement may isolate themselves, further undermining their self-efficacy. The study underscores the importance of addressing challenges in instructional strategies and student engagement to enhance teachers' self-efficacy and overall teaching experience.

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These difficulties highlight the complex relationship between student engagement and teacher self-efficacy. This is in in line with the study of Pink (2011). Teachers who struggle with engagement may isolate themselves, further undermining their self-efficacy. The study underscores the importance of addressing challenges in instructional strategies and student engagement to enhance teachers' self-efficacy and overall teaching experience.

Mean and Standard Deviation Interpretation for Teachers' Work Engagement according to its dimensions

The findings provide a comprehensive overview of respondents' work engagement, analyzing distinctive dimensions and an overall general average. The findings reveal high levels of work engagement across all dimensions among the 107 participants. The mean scores for each dimension, presented in descending order, indicate varying levels of engagement. Social engagement with students leads with the highest mean score (M = 3.63, SD = 0.354), followed closely by social engagement with colleagues (M = 3.62, SD = 0.356). Emotional engagement holds a strong position with a mean score of (M = 3.58, SD = 0.357), and cognitive

engagement concludes the order with a mean score of (M = 3.58, SD = 0.358). The overall general average for work engagement is notably high (M = 3.60, SD = 0.360, N = 107), emphasizing a consistent level of teachers' work engagement across each dimension and in the overall assessment.

However, it is crucial to acknowledge that emotional and cognitive engagement are areas of concern, with comparatively lower mean scores among teachers' work engagement.

Emotional engagement, encompassing attitudes, commitment levels, and emotional reactions to work, is vital in the educational context. The findings align with Anderson's (2010) study, highlighting emotional engagement as a barrier to work engagement due to emotional exhaustion, blurred professional and personal boundaries, coping with disappointment, and managing the caring burden of responsibility for student well-being. Emotional turmoil arising from conflicts and behavioral issues, along with vicarious trauma, further hampers work engagement.

Cognitive engagement, defined as educators' focus and investment in their work, is crucial for deep learning strategies and self-regulated learning. Challenges identified in maintaining cognitive engagement include mental exertion across various responsibilities such as lesson planning, adapting teaching methods, staying current on pedagogical methods and technological advancements, workload pressures, and the need for adaptability. Hawkins (2017) emphasizes the complexity of teaching tasks, emotional management, and skill enhancement as contributing factors to cognitive engagement challenges in teachers' work engagement.

In summary, while teachers exhibit high overall work engagement, addressing concerns in emotional and cognitive engagement dimensions is crucial for enhancing the overall work engagement experience.

Comparison of Perceived LMS Effectiveness between Male and Female Teachers

Mann- Whitney U, a nonparametric test was used to test the significant difference between the two groups according to ranks. Mann-Whitney's U was used to

evaluate the difference in the ranks of male and female participants. Hence, it shows that a significant effect of perceived LMS effectiveness was found, U=1048.0, p<.05, indicating that male respondents (M=61.23) have significantly higher ranks than female respondents (M=46.91).

These results suggest that performance that the level of perceived LMS effectiveness of male teachers is higher than that of female teachers. This is also mentioned in the studies of Nelson and Cooper (1997) and Young (2000) that males were more likely to hold gender-biased views of technology.

Comparison of Perceived LMS Effectiveness according to Age Group

The Kruskal Wallis H test, a nonparametric test was used to check on the significant difference across the different age groups according to ranks. It shows that there is a significant difference of perceived LMS effectiveness, H=16.269, p<.005 across different age groups

This study's discovery of a significant difference in perceived LMS effectiveness coincides with the findings of Ha and Park (2020). Their research highlighted a unique aspect of technology acceptance, specifically demonstrating a negative correlation between age and technology adoption. In essence, these findings reveal a significant difference in how different age groups perceive the efficacy of the Learning Management System (LMS). This alignment is reinforced by Ha and Park's (2020) study, which emphasizes the role of age in shaping technology acceptance and, as a result, influencing the perceived effectiveness of tools like LMS.

Comparison of Perceived Canvas Effectiveness according to Duration of LMS Usage

Kruskal Wallis test, a nonparametric test was used the significant difference across the three groups according to ranks. It shows that there is no significant difference in the perceived LMS effectiveness across the duration of LMS usage groups as shown in Kruskal Wallis value H=1.222, p=.543.

A study by Tweed (2013) also suggests that hours spent in technology did not play a significant role in classroom technology use by teachers. The convergence of his research with the findings on the table underscores a crucial aspect of technology adoption in education. It suggests that the mere accumulation of experience or time spent using a specific technological tool, such as LMS, may not singularly determine its perceived effectiveness.

Comparison of Teachers' Self-Efficacy Between Male and Female

An independent sample t-test was conducted to compare the levels of self-efficacy of male and female teacher respondents. There is no significant difference in the self-efficacy of female respondents ($M = 3.57$, $SD = .310$, $n = 54$) and male respondents ($M = 3.62$, $SD = .236$, $n= 53$); $t (105) = -.927$, $p = .356$.) Moreover, Levene's test, $F= .986$, $p=.323$ indicates that there is no significant difference between the variance of Female group ($SD=0.31$) and Male group ($SD=.24$). It also implies that the data is homoscedastic.

These results suggest that self-efficacy is not influenced by their gender. It was also mentioned in the study of Sawari and Mansor (2013) that there is no significant gender difference in self-efficacy.

Comparison of Teachers' Self-Efficacy according to Age Group

A one-way ANOVA was conducted to compare the teachers' self-efficacy from the different age groups. There was no significant difference in the self-efficacy of teachers [$F(4,102) = 1.534$, $p = .198$].

The findings are contradictory to the study of Dietz (1996). He stated that there is a significant difference in the self-efficacy of someone in terms of age. He also mentioned that individuals over the age of 65 have higher self-esteem, particularly in terms of self-efficacy.

Comparison of Teachers' Self-Efficacy according to Duration of LMS Usage

A one-way ANOVA was conducted to compare the teachers' self-efficacy from the different duration of LMS usage groups. There was no significant difference on the self-efficacy of the teachers across the duration of LMS usage [F(2, 104) = .986, p = .377].

The Levene's test, $F=2.346$, $p=.101$ indicates that there is no significant difference among the variance of less than two years duration group ($SD=.23$), two to four years duration group ($SD=.34$) and more than four years duration group ($SD=.23$). A study by Tweed (2013) also suggests that experiences in terms of years does not significantly predict a teachers' self-efficacy.

Comparison of Teachers' Work Engagement Between Male and Female Teachers

An independent samples t-test was conducted to compare the levels of work engagement of the male and female teachers in this study. There is no significant difference in the work engagement of female teachers (M = 3.59, SD = .34, n = 54) and male teachers (M = 3.61, SD =.24, n = 53); t (105) = .051, p = .812.)

These results suggest that work-engagement is not influenced by their gender. This is also contrary to the study of Rozman et al. (2021) where they found that there is a significant gender-based difference in work

engagement.

Comparison of Teachers' Work Engagement according to Age Group

A one-way ANOVA was conducted to compare the teachers' work engagement from the different age groups. There is no significant difference on the work engagement of teachers [$F(4,102) = 1.244$, $p = .297$].

These findings are contradictory to the study of Douglas and Roberts (2020) wherein they stated that there is a significant difference in work engagement in terms of age. They found that employees over the age of 50 had significantly higher work engagement scores than those under the age of 50.

Comparison of Teachers' Work Engagement according to Duration of LMS Usage

A one-way ANOVA was conducted to compare the teachers' work engagement from the different duration of LMS usage groups. There was a significant difference in work engagement of teachers in terms of the duration of Canvas LMS [$F(2,104) = 3.560$, $p < .05$].)

The study of Salonova and Llorens (2009) provides relevant insights in this context that there is a significant and inverse relationship between the frequency of use of Information and Communication Technology (ICT) for work and work engagement. Although not directly related to Canvas LMS, this finding suggests that interactions with technology in professional contexts may have an impact on work engagement. Based on teachers' experiences with LMS, this correlation can provide context for the observation of a significant difference in work engagement.

Post Hoc Analysis for Teacher's Work Engagement in terms of Duration of Canvas Usage

Furthermore, Post hoc analysis using the Tukey HSD test indicated that the work engagement of teachers who have been using LMS for less than two years (M=3.44, SD=.38,) significantly differs from that of teachers who have been using LMS for two to four years (M=3.64, SD=.28,). Similarly, the work engagement of teachers who have been using LMS for less than two years (M=3.44, SD=.38,) significantly differs (see Appendix H16) from that of teachers who have been using LMS for more than two years (M=3.63, SD=.25). These findings are in line with the study of Ter Hoeven et al. (2016) that the use of Information and Communication Technologies (ICTs) contributes to increased work engagement, especially when these technologies are linked to increased efficiency and accessibility in work-related communication and processes. While these findings are not identical, they do support the idea that technological engagement combined with efficiency and accessibility can potentially influence work engagement levels among teachers.

Correlation Results for Teachers' Perceived LMS Effectiveness (P.L.E), Self-Efficacy (S.E.) and Work Engagement (W.E.)

Table 1

Variables	Correlation Type	Correlation	Sig	N
P.L.E. and S.E.	Spearman's rho	.512**	.000	107
P.L.E. and W.E.	Spearman's rho	.449**	.000	107
S.E. and W.E.	Pearson's Product	.724**	.000	107
**p<.01				

The study explored the interrelation between teachers' perceived effectiveness of the LMS platform, their self-efficacy, and work engagement. Initial analysis, using Spearman's rho nonparametric correlation due to

the non-normal distribution of perceived LMS effectiveness, revealed a significant positive correlation (rs = 0.512, N = 107, p < 0.001) between teachers' perceptions of LMS effectiveness and their self-efficacy. The findings suggest that an increase in perceived Canvas effectiveness corresponds to a rise in teachers' self-efficacy, and vice versa. While causation cannot be directly inferred, this correlation aligns with Arpaci's (2017) study, emphasizing the relevance of self-efficacy in perceiving LMS as effective.

Similarly, when examining the relationship between perceived LMS effectiveness and work engagement, Spearman's rho test was employed due to non-normal distribution. The results indicated a significant positive correlation (rs = 0.449, N = 107, p < 0.001), suggesting that as teachers' perceptions of LMS effectiveness increase, their work engagement also increases, and vice versa. This contradicts Devi's and Iyothsna's (2014) findings, highlighting the complex nature of technology's impact on work engagement, influenced by technology characteristics, context, and individual perspectives.

Furthermore, a Pearson product-moment correlation, conducted between teachers' self-efficacy and work engagement, both conforming to normal distribution, revealed a strong positive relationship (r = 0.724, N = 107, p < .001). The findings indicate that an increase in self-efficacy corresponds to an increase in work engagement, emphasizing the pivotal role of self-efficacy in influencing work engagement. Lisbona et al. (2018) also support this positive association, highlighting the importance of belief in one's competence in fostering vitality and job motivation.

While the study uncovers significant correlations, it is crucial to acknowledge potential unexplored factors influencing these relationships. The findings emphasize the intricate dynamics between teachers' perceptions of LMS, self-efficacy, and work engagement, providing insights into the complex interplay of these variables in an educational context.

Regression Analysis of Teachers' Self-Efficacy in Predicting Teachers' Perceived Canvas Effectiveness

To determine whether teachers' self-efficacy predicts teachers perceived LMS effectiveness, linear regression analysis was used. It was found that self-efficacy, significantly predicts the teachers' perceived LMS effectiveness [$F(1, 105) = 47.925$, $p<.001$]. These results are in-line with Arpaci (2017) which indicated that self-efficacy plays a predictive role in the perceived ease of use of distance education tools and systems. This notion mirrors the relationship between teachers' self-efficacy and their perception of LMS effectiveness. The parallel finding here suggests that teachers who have a stronger sense of self-efficacy or confidence in their abilities, are more likely to perceive LMS as effective in their teaching practices.

The connection to the study of Arpaci (2017) further solidifies the relevance of self-efficacy as an influential factor in how educators perceive and interact with educational technologies. Both studies emphasize that an individual's belief in their capacity to use and benefit from technology can profoundly shape their perceptions and experiences. In essence, the concurrence between the research findings and Arpaci's study reinforces the idea that self-efficacy plays a pivotal role in educators' adoption and perception of technology's effectiveness, whether it be LMS or distance education tools in general.

Coefficients in Regression Analysis of Teachers' Self-Efficacy in Predicting Teachers' Perceived LMS Effectiveness

Moreover, results revealed that teachers' self-efficacy (b =.581 p < .001) predicts the teachers' perceived LMS effectiveness. This means that this factor significantly affects the teachers' perceived LMS effectiveness. This finding is aligned to the study of Arpaci (2017) stating that self-efficacy predicts the perceived ease of use of distance education tools and systems.

The relationship between perceived ease of use and perceived effectiveness can be understood through the lens of the Technology Acceptance Model (TAM), a widely used theoretical framework in the field of technology adoption. According to Davis (1989) who conceptualized TAM, perceived ease of use and perceived usefulness are primary determinants of an individual's intention to use a technology. In the case of LMS, if educators perceive the platform to be easy to navigate and operate (high perceived ease of use), they are more likely to engage with its features more readily and with less frustration. This positive experience can contribute to a higher perception of effectiveness. When educators can seamlessly access and utilize LMS to enhance their teaching practices, their perception of its overall effectiveness in supporting their instructional goals is likely to increase. Therefore, perceived ease of use can positively influence educators' perception of Canvas effectiveness. As a tool that is user-friendly and intuitive is more likely to facilitate successful interactions and outcomes, ultimately contributing to educators' satisfaction and positive assessment of its efficacy.

Regression Analysis of Teachers' Self-Efficacy and Perceived Canvas Effectiveness in Predicting Teachers' Work Engagement

To determine whether the teachers' self-efficacy and teachers' perceived LMS effectiveness predict teachers' work engagement, a multiple linear regression analysis was used. It was found that these two factors, when combined, significantly predict the work engagement of teachers [$F(2, 104) = 57.32, p < .001$].

The result is supported by a study of Mejia et al. (2012) stating that self-efficacy predicts work engagement. It is also relevant to the study by Moreira-Fontan et al. (2019) stating that all information, communication, and technology (ICT)-related factors strongly influence work engagement.

Coefficients in Regression Analysis of Teachers' Self-Efficacy and Teachers' Perceived LMS Effectiveness in Predicting Teachers Work-Engagement

Results revealed that teachers' self-efficacy ($b = .752, p < .001$) predicts teachers' work engagement. However, the teachers' perceived LMS effectiveness ($b = .028, p = .738$) does not predict the teachers' work engagement when taken individually. Moreover, it shows that through higher beta coefficient, self-efficacy ($b = .752, p < .001$) highly predicts work engagement as compared than that of perceived LMS effectiveness ($b = .028, p = .738$).

However, when combined, these two factors significantly affect the teachers' work engagement. This was supported by the study of Mejia et al. (2012), stating that self-efficacy predicts work engagement. This connection has clear implications for understanding the motivational factors that drive educators to be engaged and dedicated to their profession. Their assertion that self-efficacy predicts work engagement aligns seamlessly with the findings of this study. When teachers have a strong sense of self-efficacy, a belief in their capabilities to perform tasks effectively, they are more likely to be engaged in their work. This is because individuals with high self-efficacy are driven to take on challenges, persevere in the face of difficulties, and attain positive outcomes. This determination naturally leads to increased work engagement as educators invest themselves more passionately in their teaching roles. In addition, perceived effectiveness of LMS serves as an important facet within the realm of ICT-related factors. When educators perceive LMS as effective, it likely contributes positively to their teaching practices and overall job satisfaction. This, in turn, aligns with the concept of work engagement which entails a heightened level of enthusiasm, involvement, and dedication to one's work.

The insight from Moreira-Fontan et al. (2017) aligns with this notion, suggesting that a robust relationship exists between various ICT-related factors and work engagement. The idea that these factors significantly influence how educators are engaged in their work resonates with the finding that perceived Canvas

effectiveness predicts teachers' work engagement.

Faculty Upskilling Suggestions through Simple Descriptive Qualitative Method

Through simple descriptive qualitative method, it was found that the faculties upskilling suggestions in terms of frequency are Canvas features (38),), assessments (37), professional support and networks (18) and instructions (7). These categories represent the primary areas of interest and improvement mentioned by the teachers.

On the other hand, seven faculty respondents answered None or N/A responses.

These can serve as supporting information and guide for developing an upskilling intervention plan to enhance the experience and proficiency in using LMS. The plan may include a combination of training sessions, workshops, tutorials, and resources targeting these specific themes to address the expressed needs effectively.

Furthermore, the findings presented in the table provide support for the action plan developed to address concerns within the perceived effectiveness of LMS, specifically focusing on user management and communication aspects. These findings align with the established indicators for the dimension of perceived LMS effectiveness (Ghilay, 2019). Additionally, they also reinforce the identified areas of concern within teacher self-efficacy, particularly in instructional management and student engagement. These alignments are in accordance with the indicators defined for the dimensions of teacher self-efficacy by Tschannen-Moran and Hoy (2001). Lastly, the findings further corroborate the areas of concern found in teacher work engagement, particularly in emotional and cognitive engagement. These correspondences are congruent with the indicators specified for the dimensions of teacher work engagement by Klassen et al. (2013).

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary of Findings

The study, encompassing 107 faculty members from X, Y, and Z Higher Education Institutions, aimed to understand perceived LMS effectiveness, self-efficacy, and work engagement, considering gender, age group, and duration of LMS usage. Results from online questionnaires indicated a higher number of female respondents, predominantly from X Higher Educational Institution, with the majority aged 30-39 and utilizing Canvas for over four years.

Measures of central tendency and variation demonstrated high perceived LMS effectiveness across dimensions. User management and communication emerged as areas of concern. Similarly, teachers displayed high self-efficacy but identified instructional strategies and student engagement as areas of concern. Regarding work engagement, emotional and cognitive engagement were flagged as concerns. Analysis revealed significant differences in perceived LMS effectiveness based on gender and age groups, while work engagement differed concerning Canvas usage duration.

Correlation analysis revealed a moderate positive correlation between perceived LMS effectiveness and self-efficacy, and a moderate positive relationship between perceived LMS effectiveness and work engagement. A robust positive correlation was found between self-efficacy and work engagement, indicating a strong connection. Regression analysis indicated that self-efficacy significantly predicts perceived LMS effectiveness, and combined perceived Canvas effectiveness and self-efficacy predict work engagement.

Participants' upskilling suggestions, categorized into LMS features, assessments, professional networks and support, and instructions, served as a guide for developing an upskilling intervention plan. Identified areas

of interest aligned with perceived LMS effectiveness, self-efficacy, and work engagement dimensions, emphasizing the need for targeted interventions in user management, communication, instructional management, and student engagement. These findings reinforced the action plan to address LMS-related issues and highlighted concerns in teacher self-efficacy and work engagement dimensions.

In summary, the study sheds light on the intricate relationships between LMS effectiveness, self-efficacy, and work engagement among faculty members. Noteworthy findings include gender and age-based variations in perceived LMS effectiveness, the influence of LMS usage duration on work engagement, and the strong connection between self-efficacy and work engagement. The upskilling suggestions provided valuable insights for developing targeted interventions, emphasizing the importance of addressing specific dimensions to enhance teachers' overall experience and proficiency in using LMS.

Conclusions

Based on the findings of the study, the following were concluded.

1. As for the demographics, the number of females is a little higher than males. Most respondents came from X higher education institution and followed by the Z and Y higher education institutions. Moreover, the majority of the respondents are 30-39 years old, followed by 20-29 years old, and then by 20-28 years old, then followed by 40-48 years old and 50-59 years old as the least. Finally, the majority of the respondents have been using LMS for more than four years, followed by two to four years and less than two years as the least.

2. The respondents reported high levels of perceived LMS effectiveness in all dimensions: content management, user management, communication, monitoring and evaluation, and services provided to students. They also had a high overall general average of perceived LMS effectiveness. Similarly, the respondents had high levels of self-efficacy in instructional strategies, classroom management, and student engagement dimensions. They also had a high overall general average of self-efficacy. Furthermore, the respondents had high levels of work engagement in emotional engagement, social engagement with colleagues, cognitive engagement, and social engagement with students' dimensions. They also had a high overall general average of work engagement. Moreover, the analysis revealed two noteworthy areas of concern for each variable, as indicated by the lowest mean scores within their respective dimensions. Specifically, these areas encompass user management and communication dimensions in relation to the perceived effectiveness of LMS. In the context of teacher's self-efficacy, the identified areas are instructional strategies and student engagement. Finally, with regard to teacher's work engagement, the focal points include emotional engagement and cognitive engagement dimensions. Male respondents had significantly higher ranks in perceived LMS effectiveness compared to female respondents. It is postulated that there was a significant difference on the perceived LMS effectiveness in terms of gender.

3. There was a significant difference in the perceived LMS effectiveness of respondents in terms of age group.

4. There was no significant difference in the self-efficacy of respondents in terms of gender.

5. There was no significant difference in the self-efficacy of respondents in terms of age groups.

6. There was no significant difference in the self-efficacy of respondents in terms of the duration of LMS usage.

7. There was no significant difference in the work engagement of the respondents in terms of gender.

8. There was no significant difference in the work engagement of the respondents in terms of age groups.

9. Three was a significant difference in the work-engagement in terms of the duration of LMS usage. Post hoc analysis showed significant differences between the group that has been using Canvas for less than two years and the group that has been using LMS for two to four years, and between the group that is using LMS for less than two years and the group that is using LMS for more than four

years. There was a significant relationship between the respondents' perceived LMS effectiveness and self-efficacy. Moreover, a moderate positive correlation exists between the two variables.

10. There was a significant relationship between the respondents' perceived LMS effectiveness and work engagement. Moreover, a moderate positive correlation exists between the two variables.

11. There was a significant relationship between the respondents' self-efficacy and work engagement. Moreover, a strong positive correlation exists between the two variables.

12. Self-efficacy significantly predicts perceived LMS effectiveness.

13. Perceived LMS effectiveness and self-efficacy when combined significantly predict work engagement. However, it is only self-efficacy that predicts work engagement when taken individually.

Recommendations

The researcher suggests a comprehensive upskilling plan for faculty members based on the data analysis findings, aiming to enhance knowledge, skills, and proficiency in using LMS effectively, improve self-efficacy, and foster higher work engagement. The recommendations for educational institutions include providing flexible sign-in options, implementing resource access restrictions, managing multiple groups effectively through collaboration tools, enabling automatic student registration, and utilizing conferencing tools like Big Blue Button for enhanced communication. Additionally, the plan involves diversifying message types, managing communication with groups, implementing diverse assessment methods, providing alternative explanations/examples, crafting effective questions, and implementing alternative strategies. Responding to difficult questions, adjusting lessons for individual students, gauging student comprehension, providing appropriate challenges, and instilling belief in students' abilities are also emphasized. The plan further addresses the promotion of the value of learning, motivating students with low interest, involving families in student success, helping struggling students, fostering critical thinking, encouraging creativity, and addressing challenging students. Recommendations extend to fostering a love for teaching, maintaining excitement, promoting happiness in teaching, enjoying teaching through a positive work environment, and paying attention to teaching with mindfulness practices. The researcher underscores the importance of future research, particularly in investigating the impact of LMS on student learning outcomes and engagement, as well as exploring the long-term effects and sustainability of LMS implementation in education.

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