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A Proposed Conceptual Model for Examining Acceptance of Corporate Massive Open Online Courses (MOOCs): Integrating Social Support and Sense of Belonging in Technology Acceptance Model (TAM)

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***Abstract*—MOOCs, or massive open online courses, have become increasingly popular in the last several years to offer employees online training and development opportunities. Traditional methods of training, such as in-house or external trainings, frequently provide several obstacles, including high prices, logistical complications, and time limits. MOOCs have leveled the playing field in online learning by making quality education available to everyone, especially working adults, allowing them to reskill and upskill their work abilities by offering scalable, flexible, and cost-effective alternatives to address issues encountered in traditional methods of training. Even though MOOCs have been the subject of extensive research in educational institutions, there has been relatively little investigation on the acceptance of MOOCs at the organizational level, particularly among employees. The main challenges with MOOCs are their low completion rates and high dropout rates. This research aims to fill a gap in the literature by providing a Corporate MOOCs acceptance model to assess the possibility of employees using MOOCs in corporate settings for reskilling and upskilling. The proposed model was formulated using the Technology Acceptance Model, Social Support Theory, and Theory of Belongingness as the foundations, besides extending the model with four additional constructs: perceived credibility, perceived convenience, digital competence, and perceived learning. Recommendations for conducting empirical research on the model are provided on how the model will be assessed to be successfully used in measuring employees' acceptance of Corporate MOOCs.**

***Keywords*—Conceptual model; corporate massive open online courses; social support; technology acceptance model.**

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I. INTRODUCTION

In recent years, there has been an increase in the prevalence of Massive Open Online Courses (MOOCs) as a means of delivering online training and development opportunities for employees. Companies have always trained their personnel through in-house or external training. This training course presents several obstacles, including high costs, logistical issues, and employee time loss. Most employees find it challenging to make time for further training or learning for their professional development, owing to their workload, which has steadily increased over the years [1]. Organizations have started to use MOOCs in the workplace to improve employee performance and save costs associated with staff training and development [2, 3]. MOOCs have also been explored as a tool for developing human resources during pandemics [4]. This modern approach to learning and development has gained popularity because of its scalability and efficiency in knowledge distribution [5]. In this context, MOOCs are created by instructors who are experts in particular disciplines, providing employees with access to high-quality training and development opportunities [5]. These are also known as corporate MOOCs. Table 1 shows the comparison between traditional employee training and corporate MOOCs.

Although companies are not required to build staff competencies, they must still give the tools and support necessary for their employees' professional development. According to studies, employees who can increase their qualifications and skills are more productive and loyal to their companies [6]. Previous research on MOOCs found that most

learners enrolling in MOOCs were working adults with a college degree seeking to upskill and reskill for professional progression and employability [7]. There have been few studies on the impact of MOOCs from a corporate standpoint [8]. Although studies in the past were done to examine MOOCs for workplace training and learning, they still need to address the elements that could influence employee acceptance of MOOCs [9], [10], [11].

TABLE 1
COMPARISON BETWEEN TRADITIONAL EMPLOYEE TRAINING AND CORPORATE MOOCS

Features	Traditional Employee Training	Corporate MOOCs
Flexibility	The time and location of training are not flexible or versatile	Extremely adaptable, enabling people to acquire knowledge at their preferred speed and place
Resource Sharing	Limited resource sharing, often relying on in-house trainers or external trainers	Multi-diverse resource sharing, providing access to high-quality training and development opportunities
Expert Leadership	Limited access to expert leadership, often relying on in-house trainers or external trainers	Access to expert leadership with courses curated by educators who are experts in their respective industries.
Cost	High cost due to the need for physical training facilities and trainers	Cost-effective, with lower costs due to the scalability of online courses
Managerial Acceptance	Limited managerial acceptance due to the need for physical training facilities and trainers	Higher managerial acceptance due to the scalability and cost-effectiveness of online courses

Additionally, MOOCs are commonly recognized for their low completion rates and high dropout rates among students [12, 13, 14]. According to [13] and [15], 90% of dropout rates were caused by loneliness and having no one to turn to. This necessitates an essential study on the social support part of online learning, as previous research has shown that students who receive social support have a significantly lower dropout rate [16]. Because online learning on MOOCs can be isolating, it is critical for learners to feel like they belong and matter. One of the motivators for employees to use MOOCs was a sense of belonging [17], apart from establishing social relationships with other students as a motivator [18]. In virtual communication, a sense of belonging and interpersonal relationships contribute to successful learning in a virtual setting [19]. In the absence of human touch in online learning, such as MOOCs, a sense of belonging is critical in forming an online community in a virtual learning environment [1]. When learners have a better sense of belonging to a learning community, online learning quality and learner satisfaction improve [20].

The composition of this paper is as follows: The second section will discuss the theoretical background of the research, followed by the third section, which will discuss the proposed conceptual model. The same section will address the construct definitions and hypotheses related to the study. The last section will conclude the paper by suggesting future work to test the proposed conceptual model and research instrument development.

II. MATERIALS AND METHOD

A significant contribution to the formation of the conceptual model for this investigation was made by the literature review. The literature provides a framework for identifying crucial elements that influence the acceptability of massive open online courses (MOOCs) in corporate settings. This foundation was established by evaluating previous research on MOOCs, the Technology Acceptance Model (TAM), Social Support Theory, and the Theory of Belongingness, along with four other constructs namely perceived credibility, perceived convenience, digital competence, and perceived learning. By synthesizing these theoretical insights and addressing identified gaps, the literature review guided the formulation of a comprehensive model aimed at evaluating employee acceptance of MOOCs in the workplace.

A. Technology Acceptance Model (TAM)

Many empirical investigations of user technology acceptance have employed TAM as the theoretical foundation. Research frequently uses it to determine how well users embrace information systems and technology [21], [22]. Research indicates that a limited number of studies have utilized the Technology Acceptance Model (TAM) to examine the utilization of e-learning systems, such as MOOCs, in corporate environments. These studies mainly focus on the acceptance of students in educational institutions and seldom explore adoption within organizations [23]. TAM helps determine if end users in organizations will embrace an e-learning system [24].

TAM determines users' behavioral intentions based on perceived ease of use and usefulness. Perceived ease of use pertains to the users' anticipation that information technology will be straightforward to operate, whereas perceived usefulness refers to users' perception that information technology will benefit them. Perceived usefulness impacts perceived ease of use but not vice versa. The perceived usefulness and ease of use influence the behavioral intention to use, which refers to the extent to which an individual has consciously prepared to either engage or abstain from specific future behavior. The fundamental idea is that people will be more likely to embrace technology if they believe it will be helpful and straightforward to operate [24].

With the growing demand for remote teaching and learning, especially after the COVID-19 pandemic, there has been an accelerated need to extend TAM further to understand better and explain users' acceptance of remote learning environments such as corporate MOOCS. Extending TAM has proven to be a helpful approach to understanding and predicting users' acceptance of online learning in organizational contexts [25]. Past studies have revealed evidence that multiple factors influence acceptability and continuing behavior [22]. TAM has been integrated with other theoretical models, such as the Unified Theory of Acceptance and Use of Technology (UTAUT), the Task-Technology Fit (TTF) model, the Theory of Planned Behavior (TPB), and the Self-Determination Theory (SDT) to investigate the factors

that influence MOOC adoption and continuance intention [26, 27, 28, 29]. In this study, one of the extensions to the existing TAM model is the constructs from social support theory. Although TAM has acquired significant empirical support using validations, applications, and replications, several scholars have questioned whether it underlines social influences' importance in adopting information technology [30]. Thus, the extension of TAM with social support constructs is essential to find out whether the external factors from social support influence users' acceptance of corporate MOOCs.

B. Social Support Theory

Research on social support focuses on the connections among people, families, and friends [20]. According to research, workplace social support is associated with beneficial results and serves as a coping mechanism [31]. Workplace social support is positively correlated with increased levels of job satisfaction and training efficacy. The extent of social support from top management, supervisors, peers, subordinates, and other significant individuals influences an individual's experience [32]. Social support has been integrated as an external variable in the proposed conceptual model under Managerial Support, Organizational Support, and Peer Support.

Social support from social support theory, which includes emotional, informational, and instrumental support, can enhance motivation, engagement, and academic performance among learners [33], [34, [35]. Past studies have shown that social support can help with online learning. For starters, social support can foster a sense of community among learners, which can boost motivation and engagement in the learning process [36]. Second, social support can help with collaborative learning, an important part of online learning [37]. Third, social support can provide emotional and practical assistance to learners, allowing them to overcome obstacles and continue their education [38]. This is particularly vital in the COVID-19 pandemic, when numerous students encounter escalating stress and uncertainty [39]. Lastly, social support can aid in the creation of a pleasant learning environment, increasing learners' happiness and enjoyment of the learning process [40]. In short, social support can be critical in ensuring effective and enjoyable online learning experiences for learners of all ages [41].

C. Sense of Belonging

Sense of belonging, also known as belongingness, is a fundamental human need and emotional experience that refers to an individual's perception of being accepted, valued, and connected to a group or community [42], [43], [44]. It is a subjective feeling of being an authentic and respected group member, where one's presence and contributions are valued [45]. The theory of belongingness posits that humans possess an inherent inclination towards establishing a certain number of enduring interpersonal connections [43]. Sense of belonging can be influenced by various factors, such as social interactions, cultural norms, and personal characteristics [46, 47]. It is associated with positive outcomes, such as increased well-being, motivation, and performance, and reduced risk of mental health issues, such as depression and suicide [48], [49]. The COVID-19 pandemic has highlighted the importance of belongingness, as social distancing measures have challenged individuals' sense of belonging and social connectedness [44]. Therefore, it is crucial for individuals to feel a sense of belonging in their personal and professional lives to promote their well-being and success.

A sense of belonging is crucial to learners' engagement and academic success. Research has shown that sense of belonging positively influences academic self-efficacy, academic hardiness, and emotional engagement among postgraduates [50]. In addition, research has shown that a sense of belonging significantly influences the ability of college students to stay enrolled and succeed academically. It cultivates a sense of connection and significance inside the institution [51]. Sense of belonging has also been directly linked to institutional commitment and had significant indirect effects on intentions to persist and actual persistence [52]. While previous studies have highlighted the effects of a sense of belonging on learners' engagement and learning outcomes, there is a research gap in understanding how a sense of belonging impacts learners in a learning environment like MOOCs. [53]. Successful interactions with peers and instructors in remote learning settings have been associated with decreased isolation and a stronger sense of community and support, emphasizing the importance of interaction types on students' sense of belonging [54]. The proposed model incorporates a sense of belonging as a variable to analyze the behavioral intention to use corporate MOOCs.

D. Perceived Credibility

In corporate MOOCs, perceived credibility refers to the learner's subjective assessment of the trustworthiness and dependability of the MOOC provider and course content. Individual trust and faith in the company are crucial for corporations. The credibility of the source of information, the firm's reputation, the course content's quality, and the MOOC certificate's authenticity are all elements that influence perceived credibility [55, 56, 57]. To attract and retain learners, MOOC providers must build and sustain their credibility [56]. Learner trust and belief in the MOOC are also connected with perceived credibility, which can affect engagement and learning outcomes [56]. To promote effective and successful corporate MOOCs, MOOC providers must ensure the authenticity of their courses and develop a positive reputation.

E. Perceived Convenience

Perceived convenience in corporate MOOC is the learner's subjective assessment of how simple and flexible it is to access and engage with the online course. It considers elements like ease of time and location, self-directed learning, and taking various classes from renowned specialists [58, 59]. Perceived convenience is a key factor in MOOC adoption for corporate training, as it allows employees to access training at their own pace and convenience, without the need for travel or time away from work [60], [61]. It is also associated with learner satisfaction and continuance intention in using [62, 63). However, increased expectations, unpleasant first-time experiences, and objective hurdles can hinder MOOC uptake in corporate learning and development programs [64]. Therefore, organizations must consider and address learners'

perceived convenience in designing and implementing corporate MOOCs.

F. Digital Competence

Corporate MOOCs and online learning are significantly influenced by digital competence. It refers to the knowledge, skills, and attitudes required to effectively use digital technologies for learning purposes, including consuming, evaluating, and creating digital content, collaborating and communicating with others, and self-directed learning [65], [66], [67]. Digital competence is critical for success in the 21st century and essential for improving learning and teaching quality. MOOCs can develop learners' digital competence by providing opportunities for self-directed learning, collaborative learning, and access to digital knowledge [68, 69]. In corporate training, digital competence is crucial for employees to effectively use online learning platforms, participate in online courses, and apply digital skills in their work [70]. Therefore, organizations need to provide training and support for employees to develop their digital competence and effectively utilize digital technologies for learning and work purposes.

G. Perceived Learning

Perceived learning in online learning refers to the learner's subjective assessment of their learning outcomes and experiences in an online learning environment. It is determined by the learner's evaluation of their information acquisition, skill growth, and general satisfaction with the learning experience [71], [72], [73]. Learner-instructor engagement, learner participation, digital capabilities, and perceived utility of the learning technology can all impact perceived learning [74], [75], [76], [77]. It is a crucial part of online learning because it can impact learner motivation, engagement, and retention [78, 79, 80]. Educators and designers must consider and address learners' perceived learning outcomes and experiences to encourage successful and enjoyable online learning.

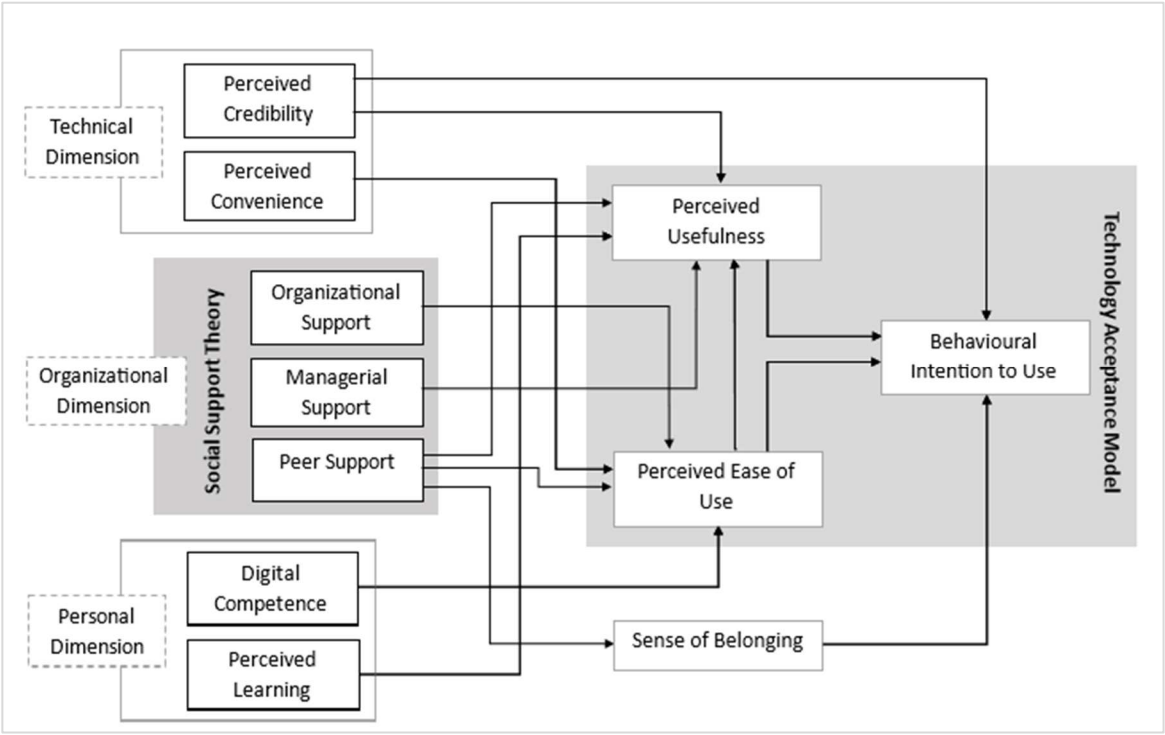

Fig. 1 Conceptual Model

III. Results and Discussion

This section presents the proposed conceptual model developed to examine the acceptance of Corporate Massive Open Online Courses (MOOCs) among employees. The hypotheses derived from the model are also presented.

A. Conceptual Model

After reviewing the relevant literature, fourteen hypotheses have been put forward to investigate the connections between the independent and dependent variables in the proposed model (see Figure 1). The proposed model has three dimensions: technical, organizational, and personal. There are two constructs under the Technical Dimension: perceived credibility and perceived convenience. The organizational dimension consists of three constructs, namely managerial support, organizational support, and peer support, and the constructs were derived from social support theory. Managerial support represents informational support, organizational support represents instrumental support, and peer support represents emotional support. The personal dimension consists of digital competence and perceived learning. Sense of belonging and constructs from TAM which are perceived usefulness and perceived ease of use are also incorporated in the model, contributing to a richer understanding of the acceptance and adoption process.

TABLE II
CONSTRUCTS WITH DEFINITIONS, AND THE PROPOSED HYPOTHESES

Constructs	Definitions	Hypothesis
Perceived Credibility	Defined as the level of transparency, objectivity and expertise that individuals attribute to corporate MOOCs [81].	H1. The perceived credibility of learners will positively affect the perceived usefulness of corporate MOOCs H2. The perceived credibility of learners will positively affect behavioral intention to use corporate MOOCs
Perceived Convenience	Defined as the degree to which corporate MOOCs can provide more flexibility in terms of time-saving and reduced cost [20].	H3. Perceived convenience of learners will positively affect the ease of use of corporate MOOCs
Managerial Support	Defined as the degree of social support from the management of the organization [31, 82].	H4. Managerial support will positively affect perceived usefulness of corporate MOOCs
Organizational Support	Defined as the degree to which an organization allocates adequate resources to help employees achieve organizational goals [31, 82].	H5. Organizational support will positively affect perceived ease of use of corporate MOOCs
Peer Support	Defined as the degree of social support from peers in the organization [83].	H6. Peer support will positively affect perceived usefulness of corporate MOOCs H7. Peer support will positively affect perceived of ease of use of corporate MOOCs H8. Peer support will positively affect sense of belonging of corporate MOOCs
Digital Competence	Defined as the competencies required when using Information and Communication Technologies (ICT) [84, 85].	H9. Digital competence will positively affect perceived ease of use of corporate MOOCs
Perceived Learning	Defined as “changes in the learner’s perceptions of skill and knowledge levels before and after the learning experience” [86].	H10. Perceived learning will positively affect perceived usefulness of corporate MOOCs
Sense of Belonging	Defined as the degree to which learners are welcomed, appreciated, included, and supported by others in the academic classroom, as well as the sense of being a vital part of the class's life and activities [87].	H11. Sense of belonging will positively affect behavioral intention to use corporate MOOCs
Perceived Usefulness	Defined as the degree to which learners believe that a particular system will enhance job performances with the organizational context [24]	H12. Perceived usefulness will positively affect behavioral intention to use corporate MOOCs
Perceived Ease of Use	Defined as the degree to which learners assume a specific system would need no effort [24].	H13. Perceived ease of use will positively affect perceived usefulness of corporate MOOCs H14. Perceived ease of use will positively affect behavioral intention to use corporate MOOCs
Behavioral Intention to Use	Defined as the degree to which learners choose whether to use a technology [24].	

Massive Open Online Courses (MOOCs) must be successfully integrated into business settings, but several challenges and barriers must be overcome. As discussed at the beginning of this paper, MOOCs' high dropout and low completion rates were attributed to isolation and lack of support [13], [15]. Thus, the conceptual model combines social support in the form of organizational support, managerial support, and peer support to form a comprehensive model to study the behavioral intention of employees to use Corporate MOOCs. The loneliness from online learning makes the sense of belonging an even more significant variable in the proposed model to study employees’ acceptance of Corporate MOOCs. Previous studies have shown that the feeling that a person belongs, and matters can contribute to successful learning in a virtual setting [19] besides improving learners’ satisfaction [20].

B. Planned Research Directions

This study takes a positivist approach, collecting data using a survey to analyze the relationship between independent and dependent variables. Figure 2 illustrates the individual stages of the research approach employed in this study. The follow-up research activity is to conduct survey research using questionnaires, which fall under Phase 3 in the research operational framework. Conducting survey research is a crucial and intricate procedure to ensure the achievement of study goals [88]. Therefore, designing and choosing the appropriate survey instrument is vital since it should address the research questions regarding the object of measurement and the measuring method, which are construct validity and reliability [88], [89].

This study incorporates TAM, social support theory, and theory of belongingness within the extended model to develop the survey instrument. The measurements for perceived credibility, perceived convenience, digital competence, and perceived learning will also be included in the survey instrument to further justify Corporate MOOCs' acceptance. The questionnaire will consist of two sections: one encompassing demographic information and the other focusing on factors influencing Corporate MOOCs' acceptance. The initial segment of the survey focused on gathering information about the respondents' gender, age, career, and familiarity with corporate MOOCs platforms. For the second segment, the questions were derived from research questions designed to assess the information about factors that influence an individual's willingness to participate in

Corporate MOOCs. The full description of all the constructs used in the present study is listed in Table 2.

A set of tests will be conducted to validate the reliability and validity of the survey instrument. These methods include face validation, content validation, and a pilot study. Face validity is a primary validation procedure that proves the questionnaire is suitable for the research. The present stage involves assessing the questionnaire's appearance in relation to its practicality, readability, uniformity of style and formatting, and clarity of the language employed [90].

Content validity on the other hand indicates the extent to which the questions on the instrument are relevant to the research topic and suitable for addressing the objectives being addressed [91]. Content validity depends on expert assessment, and several techniques exist in the literature to measure the level of agreement and relevance of this content. In this study, a panel of experts will participate in the content validation phase. To validate the content, the literature indicates that at least three experts are necessary [92]. Each expert is responsible for evaluating the questionnaire items regarding their relevance to the suggested constructs.

The next step after face and content validity is conducting a pilot study. Prior to the primary data collection, a pilot study is typically conducted to assess feasibility in terms of validity and reliability [88] and enhance measure consistency [93]. It is essential to eliminate any potential weaknesses in the survey instrument. During the pilot study, the questionnaires will be distributed to at least 30 respondents with or without any prior experience using Corporate MOOCs. Based on the feedback and comments received during the pilot study, the questionnaire items will be revised to confirm that the study's objective is clearly defined and adequately validated. Smart PLS 4.0 will be used to validate the constructs.

The constructions will be validated to verify that the loading for each item inside each construct met the recommended threshold value. The item loading is statistically significant when it passes a minimal threshold value of 0.5 [94]. and exceeds 0.7 [95]. In this study, a minimal criterion to determine reliability is a loading of 0.5 for the items. A Confirmatory Factor Analysis (CFA) will be conducted using SmartPLS 4.0 to assess the item loading for each indicator.

Next, the constructs in the initial instrument will be assessed using Composite Reliability (CR) and Cronbach's Alpha (CA). While the Compressive Reliability (CR) assesses the extent to which a construct is accurately represented by its assigned items, the Confirmatory Accuracy (CA) checks how items associated to a construct are within the same range and meaning (Cronbach, 1951). Recommendations for CR include values over 0.7 [96]. and for CA, a threshold value of 0.6 [97]. Convergent Validity is then assessed using the well-recognized Average Variance Extracted (AVE) approach [98, 95]. Average Variance Extracted (AVE) is the average value of the squared loadings [96] to quantify the amount of variance that a construct captures from its measuring items compared to the degree attributed to measurement [98]. The suggested threshold value for the Average Variance Extracted (AVE) is 0.5 [98]. This number indicates that, on average, each construct can account for at least 50% of the variability observed in its measuring items. If the average variance extracted (AVE) value of the constructs in the study model exceeds 0.5. It suggests that the constructs and items designed in the original instrument are suitable for primary data collection.

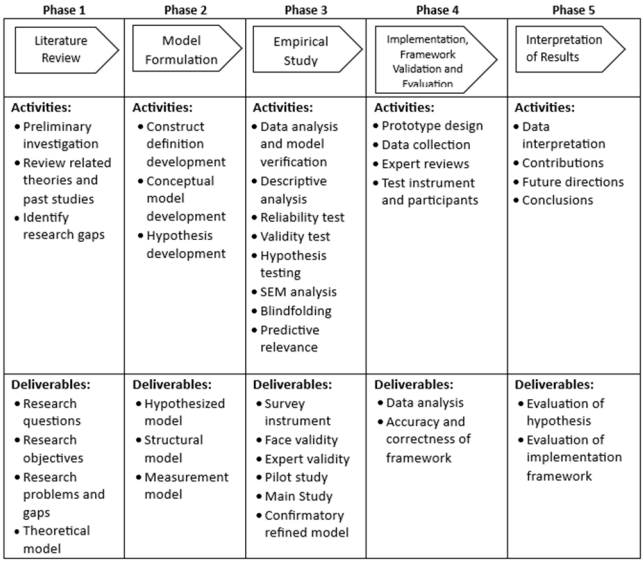

Fig. 2 Research Operational Framework

IV. Conclusion

Various studies have been conducted on MOOCs usage in workplaces [9, 10, 11]. Despite these efforts, studies focusing on the influence of social support MOOCs in the context of corporate learning are limited. This lack of scholarly understanding is important because isolation and lack of social support are some of the factors contributing to high MOOC dropouts and lower completion rates. This significant knowledge gap is addressed by presenting a comprehensive model that assumes the influence of external variables divided into three categories: Technical Dimension, Organizational Dimension, and Personal Dimension on the impact of behavioral intention to use corporate MOOCS.

Accepting corporate Massive Open Online Courses (MOOCs) has important consequences for corporate training and development plans. MOOCs provide a flexible and scalable solution that corresponds with modern workforce demands as organizations increasingly see the value of continuous learning. This change is especially essential given the rapid pace of technological advancement and the necessity for personnel to adapt to new skills and competencies.

Hence, to ensure the successful implementation of corporate MOOCs within organizations, including social support in corporate learning is important to create a learning environment where people can share information, work together, and be interested in their work. There are different kinds of social support. In the proposed model, social support comes from help from peers, managers, and the organization itself. Organizations can offer social support in several ways, such as by setting up mentorship programs, encouraging peer-to-peer learning through group projects and activities, using social media and collaborative tools to improve communication and interaction between employees, and putting in place structured feedback systems that help employees feel valued and supported on their learning paths. A supportive learning environment is also important, where

employees can safely and freely express their ideas and ask questions.

The approaches listed above not only provide social support to employees in their corporate learning, but they also help to create a sense of belonging. Research has demonstrated that a sense of belonging is crucial for emotional engagement and enhanced academic achievement in online education. The recent pandemic has also underscored the necessity of additional research to cultivate a sense of belonging in the online domain because of the accelerated transition to online learning. A sense of belonging in the context of corporate training can greatly impact the effectiveness of such training by improving employee engagement, motivation, and information retention. Employees who perceive themselves as supportive group members are more inclined to engage actively in training programs and implement acquired knowledge in their professional interests.

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