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An Empirical Study on the Learning Outcomes of E-Learning Measures in Taiwanese Small and Medium-Sized Enterprises (SMEs) Based on the Perspective of Goal Orientation Theory

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Abstract: The constant improvement of an enterprise's competitive advantage is essential for its sustainable operation. Simultaneously, the persistent and effective learning methods of organizational members lead to the accumulation of learning results and knowledge, which are important intangible assets, as well as the key to establishing a company's competitive advantage. Many enterprises have utilized various resources (such as building systems and purchasing software) to facilitate employee learning. However, the employees' learning outcomes may not necessarily meet these enterprises' expectations. As advocated in many studies, e-learning is not merely a new trend—it also plays an essential role in the learning and training process that organizational members undergo. However, throughout the learning process, what are the factors that cause different e-learning outcomes? The goal orientation theory in educational psychology has provided a reasonable framework for explaining and describing the differences in employees' post-learning behaviors. This study focused on employees from Taiwanese small and medium-sized enterprises (SMEs) and their participation in enterprise resource planning (ERP)-based e-learning. The employees' goal orientations and how they indirectly (with learning satisfaction as a mediator) impact the employees' learning outcomes were examined and deduced. A questionnaire was administered to 405 employees from different SMEs who have had the experience of using an ERP-based e-learning platform. According to the structural equation model analysis results, the employees' master goal orientation and performance-approach orientation (avoidance orientation) will exert an indirect positive (negative) influence on learning outcomes through learning satisfaction as a mediator. Lastly, this study interpreted the empirical results together with their academic and managerial implications, and proposed some recommendations for subsequent research.

Keywords: SMEs; ERP; e-learning; goal orientations; learning satisfaction; learning outcomes

1. Introduction

In the age of knowledge-based economies, enterprises are facing rapid changes in their operations and external environments, and they have begun to explore ways to create and maintain their competitive advantages in order to achieve the goal of operational sustainability. Therefore, enterprises must transform to increase their organizational soft power. The integration of employees, knowledge, and skills is the key factor that determines a successful transformation. Peter Drucker [1] mentioned that in this new economic era, knowledge is not only the source of an enterprise's competitive advantages, but also its single most important resource. When facing volatile operating environments,

organizations must, in order to avoid continuous losses in their competitive advantages, constantly learn new knowledge and develop new technologies, thereby increasing their competitiveness in the market. For businesses, the value of learning is pre-eminent over that of other resources [2]. Organizational learning is beneficial for enterprise development and the maintenance of long-term competitive advantages and is ultimately achieved by each member of an organization [3,4].

Following advancements in information technology and its popularization, the integration of computers and the Internet has diversified learning channels. With the assistance of information technology, e-learning has emerged as a novel learning method and undergone several stages of development [5–11]. In comparison with traditional classroom learning, e-learning provides learners with the following advantages: (1) A more favorable learning environment and time and location flexibility [7,12–14]. (2) With information technology as a medium, learners can learn through digitized operations and interactions, which will enhance their learning motivation, sense of accomplishment, and willingness to learn [14–16]. (3) A study showed that enterprises could reduce their employees' learning costs by implementing e-learning [17]. With regard to the advantages of e-learning, many enterprises have utilized various resources to build e-learning environments for their employees to learn more effectively. However, can such efforts achieve the enterprises' expected employee outcomes? Many empirical studies have solidified the fact that employees' learning outcomes vary greatly [12–14,16]. Some employees regard their outcomes to be good, while others regard theirs as poor. The factors leading to these differences have become a long-standing issue of concern among researchers and workers/employees.

To date, many studies pertaining to e-learning have mostly emphasized the impacts of using technology-based tools on users' learning outcomes. For instance, researchers have explored the effects of e-learning platform designs on users' learning behavior from the perspective of information technology [6,9,10,18]. Other researchers have adopted the case study approach to discuss the outcomes of e-learning in individual companies [19–21]. Few studies have investigated changes in the learning behavior and learning outcomes of employees in small and medium-sized enterprises (SMEs) following the implementation of e-learning.

This has always been a topic of concern among researchers, and the theory of goal orientation, which stems from educational psychology, is an effective theoretical framework for explaining the differences in learners' behaviors and outcomes [22,23]. The theory of goal orientation [22,24] and empirical studies [25–27] have shown that learners' motivations will affect their perceptions, affects, and behaviors with regard to learning, thereby resulting in different learning results [22,24]. Empirical results have shown that, due to their different personal motivations, learners generate dissimilar responses when they face different situational challenges.

In recent years, research has been conducted on enterprise and government organizations to investigate the effects of employees' goal orientations on their work behavior or performance [28–33]. Studies have been conducted on learners' goal orientations and post-learning/training performances in traditional learning environments [34–36], but to date, there is a lack of studies which discuss and validate whether employees' goal orientations generate different learning outcomes among them in e-learning environments. In this regard, the first objective of the present study was to validate the association between employees' goal orientation and learning outcomes.

Furthermore, in learning- and education-related studies, learning satisfaction has always been regarded as an important indicator for evaluating learning outcomes [37–41]. Even so, can learning satisfaction reflect learning outcomes? Are learning satisfaction and learning outcomes linked together to a certain extent? According to the viewpoints highlighted in the self-determination theory [42,43], learning satisfaction is an important factor for one to interpret or respond to their learning process and learning outcomes. Relevant studies have shown that learning satisfaction not only encourages students to demonstrate their intrinsic motivations during the learning process, but also enhances their positive learning attitudes and behavior [44–46]. In the field of learning and education, researchers have further highlighted that learning satisfaction is not only an important indicator that measures the

learners' process of learning, but is also linked to learning outcomes [37–39,43,47]. However, no studies have clarified or examined the associations between employees' goal orientation, learning satisfaction, and learning outcomes in e-learning environments. To this end, the second objective of this study was to determine whether employees' goal orientation indirectly influences learning outcomes through the mediator role of learning satisfaction. The results of this study are expected to shed light on the personal antecedents of employees' learning outcomes, as well as facilitating the enhancement of e-learning outcomes in enterprises.

2. Literature Review

2.1. E-Learning

In recent years, owing to the rapid developments in information and Internet technology, an increasing number of enterprises have been willing to and have begun using tools based on emerging technologies to train their employees, which facilitates the implementation of in-service training and knowledge transfer within companies. This trend has driven enterprises to develop and utilize e-learning. In other words, e-learning is a learning model in which an enterprise delivers a series of digital learning content for instructional activities and learning through information technology and the Internet, to facilitate learners to enhance their knowledge [8,48]. For organizations, the implementation of e-learning can be regarded as an integration of innovative techniques and training programs, which is useful for improving the in-service training results within organizations.

In general, e-learning (short for electronic learning) is a concept that is constantly evolving alongside IT advancements and is characterized by the application of learning methods based on the utilization of IT and the Internet [8,48]. The evolution of IT encompasses different stages, hence, the different approaches used in seeking to understand and interpret e-learning. Several earlier studies used the term asynchronous online learning, while later ones started to describe the concept as synchronous e-learning [11,49]. Thereafter, some researchers started using the term online learning [8,9,50]. Regardless of the term used, all of these researchers have contributed their perspectives on the characteristics shared by e-learning methods, which include their interactivity and systematic nature; their utilization of computers, the Internet, and other information technologies as media; and their focus on learning as the objective [7–9,15,48]. In the present study, these learning methods are collectively referred to as e-learning.

As a new learning method, e-learning utilizes information communication technologies (ICTs) to provide education and training to anyone and is not limited by constraints of time and location. It is currently seeing widespread use in many schools and education-related fields, and becoming increasingly popular among enterprises [51]. It is not just a tool and environment that facilitates learning, but also a means for circumventing various learning-related limitations. Enterprises are starting to experiment with e-learning and pushing for learning and training programs that offer more scheduling and design flexibility.

2.2. Goal Orientations

Goal orientation theory, which stems from the achievement motivation theory, has been widely applied in the field of educational psychology. Over the past two decades, goal orientation theory, or achievement goal theory, has become the most important theoretical framework for explaining an individual's behavior and motivations [25,26]. It is a theory that mainly explores the learners' motivations to engage in learning. Compared to cognitive learning theory, which focuses on "how" and "what" learners learn, goal orientation theory focuses on "why" learners learn, i.e., their willingness to engage in a certain learning task. Therefore, Dweck [22] suggested that goal orientation influences an individual's perception toward achievement situations, as well as their interpretation and assessment of and response to the process of learning.

Previous studies have shown that learners who encounter failure in their learning tasks exhibit different reactions and behaviors. Researchers have explained that this is caused by the varying achievement goals among learners [52,53]. Therefore, concerning the process of learning, Dweck and Elliott [54] conducted their study by proposing two-goal orientations—learning goal orientation and performance goal orientation. Learners with learning goal orientation focus on developing their competence and task mastery, and seek to improve themselves and accept challenges when they encounter failure; on the other hand, learners with performance goal orientation aim to demonstrate their competence or avoid being perceived as incompetent and would feel inept and helpless when they encounter failure. In early studies on goal orientation theory, the reasons and goals for engaging in learning have been discussed dichotomously, with goals being categorized as learning goals and performance goals [54]; task involvement goals and involvement goals [55]; as well as mastery goals and ability goals [56]. Pintrich [57] collectively referred this dichotomy in research as normative goal theory. Despite having different terms, the fundamental implications remain similar.

In spite of that, studies have been divided on that the link between performance goals and actual performance, in which some have shown positive influence between both aspects [58] while some have suggested no influences [33]. This disparity could be due to the inclusion of the link between approach goals (such as demonstrating one's competence) and avoidance goals (such as voiding being regarded as incompetent) in performance goal orientation [59–63]. In light of this problem, some scholars have further divided performance goals into performance-approach orientation and performance-avoidance orientation, thus forming three different goal orientations. Mastery goal orientation emphasizes developing one's inherent competence while nurturing the mastery required in future tasks; performance-approach orientation emphasizes demonstrating one's competence while receiving beneficial feedback on such competence; performance-avoidance orientation emphasizes one's desire to avoid being reproached or criticized by others on their competence [57,59–61]. Pintrich [57] collectively referred to this trichotomy in goal orientation research as the revised goal theory.

At present, many studies have adopted a three-dimensional model to measure the goal orientations of enterprise employees [58,64–67]. This study also adopted three-dimensional model to measure the employees' goal orientations.

2.3. Impacts of Goal Orientation on Learning Outcomes

2.3.1. Learning Outcomes

Learning is the process in which one's behavior progresses after engaging in an activity or experience [57]. Learning outcomes can be used to evaluate and understand a leaner's learning results. Common indicators used to reflect learning outcomes include the learner's attitude (learning satisfaction, learning motivation) throughout their learning process and the post-learning effects (behavioral changes or increase in performance) [44,68–70], which also serve as a basis for instructors to revise their instruction and for learners to improve their learning.

In this regard, learning outcomes can be comprehensively assessed by examining learning behaviors exhibited during different phases (such as the early, intermediate, and late phases) of learning [71]. The issue is, what are the unbiased and objective methods of assessing earning outcomes? According to relevant studies, specificity and objectivity are difficult to achieve when measuring learning outcomes, but many scholars have agreed that self-assessments are employable as the learners themselves understand best if their learning results are effective [72–75].

2.3.2. The Influence of Goal Orientation on Learning Outcomes

Studies pertaining to e-learning have pointed out that information technology and systems are merely just tools. If learners wish to obtain results during their learning process, they must use their own motivations and beliefs to influence their learning goals and induce their own motivation for engaging in learning, thereby enhancing their learning outcomes [75–77]. Goal orientation theory

advocates that the achievement motivation of learners can be interpreted through their reasons or goals for engaging in learning [24]. Therefore, learners with different types of goal orientation have different beliefs and perceptions on the development of their own competence and the key factors of success in learning.

The learning motivations of learners with mastery goal orientation are to improve their own competence, exceed expectations when learning, take on hardships as opportunities to test their limits, and continuously learn new skills to improve their own competence [24,31,78,79]. In so doing, these learners would employ in-depth cognitive strategies when they learn and would invest more efforts in order to achieve better performances [24]. Learners with performance-approach goal orientation aim to demonstrate their competence to others in order to receive positive feedback; when they encounter hardships and challenges, they exhibit the same behaviors and responses of those with mastery goal orientation [24,31,78,79]. Therefore, they would spend less time on exploring in-depth cognitive strategies as they feel that the investment of more effort will reflect their lack of competence [24]. Learners with performance-avoidance goal orientation, on the other hand, tend to focus on avoidance, as they regard failure to be a result of their incompetence, are worried about negative feedback from others on their competence, and are only willing to do simple tasks [24,31,78,79]. Furthermore, in order to avoid failure in learning, these learners may quit learning as an act of defense or employ fewer learning strategies, and are less willing to spend time and effort on learning [80].

Studies with student participants have largely indicated that when students are faced with hardships and challenges, mastery and performance-approach goal orientation are associated with various positive processes and results [60,63,81], such as hard work, persistence, intrinsic motivation, and high-performance outputs. Performance-avoidance goal orientation is associated with processes and results linked to the inability to adapt, such as anxiety, confusion, self-handicapping, reduced intrinsic motivation, and low-performance outputs.

Relevant empirical studies have also shown that mastery goal orientation has positive correlations with behavior and performance [32,33,58,82]. Similarly, performance-approach goal orientation also has significant and positive correlations with behavior and performance [33,58,83]. On the other hand, performance-avoidance goal orientation has negative correlations with behavior and performance [33,58].

2.4. Relationship between Goal Orientation, Learning Satisfaction, and Learning Outcomes

2.4.1. Learning Satisfaction

Many education- and learning-related studies have indicated that satisfaction is an important factor when measuring the process of learning [37,43,47]. Learning satisfaction refers to the learners' degree of satisfaction toward their overall learning experience [84,85]. For instance, Domer, Carswell, and Spreckelmeyer [86] applied the discrepancy theory in the students' learning satisfaction and suggested that a student's learning satisfaction is dependent on the extent of the difference between their expectation levels and results obtained in reality. Why is learning satisfaction able to explain a learner's attitude when they engage in learning activities? Relevant studies [43,44,47,87,88] have agreed that learners with higher learning satisfaction are more willing to continue learning, as well as having lower dropout rates and higher learning motivations and outcomes. Theoretical and practical studies have strongly advocated that learning satisfaction play the critical role of an indicator in traditional learning [37–41] and e-learning [9,44,84,85,89–91].

2.4.2. The Influence of Goal Orientation on Learning Satisfaction

The focus of goal orientation is on understanding why and how learners attempt to achieve various goals [92]. The goal orientation theory posits that an individual's goal orientation will influence his or her perception of achievement situations, and bring about different interpretations, assessments, and responses with respect to a learning process [22,93]. In this regard, Biner, Dean, and Mellinger [87]

used learning satisfaction as a criterion for determining the outcomes of learning programs. Their study also revealed that learners with a high level of satisfaction do not necessarily have a high level of learning motivation, but those with a low level of satisfaction would indeed have a low level of learning motivation. In addition, studies by Berger and Milem [84] and Chen and Chih [94] also revealed that learners are able to gain a higher level of learning satisfaction in their learning activities when they have a stronger learning motivation.

However, throughout the learning process, can evoking the interests of learners and increasing their learning motivation increase their learning satisfaction and thereby improve their learning efficiency? Relevant studies [95–97] have clearly indicated that the strength of learning motivation predicts whether the degree of learning effectiveness is enhanced or reduced [95–97]. In addition, the stronger the learners' learning motivation, the more enhanced their need to engage in self-directed learning. This stimulates their learning motivation, generates a higher level of learning satisfaction, and improves their learning outcomes [22,98].

According to the goal orientation theory: (1) Learners with a higher mastery goal orientation will display adaptive pattern responses when they deal with challenges or encounter failure. Such responses include constructive self-direction, self-monitoring, positive forecasting, positive emotions, and effective solutions, among others, and thus, they have better performances, interests, and satisfaction. In other words, learners with mastery goal orientation generate higher levels of learning satisfaction. (2) Learners who are more self-confident and have a performance-approach goal orientation tend to display responses similar to those of learners with a mastery goal orientation, focusing their attention on competing with others and raising their learning motivation to attain more satisfaction, and thus, better results [22,79]. Therefore, learners with performance-approach goal orientation exhibit higher levels of learning satisfaction. (3) On the other hand, those who are less confident and have a performance-avoidance goal orientation tend to display maladaptive pattern responses instead, such as negative self-awareness (lack of competence) and negative emotions (anxiety, depression), and to have a lack of interest in or feel contempt for or dissatisfaction toward their job [22,24,78,98]. In other terms, learners with performance-avoidance goal orientation exhibit lower levels of learning satisfaction.

2.4.3. The Influence of Learning Satisfaction on Learning Outcomes

The achievement motivation theory, which stems from psychology, provides an effective theoretical framework for explaining the motivations and performances of learners. Furthermore, it stresses intrinsic motivations when one learns, and such motivations are regarded to have a positive influence on learning satisfaction, thereby enhancing learning performances [43]. In addition, previous studies on students have revealed that learning satisfaction correlates with learning outcomes [39,88,99,100]. Interestingly, even though these studies have shown the correlation between learning satisfaction and learning outcomes, most learning-related studies have regarded learning satisfaction and learning outcomes as different dependent variables influenced by learning motivation-related factors. As such, these studies have not considered in detail the possible mechanisms of association between the two variables [38,43,101,102]. Some studies have attempted to investigate the association between learning satisfaction and learning outcomes [39,103]. The results indicated that the effects of learning satisfaction on learning outcomes surpass those of learning outcomes on learning satisfaction. Indeed, more research should be invested to validate the association between the learners' learning satisfaction and learning outcomes.

Furthermore, learning satisfaction is not only a key indicator for measuring whether learners are satisfied with their learning [95]; it can also be used to explain the motivations and learning outcomes of learners engaging in learning activities [37,38,44–46]. Studies on e-learning [38,85,89–91] have delineated the role of learning satisfaction as a key indicator in the process of learning [38,85,89–91]. In their study, Biner, Dean, and Mellinger [87] pointed out that the negative opinions of learners can impede their learning effectiveness. In other words, when learners exhibit a lower level of learning satisfaction in the process of learning, their learning outcomes will be reduced as well, and vice versa.

In a similar vein, Huang, Hsieh, Huang, and Chien [104] study on enterprise employees who engaged in e-learning revealed that learning satisfaction positively influences learning outcomes. Relevant studies on traditional classroom learning [37,47,105] and e-learning [96,106–109] have collectively shown that learning satisfaction should be viewed as an important predictive indicator for measuring learning outcomes.

3. Research Model and Hypotheses

Based on the literature finding that goal orientation influences learning outcomes, this study proposes the following hypotheses:

Hypotheses 1(H1). *Mastery goal orientation has a significant and positive effect on learning outcomes.*

Hypotheses 2(H2). *Performance-approach goal orientation has a significant and positive effect on learning outcomes.*

Hypotheses 3(H3). *Performance-avoidance goal orientation has a significant and negative effect on learning outcomes.*

The analysis results of the aforementioned studies have shown that the learners' goal orientation is related to learning satisfaction, and different goal orientations have different levels of impact on learning satisfaction. To summarize, this study proposes the following hypotheses:

Hypotheses 4(H4). *Mastery goal orientation has a significant and positive effect on learning satisfaction.*

Hypotheses 5(H5). *Performance-approach goal orientation has a significant and positive effect on learning satisfaction.*

Hypotheses 6(H6). *Performance-avoidance goal orientation has a significant and negative effect on learning satisfaction.*

Summarizing the aforementioned research views, there is a close relationship between learning satisfaction and learning outcomes. Therefore, this study proposes the following hypotheses according to the arguments above.

Hypotheses 7(H7). *The employees' learning satisfaction has a significant and positive effect on their learning outcomes.*

Many education-related studies have highlighted the significant association between learners' learning satisfaction and learning outcomes [43,44,47,87,88]. Furthermore, learners' goal orientations affect their learning satisfaction and learning outcomes [22,24,78,79,98]. To date, no studies have discussed and validated whether employees' goal orientations indirectly influence their learning outcomes through learning satisfaction as a mediator. Based on Deci and Ryan's [42,43] theoretical framework and by summarizing hypotheses H1–H7, this study further deduced that employees' goal orientation predict their learning outcomes through the mediator of learning satisfaction.

Hypotheses 8a(H8a). *The employees' mastery goal orientation has an indirect effect on their learning outcomes through the mediator of learning satisfaction.*

Hypotheses 8b(H8b). *The employees' performance-approach goal orientation has an indirect effect on their learning outcomes through the mediator of learning satisfaction.*

Hypotheses 8c(H8c). *The employees' performance-avoidance goal orientation has an indirect effect on their learning outcomes through the mediator of learning satisfaction.*

The research model and research assumptions based on these eight hypotheses are presented in Figure 1.
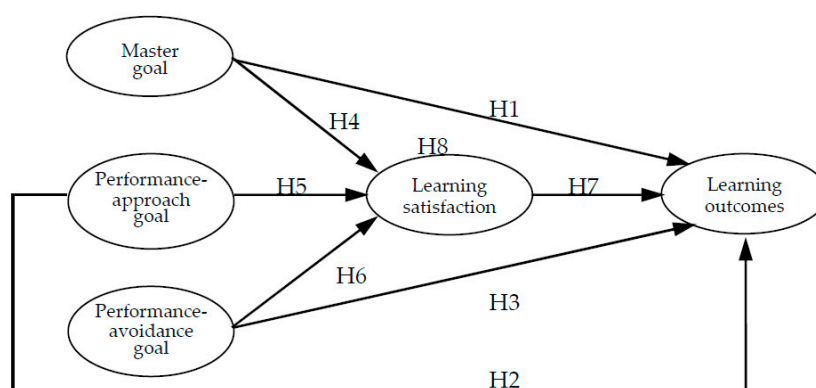
Figure 1. Research model.

4. Materials and Methods

4.1. Research Participants and Data Collection

The participants of this study were small and medium-sized enterprise employees who engaged in using the enterprise resource planning (ERP)-based e-learning platform of a company D. The participants were mostly those with experience in using the e-learning platform. The ERP e-learning platform was selected as it is currently the most widely used software among enterprises in Taiwan. Moreover, the software vendors have built a complete e-system and learning environment for ERP-based e-learning, which has, for some time, been promoted to enterprise users as an ERP-based e-learning system. Many enterprise clients are currently using this approach for their employee learning programs, which is a testament to the maturity of the ERP e-learning environment within the context of enterprise use. SMEs employees were selected as the focus of the study since the existing literature on the introduction of e-learning by enterprises mostly involved large enterprises. Furthermore, in Taiwan, SMEs account for a greater share of the enterprise population and overall economy. Convenience sampling was adopted in this study. The questionnaire was administered concurrently as a Google form and as a hard copy utilizing convenience sampling. A total of 800 questionnaires were administered in this study. Four hundred fifty-five responses were obtained, indicating a response rate of 56.88%. After omitting incomplete responses, there were 405 valid responses, indicating an effective response rate of 50.63%. According to the results, the participants consisted of 38.30% males and 61.70% females. A majority of the e-learning platform users (87.16%) were employees aged between 20 to 35 years old. 62.20% of employees had a college degree. In terms of marital status, 64.20% were single. Most of the participants (75.80%) had more than four years of experience of using computers. In terms of work experience, 20% had three years (or less) of experience, 25.43% had three to five years of experience, while 30.62% had five to ten years of experience. The demographic statistics and breakdown of the sampled enterprises are presented in Table 1.

4.2. Questionnaire Scale Design

The questionnaire was divided into three sections, namely, the goal orientation scale, the learning satisfaction scale, and the learning outcomes scale. All three scales utilized a seven-point Likert scale, with a score of 1 indicating "Strongly disagree" and a score of 7 indicating "Strongly agree". Descriptions of the scales are provided below.

(1) Goal orientation scale: The employee goal orientation scale designed by Elliot and Church [60] and Pintrich [57] was used in this study. Employees self-evaluate their mastery goal orientation (seven items), performance-approach goal orientation (six items), and performance-avoidance goal orientation (five items), with a higher score indicating stronger goal orientation. The questionnaire content is worded as follows: In order to improve my competence, I will choose more challenging tasks.

(2) Learning satisfaction scale: The learners' learning satisfaction scale (seven items) designed by Kuo [84] and Sweeney and Ingram [110] was used in this study to measure the learning satisfaction of employees during the learning process, with a higher score indicating stronger perceived learning satisfaction. The questionnaire content is worded as follows: I am satisfied with the practicability of the e-learning course.

(3) Learning outcomes scale: The learners' learning outcomes scale (seven items) developed by Alavi, Marakas, and Yoo [75] and Baldwin and Ford [73] was used in this study to measure the individual post-learning outcomes of employees, with a higher score indicating better-perceived learning outcomes. The questionnaire content is worded as follows: My system operation and usage skills improved after attending the e-learning course.

Table 1. Sample structure (N = 405) and breakdown of sampled enterprises (N = 73).

Demographic Variables		Number (%)	Industry Variable	Number (%)
Gender	Male	155(38.30%)	Food manufacturing	8(10.96%)
	Female	250(61.70%)	Beverage manufacturing	3(4.11%)
Marital status	Unmarried	260(64.20%)	Leather manufacturing	2(2.74%)
	Married	145(35.80%)	Chemical manufacturing	5(6.85%)
Age	25 years old and below	105(25.93%)	Plastic products manufacturing	4(5.48%)
	26–30 years old	141(34.81%)	Metal products manufacturing	11(15.07%)
	31–35 years old	107(26.42%)	Electronic products manufacturing	13(17.81%)
	Over 36 years old	52(12.84%)	Mechanical equipment manufacturing	8(10.96%)
Education level	Senior high school and below	62(15.30%)	Auto parts manufacturing	10(13.70%)
	Junior college	77(19.00%)	Motorcycle parts manufacturing	9 (12.32%)
	College degree	252(62.20%)	**Department variable**	**Number (%)**
	Master's degree	14(3.50%)	Business department	82(20.25%)
Experience of computer use	2 years and below	26(6.40%)	Procurement department	39(9.63%)
	2–4 years	70(17.30%)	Manufacturing department	76(18.77%)
	More than 4 years	307(75.80%)	R&D department	42(10.37%)
Work experience	Three years and below	81(20.00%)	Finance department	79(19.51%)
	3–5 years	103(25.43%)	Management department	44(10.86%)
	5–10 years	124(30.62%)	Human resources department	17(4.20%)
	More than 10 years	97(23.95%)	Others	26(6.41%)

Note: The industry classification used here is based on the latest classification standards for manufacturing sector segments released by Taiwan's government in 2016. Employees who do not fall under the established department categories are classified as general department employees.

5. Results

5.1. Questionnaire Scale Analyses

5.1.1. Scale Testing Procedure

(1) First, the internal consistency (coefficient alpha) of each subscale was calculated, and the item-total analysis and correlation analysis was used to remove items with low correlations from each subscale, to increase the reliability of the scale.

(2) Next, the measure of sampling adequacy (MSA) of each scale and constituent was calculated, and items with an MSA less than 0.5 were omitted [111].

(3) The principal component analysis and the varimax rotation approach in factor analysis were used to extract factors with an eigenvalue greater than or approximately 1 (as determined through scree tests), while items with overly low factor loadings were removed.

(4) Steps 1, 2, and 3 were repeated until each item in the factor constructs of the questionnaire were stable.

5.1.2. Scale Reliability and Validity Analyses

The aforementioned testing procedure (see Table 2) yielded the following results: (1) Regarding the goal orientation scale, no items were removed from the mastery goal orientation subscale; three items were removed from the performance-approach goal orientation subscale; one item was removed from the performance-avoidance goal orientation subscale, leaving us with 14 items, from which three

factors were extracted. (2) Regarding the learning satisfaction subscale, two items were removed; regarding the learning outcomes subscale, no items were removed. This left a total of 10 items between the two subscales, from which two factors were extracted. Since the Cronbach's alpha of each item in each factor was greater than 0.70, the scale had acceptable reliability. Furthermore, the structure and items of the factors extracted from the questionnaire of this study were consistent with the original design, which indicated the acceptable construct validity of each subscale.

Table 2. Summary of SPSS factor analysis results.

Research Variable	Evaluation Construct	Number of Items	Alpha Value	Cumulative Explained Variance
Goal Orientation	Master Goal Orientation	7	0.924	70.885%
	Performance-Approach Goal Orientation	3	0.830	
	Performance-Avoidance Goal Orientation	4	0.849	
	Learning Satisfaction	5	0.951	72.678%
	Learning Outcomes	5	0.955	

5.2. Common Method Variance (CMV) Test

In questionnaire surveys, when all items were filled by the same respondent, the problem of common method variance (CMV) arises easily. Using self-reported questionnaires to collect information about the perceptions and achievement motivations of a single participant could very much result in common method bias, which leads to the overestimation or underestimation of the relationships between variables [27]. This study followed the recommendations by Podsakoff, MacKenzie, Lee, and Podsakoff [112] and adopted procedural control measures, in which the respondents of the questionnaire were kept anonymous, and the items were randomly allocated to reduce the possibility of CMV. Besides, Harman's single factor test was used to identify the occurrence of CMV [113]. The basic assumption of Harman's single factor test is that CMV exists among variables when a major factor can explain most of the covariates among the variables. In this study, all questionnaire items were subjected to common factor analysis. The explained variance of the first principal component obtained without any rotation was only 17.770% and was below the 50% threshold, which indicated the low severity of CMV.

5.3. Verification of Research Hypotheses

Next, this study employed the partial least squares (PLS) method to analyze the proposed framework. Compared to other statistical analysis methods, the PLS approach can deal with a higher number of research constructs and variables at the same time. Consequently, there is no need to assess whether the raw data were distributed normally, and robust parameter estimates can be obtained from small sample sizes [114,115]. The main analytical tools used in this study were SPSS 20.0 and SmartPLS M2 [116].

5.3.1. Outer Model

In the PLS approach, the relationship between an indicator and a latent construct is referred to as the outer model. The factor loading and reliability of each construct is presented in Table 3. The Cronbach's α and the composite reliability of all constructs were greater than 0.7, which fulfilled the required reliability of the research [117].

Table 3. Partial least squares (PLS) scale analysis results.

Construct	Research Variable	Factor Loading	Cronbach's α	Composite Reliability (CR)	AVE
Master Goal Orientation	MGO1	0.855	0.924	0.939	0.687
	MGO2	0.814			
	MGO3	0.855			
	MGO4	0.861			
	MGO5	0.828			
	MGO6	0.820			
	MGO7	0.763			
Performance-Approach Goal Orientation	PAPGO4	0.857	0.832	0.899	0.747
	PAPGO5	0.849			
	PAPGO6	0.887			
Performance-Avoidance Goal Orientation	PAVGO1	0.811	0.853	0.901	0.696
	PAVGO2	0.883			
	PAVGO4	0.746			
	PAVGO5	0.889			
Learning Satisfaction	LS1	0.789	0.891	0.920	0.697
	LS2	0.855			
	LS3	0.849			
	LS4	0.840			
	LS5	0.840			
Learning Outcomes	LO1	0.848	0.917	0.938	0.751
	LO2	0.889			
	LO3	0.890			
	LO4	0.836			
	LO5	0.868			

In terms of testing the validities of the constructs, this study performed convergent validity and discriminant validity. As recommended by Fornell and Larcker [118], an indicator variable has good a convergent validity when it has a factor loading greater than 0.5, average variance extracted (AVE) greater than 0.5, and reliability greater than 0.7. According to Table 4, the constructs were all in line with the recommendations of Fornell and Larcker [118]. Therefore, this study has good convergent validity. Furthermore, this study validated if the square root of the AVE of each construct was greater than the coefficient of correlation between the constructs, to determine the existence of discriminant validity. As evident in Table 4, discriminant validity was present in this study. Concerning the goodness-of-fit (GoF) of the research framework, the PLS-SEM approach differs from the covariance-based SEM (CB-SEM) approach, as the latter provides 25 GoF indexes, while PLS-SEM only offers one GoF index for calculating the overall indicator in the measurement model and the structural model, as well as providing the overall model's predictive utility [119]. The GoF index is obtained by multiplying the commonality indexes of the means with the average of R^2 and then taking the geometric mean (square root) of the product. A value of 0.1, 0.25, and 0.36 represents a weak, moderate, and strong GoF, respectively. The statistical results are shown as follows. Based on the GoF index of 0.468, the overall GoF of the model in this study was determined to be strong and good.

$$\text{GoF} = \sqrt{\text{communality} \times \overline{R^2}} = \sqrt{0.716 \times 0.307} = 0.468$$

Table 4. Matrix of means, standard deviations, and correlation coefficients of latent constructs.

	Mean	S.D.	MGO	PAPGO	PAVGO	LS	LO
MGO	5.365	0.768	**0.829**				
PAPGO	4.507	0.909	0.356	**0.864**			
PAVGO	3.755	1.001	−0.284	−0.038	**0.834**		
LS	5.127	0.769	0.349	0.297	−0.230	**0.835**	
LO	5.197	0.769	0.381	0.330	−0.201	0.626	**0.867**

Note: Values in the diagonal are AVE square roots of each latent construct; all other values are coefficients of correlation between constructs. MGO = Master Goal Orientation; PAPGO = Performance-Approach Goal Orientation; PAVGO = Performance-Avoidance Goal Orientation; LS = Learning Satisfaction; LO = Learning Outcomes.

5.3.2. Inner Model and Hypotheses Testing

In the PLS approach, the inner model refers to the path structure between constructs. The results of the hypotheses testing and path analysis according to the inner model are presented in Figure 2.
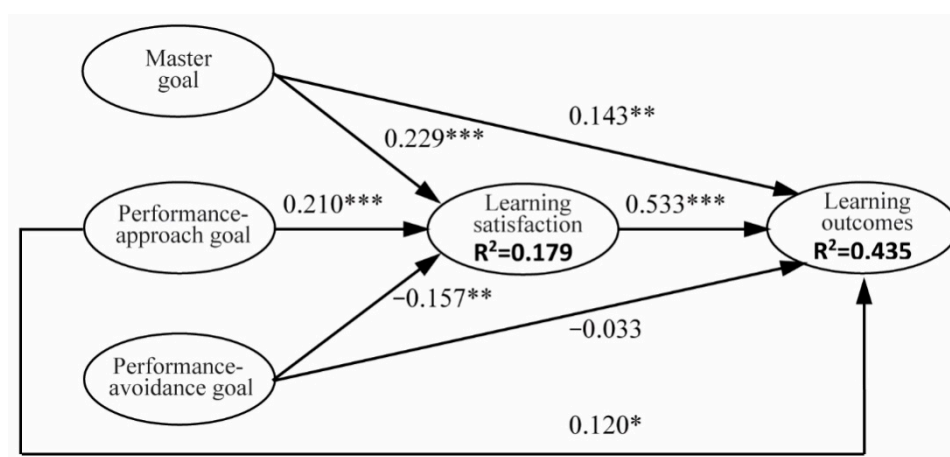

Figure 2. Standardized path coefficients and significance of inner model. * *p*-value < 0.05; ** *p*-value < 0.01; *** *p*-value < 0.001.

5.4. Verification of Hypotheses

5.4.1. The Influence of Goal Orientation on Learning Outcomes

(1) The employees' mastery goal orientation was found to have a significant and positive effect on learning outcomes (β = 0.143, *t*-value = 2.712). Hypothesis 1 was thus supported. This finding was in line with those of Dweck and Leggett [24] and VandeWalle [79]. Mastery goal-oriented learners take pleasure in learning new knowledge, emphasize the learning process, and are constantly enhancing and applying their knowledge and skills on their jobs while elevating their performance [24,31,82]. (2) The employees' performance-approach goal orientation was found to have a significant and positive effect on learning outcomes (β = 0.120, *t*-value = 2.428). Hypothesis 2 was thus supported, and our results were in line with those of Dweck and Leggett [24] and Elliot and Church [60]. This proves that employees with performance-approach goal orientation emphasize their self-expression and care if they are more competent than others, and thus, seek to acquire better feedback and results [24,30,83]. (3) The employees' performance-avoidance goal orientation was not found to have a significant and negative effect on learning outcomes (β = −0.033, *t*-value = 0.817). Hypothesis 3 was thus not supported. Even though this finding differs from those of Dweck and Leggett [24] and VandeWalle [79], it still proves that performance-avoidance goal-oriented learners emphasize avoidance, are worried about falling behind others, and avoid getting negative feedback on their competence [61,79,120]. This study infers that the learning outcomes of performance-avoidance goal-oriented learners are affected through indirect methods. For instance, learning satisfaction affects learning outcomes indirectly rather can

directly. Generally speaking, as asserted by Dweck [22] and Alavi, Marakas, and Yoo [75], the learners' personal goals, motivations, and beliefs will influence their setting of learning goals, thereby inducing their motivation to engage in learning and enhancing their learning outcomes. Therefore, our empirical results indicate that the different goal orientations of employees will generate differences in their learning outcomes.

5.4.2. The Influence of Goal Orientation on Learning Satisfaction

(1) The employees' mastery goal orientation was found to have a significant and positive effect on learning satisfaction (β = 0.229, *t*-value = 3.510). Hypothesis 4 was thus supported, and our results were consistent with the opinions of relevant researchers [22,24,97,98]. According to Dweck and Leggett [24] and Berger and Milem [121], employees with mastery goal orientation have a higher level of learning motivation and attitudes. As a result, they feel satisfied throughout the learning process and have better learning performances. To put it differently, when the employees themselves perceive a stronger motivation to learn, they will acquire a higher level of learning satisfaction in their learning activities. (2) The employees' performance-approach goal orientation was found to have a significant and positive effect on learning satisfaction (β = 0.210, *t*-value = 4.283). Hypothesis 5 was thus supported. This finding, which is consistent with the studies of Dweck and Leggett [24] and Berger and Milem [121], proves that employees with performance-approach goal orientation only care if they are able to outperform others. Consequently, they generate a higher level of performance motivation, which increases their learning satisfaction and results in higher learning performances [98]. (3) The employees' performance-avoidance goal orientation was found to have a significant and negative effect on learning satisfaction (β = −0.157, *t*-value = 2.874). Hypothesis 6 was thus supported. This finding, which is consistent with the studies of Dweck and Leggett [24] and Berger and Milem [121], proves that employees with performance-avoidance goal orientation only want to fend off challenges. Consequently, they have lower competence and express disinterest toward learning, which results in poor learning performances [98]. Generally speaking, as proposed by Dweck [22], goal orientation influences an individual's feelings toward achievement situations, as well as their interpretation and assessment of and response to the process of learning. Therefore, the empirical results of this study show that the different goal orientations of employees will generate differences in their learning satisfaction.

5.4.3. The Influence of Learning Satisfaction on Learning Outcomes

The employees' learning satisfaction was found to have a significant and positive effect on learning outcomes (β = 0.533, *t*-value = 13.436). Hypothesis 7 was thus supported, and our results were in line with those of Kuo, Walker, Belland, and Schroder [85] and Paechter, Maier, and Macher [38]. As suggested by Huang, Hsieh, Huang, and Chien [104], there is a close relationship between learning satisfaction and learning outcomes. Individuals with a high level of learning satisfaction exhibit better learning outcomes (as a measure of post-learning performance), and vice versa. In a general sense, as asserted by Fujita-Stank and Thompson [95], learning satisfaction is a key indicator which not only explains the motivations and learning outcomes of learners engaging in learning activities, but also measures their learning results and whether they are satisfied with their learning. Therefore, the empirical results suggest that the learning satisfaction of employees generates a positive effect on their learning outcomes.

The analysis results for the abovementioned hypotheses are presented in Table 5.

Table 5. Summary of inner model results.

Hypothesis Direction and Structural Path				Path Coefficient	*t*-Value	Result
H1(+):	MGO	→	LO	0.143 **	2.712	Supported
H2(+):	PAPGO	→	LO	0.120 *	2.428	Supported
H3(−):	PAVGO	→	LO	−0.033	0.817	Not Supported
H4(+):	MGO	→	LS	0.229 ***	3.510	Supported
H5(+):	PAPGO	→	LS	0.210 ***	4.283	Supported
H6(−):	PAVGO	→	LS	−0.157 **	2.874	Supported
H7(+):	LS	→	LO	0.533 ***	13.436	Supported
Explained variance for each dependent variable (R^2)						
	LS				LO	
	0.179				0.435	

Note: MGO = Master Goal Orientation; PAPGO = Performance-Approach Goal Orientation; PAVGO = Performance-Avoidance Goal Orientation; LS = Learning Satisfaction; LO = Learning Outcomes. * *p*-value < 0.05; ** *p*-value < 0.01; *** *p*-value < 0.001. Number of bootstrap samples = 1000.

5.4.4. Mediation Effect Analysis

Conventionally, mediation effects are mainly determined through the causal steps developed by Baron and Kenny's [122] and validated by Sobel's [123] *z*-test. However, empirical studies often suggest that the causal step approach has a very low detection of mediation effects [124], and most of the mediation effects are not distributed normally as required by the Sobel test. Therefore, in addition to using Sobel's [123] *z*-test, this study also followed the recommendations of Tofighi and MacKinnon [125] and MacKinnon, Coxe, and Baraldi [126] and used the product of distribution approach (RMediation software provided by Tofighi and MacKinnon [125] was used to consider the confidence intervals of mediation effects when calculating the product of distribution (https://amplab.shinyapps.io/MEDCI)) to calculate the mediation effects of learning satisfaction, as well as its confidence intervals.

In this study, the employees' goal orientation significantly affected their learning outcomes through their learning satisfaction. Mediation analysis was performed on all constructs. The results are presented in Table 6. The Sobel test was used to analyze the influence of the mediation variables. When the z-score is greater than an absolute value of 1.96, mediation effects are said to exist [123,127]. The product distribution approach was used to calculate the confidence interval of the direct effects. At a 95% confidence level, zero was not included the confidence interval of the direct effects—thus, mediation effects were present in this study. Based on the results of both analyses, the mediation effects of all constructs in this study were statistically significant.

Table 6. Mediation effects of learning satisfaction (N = 405).

Mediator Variable	Path			Sobel Test's *z*-Value	Product of Distribution			
					Mediation Effect		LL95%CI	UL95%CI
Learning Satisfaction	MGO	→LS→	LO	3.397 ***	μ =0.122 ***	(σ = 0.036)	0.053	0.195
	APPGO	→LS→	LO	4.081 ***	μ =0.112 ***	(σ = 0.027)	0.059	0.167
	AVPGO	→LS→	LO	−2.809 **	μ = −0.084 **	(σ = 0.030)	0.144	0.026

Note: MGO = Master Goal Orientation; PAPGO = Performance-Approach Goal Orientation; PAVGO = Performance-Avoidance Goal Orientation; LS = Learning Satisfaction; LO = Learning Outcomes; LL = Lower Limit; UL = Upper Limit; CI = Confidence interval. ** *p*-value < 0.01; *** *p*-value < 0.001.

Therefore, with learning satisfaction as a mediator, the employees' mastery, performance-approach, and performance-avoidance goal orientations each had an indirect effect on their learning outcomes. These findings supported H8a, H8b, and H8c.

6. Discussion and Conclusions

6.1. Conclusions

Based on the goal orientation theory in educational psychology and past empirical studies, we first broke down the goal orientation of employees into the categories of mastery goal orientation, performance-approach goal orientation, and performance-avoidance goal orientation, after which we sought to deduce the impact of the employees' goal orientation on their learning satisfaction and the relationship between goal orientation, learning satisfaction, and learning outcomes. The questionnaire was administered to employees of Taiwanese SMEs, and the results of our empirical analysis are described below.

(1) Impact of goal orientation on learning outcomes: The results indicated that the employees' mastery and performance-approach goal orientation had positive impacts on their learning outcomes, even though the motivations behind these goal orientations were sometimes different. The results of this present student were consistent with those reported by Louw, Dunlop, Yeo and Griffin [30] and Whitaker and Levy [78], that is, in an e-learning environment, employees who enjoyed learning and valued self-expression achieved better learning outcomes in terms of feedback and results. Although performance-avoidance goal orientation was found to have a negative impact on the research results, this impact was not statistically significant, representing a divergence from the results reported by Malmberg [120] and Whitaker and Levy [78]. However, learners who focused on avoiding learning still achieved poorer post-learning outcomes, possibly due to the indirect influence of other factors. The results confirmed that, in an e-learning environment, the goal orientation of employees has some degree of impact on their learning outcomes.

(2) Impact of goal orientation on learning satisfaction: The results indicated that the employees with stronger mastery and performance-approach goal orientation experienced higher learning satisfaction with e-learning, while employees with stronger performance-avoidance goal orientation experienced lower learning satisfaction. Previous studies on students have also produced similar findings [24,121]. Although this present study examined employees instead of students, its results have highlighted how different types of goal orientations could trigger different learning satisfaction-related behaviors in different learning environments. Employees who sought to develop their competence and cared about competing with others reported higher learning satisfaction; while employees who were less oriented toward improving their competence were likely to experience less satisfaction. The results confirmed that, in an e-learning environment, the goal orientation of employees impacts on their learning satisfaction.

(3) Impact of learning satisfaction on learning outcomes: Many studies on learning have posited that learning satisfaction and learning outcomes are correlated, but rarely considered the influence mechanism that links them together. The results indicated that the employees' learning satisfaction had a statistically significant positive impact on their e-learning outcomes. This finding was in line with those reported by Kuo, Walker, Belland, and Schroder [85] and Paechter, Maier, and Macher [38], who proposed that high learning satisfaction leads to better learning outcomes, while low learning satisfaction leads to poorer results. The finding also showed that an individual's learning satisfaction ultimately has a positive impact on his or her learning outcomes.

(4) The mediator effect of learning satisfaction: Education-related studies have often posited that associations exist between the goal orientations, learning satisfactions, and learning outcomes of learners [42,43]. The results of this study not only support the goal orientation theory, but also proved that learning satisfaction plays a mediator role in goal orientation and learning outcomes, thereby elucidating the suitability of the goal orientation theory in the training and management of human resources in enterprises [4,28].

Furthermore, as shown in Table 7, it can be seen that mastery goal orientation has the most influence on learning satisfaction and learning outcomes, followed by performance-approach goal

orientation. These results suggest that the research framework and hypotheses of this study are in line with the assertions of previous studies based on goal orientation theory.

Table 7. Summary of the effects of employees' goal orientation on their e-learning outcomes.

Research Variable	Learning Outcomes		
	Direct Effect	Indirect Effect	Total Effect
Master Goal Orientation	0.143	0.123	0.266
Performance-Approach Goal Orientation	0.120	0.111	0.231
Performance-Avoidance Goal Orientation	−0.033	−0.084	−0.117

6.2. Managerial Implications

In the age of knowledge-based economies, advancements in the Internet and information technology have greatly changed competitive environments in businesses, and the ways technologies are applied. In order to attain sustainability and strengthen competitive organizational advantages, enterprises need to constantly engage in learning. Moreover, enterprises should attempt the implementation of e-learning to assist their employees, as this approach has no temporal, spatial, and locational restrictions. E-learning is a more efficient and effective means of educating and training employees, enabling them to obtain the latest information and advanced skills, to reduce learning costs and enhancing the organization's overall performance. However, for enterprises, apart from introducing e-learning technologies to make up for the enterprise's lack of in-service training, what methods can be implemented to enhance the employees' continuous engagement in e-learning and thereby generating post-learning benefits? This issue has always been a concern of industry and academia. Based on our empirical results, this study proposes the following recommendations.

(1) Understand the employees' goal orientations: Our findings suggest that an employee's personal goal orientation affects their learning satisfaction and learning outcomes. Therefore, when enterprises implement in-service training and learning, they must first understand the employees' goal orientations to induce positive learning motivations and goals, thereby generating the driving force for learning and optimizing learning outcomes.

(2) Assist in modifying and changing the employees' goal orientations: With regard to learners with performance-avoidance orientation, enterprises should allow employees to understand their avoidance-induced maladaptation and counsel and assist the employees to develop proactive motivations and attitudes to engage in learning, thus generating a successful learning experience. To put it differently, in e-learning environments, learners with a higher level of happiness have a higher willingness to devote themselves to learning, thus increasing their learning satisfaction through the process and generating better learning effectiveness.

(3) Establish collaborative learning to enhance learning outcomes: Enterprises can encourage e-learners and other members to engage in collaborative learning in groups that consist of at least two members. Collaborative learning allows learners to clarify and revise their opinions while generating more feedbacks through peer interactions and discussions. It facilitates the elevation of one's learning satisfaction, thereby encouraging them to attain better learning outcomes and increase their problem-solving skills.

(4) Build excellent organizational learning environments: Enterprises should build a sustainable learning environment which not only consists of good software and hardware infrastructures and resources, but must also rely on the sufficient support, identification, and engagement of managers to allow learners to learn without stress while acquiring more knowledge and skills in such desirable environments. Interestingly, at present, while many enterprises are promoting e-learning, managers should set an example by engaging in learning activities themselves and guiding employees to learn and share on their own. This not only sets the managers up as leaders, but also creates desirable learning environments and induces the employees' self-directed learning and motivations.

(5) Incorporate holistic mechanisms for evaluating in-service training programs: In addition to emphasizing employee training, enterprises should formulate a clear and effective reward system according to the enterprises' needs. They should also conceive relevant policies by developing goals to regulate and supervise the employees' engagement in e-learning. Everything from formulating the contents of solutions, allocating resources, and evaluating the outcomes of implementing e-learning must be done according to law. The combination of accurate measurements of learning results and incentive measures can further enhance the employees' willingness to learn, as well as the continued development of e-learning approaches with equal qualitative and quantitative emphases. Methods for integrating the human resources development plans of enterprises have always been a practical concern. At present, many enterprises have combined promotion, evaluation, and reward systems to strengthen their employees' willingness to learn, as well as generating substantial benefits on the job.

6.3. Limitations and Directions for Future Studies

Despite its rigorous research process, this study still suffers from certain limitations. (1) Many factors may affect employees' perceptions during the process of learning with the e-learning platform, as well as their learning results. The simplified research framework of this study only discussed the impacts of the employees' personal goal orientation on their learning satisfaction and learning outcomes. (2) The participants in this study merely consisted of employees in local small and medium-sized manufacturers in Taiwan and did not include participants from other countries or cultural regions. Therefore, the generalizability of the research results may be limited. (3) The questionnaire data were all cross-sectional. (4) Even though this study focused on the learning outcomes of e-learning, due to the difficulty in obtaining the results of the learners' learning outcomes for the platform, there is a lack of objectivity as the learners completed the questionnaires by measuring their learning outcomes on their own. (5) With regard to e-learning formats and e-learning contents, this study only examined the use of ERP software by SMEs and did not consider other options. (6) The study did not factor in the employees' expectations in relation to the teaching methods applied for e-learning. (7) The impact of different types of e-learning courses on learning satisfaction was not explored. (8) The impact of the quality of e-learning courses on learning satisfaction was not examined.

Recommendations: Subsequent studies can involve employees from different countries or regions, industries, and company sizes, as well as different e-learning formats and contents (non-ERP formats). Furthermore, relevant data can be collected at various time points, such as the early stage (within a month) of using a learning platform, the intermediate stage (three to six months), and the long run (six to twelve months), to observe and analyze the changes in learners' learning behaviors. This approach is known as the longitudinal research approach. With regard to the final measurement of learning outcomes, in addition to adopting learners' evaluations, supervisors' evaluations of employees can be added as well to overcome the lack of objectivity in measuring learning outcomes. In addition, this study discussed goal orientation through three constructs only. In the future, this number should be increased to four or six, to facilitate in-depth validation and investigation. Finally, we recommend that relevant scholars go beyond the scope of this study and conduct detailed research on the influence of different personality traits, teacher-student interactions, organizational environments, and important figures on employees' processes and performances in using e-learning systems. Other questions may also be considered. For example, can the pedagogies used in e-learning be inadequate? Can leaning satisfaction be influenced by the type of program they are following? Is all e-learning of the same quality? Can the quality of an e-learning program influence an adult learner's satisfaction?

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