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Systematic Literature Review: Identifying Critical Factors that Enhance Learning Effectiveness in the Business Context

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Abstract. To maintain its competitiveness in today's dynamic work environment, organizations need to continually enhance their employees' competencies, skills, and capabilities. Generally, organizations have attempted to do this by investing primarily in formal training and development activities. However, the learning effectiveness raises big questions, while training, education, and recruitment costs are increasing, "do they translate into improved performance, particularly in business results?" The aim of this research is to examine how workplace learning occurs within an organization and its impact on business results. This research employs a systematic literature review using PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) to analyze critical variables and categorize them into a graphical research model, such as a mind map or table. It may contribute to knowledge advancement by synthesizing the existing theoretical framework of workplace learning and linking it to other potential critical factors that may emerge during data collection. The key findings also include a proposed framework to enhance workplace learning evaluation. Due to author limitations, this research uses only the Scopus database.

Keywords: Learning effectiveness, learning process, training, business result

I. Introduction

Learning is intended to enhance people's capabilities, thereby increasing both individual and organizational performance (Tramarico et al., 2017). The global shift toward cutting-edge technology, sustainability, and digitization makes workplace learning inevitable. The organization and its employees must synergistically develop the company's core capabilities to keep pace with advances in technology and knowledge within the business context. It makes learning no longer an opportunity, but a basic need. Organizations need to continually develop their talent to maintain competitiveness in today's dynamic work environment.

Training, defined as a structured process for acquiring knowledge and enhancing abilities pertinent to an individual's current occupational role, aims to bolster employee proficiency and organizational performance (Lee, 2023, p. 2475). Another type of learning, called informal learning, is also related to company performance. The efficacy of training initiatives is crucial for organizational sustainability and success, necessitating a comprehensive understanding of the factors that enhance the transferability of learned competencies to practical applications (Shukla et al., 2023; Tonhäuser & Büker, 2016, p. 127). In Industry 4.0, companies need to reskill and upskill their talent to stay adaptive with digital transformation. McKinsey & Company (2024) reports that digital transformation is no longer a choice but a survival imperative. However, the learning process can be in vain if it is not well managed, with adequate support from both the learner and external factors. Furthermore, for companies that implement total expense efficiency strategies, ineffective learning activities will add unnecessary burdens. Therefore, this systematic literature review aims to identify the factors that critically influence learning effectiveness before, during and after the learning process, particularly in formal learning, which is costly. Therefore, there are three research questions addressed in this study:

RQ1. What are the most common theories or theoretical frameworks used, the context, and units of analysis involved, and the contributing countries of papers in the studies regarding learning effectiveness?

RQ2. What are the internal and external factors that influence the effectiveness of learning, before, during, and after the learning process in the graphical model?

RQ3. What is the proposed conceptual model to enhance the workforce learning framework?

II. Literature Review

Behaviorism learning theory Learning theory encompasses the concepts that explain how individuals learn, process, and retain knowledge, skills, and attitudes. It aims to describe the changes that occur during learning, the reasons behind these changes, and the ways in which teaching methods or environmental factors might help or hinder this process. This study used Behaviorism learning theory, as a grand theory, developed by B.F. Skinner

and Pavlov (1967) are usually cited as pioneers of operant conditioning theory of learning. This theory suggests that learning occurs through reinforcement (rewards) or punishment, shaping behavior by its consequences.

Learning evaluation framework, which measures learning effectiveness, is usually measured using a specific learning evaluation framework that explains how effectiveness is assessed through specific, tangible outcomes of a learning program. There are many models of learning evaluation, such as the four-level Kirkpatrick learning evaluation model. This model emphasizes that learning effectiveness can be evaluated. The earliest model of the four-level Kirkpatrick learning evaluation model came from a simple taxonomy with four levels of evaluation, which are level 1 (reaction), level 2 (learning), level 3 (behavior change), and level 4 (business results) (See figure 1). J. Philips made the fifth level of learning evaluation by putting ROI as the financial impact. Another level rapidly developed by scholars, such as Kaufman's 5 Levels by adding the societal impact in the fifth level.

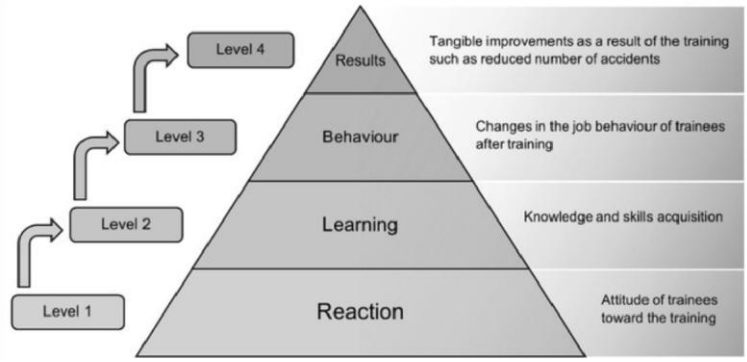


Figure 1. The Original Kirkpatrick learning evaluation model (Kirkpatrick, 1959)

In 2016, Kirkpatrick's learning evaluation model was revised by adding the required drivers, which are monitoring, reinforcement, encouragement, and reward, in achieving desired critical behaviors in level 3. Additionally, level 4 result also changed. The business result was differentiated between leading indicators and the mission statement as organizational outcomes (Kirkpatrick et al., 2016) (See figure 2).

Figure 2. The New Kirkpatrick Model of training evaluation (Kirkpatrick et al., 2016)

Organizations typically run a learning program, such as scheduled training or other formal learning, to fill gaps in their core capabilities. The training program starts with a training needs analysis to identify training requirements and ends with an evaluation (Gopal, 2008). An effective learning program is usually measured by the achieved learning goals. As previous research reported, a systematic literature review on learning evaluation from different lenses is summarized in Table 1. The previous study was mainly conducted in the context of healthcare education and virtual creative learning. None of them comes from a business context. Most studies focused on the after-learning. Few studies address the antecedents, factors, and other conditions that enhance learning effectiveness throughout the learning process. A gap was identified in the previous research, primarily in the classification method, which only classifies into a specific phase, either before or after learning. The previous review does not provide a helicopter view of the factors that determine learning effectiveness across pre-, during-, and post-learning.

Systems theory is the study of open systems composed of interrelated components that exhibit emergent behaviors, emphasizing that the whole cannot be reduced to its parts. It has been embraced across various disciplines to explore complex systems, including those related to human behavior and organizational dynamics.

In the context of the learning process, applying the concept of system theory developed by Bertalanffy (1968), a person can be an internal system, and the outside of the person is called the environment. Thus, external factors are influences from outside the employees and beyond their direct control, such as policies and social norms. Internal factors refer to influences within employees and are controllable, such as personal traits, mental models, privacy concerns, motivations, and preferences. but also, their classification as internal or external. The internal factors come from the learner themselves, while external factors come from the environment, system, or reality outside the learner. Integrating system theory and the IPO (input-process-output) model, this study conducts a

thorough examination of the factors involved in the end-to-end process.

Table 1. Previous study in literature review regarding learning effectiveness

Author	Year	Sample	Goals	Dominant Theory	Method	Gap Identified
Charlton, et al.	2025	44 papers (until 2023)	A scoping review of manual wheelchair training program effectiveness (medical education)	Kirkpatrick's evaluation framework, Social Cognitive Theory (SDT)	Classification using WHO framework	Only identify factor in before learning phase (learning design)
Voicescu, et al.	2025	57 papers (until 2023)	A scoping review of disaster management training (healthcare)	Kirkpatrick's evaluation framework	Categorized using Bloom's taxonomy	Critics the standardization of measurement tools, not mentioning factors influence learning effectiveness
Robbrecht, et al.	2025	11 papers (until 2023)	To examine (self-regulated) video learning effectiveness in med school	Kirkpatrick's evaluation framework	Using Kirkpatrick's four level classification	Only measurement, not mentioning factors influence learning effectiveness
McKay, et al.	2024	Not mention	To examine creativity training effectiveness	Kirkpatrick's & Kraiger's evaluation framework	Meta Analysis	Can not identify result, offer alternative framework, not mentioning factors influence learning effectiveness
Paweł, et al.	2023	4.544 papers (until 2020)	Measuring the effectiveness of virtual learning	Mayer's Cognitive Theory of Multimedia Learning, Technology Acceptance Model	Classification using bar chart by technology used, education domain	Only identify factor in after learning phase
Octarina, Y. (This study)	2026	24 papers (2016-2025)	Identifying the critical variables in end-to-end learning process	Kirkpatrick evaluation framework, system theory	Descriptive, graphical model (mind map and table classification)	Capture any possible factors impact on learning effectiveness at end-to-end learning process : Before learning, during learning, after learning

III. Research Method

Data Gathering

The literature search was conducted using the Institut Teknologi Bandung (ITB) discovery platform (https://lib.itb.ac.id/e-journal/), which provided access to peer-reviewed journal articles and conference proceedings through the Scopus database. Only studies with full-text availability were included. Given the latest advances in learning evaluation research, the author limited the search to articles published between 2016 and 2025, ensuring a focus on the latest developments and trends. Articles selected were only those published in English and subjected to peer review, prioritized to ensure quality and accessibility. The systematic literature review procedure employing PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). The author identified keywords and inclusive and exclusive criteria for the screening process to filter the most relevant journals for review.

Tabel 2. Inclusive and exclusive criteria in selecting papers

Inclusive criteria	Exclusive criteria
It should measure the related keyword, such as learning evaluation*, training evaluation, business result, business impact, Key performance indicator, KPI,* and *ROI* Included papers that have relevancy to the topic	Articles contain keyword such as machine learning, deep learning, large language machine, or any other types of machine learning are excluded

It should include a theory or theoretical research model or underlying theory	Articles which do not include a theoretical research model are excluded
The studies that are written in English	Articles which are not written in English
Included papers hat have relevancy to the topic	Conference proceeding and books are excluded due to ensure peer-review articles only
Open-access studies only	Non-open access studies excluded

This study used systematic literature review which is PRISMA framework or Preferred Reporting Items for Systematic Reviews and Meta-Analyses. A comprehensive literature review was conducted through Scopus database. Author used keyword ("*learning evaluation*" OR "*training evaluation*") AND ("*business result*" OR "*business impact*" OR "*Key performance indicator*" OR "*KPI*" OR "*ROI*") using advance search in the Scopus database. The inclusive and exclusive criteria summarized in table 2, and figure 3 shows the filtering process on PRISMA.

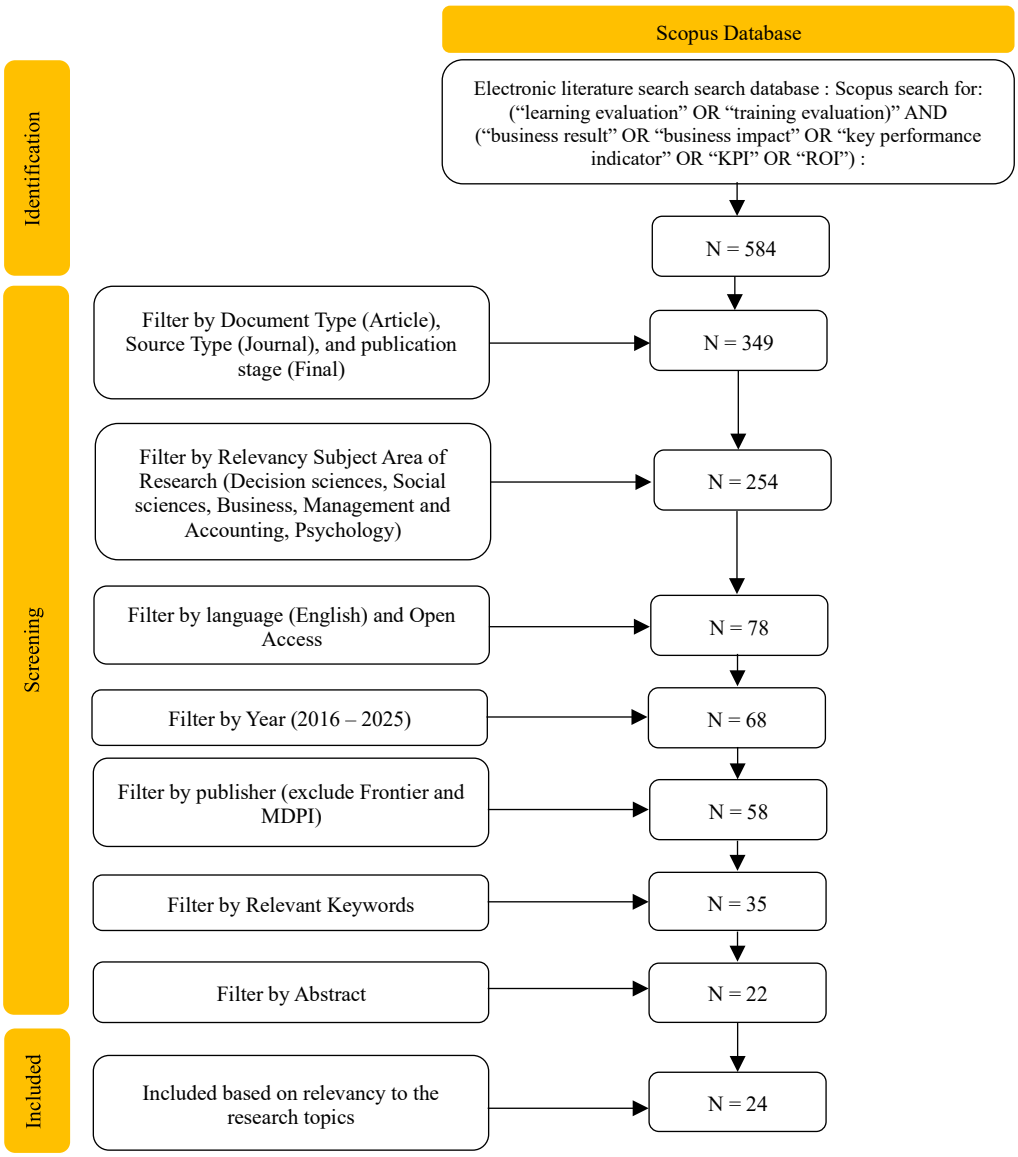


Figure 3. The flow process of PRISMA literature review

Data Analysis

The result after using the keyword above is 584 rows of journals as the initial results for further analysis. The first filtering was conducted on the document type "article" and the source type "Journal" at the publication stage, which is Final. This filtering stage yielded 349 papers. The next filtering process uses subject areas which are

Decision Sciences, Social Science, Psychology, and Business, Management and Accounting. This filtering yielded 254 journal rows. The next filter is language, with English and Open Access, resulting in 78 papers. To ensure the journal's latest publication, the next filtering is by year, from 2016 to 2025. This filtering process yielded 68 papers. Then, 10 papers from two publishers (Frontier and MDPI) are excluded. This selection process is due to the author's institution, which limits the list of selected journal publishers as references. The author used relevant keywords related to learning to filter 35 papers. The next filtering step was abstract reading, which yielded 22 papers. Two papers were included. The final papers are 24 papers. Figure 3 shows PRISMA framework used in this systematic literature review. The 24 papers are the selected papers that are being further processed for deep analysis. The next process was to analyze the 24 final papers using Microsoft Excel and using software such as Voxviewer and Bibliometrix.

Data Classification

The classification method of this study uses both descriptive analysis and a graphical model (see figure 4 as illustration). To address RQ.1, the author extracted relevant information on theories or theoretical frameworks, variables, units of analysis, and contributing countries from the papers on learning effectiveness. The next step was to analyze the papers one-by-one, categorizing the identified factors into the I-P-O (input-process-output) model. The author adjusted the model based on the learning process, including before-, during-, and after-learning. A thorough examination was conducted not only of the factors involved in the end-to-end process but also of their classification as internal or external. Drawing on system theory, the internal factors come from the learner themselves, while external factors come from the environment, system, or reality outside the learner.

	Before learning	**During learning**	**After learning**
Internal factors **(Related to the learner as individual)**	*To be identified*		
External factors **(Related to learner's environment)**	*To be identified*		

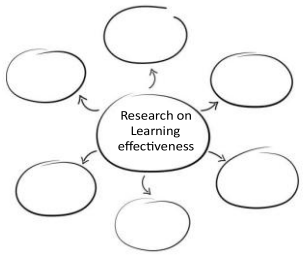


Figure 4. Illustration of a data classification method using table and a graphical model (a mind map)

IV. Results and Discussion

The result is divided into three parts, each answering one of the three research questions in the introduction and

Key Findings RQ1.

In the research papers, the most common theories or theoretical frameworks used were Kirkpatrick's fourlevel learning evaluation model and Phillips's fifth-level ROI model. These two main theories served as the basis for the learning evaluation models in the reviewed papers due to their practicality. Learning theory has been found to be a grand theory in most papers. Even though there are many complementary theories, depending on the context of the training evaluation analysis. For example, leadership training draws on leadership theory, while supply chain training draws on Total Quality Management (TQM) theory. Other training focused on behavioral change is usually grounded in transfer learning theory. Other supporting theories are the organizational learning theory and the job-demand resource (JD-R) theory.

The context of the papers is varied, ranging from educational to business to government-owned institutions. The educational setting is found in at least three papers, coming from Hanifah et al. (2024), Mardiningsih et al. (2022), and Salehudin et al. (2023). These papers examined language education, basic teacher training, and creative teaching. On the other hand, the paper discussed a business context found in many numbers. Lassoued et al. (2022) scrutinized training evaluation in the hotel industry; Mehale et al. (2021) in the financial sector; Curado & Sousa (2021) in the small and medium enterprise of the cosmetic industry; and many more. Meanwhile, only two papers were found discussing government sectors, such as van Eeden & Dichaba (2018), which described the

training in the police service department, and Schroeder-Strong (2022), which examines the effectiveness of Military training in the US Air Force in the form of Return on Investment (ROI).

Meanwhile, the unit of analysis of learning evaluation is mostly at the individual level. However, few studies have evaluated the learning program at the organizational level by measuring its impact on business results. Oh & Johnston (2023) examine how sales training not only impacts individual sales as a measure of learning effectiveness but also generates incremental revenue for the organization. Tramarico et al. (2017) using SCOR process integration: Alignment with Plan, Source, Make, Deliver, to measure the effectiveness of green supply chain management training to individual and organizational benefit.

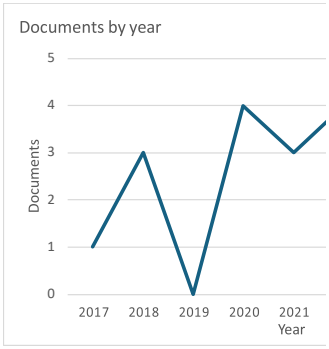


Figure 5. Distribution of papers by year

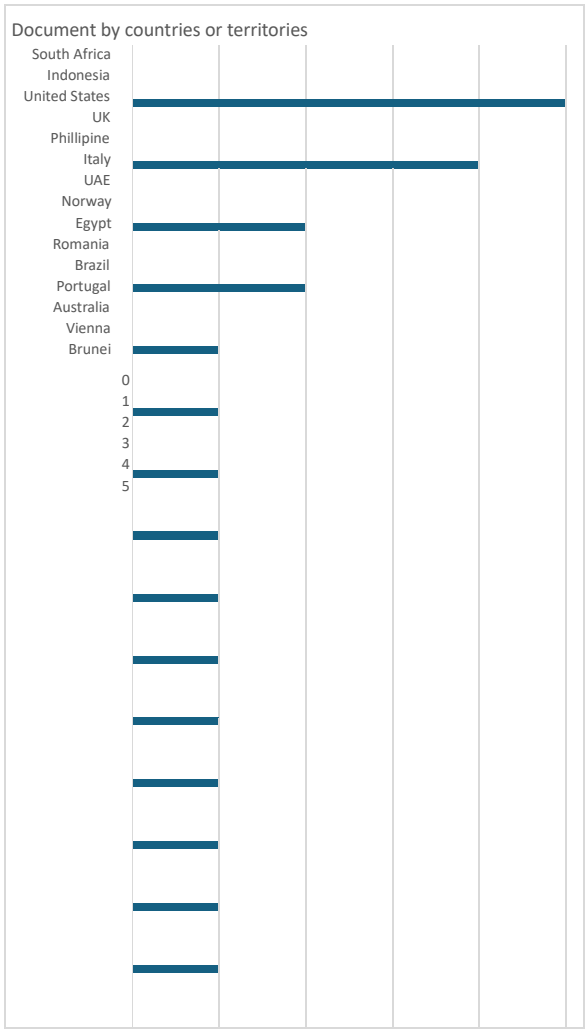


Figure 6. Documents by country or territory

After that, the author classifies papers by country or territory and year. The papers in the domain of learning evaluation fluctuated by year, with peaks in 2020, 2022 and 2023 across all documents (see figure 5). Most contributing countries of the papers come from South Africa, Indonesia, the United States, the United Kingdom, the Philippines, Italy, and others (see figure 6). The proportion of Western and Eastern countries is almost equal. It emphasized that this study was expected to capture the learning process in a balanced cultural perspective, both eastern (collectivist culture) and western (individualistic culture). Due to the filtering process, the documents are mostly in the business and management field, social science, decision science, and engineering, with a few documents labeled in economics, energy, environmental, and psychology. There are three selected papers from Indonesia that examine learning evaluation models, most of which use Kirkpatrick's theoretical framework, and all of which occur in educational settings, such as language education, basic teacher training, and creative teaching. (Hanifah et al., 2024; Mardiningsih et al., 2022; Salehudin et al., 2023). The unit of analysis in these three papers is Indonesia, where all the teachers are government employees. One included paper comes from the

telecommunications context (Lantu et al., 2021), in which the respondents were employees. All of them measured the effectiveness of formal learning, particularly training programs and education.

Key Finding RQ2.

The factors that influence learning effectiveness, as identified in the selected papers, are numerous. However, the author classified them into two factors to simplify matters. Drawing on system theory, external factors come from the learner's external environment, while internal factors come from within the learner. The external factors are the recognition in learning, learning strategy or learning delivery model; learning technology, such as LMS, in the e-learning training environment in the workplace; environment in the classroom (for classical training) or coaching facilities; resource availability, such as coaching facilities while or after training program; competency model design of learning; line managerial support and learning cultures. All of them are found to have an influential aspect on the learning effectiveness.

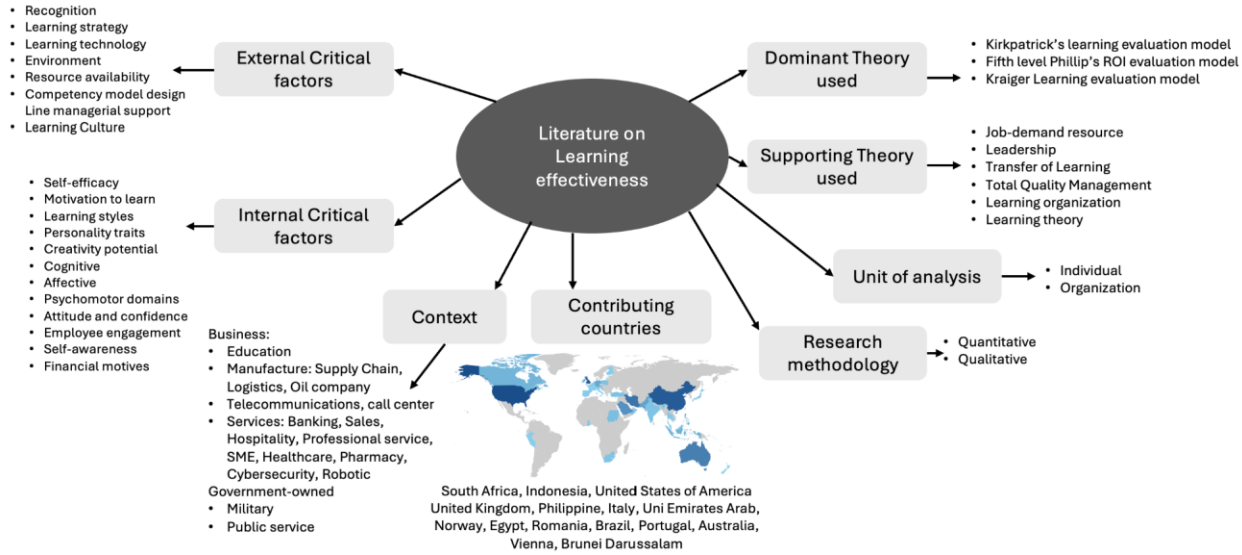
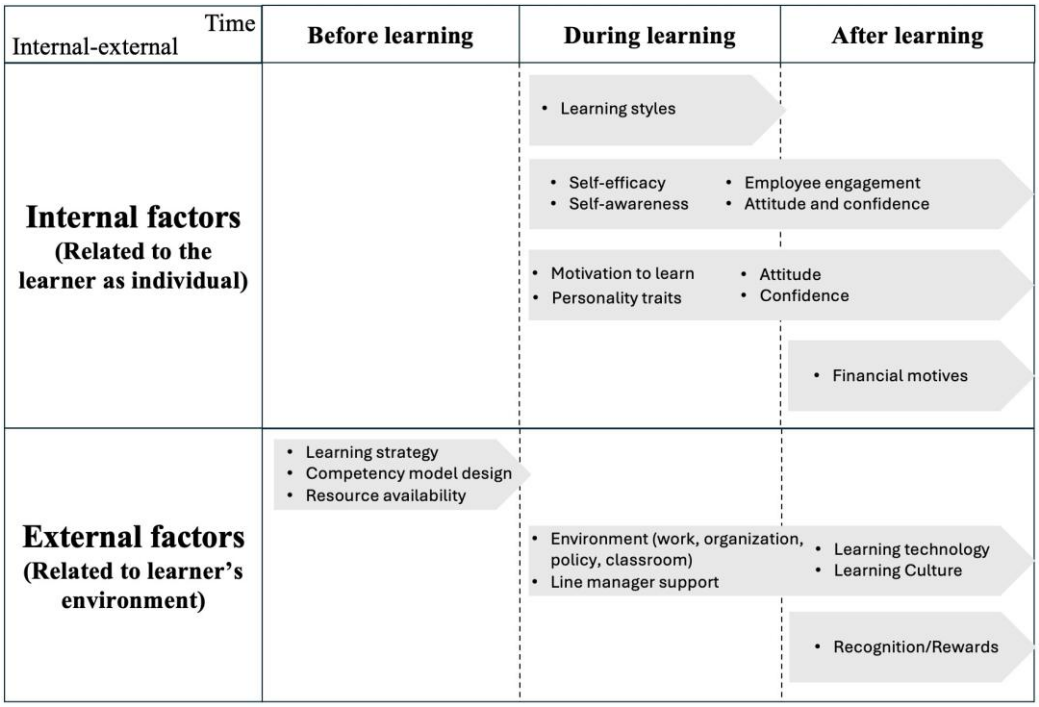


Figure 7. Mind map of learning evaluation review (Illustrated by the author from selected papers

Besides that, factors identified as internal critical factors are coming from the inside of the learner themselves, such as self-efficacy, motivation to learn, individual learning styles, personality traits or the distinguishing characteristic of the learners, cognitive level, affective level, psychomotor domains, attitude and confidence level, employee engagement, self-awareness and financial motives. The learning evaluation review is presented as a mind map in Figure 7. However, the next stage of data analysis, for further classification in the learning process, resulted in mapping variables in three columns of the learning process (before, during, after) as the x-axis, and internal-external factors as the y-axis. Table 3 shows that, before the learning process, it is important to have a rigorous learning strategy, an innovative competency model design, and resources that meet the learning requirements. Besides, many external variables, such as line manager support, environment, learning technology, and learning culture, play significant roles in the end-to-end learning process to enhance learning effectiveness. Furthermore, recognition or reward might become an effective stimulator in the learning process. Furthermore, the internal factors perspective provides a different lens on learning effectiveness that more variables embedded in learners 'characteristics mostly influence during learning and after learning, in the context of training for formal learning. This is due to the training itself, which emphasizes fully other-directed learning (Noe, et al., 2014). Tabel 3. Matrix classification of variables impacted on learning process and internal-external factors



Key Finding RQ3.

Finally, the author used clustering to map a proposed conceptual model of learning effectiveness by integrating the identified factors coming from selected papers to the existing dominant framework of the learning evaluation model from Kirkpatrick. The author highlighted the importance of the preparation phase before learning, as it can predict learning effectiveness in the first phase. If the learning design or competence model is poorly designed, it will affect the onward process. Figure 8 provided the synthesized conceptual model of learning effectiveness, which was categorized into three categories: 1) Before learning; 2) During learning; and 3) After learning, which was divided into two sub-processes: behavioral change and business result.

The author also underscores the importance of motivational factors in the learning process, because some learning comes with trade-offs. For example, sales training will compensate for the time of the salesmen required to acquire new customers. The time spent in the learning process is so precious that it will annul potential incentives or bonuses for a salesperson. The role of recognition or financial motives in this kind of condition becomes stronger if it affects their likelihood. This proposed conceptual model presented in figure 8 is the final key finding of this study that hopefully can shed light on learning practitioners, specifically in a business context.

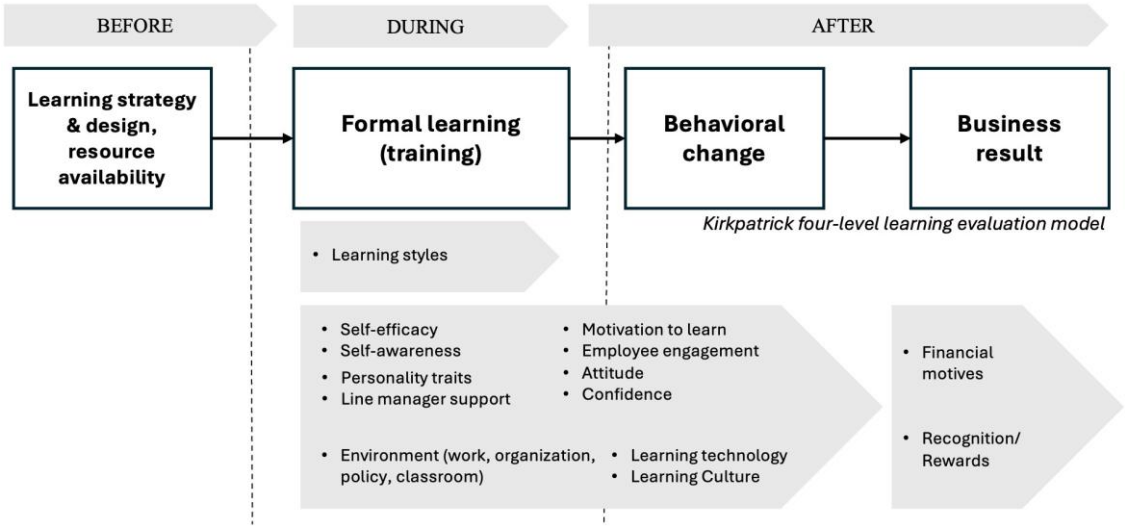


Figure 8. Proposed conceptual model of learning effectiveness

Figure 8 shows the proposed conceptual model synthesized from various research papers. There is still a need to validate the model using several research methodologies, most of which are quantitative. However, since only a few studies use modeling to simulate how learning and capabilities accumulate and affect behavioral change and business outcomes, the author suggested that this may be considered a methodological gap to be addressed in future learning evaluation theory (Jonck & de Coning, 2020).

V. Conclusion

This research provides a systematic inquiry into the mechanisms of workplace learning and its substantive impact on organizational performance. Positioned within the evolving landscape of human capital development, the study addresses a critical gap in corporate training: the potential misalignment between increasing investments in formal education and the actual realization of improved business results. By utilizing the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) literature review method, the author evaluates the critical factors influencing learning effectiveness in end-to-end processes that contribute to employee competencies, desired behavioral change, and, subsequently, to competitive advantage in dynamic work environments and business results.

The study synthesizes existing theoretical frameworks to propose a comprehensive model that Identifies critical factors influencing learning effectiveness. A central contribution of the work is the integration of diverse variables—ranging from individual learner characteristics to broader organizational supports—into a unified taxonomy. By linking these factors directly to individual benefit and business outcomes, the research offers a rigorous academic foundation for understanding the “internal and external factors in enhancing training effectiveness to business performance” relationship. Ultimately, the paper provides a roadmap for practitioners and scholars to ensure that learning interventions are not merely administrative exercises but strategic drivers of organizational success.

The study's limitation lies In Its methodology, Ih uses only one source from the Scopus database due to the author’s limited access to other academic databases. Future studies could address some of the limitations outlined above by focusing on important areas beyond the scope of this study. The next literature review can be conducted across several databases to enrich the review and identify additional papers, such as Web of Science, ProQuest, and others. Another future literature review could use a different methodology than the one the author used, such as meta-analysis. Previous studies often used either quantitative or qualitative methodologies via questionnaires, measuring mostly at level 1 (reaction) to level 2 (learning gain). The novelty of the research findings lies in extending Kirkpatrick’s learning evaluation method by integrating other critical factors into a single conceptual model to enhance it. Even though the author has synthesized the conceptual model from existing papers, future research can test and validate the model empirically. A regression model with a simulation model is preferable for conducting the research to demonstrate novelty In addressing the methodological gap, since most studies use simulation. Only a few studies use modeling to simulate how learning and capabilities accumulate and affect behavioral change and business outcomes, which may be considered a methodological gap to be addressed in future learning evaluation theory (Jonck & de Coning, 2020).

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