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Evaluating integrated learning: A SECI model approach through importance-performance analysis

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Abstract

This study evaluates the integration of learning models within the Ministry of Finance of Indonesia, using the SECI model as a theoretical framework to assess knowledge management practices. The research addresses the urgent need for effective knowledge integration in public sector organizations, particularly in light of the Ministry's adoption of the 70:20:10 learning model. The primary objective is to analyze the alignment of this model with the SECI framework and identify areas for improvement in knowledge management practices. A quantitative research design was employed, utilizing Importance-Performance Analysis (IPA) to assess the perceived importance and performance of three integrated learning models: Learning from Experience, Social Learning, and Formal Learning. Data were collected from 382 employees using surveys based on a 1-5 Likert scale. The results indicate significant gaps in the integration of explicit knowledge, particularly in the Learning from Experience and Social Learning models. These models were found to lack sufficient structures for organizing and disseminating explicit knowledge, which hindered their effectiveness. The study recommends the development of a centralized knowledge management system, standardized documentation guidelines, and enhanced collaborative learning environments to address these gaps. This research contributes to the theoretical understanding of the SECI model in public sector learning environments and offers practical insights for improving knowledge management strategies. The findings provide valuable implications for policy and decision-making, aiming to optimize learning processes and enhance organizational performance in public sector institutions.

Introduction

The integration of the 70:20:10 learning model within public sector organizations, such as the Ministry of Finance, can significantly enhance both organizational performance and innovation when combined effectively with knowledge management strategies like the SECI model (Socialization, Externalization, Combination, Internalization). The 70:20:10 model advocates for a balanced approach to learning, emphasizing experiential learning (70%), social learning (20%), and formal learning (10%) (Johnson et al., 2018). This framework aligns with the SECI model, which emphasizes the importance of transforming tacit knowledge into explicit knowledge through structured interactions and collaborative processes (Hashimoto et al., 2015). The SECI model facilitates a cyclical process of knowledge creation that promotes the dissemination of knowledge across different levels of the organization and nurtures a culture of continuous learning and innovation (Hashimoto et al., 2015; Vidic, 2022).

Understanding the SECI model is crucial for transforming knowledge into a key source of sustainable competitive advantage for companies (Nonaka et al., 2000). In the Socialization phase, tacit knowledge is transferred through shared experiences and face-to-face interactions, fostering relationships. Research shows this is effective in collaborative settings, like education, where

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teachers enhance their knowledge through engagement (Alimuddin et al., 2021; Adesina & Ocholla, 2019). The Externalization stage transforms tacit knowledge into explicit forms, enabling broader sharing within an organization through documents, presentations, and discussions. This process enhances understanding and is crucial in innovation contexts, where articulated knowledge can drive new developments and product innovations (Hashimoto et al., 2015). In the Combination phase, explicit knowledge is integrated, reorganized, and structured using tools like databases. This process enhances retrieval, fosters innovation, and strengthens organizational capabilities (Baldé et al., 2018; Sehgal, 2023). In the Internalization phase, explicit knowledge is converted into tacit knowledge as individuals apply it in practice, enhancing skills and competencies. This occurs through training or experiential learning, improving learning outcomes and performance in areas like education and business (Cheng, 2020; Putra, 2020).

IPA is a crucial tool for evaluating these processes, allowing organizations to identify performance gaps and prioritize areas for improvement. The urgency of applying these methodologies within the Ministry of Finance lies in analyzing the perception of integrated learning implementation from the SECI Model's perspective. This analysis is vital for understanding how knowledge is created, shared, and internalized within the organization's learning strategies, ultimately improving overall performance and effectiveness.

However, the Ministry of Finance faces several key challenges in integrating learning strategies within its operations. The Integrated Learning Model is expected to serve as an effective strategy for human resource development within the Ministry of Finance. However, its implementation encounters various challenges. Many organizations often treat the elements of this model as separate components rather than as part of an integrated framework (Johnson et al., 2018; Blackman et al., 2016). Furthermore, there is a mistaken belief that work experience alone will naturally lead to skill development without additional support (Johnson et al., 2018). Other obstacles include insufficient support from supervisors, limited opportunities to practice new skills, and a lack of recognition for learning outcomes (Johnson et al., 2018; Nazarudin, 2015). Successfully implementing this model also requires thorough planning to ensure the seamless integration of formal, social, and experiential learning (Nazarudin, 2015; Blackman et al., 2016).

The study aims to identify key performance gaps within the Ministry of Finance related to the integration of learning strategies and knowledge management models such as 70:20:10 and SECI through IPA. By assessing how well the Ministry of Finance aligns with these models, the research seeks to uncover areas where the processes of knowledge creation, sharing, and internalization can be optimized. This research promises to provide valuable insights into the management of integrated learning strategies in public organizations, both reinforcing theoretical frameworks and offering practical solutions for public sector managers to enhance organizational performance and innovation (Anand et al., 2020; Gadenne et al., 2012).

Guiding this study are critical research questions:

1. How effectively does the Ministry of Finance implement the 70:20:10 learning model in alignment with the SECI model's framework?
2. What managerial strategies can be derived from the findings to improve the integration of learning models and knowledge management practices?

By addressing these questions, the research aspires to provide a deeper understanding of how the Ministry of Finance can enhance its learning strategies and knowledge management practices. It aims to uncover areas for improvement in aligning the 70:20:10 model with the SECI framework and to offer practical managerial strategies that can foster a culture of continuous learning, innovation, and performance improvement within the Ministry of Finance.

Literature Review

Theoretical Foundations: 70:20:10 Model and SECI Framework

The 70:20:10 model provides a framework for learning and development, suggesting that 70% of learning occurs through experiential activities (on-the-job experiences), 20% through social interactions (coaching and mentoring), and 10% through formal education (classroom training)

(Johnson et al., 2018). In the public sector, empirical studies highlight the effectiveness of this model in enhancing managerial competencies and improving knowledge transfer among employees. For instance, Johnson et al. (2018) reported that when implemented correctly, the model significantly contributed to developing managerial capabilities in the Australian public sector, despite challenges related to its arbitrary ratios and contextual applications. Furthermore, Cameron et al. (2024) emphasized that integrating experiential learning in the workplace enhances traditional educational approaches, highlighting the workplace as a critical learning environment.

The SECI model, which comprises four key processes: Socialization, Externalization, Combination, and Internalization, showcases how organizations cultivate and manage knowledge over time (Ritonga et al., 2024). It highlights the importance of both tacit and explicit knowledge in fostering organizational transformation. Recent studies, such as those reviewed by Li et al. (2018), indicate that the SECI framework significantly impacts innovation performance, particularly in complex product systems, suggesting its utility in navigating developmental challenges in public sector contexts (Li et al., 2018). Furthermore, Ritonga et al. (2024) explored applications of the SECI framework in small and medium enterprises (SMEs), providing insights into its relevance for public sector organizations by demonstrating how effective knowledge management could promote organizational sustainability amidst rapid changes (Ritonga et al., 2024).

Integrating SECI and 70:20:10 in Public Sector Learning Practices

The integration of the 70:20:10 learning model with the SECI knowledge creation model presents numerous opportunities for enhancing learning strategies within public sector organizations. Both models focus on experiential learning and social interactions as pivotal components of effective knowledge management. Research indicates that when these models are combined, organizations can better facilitate knowledge sharing and enhance innovation (Bromiley & Rau, 2015; Li et al., 2018). For example, the combination of the SECI processes with the experiential learning emphasized in the 70:20:10 model enables organizations to systematically convert tacit knowledge into explicit forms, thereby aligning learning experiences directly with strategic objectives (Amenumey & Badu, 2024).

The synergy of the 70:20:10 and SECI models has been shown to enhance organizational performance and spur innovation within public sector institutions. Studies have noted that creating an environment that fosters both experiential learning and systematic knowledge creation leads to more innovative practices and overall efficiency improvements (Amenumey & Badu, 2024). Additionally, empirical findings by Leal et al. (2023) indicate that the SECI model dimensions, particularly Externalization and Internalization, positively influence innovative behaviors, an effect potentially amplified when combined with the experiential learning encouraged by the 70:20:10 framework. This dual approach emphasizes the importance of continuous knowledge sharing and experiential learning in driving transformative outcomes within the public sector.

Implementation Issues and Strategic Implications

In practice, integrating these models can enhance engagement strategies used in leadership development and training programs within public sector organizations. For instance, mentoring programs leveraging the 70:20:10 approach can effectively facilitate the socialization aspect of the SECI model by fostering communication and collaboration among staff (Rosch & Jenkins, 2020). Specific applications in various public organizations include establishing knowledge-sharing platforms, creating structured mentoring systems, and encouraging collaborative projects that enable experiential learning aligned with the SECI framework (García et al., 2023). Moreover, integrating technology to facilitate these processes has been highlighted, particularly in enhancing knowledge conversion and sharing in a rapidly evolving digital landscape (Tarmizi et al., 2024).

Despite significant advantages, challenges persist in effectively integrating the 70:20:10 and SECI models within public sector practices. A prevalent gap is the lack of robust measurement metrics to evaluate the effectiveness of combined strategies, hindering accurate assessments of their impact (Cameron et al., 2024; Valacherry & Pakkeerappa, 2021). This uncertainty can restrict

the full adoption of these strategic frameworks, limiting potential benefits. Additionally, insufficient training and familiarity with knowledge management practices among employees may pose barriers to leveraging these models effectively in daily operations (Kamarova et al., 2024). This underscores the need for more extensive managerial training and resource allocation to build competencies that support the operationalization of both models in the public sector.

Recent literature highlights several trends and outcomes associated with integrating these learning and knowledge management models. Firstly, studies reveal that organizations adopting these integrated models report higher employee engagement and satisfaction, resulting in improved retention rates (Virolainen et al., 2022). Furthermore, strategic interventions guided by both frameworks have been found to enhance innovation outputs and efficiencies across public sector projects, demonstrating their applicability beyond traditional educational contexts (Franzen, 2020). Significantly, aligning these learning and knowledge models creates an environment conducive to adaptability and responsiveness to organizational needs and external challenges—critical for public sector organizations grappling with complexities in governance and service delivery (García et al., 2023).

Research Methods

This study employs a quantitative research design to evaluate the integration of learning models within the Ministry of Finance of Indonesia, with a particular focus on the application of the SECI model in knowledge management practices. A quantitative approach is ideal for this research as it facilitates the collection and analysis of measurable data, enabling an objective assessment of the effectiveness and perceptions regarding integrated learning systems within the organization. Previous studies have shown that quantitative methodologies are robust tools for extracting empirical evidence, which aids in understanding complex systems in public organizations (Elim et al., 2022; Huerta-Chávez, 2023).

Data collection was carried out over a defined period from February to March 2025, ensuring alignment with the Ministry's organizational schedules and adhering to the temporal constraints typical of governmental institutions. This structured timeline also enables a timely analysis of responses, contributing to continuous improvement within the organization, as emphasized in public sector research (Marthin et al., 2021).

The target population for this study consists of employees at the Ministry of Finance, totaling approximately 77,232 individuals. This large sample size represents a significant portion of Indonesia's public sector workforce, providing a valuable context for assessing integrated learning models. Research suggests that examining large-scale organizations, particularly within the public sector, offers more profound insights into systemic challenges and opportunities for enhancing knowledge management practices (Surju et al., 2020).

To ensure a representative sample, stratified random sampling techniques were employed. This approach is crucial for large organizations, such as the Ministry of Finance, as it ensures diverse demographic and organizational representation across different strata, which is essential for the validity of quantitative analyses. The sample size for the quantitative component was determined using the Isaac and Michael (1995) formula, which calculates the appropriate sample size to ensure statistical significance based on the target population's characteristics. A final sample of 382 respondents was selected, aligning with recommended sample sizes for achieving statistically significant results with a margin of error of 5%, as outlined in public administration research.

The characteristics of the respondents are detailed below in Table 1, which displays the population and sample distribution for each stratum, with the strata being Echelon I Units. This table provides a clear overview of the sample's diversity, allowing for a better understanding of the representation from different strata and helping to contextualize the subsequent analysis.

Data collection was conducted through surveys using a 1-5 Likert scale, which allowed for a nuanced measurement of respondents' perceptions and experiences regarding three integrated learning models: Learning from Experience, Social Learning, and Formal Learning. Each of these models is linked to components of the SECI model—Socialization, Externalization, Combination, and Internalization—key elements in understanding knowledge sharing and management dynamics

within the organization. The use of Likert scales for similar research in public sector environments has been validated as a reliable method for assessing perceptions (Mohammed et al., 2019; Goswami & Agrawal, 2021). Additionally, the relevance of the SECI model in knowledge management has been highlighted in numerous studies, reinforcing its applicability to this research (Jääskeläinen et al., 2020).

Table 1. Population and Sample

Characteristics	Population	Sample
General Secretariat	2,800	4
Directorate General of Budget	842	14
Directorate General of Taxes	43,862	217
Directorate General of Customs and Excise	15,857	78
Directorate General of Treasury	6,457	32
Directorate General of State Assets Management	3,784	19
Directorate General of Fiscal Balance	536	3
Directorate General of Budget Financing and Risk Management	501	2
Inspectorate General	664	3
Fiscal Policy Agency	518	3
Financial Education and Training Agency	1,236	6
National Single Window Agency	175	1
Total	77,232	382

Data management and preliminary analysis were conducted using Microsoft Excel 2019. For more comprehensive statistical analysis, SPSS version 22 was used to perform descriptive statistics, correlation, and regression analyses. These techniques are essential for testing the relationships between integrated learning models and perceived organizational performance, as demonstrated in previous public sector quantitative research (Huerta-Chávez, 2023). The use of these established tools ensures rigorous data handling and analysis, allowing for reliable conclusions to be drawn from the collected data.

Results and Discussion

From the questionnaires distributed to the respondents, the number of respondents obtained in this study was 608, distributed based on the Echelon I Units, as shown in Table 2.

Table 2. Respondents Characteristics

Characteristics	Sample	Freq	%
General Secretariat	14	21	150
Directorate General of Budget	4	23	575
Directorate General of Taxes	217	24	11
Directorate General of Customs and Excise	78	155	199
Directorate General of Treasury	32	175	547
Directorate General of State Assets Management	19	89	468
Directorate General of Fiscal Balance	3	15	500
Directorate General of Budget Financing and Risk Management	2	2	100
Inspectorate General	3	6	200
Fiscal Policy Agency	3	4	133
Financial Education and Training Agency	6	93	1,550
National Single Window Agency	1	1	100
Total	382	608	159

The table illustrates the distribution of respondents across various Echelon I Units, with a total of 608 respondents and a sample size of 382, which corresponds to the ideal sample size for

each unit. Despite using stratified random sampling, the table reveals that several units have a percentage of respondents that is less than 100%, highlighting that these units did not fully meet their ideal sample sizes. For instance, the Directorate General of Taxes, with 217 sample respondents, shows a frequency of only 24 (11%), far from the expected representation.

IPA (Importance-Performance Analysis) is a valuable tool used to assess the levels of importance and performance associated with the implementation of integrated learning within the Ministry of Finance. This analysis helps to identify areas where the organization is excelling and areas that require improvement. In this study, IPA is applied separately for each of the three integrated learning models. By evaluating the perceived importance of each model alongside its actual performance, IPA provides a clear framework for understanding the alignment between the Ministry's goals and the outcomes of its learning initiatives.

Conducting IPA separately for each learning model allows the Ministry to tailor its strategies and resources to the specific needs of each model, ensuring that each learning approach is effectively integrated into the organization's knowledge management framework. Furthermore, the insights gained from the IPA analysis can guide decision-making, helping policymakers and leaders in the Ministry of Finance optimize the implementation of integrated learning models, ultimately enhancing both individual and organizational performance.

Table 3 shows the average score for the importance and performance of learning from experience. This table highlights the perceived importance and the actual performance of the learning from experience model, providing valuable insight into areas that may require further development or enhancement.

Table 3. Average Score for the Importance and Performance of Learning from Experience

Codes	Indicators	Importance	Performance
EL1	The level of tacit knowledge accumulation in the learning from experience model	4.58	4.52
EL2	The level of external social information gathering in the learning from experience model	4.52	4.51
EL3	The level of internal social information gathering in the learning from experience model	4.57	4.58
EL4	The level of tacit knowledge transfer in the learning from experience model	4.58	4.59
EL5	The level of creative dialogue in the learning from experience model	4.54	4.53
EL6	The level of deductive and inductive thinking in the learning from experience model	4.52	4.49
EL7	The level of metaphor usage in the learning from experience model	4.49	4.47
EL8	The level of idea exchange in the learning from experience model	4.52	4.48
EL9	The level of acquisition and integration in the learning from experience model	4.53	4.48
EL10	The level of synthesis and processing in the learning from experience model	4.53	4.53
EL11	The level of dissemination in the learning from experience model	4.49	4.46
EL12	The level of personal experience in the learning from experience model	4.53	4.52
EL13	The level of simulation and experimentation in the learning from experience model	4.50	4.49
Mean		4.53	4.51

Table 4 presents the average score for the importance and performance of social learning. By comparing the importance and performance of social learning, the table helps identify any discrepancies between expectations and outcomes, thereby guiding improvements in this particular learning model.

Table 4. Average Score for the Importance and Performance of Social Learning

Codes	Indicators	Importance	Performance
SL1	The level of tacit knowledge accumulation in the social learning model	4.57	4.58
SL2	The level of external social information gathering in the social learning model	4.55	4.57
SL3	The level of internal social information gathering in the social learning model	4.54	4.59
SL4	The level of tacit knowledge transfer in the social learning model	4.54	4.59
SL5	The level of creative dialogue in the social learning model	4.53	4.50
SL6	The level of deductive and inductive thinking in the social learning model	4.53	4.52
SL7	The level of metaphor usage in the social learning model	4.51	4.49
SL8	The level of idea exchange in the social learning model	4.53	4.50
SL9	The level of acquisition and integration in the social learning model	4.54	4.53
SL10	The level of synthesis and processing in the social learning model	4.52	4.54
SL11	The level of dissemination in the social learning model	4.53	4.51
SL12	The level of personal experience in the social learning model	4.53	4.55
SL13	The level of simulation and experimentation in the social learning model	4.54	4.56
Mean		4.54	4.54

Table 5 shows the average score for the importance and performance of formal learning. This table serves to assess how well formal learning is being implemented relative to its perceived importance, shedding light on areas where this model may be underperforming or where additional resources may be needed.

Table 5. Average Score for the Importance and Performance of Formal Learning

Codes	Indicators	Importance	Performance
FL1	The level of tacit knowledge accumulation in the formal learning model	4.60	4.60
FL2	The level of external social information gathering in the formal learning model	4.57	4.62
FL3	The level of internal social information gathering in the formal learning model	4.59	4.61
FL4	The level of tacit knowledge transfer in the formal learning model	4.56	4.60
FL5	The level of creative dialogue in the formal learning model	4.56	4.58
FL6	The level of deductive and inductive thinking in the formal learning model	4.55	4.55
FL7	The level of metaphor usage in the formal learning model	4.56	4.56
FL8	The level of idea exchange in the formal learning model	4.57	4.58
FL9	The level of acquisition and integration in the formal learning model	4.58	4.63
FL10	The level of synthesis and processing in the formal learning model	4.55	4.55
FL11	The level of dissemination in the formal learning model	4.60	4.65
FL12	The level of personal experience in the formal learning model	4.58	4.60
FL13	The level of simulation and experimentation in the formal learning model	4.57	4.57
Mean		4.57	4.59

Based on the IPA results, the analysis for the learning from experience model shows that the average level of importance is 4.53, while the average performance level is recorded at 4.51. The analysis for the social learning model shows that the average levels of importance and

performance are both 4.54. Meanwhile, the analysis for the formal learning model shows an average importance level of 4.57, with a slightly higher performance level of 4.59.

Next, the results of these analyses are mapped into the IPA matrix, which visually represents the relationship between the perceived importance and performance of each integrated learning model. By plotting the data into the appropriate quadrants, the IPA matrix offers a clear and structured overview of the findings. This matrix helps to categorize the various components of each learning model into four key areas:

1. Quadrant I (concentrate here): Attributes that are very important but have low performance, representing major weaknesses that need immediate improvement.
2. Quadrant II (keep up the good work): Important attributes with high performance that should be maintained, as they provide strengths and competitive advantages.
3. Quadrant III (low priority): Attributes with low importance and performance, requiring minimal attention for improvement.
4. Quadrant IV (possible overkill): Attributes with high performance but low importance, suggesting excessive resource allocation that may need reassessment.

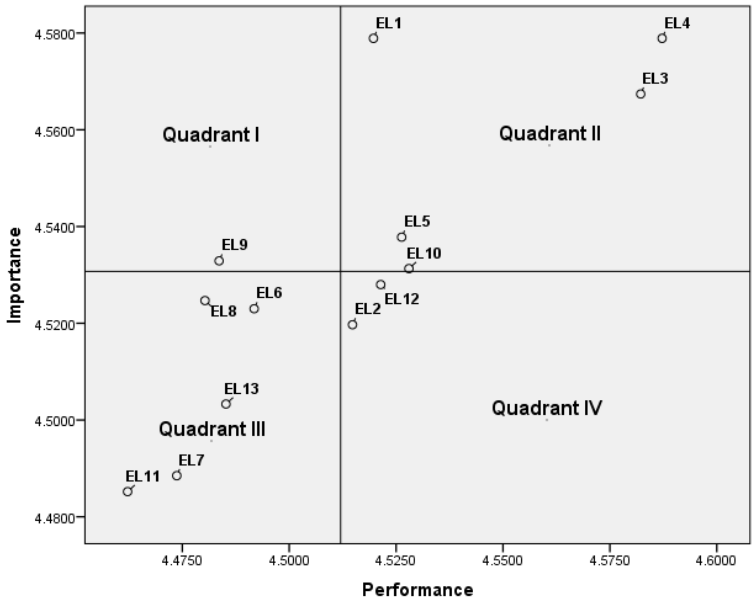

Figure 1. Learning from Experience IPA Matrix

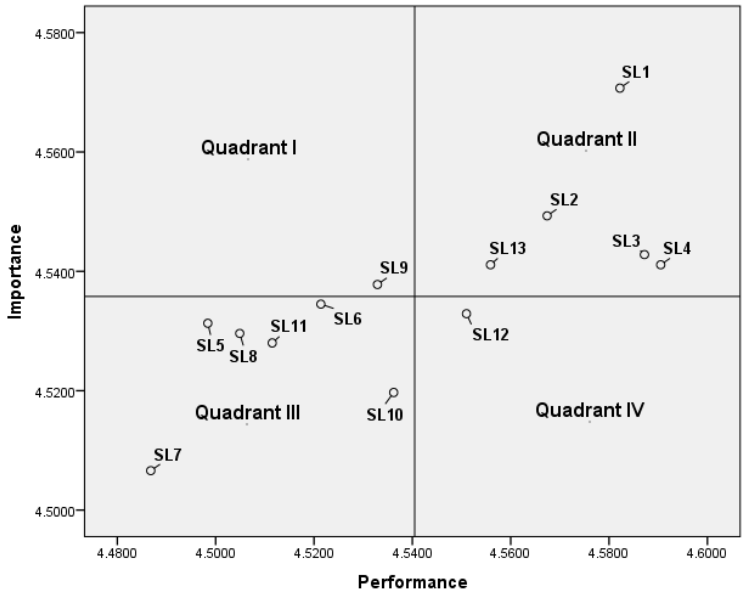

Figure 2. Social Learning IPA Matrix

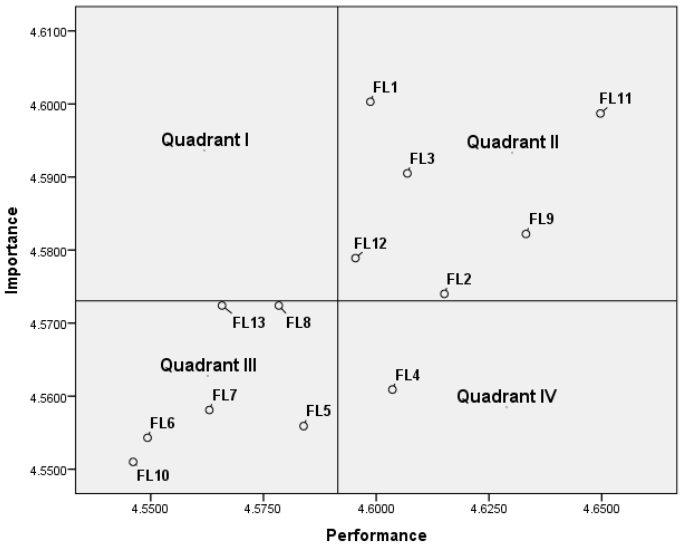

Figure 3. Formal Learning IPA Matrix

The results of the IPA matrix mapping indicate that two indicators fall within Quadrant I, which are areas that require immediate attention for improvement. These indicators are EL9 (The level of acquisition and integration in the learning from experience model) and SL9 (The level of acquisition and integration in the social learning model).

Participants have high expectations for the program's ability to integrate and apply explicit knowledge within the learning from experience model. However, the program has not fully met these expectations. This gap arises because the program primarily emphasizes practical experiences, which do not always optimally engage or utilize explicit knowledge. Consequently, participants often face difficulties in acquiring and integrating explicit knowledge, such as data and reports, during the learning process. The lack of sufficient access to these resources hinders the connection between theoretical knowledge and practical experiences, limiting the overall effectiveness of the program. This highlights the need for a more robust system to provide and manage explicit knowledge that participants can easily access throughout the learning experience.

Similarly, in the social learning program, participants expect the program to integrate, collect, and utilize explicit knowledge. However, this expectation is not fully met because the program emphasizes interaction and experience sharing without a clear structure for organizing and transferring explicit knowledge. While social learning focuses on discussion and collaboration, structured knowledge—such as documents, reports, and manuals—remains essential for reference. Therefore, both models need to find ways to integrate explicit knowledge better, allowing participants to access and apply it for more effective solutions.

In examining the implementation of the 70:20:10 learning model in conjunction with the SECI model at the Ministry of Finance, it becomes evident that while there are expectations for enhanced knowledge integration through experiential, social, and formal learning, significant gaps remain. Research has shown that alignment of these models is crucial for effective knowledge management, as each model contributes uniquely to the overall learning environment.

The 70:20:10 learning model proposes that effective learning occurs predominantly through experiential learning (70%), followed by social learning (20%), and formal education (10%) (Azeez & Aboobaker, 2024; Barnett et al., 2011). The findings indicate that the Ministry of Finance's current practices prioritize practical experience but lack sufficient structures for integrating explicit knowledge. Azeez and Aboobaker (2024) emphasize that a strong understanding of experiential learning is essential for effectively linking theory and practice. This disconnect hinders the application of knowledge, making it difficult for participants to synthesize explicit information from resources such as reports and guidelines (DeRue et al., 2012; Lerro & Schiuma, 2013). Participants expect the program to facilitate explicit knowledge acquisition, but the current focus on practical experiences provides limited structured guidance for utilizing theoretical knowledge from formal resources (Dinh et al., 2013; Guo, 2019). Tan (2024) highlights

that recognizing the systemic nature of knowledge management is crucial for improving learning practices in public sector settings.

The SECI model—comprising Socialization, Externalization, Combination, and Internalization—emphasizes the importance of shared experiences and structured knowledge transfer processes (Erice et al., 2012). While the Ministry of Finance prioritizes interaction and experience sharing as part of its social learning initiatives, the absence of structured mechanisms for organizing and transferring explicit knowledge limits the effectiveness of these efforts. Research by Huynh (2023) highlights that integrating experience-based learning enhances knowledge retention and deepens understanding, which is critical for fostering effective learning environments (Jahre, 2017; Salvador & Andal, 2023). Within the SECI framework, the Socialization and Externalization phases play a crucial role in facilitating collaboration and articulating tacit knowledge (Erice et al., 2012; Kvedaraitė et al., 2013). However, participants noted that while collaboration is encouraged, the lack of a structured approach for capturing and disseminating explicit knowledge reduces its overall impact (DeRue et al., 2012). This aligns with findings by Kvedaraitė et al. (2013), who emphasize the need for tailored frameworks to enhance self-directed learning—an essential component of adult education, particularly within professional training environments like the Ministry of Finance.

Despite offering empirical contributions to the discourse on knowledge management in the public sector, this study is not without methodological limitations that may affect the interpretation and generalization of its findings. First, the exclusive use of a quantitative research design restricts the ability to explore the nuanced and context-specific nature of knowledge creation and sharing within bureaucratic institutions. Qualitative insights, such as narratives, experiences, and informal learning patterns, were not captured, which may have overlooked critical dimensions of tacit knowledge integration that are central to the SECI model. Second, the reliance on self-reported Likert-scale survey data introduces the risk of perceptual biases, including social desirability and response consistency bias, which may compromise the validity of the data and limit its capacity to reflect the actual behavioral patterns of learning and knowledge exchange. Third, the study focused solely on three learning models—Learning from Experience, Social Learning, and Formal Learning—without incorporating other contextual determinants such as organizational culture, digital infrastructure, leadership support, or interdepartmental collaboration, which could influence the effectiveness of knowledge integration. Fourth, the analytical approach centered on Importance-Performance Analysis (IPA) and basic descriptive statistics, which, although useful for prioritization, lack the inferential depth to uncover causal mechanisms or complex interdependencies among variables. Fifth, the cross-sectional nature of the data precludes any assessment of temporal dynamics, preventing an understanding of how learning practices evolve in response to organizational change or policy reforms. Furthermore, despite using a stratified random sampling method to ensure balanced representation across various strata, a limitation was identified in the number of respondents from the Directorate General of Taxes. Although the sampling method was designed to minimize bias, the Directorate General of Taxes strata did not meet the ideal sample size, which could introduce some bias and potentially limit the generalizability of the findings. However, the total number of respondents reached 608, exceeding the target of 382, which provides a more comprehensive and representative picture of the entire population. While challenges in achieving the ideal sample sizes for certain strata remain, the high level of participation across other units ensures that the data remains broadly reflective of the population. Addressing these discrepancies will help improve the accuracy of the sample and further enhance the robustness and validity of the analysis.

Acknowledging these limitations, future studies should adopt mixed-methods approaches to capture both qualitative and quantitative data, offering a more nuanced understanding of knowledge creation within the public sector's integrated learning frameworks. Additionally, expanding the scope of explanatory variables to include factors such as organizational culture, digital infrastructure, leadership support, and interdepartmental collaboration would enrich the analysis, as these elements play a significant role in knowledge integration and the effectiveness of learning models. Longitudinal or experimental designs would further enhance the research by

enabling the study of temporal dynamics and tracking how learning practices evolve, especially in response to organizational changes or policy reforms. Furthermore, addressing the sampling limitations, such as the underrepresentation from the Directorate General of Taxes, would improve the generalizability of the findings. A more representative sample across all strata would provide more accurate insights, contributing to a stronger, more context-sensitive understanding of knowledge management practices in the public sector.

Implication and Conclusion

To address the identified gaps in knowledge integration within the Ministry, several managerial strategies are paramount:

1. Developing a Centralized Knowledge Management System
   Implementing a robust centralized platform is essential for organizing and disseminating explicit knowledge efficiently. This system would enable participants to easily access relevant resources, bridging experiential and theoretical learning components. Research supports the role of such frameworks in enhancing collaboration and knowledge sharing (Dinh et al., 2013; Khalifa et al., 2016), ensuring that users can navigate and utilize information effectively to improve learning outcomes.
2. Creating Knowledge Documentation Guidelines and Templates
   Establishing standardized templates and guidelines for documentation is crucial for organizing knowledge across different learning experiences. This approach enhances knowledge management by facilitating better integration and application of information. Research by Guo (2019) and Macdiarmid et al. (2019) highlights that structured documentation promotes knowledge retention and application, ensuring that learning is a continuous process. By providing clear guidelines, learners can connect disparate pieces of information, strengthening overall knowledge integration (Bajardi et al., 2015).
3. Encouraging Collaboration and Knowledge Integration Among Participants
   Fostering collaboration is key to enriching the learning experience. Organizing forums or discussion groups encourages participants to not only share experiences but also actively combine their insights to solve problems collaboratively. As indicated in the work of Rashidirad et al. (2017), the effectiveness of collaborative practices can significantly enhance knowledge quality and reinforce the interconnectedness of knowledge through diverse narratives (DeRue et al., 2012; Jaworski, 2011).
4. Integration of Design Thinking into Educational Structures
   Lipinski et al. (2023) delineate the importance of employing design thinking within educational frameworks to improve adaptability and resonance with participants' learning processes (Lee & Sözen, 2018; Lipinski et al., 2023). This approach can support the customization of learning experiences, aligning them with the needs of participants while advancing innovative solutions tailored to the organizational context.

The integration of the 70:20:10 learning model with the SECI framework within the Ministry of Finance reveals critical gaps in the management of explicit knowledge, highlighting the need for a more structured approach to enhance both experiential and social learning facets. The identified indicators EL9 and SL9 illustrate that while there is a solid foundation established through practical experiences and social interactions, the full potential of these learning environments is not being realized due to the inadequacies in transferring and utilizing explicit knowledge. This underscores the importance of not only knowledge-sharing systems but also the integration of structured frameworks for knowledge management, which are vital for bridging the gaps in learning processes (Heisig & Kannan, 2020; Enstroem & Schmaltz, 2023; Ollila et al., 2015).

To truly align these learning models with the SECI framework, the Ministry of Finance must consider implementing several managerial strategies to create an effective knowledge management ecosystem. A centralized knowledge management system could serve as a repository for knowledge that enhances the accessibility and utility of explicit insights in the learning environment. Additionally, developing standardized documentation guidelines would ensure that

knowledge gleaned from experiential learning is accurately captured and structured for future reference. Initiatives that promote collaborative practices among employees can facilitate rich interaction and the sharing of diverse perspectives, ultimately enhancing knowledge retention and application (Dong et al., 2016; Pohjola et al., 2016; Sepahvand et al., 2015; Hadiwidjaja et al., 2024).

Furthermore, fostering a strong organizational culture that values continuous learning and knowledge sharing is crucial. This culture can be nurtured through training and development programs focused on enhancing employee engagement with knowledge management practices, thus making such frameworks part of the organizational DNA. The Ministry of Finance needs to embrace these learning models holistically, viewing them not as isolated frameworks but as interconnected processes that contribute to building a more informed and capable workforce (Grove et al., 2010; Rivera-Prieto et al., 2022; Moreira et al., 2022).

By implementing these recommendations, not only will the Ministry improve the integration of the 70:20:10 learning model with the SECI framework, but it will also substantially enhance its overall organizational effectiveness in terms of knowledge management. Future research may delve deeper into assessing the impact of these managerial strategies on knowledge integration and employee performance, particularly within public sector contexts, providing insights on best practices that can be replicated across various government departments (Novas et al., 2017; Chidiadi, 2024).

While this study provides valuable insights, several limitations must be acknowledged that may affect the interpretation and generalization of its findings. These include the exclusive use of a quantitative approach, potential biases in self-reported data, and a focus on only three learning models. Additionally, the reliance on Importance-Performance Analysis (IPA) and basic descriptive statistics lacks the inferential depth needed to identify causal relationships. The cross-sectional nature of the data limits the ability to assess temporal dynamics, and issues related to sample size representation may introduce bias. Despite these challenges, the study offers valuable perspectives on the integration of learning models and knowledge management in the public sector. Future research should address these limitations by adopting mixed-methods approaches, incorporating additional contextual factors, and using longitudinal or experimental designs to gain a more comprehensive understanding of knowledge management practices in similar settings.

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