
The Influence of the SECI Knowledge Creation Model on Consumer New Knowledge in Digital Business Platforms: A Study of Mobile Legends Users in Surabaya

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Abstract

Digital business platforms have transformed consumers from passive product recipients into active knowledge-creating agents. This study examines the influence of the SECI knowledge creation model Socialization, Externalization, Combination, and Internalization on new knowledge formation among Mobile Legends consumers in Surabaya, Indonesia. Employing a quantitative associative research design, data were collected from 150 active Mobile Legends users through structured Likert-scale questionnaires and analyzed using multiple linear regression. Results confirm that all four SECI dimensions simultaneously and partially influence new knowledge formation. Simultaneously, the model explains 53.6% of variance in new knowledge formation ($F = 41.846$, $p = 0.000$). Partially, Combination emerges as the strongest predictor ($\beta = 0.325$), followed by Internalization ($\beta = 0.317$), Socialization ($\beta = 0.227$), and Externalization ($\beta = 0.154$), all significant at $p < 0.05$. These findings extend the SECI model and Knowledge-Based View beyond formal organizational settings, establishing that consumer-driven knowledge creation in non-formal digital ecosystems is a structured and measurable phenomenon. Practically, the findings provide strategic guidance for digital platform operators to invest in consumer knowledge capital as a source of sustained competitive advantage.

Keywords: SECI Model; Consumer Knowledge Creation; New Knowledge; Digital Business Platform; Mobile Legends; Knowledge Management

INTRODUCTION

The digitalization of consumer markets has fundamentally redefined how product value is created and accumulated. Unlike physical goods, digital products function as interactive ecosystems in which consumers do not merely consume but continuously engage, adapt, and contribute to a platform's evolving knowledge base (Almeida et al., 2020). Mobile Legends: Bang Bang (MLBB), developed by Shanghai Moonton Technology, exemplifies this dynamic at scale. By 2024, the platform recorded approximately 43.23 million active players in Indonesia alone, representing 14% of the national population, with 52% concentrated in Java (Data.ID, 2024). The Indonesian Internet Service Providers Association (APJII, 2025) confirms that 48.99% of Indonesian online game players designate MLBB as their primary platform, positioning it not merely as an entertainment product but as a dominant digital business ecosystem through which millions structure their social interaction, competitive engagement, and economic activity.

What distinguishes Mobile Legends from conventional entertainment products is the structural complexity of its social architecture. The platform integrates in-game communication tools, team coordination mechanics, community forums, and a growing e-sports infrastructure that collectively sustain multidimensional consumer interaction (Hanif & Wailmi, 2025; Nugraha et al., 2025; Muhammad et al., 2023). Within this environment, consumers are perpetually embedded in knowledge exchange: a player who observes and replicates a teammate's positional strategy is transferring tacit knowledge; one who articulates a guide for the community is externalizing personal insight; one who synthesizes multiple information sources into a coherent strategy is combining explicit knowledge; and one who converts repeated practice into intuitive skill has internalized that knowledge into operational competence. These processes map precisely onto the SECI model, Socialization, Externalization, Combination, and Internalization developed by Nonaka and Takeuchi (1995) as the foundational framework for organizational knowledge creation. The central argument of this study is that these processes operate with equal consequence among consumers in non-formal digital ecosystems, producing measurable new knowledge formation at the individual level.

From a digital business administration perspective, consumer knowledge creation constitutes a strategic intangible asset whose accumulation directly reinforces platform sustainability and competitive advantage (Andreas & Arymami, 2021). A consumer with deep product knowledge exhibits stronger engagement, more sophisticated usage patterns, and greater platform loyalty qualities that translate directly into the long-term viability of the digital business ecosystem. However, high interaction volume does not guarantee substantive knowledge production. Paul et al. (2024) find that online gamers predominantly share task oriented, short-term information rather than engaging in the reflective exchanges that generate deeper knowledge. Huang et al. (2023) similarly identify quality deficits and governance gaps in digital communities that constrain knowledge creation potential. These findings reveal a critical management challenge: platforms can sustain massive user engagement while failing to cultivate the consumer knowledge capital that drives lasting value.

Existing empirical literature on the SECI model has been conducted exclusively within formal organizational settings. Tiyana et al. (2023) apply it to R&D divisions in the

food industry; Ipmawati and Hendriana (2021) to IT department knowledge retention; Saepudin et al. (2022) to learning organization and employee performance; Fikriana et al. (2025) to Islamic higher education personnel; and Sekartaji and Sushandoyo (2025) to banking customer service improvement. Across this body of work, a consistent assumption prevails that knowledge creation through SECI requires managerial facilitation, formal documentation systems, and institutional hierarchy. No prior empirical study has tested whether the SECI process produces measurable new knowledge formation at the level of individual consumers operating within non-formal digital platform ecosystems, a gap that this study is positioned to fill.

This study therefore repositions the unit of analysis from the organization to the consumer, and the context of knowledge creation from formal institutional environments to the organic, community-driven digital platform ecosystem. Empirically, it tests the simultaneous and partial influence of each SECI dimension Socialization (X1), Externalization (X2), Combination (X3), and Internalization (X4) on new knowledge formation (Y) among 150 active Mobile Legends users in Surabaya, a city selected for its high-intensity MLBB community activity including events mobilizing over 1,280 participants (Naufal, 2024). Theoretically, this study extends the SECI model and the Knowledge-Based View beyond organizational boundaries, establishing consumer-driven knowledge creation as a structured and measurable phenomenon in digital business ecosystems. Practically, it provides platform operators with an empirically grounded basis for investing in consumer knowledge capital as a source of sustained competitive advantage.

REVIEW OF LITERATURE

Knowledge-Based View (KBV)

The Knowledge-Based View (KBV) positions knowledge as the most strategically significant resource determining competitive advantage. Unlike physical assets, knowledge particularly tacit knowledge is heterogeneous, context-specific, and difficult to replicate, making it a durable foundation for sustained advantage (Arief et al., 2023; De Moortel & Crispeels, 2024). KBV distinguishes two knowledge forms: tacit knowledge, which is personal and embedded in experience, and explicit knowledge, which is codifiable and formally transferable (Alqahtani et al., 2023). In the context of digital business platforms, KBV extends beyond the firm to the consumer level consumer knowledge accumulated through platform interaction constitutes an intangible asset that strengthens platform value and sustainability. As Fahmi and Yulianto (2021) note, knowledge uniquely grows rather than depreciates as it is shared and applied, making consumer knowledge creation a self-reinforcing driver of long-term digital business ecosystem viability.

Knowledge Creation

Knowledge creation is the organizational process of generating new knowledge through the dynamic interaction between tacit and explicit knowledge forms. Akbar (2022) defines it as the deliberate process of introducing new knowledge into a system, encompassing both the development and discovery of knowledge through learning activities. Nonaka and Takeuchi (1995) formalize this process through the Knowledge Spiral Model, which posits that knowledge creation is not a linear accumulation but a continuous, upward

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spiral in which tacit and explicit knowledge mutually transform across social levels from the individual to the group, to the organization. This spiral is driven by four conversion modes, collectively termed SECI (Chen et al., 2024; Dasari et al., 2025), and produces new knowledge that carries strategic value as an intangible asset in both formal organizational and non-formal consumer digital contexts.

Socialization

Socialization is the first mode of the SECI spiral, describing the conversion of tacit knowledge to tacit knowledge through shared experience, direct observation, and imitation without the intermediary of language or codification. Nonaka and Takeuchi (1995) characterize the output of this process as sympathized knowledge: understanding formed through empathic co-presence rather than formal instruction. In the digital gaming ecosystem, socialization occurs when consumers absorb strategic decision-making patterns, positional instincts, and situational responses by co-playing with others a form of implicit learning that cannot be fully captured in written guides.

The socialization process in this study is operationalized through five indicators adapted from Putra (2020) and Nonaka and Takeuchi (1995), each capturing a distinct mechanism of tacit knowledge transfer among Mobile Legends consumers:

1. **Co-play engagement.** Active participation alongside other players as the primary medium for spontaneous tacit knowledge transfer through shared situational exposure.
2. **Community participation.** Involvement in forums and group discussions as informal social spaces where experiential knowledge circulates organically through collective dialogue.
3. **Observation of others' gameplay.** Monitoring other players' decisions and positional patterns as a source of implicit, non-verbal observational learning.
4. **Strategic imitation.** Deliberate replication of techniques or tactical behaviors observed in others, constituting direct tacit-to-tacit knowledge transfer through behavioral modeling.
5. **Adaptive behavioral adjustment.** Modification of personal gameplay based on accumulated social exposure and experiential feedback, reflecting the absorption of collectively generated tacit knowledge.

Externalization

Externalization converts tacit knowledge into explicit, communicable form through dialogue, metaphor, analogy, and systematic articulation. Nonaka and Takeuchi (1995) identify this mode as the key to knowledge creation, because it marks the decisive point at which personal insight becomes a shareable and developable resource. The articulation process simultaneously deepens the producer's own understanding by forcing cognitive organization of previously implicit knowledge and enriches the community's collective knowledge base. In the Mobile Legends context, externalization is observable when consumers construct strategy guides, diagram rotational patterns, or narrate gameplay rationale in community forums.

The following five indicators, adapted from Putra (2020) and Nonaka and Takeuchi (1995), capture the key forms through which Mobile Legends consumers externalize tacit knowledge:

1. **Recording and sharing experiences.** Documenting gameplay experiences through notes or recordings, converting tacit situational understanding into explicit, revisable artifacts.
2. **Explaining through stories or analogies.** Communicating strategic reasoning through narrative or figurative language, translating implicit intuition into accessible explicit form.
3. **Creating visual representations.** Producing diagrams or maps of gameplay patterns, externalizing spatial and strategic tacit knowledge into communicable visual structures.
4. **Composing structured guides.** Organizing personal knowledge into systematic, step-by-step instructions that enable others to replicate strategic approaches without prior shared experience.
5. **Group discussion and knowledge sharing.** Participating in collective dialogues where strategic reasoning and experiential lessons are verbally articulated, refined, and co-developed with other players.

Combination

Combination integrates multiple bodies of explicit knowledge into new, more comprehensive knowledge systems. Nonaka (1995) describes this mode as the sorting, categorizing, recombining, and synthesizing of explicit knowledge from diverse sources to produce systemic knowledge, structured understanding that is transferable, deployable, and continuously updatable. In digital platform ecosystems, combination is the cognitively most demanding phase: consumers must not merely collect information but critically evaluate it, reconcile competing frameworks, and reconstruct the synthesized output into actionable strategic knowledge. This process is uniquely facilitated by the information-rich architecture of digital platforms, which provide users with simultaneous access to patch notes, community analyses, content creator commentary, and in-game data.

The five indicators below, adapted from Putra (2020) and Nonaka and Takeuchi (1995), reflect the key processes through which this synthesis occurs among Mobile Legends consumers:

1. **Collecting information from diverse sources.** Gathering explicit knowledge from multiple digital media forums, video content, and in-game documentation to build a comprehensive information base.
2. **Integrating multiple knowledge sources.** Synthesizing tips, guides, and strategic insights from different origins into unified, more complete understanding beyond fragmented information.
3. **Comparing information effectiveness.** Critically evaluating and contrasting information to identify which strategies or frameworks are most reliable for specific gameplay situations.
4. **Restructuring information into practical guides.** Reorganizing synthesized knowledge into action-oriented formats that can be directly applied during gameplay, translating complex information into operational knowledge.
5. **Updating knowledge from new information.** Continuously revising strategic understanding in response to new information including game patches and meta shifts reflecting an adaptive knowledge management orientation.

Internalization

Internalization is the reverse of externalization: explicit knowledge is progressively embedded back into tacit form through repeated practice and direct experiential application. Nonaka and Takeuchi (1995) characterize this process as learning by doing, in which deliberate procedure gradually transforms into automatic competence. The output of internalization is operational knowledge that manifests not as recalled information but as practiced intuition, embedded in the individual's habitual action patterns. In the Mobile Legends context, internalization is complete when a consumer no longer consciously consults strategic principles during gameplay, because those principles have been fully absorbed into reflexive decision-making. At this stage, the newly formed tacit competence seeds the next revolution of the SECI spiral, sustaining the knowledge creation cycle (Cristache et al., 2025).

The five indicators below, adapted from Putra (2020) and Nonaka and Takeuchi (1995), capture how internalization progressively deepens consumer knowledge in the Mobile Legends ecosystem:

1. **Applying explicit knowledge in practice.** Deploying learned strategies in live gameplay, initiating the transformation of explicit knowledge into embodied competence through real-context application.
2. **Converting guides into habitual behavior.** Through sustained repetition, automating previously deliberate procedures until strategic behaviors occur instinctively without consulting explicit sources.
3. **Adjusting performance based on experience.** Using gameplay outcomes as feedback to refine behavior, generating new tacit understanding through each iterative application cycle.
4. **Developing skills through repetitive practice.** Enhancing strategic competence through consistent engagement with gameplay challenges, producing progressively more refined operational knowledge.
5. **Integrating learning into consistent behavioral patterns.** Fully incorporating accumulated knowledge into stable, habitual conduct the final stage at which explicit knowledge is wholly transformed into tacit operational competence.

New Knowledge

New knowledge is the cognitive outcome of the SECI spiral the formation of understanding that substantively transcends an individual's prior knowledge state through the integration of experience, social interaction, and reflective practice. Davenport and Prusak, as cited in Lewaherilla et al. (2023), define new knowledge as emerging when tacit insight is successfully articulated, validated, and transferred into forms accessible and usable by others. Nonaka emphasizes that new knowledge is not passive information accumulation but an active process of meaning creation arising from dialogue and experiential reflection. In this study, new knowledge is measured through six cognitive levels adapted from Bloom's taxonomy by Notoatmojo (cited in Rais, 2021), each representing a progressively deeper stratum of consumer knowledge development:

1. **Know.** The ability to recall and recognize information about gameplay patterns and platform dynamics acquired through interaction and community engagement.

2. **Comprehend.** The ability to interpret and explain the reasoning behind strategic decisions, demonstrating conceptual understanding beyond surface-level recall.
3. **Apply.** The ability to deploy acquired knowledge in concrete gameplay situations, translating understanding into context-appropriate action.
4. **Analyze.** The capacity to decompose gameplay situations, identify causal relationships, and distinguish factors that influence strategic outcomes.
5. **Synthesize.** The ability to integrate diverse experiences and information into original, more comprehensive strategic understanding.
6. **Evaluate.** The capacity to critically assess the effectiveness of applied strategies based on experience, enabling reflective and adaptive knowledge development.

Based on the established theoretical framework, the following hypotheses are proposed: **H1:** Socialization, Externalization, Combination, and Internalization simultaneously influence new knowledge formation among Mobile Legends users in Surabaya. **H2:** Socialization partially influences new knowledge formation. **H3:** Externalization partially influences new knowledge formation. **H4:** Combination partially influences new knowledge formation. **H5:** Internalization partially influences new knowledge formation.

RESEARCH METHOD

This study employs a quantitative associative research design with a causal approach, examining the directional influence of the SECI knowledge creation dimensions on new knowledge formation among Mobile Legends consumers. The associative-causal design was selected because the research objective is to measure the degree to which each independent variable Socialization (X1), Externalization (X2), Combination (X3), and Internalization (X4) influences the dependent variable of new knowledge formation (Y), both simultaneously and partially (Sugiyono, 2023). The quantitative approach is employed on the basis that the phenomena under investigation consumer knowledge creation processes are empirically observable, measurable, and structured in causal relationships amenable to statistical testing (Sugiyono, 2023). Data collection was conducted from January to February 2026 in Surabaya, Indonesia.

The target population consists of active Mobile Legends users domiciled in Surabaya who engage regularly in multiplayer interactions. Since the total population size is undetermined, the minimum sample size was calculated using the Cochran formula at a 95% confidence level ($Z = 1.96$) and an 8% margin of error ($e = 0.08$), yielding a required minimum of 150 respondents. A purposive sampling technique was applied with the following criteria: (1) active Mobile Legends player; (2) domiciled in Surabaya; (3) aged 12–40 years; and (4) had participated in team-based game modes including squad or ranked matches. These criteria ensure that respondents possess sufficient depth of platform engagement to meaningfully reflect all four SECI knowledge creation processes in their responses. Primary data was gathered directly through a structured questionnaire distributed via a hybrid approach: offline by visiting strategic community gathering spots in Surabaya, and online through digital communication channels widely utilized by players, such as

Discord, WhatsApp, Facebook, and Instagram. This primary data was further supplemented by secondary data from relevant academic literature to strengthen the theoretical framework.

Data analysis was systematically conducted using the Statistical Program for Social Science (SPSS) software. Prior to hypothesis testing, the research instrument was subjected to validity tests using the Pearson Product-Moment correlation and reliability tests using the Cronbach's Alpha coefficient, with a threshold of > 0.70 indicating strong internal consistency (Sugiyono, 2023). Subsequently, classical assumption tests were performed to ensure the regression model yields unbiased estimations. This included the Kolmogorov-Smirnov test to verify data normality, assessments of Tolerance and Variance Inflation Factor (VIF) to confirm the absence of multicollinearity (Ghozali, 2021), and scatterplot observations to ensure the model is free from heteroscedasticity. The primary analytical tool employed was multiple linear regression analysis to evaluate the specific equation correlating the SECI dimensions to new knowledge formation (Ghozali, 2021). Hypothesis testing was then conducted through the F-test to determine whether the independent variables collectively exert a significant simultaneous influence on the dependent variable, and the t-test to evaluate the individual significance of each dimension partially. Finally, the Adjusted R-squared metric was utilized to quantify the proportion of variance in new knowledge formation that can be effectively explained by the variables within the regression model (Ghozali, 2021).

RESULTS AND DISCUSSION

Respondent Characteristics

A total of 150 respondents participated in this study, all fulfilling the purposive sampling criteria as active Mobile Legends users domiciled in Surabaya. Respondents were predominantly female (58.7%), aged 17–22 years (70.7%), and university students (75.3%), reflecting the dominant consumer demographic of Mobile Legends in Surabaya. Geographic distribution covered all five Surabaya sub-regions, with South Surabaya (31.3%) and East Surabaya (30.7%) most represented. Behaviorally, 77.3% of respondents play between 1–3 hours daily and 68.6% play 3–6 times per week, confirming a sufficiently active engagement profile for all four SECI knowledge creation processes to meaningfully occur.

Validity Test Results

Validity testing used Pearson Product Moment correlation (r -table = 0.361; $n = 30$; $\alpha = 0.05$, two-tailed). All 26 items across five variables produced r -count values exceeding 0.361, with significance values of $0.000 < 0.05$, confirming that every item validly measures its intended construct (Ghozali, 2021). Detailed results are presented in Table 1.

Table 1
Validity Test Results

Variable	Item	r-count	r-table	Sig.	Decision
Socialization (X1)	X1.1	0.825	0.361	0.000	Valid
	X1.2	0.722	0.361	0.000	Valid
	X1.3	0.858	0.361	0.000	Valid
	X1.4	0.804	0.361	0.000	Valid
	X1.5	0.880	0.361	0.000	Valid

Externalization (X2)	X2.1	0.789	0.361	0.000	Valid
	X2.2	0.703	0.361	0.000	Valid
	X2.3	0.762	0.361	0.000	Valid
	X2.4	0.822	0.361	0.000	Valid
	X2.5	0.748	0.361	0.000	Valid
Combination (X3)	X3.1	0.762	0.361	0.000	Valid
	X3.2	0.844	0.361	0.000	Valid
	X3.3	0.803	0.361	0.000	Valid
	X3.4	0.757	0.361	0.000	Valid
	X3.5	0.658	0.361	0.000	Valid
Internalization (X4)	X4.1	0.742	0.361	0.000	Valid
	X4.2	0.689	0.361	0.000	Valid
	X4.3	0.689	0.361	0.000	Valid
	X4.4	0.847	0.361	0.000	Valid
	X4.5	0.791	0.361	0.000	Valid
New Knowledge (Y)	Y.1	0.900	0.361	0.000	Valid
	Y.2	0.795	0.361	0.000	Valid
	Y.3	0.796	0.361	0.000	Valid
	Y.4	0.853	0.361	0.000	Valid
	Y.5	0.710	0.361	0.000	Valid
	Y.6	0.761	0.361	0.000	Valid

Reliability Test Results

Reliability was assessed using Cronbach's Alpha, with a minimum threshold of $\alpha > 0.70$ (Ghozali, 2021). Table 2 confirms that all five variables are reliable.

Table 2
Reliability Test Results

Variable	Items	Cronbach's Alpha	Threshold	Decision
Socialization (X1)	5	0.867	> 0.70	Reliable
Externalization (X2)	5	0.821	> 0.70	Reliable
Combination (X3)	5	0.821	> 0.70	Reliable
Internalization (X4)	5	0.791	> 0.70	Reliable
New Knowledge (Y)	6	0.884	> 0.70	Reliable

Classical Assumption Test

A. Normality Test

Table 3
Normality Test Results

		Unstandardized Residual
N		150
Normal Parameters ^{ab}	Mean	.0000000
	Std. Deviation	1.22368967
Most Extreme Differences	Absolute	.060
	Positive	.060
	Negative	-.035
Test Statistic		.060
Asymp. Sig. (2-tailed)		.200 ^{c,d}

Based on the normality test results presented in Table 3, the Kolmogorov-Smirnov method yielded Asymp. Sig. (2-tailed) = 0.200 (test statistic = 0.060; N = 150). Since 0.200 > 0.05, the null hypothesis of normality is retained, confirming that model residuals are normally distributed. The Normal P-P Plot further confirmed that residual points aligned closely along the diagonal reference line without systematic deviation (Ghozali, 2021)

B. Multicollinearity Test

Tolerance and VIF values for all independent variables are presented in Table 4. All Tolerance values exceed 0.10, and all VIF values fall below 10.00, confirming the absence of multicollinearity

Table 4
Multicollinearity Test Results

Variable	Tolerance	VIF	Decision
Socialization (X1)	0.655	1.527	No Multicollinearity
Externalization (X2)	0.723	1.384	No Multicollinearity
Combination (X3)	0.674	1.483	No Multicollinearity
Internalization (X4)	0.704	1.421	No Multicollinearity

C. Heteroscedasticity Test

The Glejser test results are presented in Table 5. All independent variables produced significance values above 0.05, confirming that residual variance is constant across all predictor levels.

Table 5.
Heteroscedasticity Test Results

	Model	Unstandardized B	Coefficients Std Error	Standardized Coefficients Beta	T	Sig.
1	(Constant)	4.048	1,743		2.323	.022
	Socialization	.227	.076	.209	2.991	.003
	Eksternalizati on	.154	.059	.174	2.608	.010
	Combination	.325	.073	.309	4.485	.000
	Internalization	.317	.080	.268	3.980	.000

Multiple Linear Regression Analysis

With all classical assumptions confirmed satisfied normality, absence of multicollinearity, and homoscedasticity the data is deemed appropriate for multiple linear regression analysis. Table 6 presents the complete regression coefficient output, from which the direction and magnitude of each SECI dimension's influence on new knowledge formation can be determined.

Table 6
Multiple Linear Regression Analysis

Variable	Significance	Decision
Socialization (X1)	0.138	Homoscedastic
Externalization (X2)	0.090	Homoscedastic
Combination (X3)	0.062	Homoscedastic
Internalization (X4)	0.862	Homoscedastic

The resulting regression equation is: $Y = 4.048 + 0.227X_1 + 0.154X_2 + 0.325X_3 + 0.317X_4 + e$. The constant of 4.048 indicates a baseline new knowledge level when all SECI dimensions equal zero. Every SECI dimension carries a positive coefficient, confirming directional contribution to new knowledge formation. Combination ($\beta = 0.325$) and Internalization ($\beta = 0.317$) produce the highest individual contributions, followed by Socialization ($\beta = 0.227$) and Externalization ($\beta = 0.154$).

Coefficient of Determination (R^2)

Table 7
Coefficient of Determination (R^2)

R	R^2	Adjusted R^2	Std. Error
0.732	0.536	0.523	1.240

Table 13 shows an R^2 value of 0.536, indicating that the four SECI dimensions collectively explain 53.6% of the variance in new knowledge formation. The remaining 46.4% is attributed to variables outside the model.

Simultaneous Significance Test (F-Test)

Table 8
Simultaneous Significance Test (F-Test)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	257.558	4	64.390	41,846	.000 ^b
	Residual	223.115	145	1.539		
	Total	480.673	149			

Based on the F-test results presented in Table 8, F-count = 41.846 exceeds F-table = 1.98 ($df_1 = 4$; $df_2 = 145$; $\alpha = 0.05$), with Sig. = 0.000 < 0.05. H1 is therefore accepted, confirming that Socialization, Externalization, Combination, and Internalization simultaneously exert a significant positive influence on new knowledge formation among Mobile Legends users in Surabaya

Partial Significance Test (t-Test)

T-table = 1.976 ($df = 145$; $\alpha = 0.05$, two-tailed). A hypothesis is accepted when t-count > 1.976 and Sig. < 0.05. Table 9 presents the complete partial test results.

Table 9
Partial Significance Test (t-Test)

Model		Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	T	Sig.
1	(Constant)	4.048	1.743		2.323	.022
	Socialization	.227	0.76	.209	2.991	.003
	Eksternalization	.154	0.59	.174	2.608	.010
	Combination	.325	0.73	.309	4.485	.000
	Internalization	.317	0.80	.268	3.980	.000

All four partial t-tests produce t-count values exceeding t-table = 1.976 with significance values below 0.05, confirming that **H2** through **H5** are all accepted. Each SECI dimension Socialization, Externalization, Combination, and Internalization individually and significantly influences new knowledge formation among Mobile Legends consumers in Surabaya.

Discussion

The simultaneous F-test result ($F = 41.846$, $p = 0.000$, $R^2 = 0.536$) confirms that the four SECI dimensions collectively and significantly influence new knowledge formation among Mobile Legends users in Surabaya, with an explanatory power of 53.6%. This finding validates the foundational proposition of Nonaka and Takeuchi (1995) that knowledge creation is not produced by any single conversion mode in isolation, but emerges from the dynamic, mutually enabling interaction of all four SECI dimensions operating as a unified

spiral. Each mode enables the next: Socialization generates tacit insight that Externalization articulates into explicit resource, which Combination synthesizes into systemic knowledge, which Internalization embeds as operational competence — seeding the next cycle. Critically, this spiral is confirmed to operate organically among consumers in a non-formal digital gaming ecosystem, without the managerial facilitation assumed by prior organizational SECI literature (Tiyana et al., 2023; Fikriana et al., 2025). From a digital business administration perspective, platforms sustaining high SECI engagement are simultaneously cultivating consumer knowledge capital a strategic intangible asset that reinforces long-term platform sustainability and competitive advantage.

Socialization produces a significant partial positive effect on new knowledge formation ($\beta = 0.227$, $t = 2.991$, $p = 0.003$), confirming H2. This result affirms Nonaka and Takeuchi's (1995) concept of sympathized knowledge understanding formed through empathic co-presence and shared situational exposure rather than formal instruction. In the Mobile Legends ecosystem, consumers absorb teammates' positional instincts and situational decision logic through co-playing, a digital form of cognitive apprenticeship unavailable through any explicit guide. This finding extends the domain of Socialization beyond organizational boundaries, demonstrating that voluntary, horizontal co-presence in a digital gaming environment is sufficient to generate statistically significant tacit knowledge transfer among consumers.

Externalization yields a significant partial positive effect ($\beta = 0.154$, $t = 2.608$, $p = 0.010$), confirming H3. Among the four SECI dimensions, Externalization produces the smallest coefficient interpretable not as weakness but as a reflection of its higher-threshold nature: articulating tacit knowledge into explicit form demands greater cognitive investment than observational learning or practice-based internalization. Nevertheless, its significance confirms that consumer articulation behavior through guide creation, strategy narration, and group discussion generates measurable contributions to new knowledge formation. Hendrayani et al. (2025) corroborate this, confirming that in digital platforms, Externalization transforms individual tacit assets into publicly accessible knowledge resources that elevate collective user comprehension, reinforcing the platform's value as a community knowledge common.

Combination demonstrates the strongest partial positive effect among all four SECI dimensions ($\beta = 0.325$, $t = 4.485$, $p = 0.000$), confirming H4. This dominance reflects a structural feature unique to digital platform ecosystems: the unprecedented simultaneous accessibility of diverse explicit knowledge resources — patch notes, community wikis, content creator analytics, and in-game statistical data. Mobile Legends consumers are not passive information recipients; they are active, analytical synthesizers who independently construct strategic knowledge frameworks from multiple sources, producing what Nonaka (1995) terms systemic knowledge. Hendrayani et al. (2025) affirm that in digital environments, Combination represents the phase at which information processing reaches its highest cognitive intensity, elevating users to qualitatively new levels of product comprehension. From a business administration perspective, platforms that invest in curated, high-quality explicit knowledge resources directly strengthen the consumer knowledge capital that Combination produces.

Internalization produces a significant partial positive effect ($\beta = 0.317$, $t = 3.980$, $p = 0.000$), confirming H5. Together with Combination, Internalization emerges as one of the two strongest SECI predictors, reflecting the primacy of embodied practice in consumer digital knowledge development. When Mobile Legends consumers repeatedly apply explicit strategic knowledge in live gameplay and progressively automate complex decision sequences into intuitive responses, they complete the SECI spiral and generate qualitatively new operational knowledge what Nonaka and Takeuchi (1995) characterize as the output of learning by doing. Cristache et al. (2025) affirm that this phase generates new structural configurations within the individual, seeding the next SECI cycle. From a business sustainability perspective, consumers who deeply internalize product knowledge develop rising switching costs and deepening platform loyalty reinforcing the long-term competitive advantage of the digital business ecosystem.

CONCLUSION

This study confirms that the SECI knowledge creation model encompassing Socialization, Externalization, Combination, and Internalization significantly influences new knowledge formation among Mobile Legends consumers in Surabaya, both simultaneously and individually. Among the four dimensions, Combination and Internalization emerge as the dominant pathways, indicating that in the digital platform consumer context, the ability to synthesize explicit knowledge from multiple sources and to embed that knowledge through repeated practice constitutes the most powerful mechanism of consumer knowledge development. Externalization, while producing the smallest individual effect, remains statistically significant confirming that even partial consumer articulation behavior contributes meaningfully to new knowledge formation within the digital ecosystem.

Theoretically, this study makes two primary contributions. First, it extends the empirical domain of the SECI model and the Knowledge-Based View beyond formal organizational boundaries, demonstrating that consumer-driven knowledge creation in non-formal digital ecosystems is a structured, measurable, and statistically robust phenomenon. Prior literature has consistently confined SECI applications to institutional settings with managerial facilitation and formal documentation systems (Tiyana et al., 2023; Fikriana et al., 2025); this study establishes that the SECI spiral operates with equal consequence among voluntarily interacting consumers in a digital gaming platform. Second, the study validates consumers as legitimate, empirically verifiable knowledge-creating agents whose accumulated knowledge constitutes a strategic intangible asset within the digital business ecosystem.

Practically, the findings provide actionable guidance for digital platform operators. Since Combination and Internalization emerge as the most influential dimensions, platform developers should prioritize investment in curated, structured explicit knowledge resources such as official patch documentation, in-game analytics dashboards, and verified community content to strengthen consumer knowledge synthesis. Simultaneously, designing progressive difficulty curves and iterative practice environments deepens consumer internalization of product knowledge. Supporting Socialization through robust team-based interaction features and amplifying Externalization through low-friction content creation tools further complete the knowledge creation ecosystem. Each of these investments

constitutes a direct contribution to consumer knowledge capital, reducing platform churn and reinforcing long-term competitive advantage in the digital business ecosystem.

This study is not without limitations. The research is bounded to active Mobile Legends users in Surabaya, which may limit the generalizability of findings to other digital gaming platforms or geographic contexts. Additionally, the model's 46.4% unexplained variance suggests the presence of other influential variables such as digital literacy, intrinsic motivation, social capital, or platform design quality that were not captured in this study. Future research should examine potential mediating or moderating variables within the SECI-new knowledge relationship, and comparative studies across different digital gaming genres or platforms would further strengthen the theoretical generalizability of these findings.

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