https://doi.org/10.31538/alsuna.v9i1.8817

Alsunā Journal of Arabic and English Language

Gamification in L2 Arabic Writing Instruction: Perceived Usability and Learning Support of Baamboozle in an Indonesian Islamic Secondary School Context

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Received, 02 October 2025 **Accepted, 05 May 2026**

ABSTRACT

Purpose - *Arabic writing instruction in Indonesian Islamic secondary schools is still largely teacher-fronted: structured, passive, and lacking in practice that builds productive skills. This study examines whether the browser-based game platform Baamboozle can shift that dynamic. Drawing on the Technology Acceptance Model (TAM), Vygotskian scaffolding theory, and self-determination theory (SDT), we document the implementation of Baamboozle in an L2 Arabic writing class at MAPK MAN 1 Surakarta, Indonesia, and report how students evaluated its usability, visual design, interactivity, and perceived learning support across five theoretically grounded dimensions.*

Design/methodology/approach - *A quantitative descriptive design was employed. Twenty female students from Class X MAPK participated in a Baamboozle-integrated Arabic writing lesson and subsequently completed a nine-item, four-point Likert-scale questionnaire mapped onto five TAM-derived perception dimensions for L2 Arabic writing development: ease of access, operability, interactivity, visual appeal, learning motivation, language clarity, and perceived effectiveness. Descriptive statistics and RAL scores were computed via IBM SPSS Statistics 22.0. This study has a bounded, exploratory design; findings are interpreted as preliminary perceptual evidence rather than causal claims about learning outcomes.*

Findings – *All nine perception items fell in the excellent range (85%–100%), with an overall RAL of 87% (M = 31.65/36, SD = 3.05). Students rated perceived support for L2 Arabic writing development highest (RAL = 91%)—consistent with SDT predictions about competence-supportive task structures—while platform accessibility scored lowest (RAL = 83%), pointing to a minor entry-friction problem that is practically fixable. No item dropped below 83%, indicating that learners were broadly positive across the usability, affective, and instructional dimensions.*

Originality/value - *The study contributes to CALL and L2 Arabic writing research in three ways. This study extends TAM–based technology acceptance work to a typologically complex productive-skill context (Arabic orthography) in a Southeast Asian Islamic school setting, which is rarely represented in CALL literature. This study shows how Vygotskian image-based scaffolding and SDT-aligned game mechanics can work together inside a low-cost, zero-registration platform. Furthermore, it offers a replicable four-stage implementation model that does not require specialist infrastructure. The study is bounded: n = 20, one session, self-report only. Causal claims about writing development require follow-up.*

Paper type – *Research paper*

Keywords: *L2 Arabic writing; Game-Based language learning; Computer-Assisted Language Learning (CALL); Technology acceptance model; Learner perception.*

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1. Introduction

Over the past decade, digital platforms have moved from optional add-ons to core components of language classroom design. The evidence for this is reasonably solid: game-based and gamified tools consistently raise student motivation, increase time-on-task, and often produce measurable gains in language skill performance (Al-Jamili et al., 2024; Luo, 2023; Zhang & Hasim, 2023). Yet the distribution of this evidence across language skills is uneven. Vocabulary and speaking attract the bulk of research attention, while Arabic writing instruction remains a comparatively neglected domain in the game-based learning literature (S. Almelhes, 2024; Nasikha et al., 2025).

Arabic writing skill is one of the most demanding productive skills for learners in Indonesian Islamic secondary schools. The Arabic script differs orthographically from Indonesian in direction, letter connectivity, and context-sensitive letterform variation. Students must also manage morphological complexity—root-pattern derivation, case endings (*i'rab*), and short-vowel systems—while simultaneously producing coherent written text. These challenges are magnified in classroom settings where one-directional, teacher-dominated instruction is still the norm, limiting students' opportunities for meaningful writing practice and meaningful feedback (Aulia, 2025; Fakturmen, 2020; Izzah & Hafidz, 2024). The result is persistent low motivation and below-potential writing outcomes, a pattern documented in research on Arabic productive skill instruction in Indonesian madrasah contexts (Akhsan et al., 2025; Manoppo et al., 2023).

Baamboozle is a browser-based quiz platform that teachers can use to build interactive, game-formatted learning activities without requiring student account registration. Its affordances—image-based question prompts, puzzle-board game mechanics, immediate response feedback, and device-agnostic access—make it a low-barrier, flexible tool for interactive writing tasks (Krisbiantoro, 2020; Wardani & Kiptiyah, 2024). Several studies have used game-based platforms in Arabic language instruction, though these have focused primarily on speaking and vocabulary skill development. Naimah and Syafi'i (2025)demonstrated significant speaking skill improvement through Baamboozle at a state Islamic school, while Nelvianti et al. (2025) reported vocabulary acquisition gains from the Gimkit platform in a quasi-experimental design. Damawiyah et al. (2025) documented positive student motivation perceptions of Baamboozle in Arabic learning contexts. To date, no published study has examined Baamboozle specifically as a medium for Arabic writing skill instruction, nor explored how its implementation and reception differ from applications in other skill areas.

State-of-the-art research on game-based Arabic language learning has made substantial progress in documenting gamification effects on motivation and engagement. Almelhes's (2024) systematic review of gamification in Arabic instruction for non-native speakers synthesized evidence across multiple platforms and found consistent motivational benefits, with effectiveness contingent on instructional design quality and teacher facilitation

competence. Zhang and Hasim (2023) reviewed forty Scopus- and Web-of-Science-indexed studies of gamification in EFL/ESL instruction and concluded that gamified environments produced positive affective responses, improved skill performance, and enhanced learner autonomy. Al-Jamili et al. (2024) demonstrated statistically significant speaking proficiency gains through computer game-based learning, identifying game interactivity and immediate feedback as key enabling mechanisms. Febrianty et al. (2024) and Wardani & Kiptiyah (2024)showed that Baamboozle raised student engagement and learning outcomes in general classroom contexts.

Within Arabic writing specifically, prior studies have turned to non-game digital tools rather than game-based platforms. Atika and Muassomah (2024)applied Kahoot! to Arabic dictation (*imla'*) at a boarding school, finding improved engagement but not measuring writing accuracy gains (Atika & Muassomah, 2020). Siti Mahmudah. et al. embedded Canva-based design activities in Arabic writing lessons, observing improved student understanding of Arabic writing conventions (Siti Mahmudah S. et al., 2024). Fuadah used the Instagram account @Nahwu_Pedia to support vocabulary and grammar development relevant to writing, though the study was limited to social media content rather than productive writing tasks (Fuadah, 2020). Handican and Hayat (2024) identified interactive media as beneficial to Arabic writing proficiency through repeated practice with feedback, but stopped short of examining any specific game platform.

The gap is actually two gaps. Empirically: no published study has used Baamboozle for L2 Arabic writing instruction, or measured how students perceive it in that context. Theoretically: how gamified visual scaffolding might reduce cognitive load specifically in Arabic writing—as distinct from speaking—is not well understood. Writing differs from speaking in fundamental ways: it is slower, more deliberate, more exposed to error, and imposes simultaneous demands on script production, orthographic memory, morphosyntactic encoding, and discourse organization (Manchon, 2011). Whether the TAM-predicted ease-of-use and perceived-usefulness constructs, and the SDT-predicted autonomy and competence mechanisms, function equivalently in writing-focused as in speaking-focused game-based language learning is an open empirical question. The present study addresses this gap by documenting Baamboozle's implementation in a productive writing context and measuring students' perceptions across theoretically derived TAM and SDT dimensions in an Indonesian Islamic secondary school setting not previously represented in the CALL literature.

MAPK MAN 1 Surakarta offers an instructionally rich context for this investigation. The program allocates 70% of curriculum time to Arabic-medium religious subjects, with students additionally participating in afternoon tutorial sessions, classical Islamic text (*kitab kuning*) study, and *muhadharah* (Arabic speech) activities, creating a high-immersion Arabic environment not replicated in standard secondary school settings (Surakarta, 2022). The selection of an all-female dormitory class as the research sample provides within-group consistency in learning conditions, enabling a focused description of student perceptions without confounding variation from mixed residential and non-residential arrangements.

Prior comparative studies on digital media in Arabic instruction—including Instagram (Fuadah, 2020), TikTok (Taubah & Hadi, 2020), and Kahoot! (Atika & Muassomah, 2020)—

confirm the broader receptiveness of Indonesian Islamic school students to technology-based learning media. What remains unaddressed is whether a game-based platform like Baamboozle, adapted specifically to Arabic writing tasks, generates similarly positive receptions and meaningful learning support, or whether the writing context introduces barriers that reduce student acceptance and perceived effectiveness.

This study has two aims: to describe how Baamboozle was integrated into Arabic writing instruction at MAPK MAN 1 Surakarta, and to measure student perceptions of the platform across usability, visual design, interactivity, motivation, and perceived learning support. The result is both a replicable implementation model and an initial evidence base for game-based writing instruction in an Islamic secondary school context.

Two research questions guide this study:
RQ1: How is Baamboozle implemented as a learning medium in Arabic writing skill instruction at MAPK MAN 1 Surakarta?
RQ2: What are students' perceptions of Baamboozle's ease of use, visual appeal, interactivity, learning motivation, and perceived effectiveness in supporting Arabic writing skill development?

2. Literature Review

2.1 Arabic Writing Skills: Challenges and Pedagogical Implications

Arabic writing skill is widely regarded as the most demanding of the four language skills in the Indonesian Islamic school context, partly because of structural features of Arabic orthography and partly because of how the skill is typically taught. Orthographically, Arabic learners must manage right-to-left directionality, context-sensitive letterform changes, and a short-vowel diacritic system that is often omitted in authentic texts, requiring inference from context. Morphologically, Arabic's root-pattern derivation system means that a single written root can generate dozens of derived forms, each with distinct grammatical and semantic implications (Akhsan et al., 2025). Writers must track *i'rab* (case markings) at sentence boundaries while simultaneously managing discourse cohesion, vocabulary selection, and genre conventions relevant to the writing task type.

These structural demands compound the pedagogical problems that research on Arabic writing instruction in Indonesia has consistently documented: teacher-centered delivery, minimal feedback on student writing, limited in-class writing practice time, and assessment designs that reward grammatical accuracy over communicative effectiveness (Fakturmen, 2020; Izzah & Hafidz, 2024). The combination produces learners who are under-practiced, under-confident, and under-motivated in Arabic writing production. Manoppo et al. found that diverse digital application types could serve as partial correctives, but noted that successful media adoption depended on alignment between tool affordances and the specific productive skill being targeted (Manoppo et al., 2023).

2.2 Game-Based Learning in Language Education

Game-based learning refers to the use of games—whether digital or physical—as the primary instructional vehicle, with learning objectives embedded in game mechanics and activity structures. It is related to but distinct from gamification, which applies game design elements (points, badges, leaderboards) to non-game contexts (Luo, 2023; Nasikha et al., 2025). Both draw on theoretical alignment with self-determination theory's framework of autonomy, competence, and relatedness as foundations of intrinsic motivation (Deci & Ryan, 2000), and with flow theory's prediction that optimal challenge calibration sustains deep engagement.

Systematic review evidence from both EFL/ESL and Arabic contexts is broadly positive. Zhang and Hasim (2023) found that gamification in EFL/ESL instruction improved language skill performance, generated positive attitudes, and raised learner autonomy across diverse national contexts. Luo (2023) reviewed 21 empirical game-based language learning studies and found positive effects on foreign language acquisition across vocabulary, grammar, and spoken production. Al-Jamili et al. (2024) showed statistically significant gains in English speaking proficiency from computer game-based learning, with interactivity and immediate feedback as the strongest mediating variables. Almelhes identified motivational and engagement gains in gamified Arabic instruction consistently across the reviewed literature, though effect sizes varied with implementation quality and teacher expertise (S. A. Almelhes, 2024).

Within the Indonesian Islamic school context specifically, recent studies have documented game-based learning applications across Arabic skill areas. Naimah and Syafi'I (2025), writing in Alsuna: Journal of Arabic and English Language, found that Baamboozle significantly improved Arabic speaking skills at MAN 1 Lamongan, crediting the platform's competitive game mechanics and immediate feedback as key enabling factors. Nelvianti et al. (2025), also published in Alsuna, demonstrated that Gimkit produced significant Arabic vocabulary gains in a quasi-experimental design at Sumatra Thawalib Parabek Bukittinggi. Damawiyah et al. (2025)documented positive student motivation perceptions of Baamboozle in Arabic learning. These studies collectively establish that game-based platforms are well-received and functionally effective in Arabic language teaching, but the productive writing skill domain remains outside their empirical scope.

Pulling these strands together, the picture is fairly consistent. Gamified platforms improve motivation and reduce anxiety across Arabic skill areas (S. A. Almelhes, 2024; Zhang & Hasim, 2023). Whether they improve performance depends mostly on instructional design—platforms with built-in feedback loops outperform those where game mechanics carry all the weight (Al-Jamili et al., 2024; Luo, 2023). And TAM research repeatedly shows that low access barriers are a precondition for sustained engagement, especially in resource-limited classrooms (Chen et al., 2025; Dimulescu, 2023). What the literature has not addressed is whether any of this holds for productive writing—where orthographic, morphosyntactic, and discourse demands hit simultaneously—or for Southeast Asian Islamic school populations. That is where this study begins.

2.3 Technology Acceptance in Educational Contexts

The Technology Acceptance Model (TAM), developed by Davis (1989), proposes that technology adoption is determined primarily by perceived usefulness (the degree to which users believe the technology improves performance) and perceived ease of use (the degree to which users believe operating it requires minimal effort). TAM has been extensively applied and validated in educational technology research across diverse cultural and technological settings (Haleem et al., 2022; Jiang et al., 2025).

Ease of use is particularly consequential in classroom technology contexts because platforms that require complex setup redirect cognitive resources away from learning content toward interface navigation. Platforms with low entry barriers—such as Baamboozle, which requires no student account creation and functions through a shared link—are hypothesized to generate high ease-of-use perceptions and, consequently, higher platform acceptance and engagement (Chen et al., 2025; Dimulescu, 2023). Dimulescu's (2023) study of post-pandemic e-learning adoption found that platforms with minimal technical requirements generated the highest sustained adoption rates. This finding is consistent with Haleem et al.'s (2022) review of digital technology roles in education, which identified accessibility and ease of navigation as primary determinants of student technology engagement.

Visual appeal and interactivity are additional perceptual dimensions with documented learning effects. Mayer's Cognitive Theory of Multimedia Learning (Noetel et al., 2022) predicts that well-designed visual elements reduce extraneous cognitive load and support dual-channel information processing, improving encoding and retention. Nikou and Aavakare (2021) found that visually engaging digital interfaces generated up to 30% higher learning engagement scores in higher education samples. Aslan et al. (2025) identified collaborative interactive environments—including those with immediate feedback mechanisms—as producing higher-quality student engagement than passive or feedback-deferred alternatives.

2.4 Scaffolding and Motivation Frameworks

Two theoretical frameworks ground the pedagogical design assumptions in this study. Vygotsky's scaffolding concept, as operationalized in ZPD research (Wibowo et al., 2025), describes the temporary, adjustable support that allows learners to complete tasks beyond their current independent capability. In Baamboozle's Arabic writing application, image-based prompts act as topic scaffolds that eliminate the blank-page cognitive load of open-ended writing tasks, while the structured question format provides syntactic scaffolding through question type constraints. Handican and Hayat (2024) confirmed that interactive Arabic learning media improved writing performance precisely through this mechanism: repeated supported practice with immediate corrective feedback.

Self-determination theory predicts that contexts satisfying learners' needs for autonomy (task choice), competence (achievable challenge), and relatedness (social game context) generate intrinsic motivation (Miller et al., 1988). Baamboozle's puzzle-board mechanics, in which students select which question to attempt, address autonomy; the leveled difficulty of writing prompts addresses competence; and the shared-screen, competitive classroom format addresses relatedness. Humairo (2025), in a quasi-experimental study published in Alsuna:

Journal of Arabic and English Language, demonstrated that student-centered, structured Arabic writing tasks produced significant skill gains compared to teacher-fronted alternatives, providing direct support for applying active-learning principles to Arabic writing instruction.

3. Method

3.1 Research Design

A quantitative descriptive design was used, appropriate for systematically documenting and measuring student perceptions of an instructional intervention without manipulating variables or making causal claims (Sugiono, 2017). Descriptive quantitative research is well-established in educational technology perception studies, where the goal is to characterize attitudinal responses across a defined sample and translate them into interpretable achievement-level statistics (N. Rahmawati et al., 2020). This design directly serves both research questions: description of implementation stages (RQ1) draws on structured observation and lesson documentation, while measurement of student perceptions (RQ2) draws on the questionnaire dataset.

3.2 Research Context and Participants

The study was conducted at MAPK MAN 1 Surakarta (*Madrasah Aliyah Program Keagamaan*, Islamic Senior High School with Religious Program), Central Java, Indonesia. MAPK is a nationally designated specialist program that integrates intensive Islamic religious education with the standard secondary curriculum. Arabic serves as the medium of instruction for 70% of religious subjects, and students participate in additional Arabic immersion activities: afternoon tutorial sessions, *kitab kuning* (classical text) study, and weekly *muhadharah* (Arabic speech) practice (Surakarta, 2022). This sustained, multi-context Arabic exposure creates a learning environment qualitatively different from standard secondary Arabic instruction, and makes the school an appropriate site for studying intermediate-to-advanced Arabic skill instruction.

Participants were 20 female students from Class X MAPK. The class was selected purposively because all students reside in the school dormitory, creating comparably homogeneous learning conditions—similar schedule, supervision, and technology access—that reduce extraneous variation in perception measures. Students were in their first year of the MAPK program (approximate age 15–16) at the time of data collection. The sample size reflects institutional enrollment constraints and is typical of descriptive perception research in bounded educational contexts, where within-group consistency matters more than statistical power for inferential generalization (Sugiono, 2017). The all-female composition and single-class design are acknowledged limitations: findings are not generalizable to male students, mixed-gender classes, or other institutional types.

3.3 Data Collection

Data collection combined structured lesson observation (for RQ1) with a closed-ended questionnaire (for RQ2). The questionnaire consisted of nine items measuring student perceptions across five thematic clusters: ease of access and operability (Items 1–4), interactivity (Item 5), visual appeal (Item 6), learning motivation (Item 7), language clarity (Item

8), and effectiveness in supporting Arabic writing skill development (Item 9). Each item was rated on a four-point Likert scale: 1 = Not Good, 2 = Fairly Good, 3 = Good, 4 = Very Good. The even-number scale removes the neutral midpoint, requiring respondents to indicate a directional preference and thereby reducing central tendency bias (Sugiono, 2017).

The questionnaire was administered immediately after a complete Baamboozle-integrated Arabic writing lesson, ensuring that responses reflected direct first-hand platform experience rather than speculation. Lesson documentation—teacher field notes and student access records—was used to construct the implementation stage description in RQ1.

3.4 Data Analysis

Questionnaire data were entered into IBM SPSS Statistics 22.0, which generated frequency distributions, mean scores, standard deviations, and range statistics for each item and for the total scale. The primary analytical procedure was the Respondent Achievement Level (RAL) formula (R. Rahmawati et al., 2023):

RAL = (Total Score Obtained ÷ Maximum Possible Score) × 100

RAL values were interpreted against Sugiono's (2017) five-tier scale (Table 1). This scale classifies 85%–100% as Excellent, 66%–84% as Good, 51%–65% as Fairly Good, 36%–50% as Less Than Good, and 0%–35% as Poor.

Table 1: *Scale Range of Respondent Achievement Level (RAL)*

No.	Scale Range	Category
1	85%–100%	Excellent
2	66%–84%	Good
3	51%–65%	Fairly Good
4	36%–50%	Less Than Good
5	0%–35%	Poor

Source: Sugiono (2017)

4. Results and Discussion

4.1 Implementation of Baamboozle in Arabic Writing Skill Instruction (RQ1)

Baamboozle was integrated into the Arabic writing lesson through a four-stage sequence: material preparation, student orientation, quiz execution, and post-task review. This sequence draws on established frameworks for technology-integrated language lesson design (Febrianty et al., 2024; Wardani & Kiptiyah, 2024) and aligns with task-based language teaching principles that distinguish pre-task, during-task, and post-task phases.

Stage 1: Material and Media Preparation. Before the lesson, the teacher built a customized Baamboozle game around Arabic writing tasks aligned with the unit's learning objectives. Quiz items fell into two types: (a) describing an object or action based on a visual image prompt, and (b) constructing a grammatically accurate Arabic sentence about the described item. This image-to-sentence task design targets two connected writing sub-

competencies: descriptive vocabulary application and basic Arabic sentence production. Images were selected for cultural relevance and visual clarity to minimize perceptual ambiguity and keep student attention on the linguistic task.

Stage 2: Student Orientation and Platform Access. The teacher distributed the game link via the class WhatsApp group and guided students through platform access: opening the link on their devices (smartphones or laptops), entering the class code, and navigating the welcome interface to the Classic game mode. This orientation reduced the cognitive overhead of unfamiliar interface navigation, allowing students to engage with the writing tasks from the start rather than spending lesson time troubleshooting access. The absence of required account creation was practically significant here: in classes where device ownership varies and time is limited, zero-registration platforms like Baamboozle substantially reduce setup friction (Dimulescu, 2023; Haleem et al., 2022).

Stage 3: Quiz Execution and Writing Task Completion. Students engaged individually with the puzzle-board interface, selecting question tiles to reveal image-based Arabic writing prompts. For each prompt, they produced Arabic descriptive text and constructed sentences in response. The puzzle-board format—where students choose which covered tile to open—introduces task-selection agency, an element that self-determination theory connects to autonomous engagement and sustained motivation (Miller et al., 1988). Students worked independently, preserving the productive, individual writing practice objective of the task.

Stage 4: Collective Review and Formative Feedback. After quiz completion, the teacher facilitated a whole-class review of student responses, drawing attention to recurrent grammatical patterns, vocabulary choices, and structural features across written outputs. This post-task phase served as formative feedback, enabling students to compare their own production against peer responses and model answers. Handican and Hayat (2024)confirmed that feedback-rich Arabic learning environments accelerate writing skill development and raise student confidence in Arabic composition, a finding that supports the inclusion of structured review as an integral stage in Baamboozle-based writing lessons.

Together, these four stages constitute a pedagogical model that maps Baamboozle's platform affordances directly onto established principles of effective writing instruction: structured task parameters, scaffolded language support, individual production practice, and formative feedback integration. The model is replicable without institutional investment in specialist equipment—requiring only a projector or shared screen and student personal devices—and is adaptable to different Arabic writing task types by varying the image prompt content and sentence complexity level.

4.2 Student Perceptions of Baamboozle in Arabic Writing Skill Learning (RQ2)

Table 2 presents the descriptive statistics from the questionnaire, including mean scores, standard deviations, and RAL values for each item and for the total scale.

Table 2: *Descriptive Statistics and RAL Values for All Questionnaire Items (N = 20)*

Item	Description	Mean	SD	Max	RAL (%)
P1	Learning media is easy to access	3.35	0.49	4	83%
P2	Learning media is simple to use	3.55	0.51	4	88%
P3	Learning media is easy to understand	3.55	0.51	4	88%
P4	Learning media is operationally usable	3.50	0.69	4	87%
P5	Learning media is interactive	3.45	0.61	4	86%
P6	Media display is visually attractive	3.60	0.50	4	90%
P7	Media increases learning motivation	3.45	0.51	4	86%
P8	Language used is easy to understand	3.60	0.50	4	90%
P9	Media supports Arabic writing skill development	3.65	0.59	4	91%
Total	—	**31.65**	**3.05**	**36**	**87%**

The overall RAL is:

RAL = (31.65 ÷ 36) × 100 = 87%

An 87% overall RAL places all student perceptions collectively in the Excellent category. Individual item scores ranged from 83% (P1, ease of access) to 91% (P9, effectiveness for Arabic writing skill development), with every item at or above the Good threshold (66%). These results are discussed below by thematic cluster.

4.3 Ease of Use and Technology Acceptance

Items 1 through 4 (ease of access, simplicity, comprehensibility, and operability) returned RAL values between 83% and 88%, confirming that students found Baamboozle accessible and manageable. The lowest individual score—Item 1 at 83%—is still solidly Good but stands apart from the rest of the dataset. Post-lesson observation suggested that the gap between item 1 and items 2–4 reflects initial entry friction rather than sustained difficulty: a small number of students encountered code-entry errors or link-access delays that were resolved within the first few minutes of the session. Once inside the platform, operability perceptions (Items 2–4) rose to 87%–88%, indicating that the interface itself was experienced as clear and easy to navigate.

These findings align with TAM predictions. Davis (1989) identified perceived ease of use as a primary driver of technology adoption, and subsequent research has consistently confirmed this relationship in educational contexts (Jiang et al., 2025). Chen et al. (2025) found that platforms with intuitive interfaces and low access barriers generated higher student engagement intentions, while Dimulescu (2023) showed that minimal technical requirement was the strongest predictor of sustained e-learning platform adoption after the COVID-19 pandemic. Baamboozle's no-registration design directly addresses this predictor, and the data suggest it succeeded: students experienced the platform as technically undemanding once past the initial link-access step. Addressing that step—through pre-distributed links, projected QR codes, or in-class setup time before the lesson officially begins—would likely bring ease-of-access scores in line with the rest of the ease-of-use cluster.

4.4 Visual Appeal and Interactivity

Items 6 (visual attractiveness) and 8 (language clarity) both scored 90%, the second-highest scores in the dataset. Item 5 (interactivity) returned 86%. Together, these scores confirm that students responded positively to Baamboozle's visual and interactive design features.

The 90% score for visual appeal is consistent with Mayer's Cognitive Theory of Multimedia Learning (Noetel et al., 2022), which predicts that well-designed visual interfaces reduce extraneous cognitive load and support dual-channel information processing. In Arabic writing instruction specifically, this matters more than it might in other skill contexts: writing tasks that involve generating Arabic text from visual stimuli require students to process image content, retrieve vocabulary, construct morphosyntactic patterns, and produce written output—a cognitively demanding sequence. An interface that presents visual prompts clearly, with minimal navigational noise, reduces the processing demands placed on limited working memory resources. Nikou and Aavakare (2021) demonstrated that aesthetically engaging digital interfaces generated significantly higher learning engagement scores in higher education settings, a finding that appears to generalize to the secondary school Arabic writing context this study documents.

Interactivity (86%) reflects students' experience of the puzzle-board question-selection format as genuinely participatory rather than passive. Aslan et al. (2025) found that interactive problem-solving environments with immediate feedback produced higher-quality engagement than feedback-deferred or passive alternatives. In the Baamboozle implementation documented here, interactivity operated at two levels: the meta-level of selecting which tile to open (exercise of task-choice autonomy) and the task level of producing written Arabic responses to the revealed prompts (substantive language production). This two-level interactivity distinguishes game-based writing tasks from both static worksheet-based writing and from fully open-ended composition tasks, positioning Baamboozle between these poles as a structured-but-engaging writing activity format.

4.5 Effectiveness in Supporting Arabic Writing Skill Developmen

Item 9— measuring students' perception that Baamboozle supported their L2 Arabic writing development—received the highest RAL in the dataset at 91%. This finding warrants careful interpretation. A high score on a perceived learning support item indicates that students believed the platform helped their writing development; it does not demonstrate that writing skill gains actually occurred. This distinction is methodologically critical: self-reported perceived effectiveness (a TAM "perceived usefulness" construct) and objectively measured writing proficiency gain are separate constructs that can diverge substantially (Davis, 1989; Jiang et al., 2025). The present study measures the former, not the latter. With this constraint acknowledged, the 91% RAL is nonetheless a theoretically meaningful finding, as TAM research establishes that high perceived usefulness is a necessary, if not sufficient, precondition for

sustained platform adoption and voluntary engagement in writing practice outside formal instruction.

From a Vygotskian perspective, the image-based question format functions as scaffolding that addresses one of the most persistent barriers to Arabic writing practice: the cognitive cost of topic generation. In open-ended writing tasks, learners must simultaneously generate a topic, retrieve relevant vocabulary, construct grammatical structures, and manage script mechanics. By anchoring writing prompts to clear visual images, Baamboozle removes the topic-generation demand, freeing working memory for the linguistic production tasks that are the actual learning (Wibowo et al., 2025). The constraint also has a productive pedagogical effect: it focuses all student responses on similar lexical and syntactic targets, which made the collective post-task review stage more efficient and generative.

Handican and Hayat (2024) confirmed that interactive Arabic learning media improved writing proficiency through repeated practice with feedback, and the implementation described here built both elements in: the quiz format provided structured writing practice, and the post-task review provided the feedback. Humairo et al. (2025), in Alsuna: Journal of Arabic and English Language, demonstrated that student-centered Arabic writing tasks—in their case using the RAFT strategy—produced significantly better writing outcomes than teacher-fronted alternatives, reinforcing the broader principle that structured active writing tasks outperform passive instruction. The fact that students themselves rated Baamboozle as effective for skill development at 91% suggests that they recognized this mechanism: the game format was experienced not just as entertaining, but as genuinely helping them practice Arabic writing.

Naimah and Syafi'I (2025), in their Alsuna study of Baamboozle applied to Arabic speaking skills, identified competitive game mechanics and immediate feedback as key facilitating factors for skill improvement. The present study suggests that both mechanisms remain operative when the target skill shifts from speaking to writing: the game format sustained engagement through writing tasks, and the quiz-response structure provided an implicit immediate feedback loop through question progression and the post-task review stage. Whether the two skills respond to game-based intervention in quantitatively comparable ways is a question that requires experimental rather than descriptive research design, but the perceptual evidence from this study indicates that students found Baamboozle at least as educationally credible in the writing context as the speaking literature suggests it is in the oral context.

4.6 Learning Motivation

Item 7 (the platform increases learning motivation) returned 86%, consistent with the broader pattern of strongly positive perceptions. This score is theoretically grounded in self-determination theory's framework: Baamboozle's puzzle-board tile selection addresses autonomy, the achievable writing challenges address competence, and the shared-screen classroom game context addresses relatedness (Miller et al., 1988). All three basic psychological needs are met within a single platform interaction.

Zhang and Hasim (2023) found that gamification in language instruction consistently generated intrinsic motivation gains, with game elements including choice, feedback, and challenge progression identified as particularly motivationally salient. Almelhes (2024)documented analogous motivational effects in Arabic instruction specifically, noting that gamified environments reduced language anxiety—a known inhibitor of Arabic productive skill performance—by creating low-stakes practice contexts. This anxiety-reduction mechanism seems particularly relevant to Arabic writing instruction, where students face simultaneous script, morphological, and syntactic demands and often report high self-consciousness about writing errors. The game format, by embedding writing practice within a competitive-but-playful activity structure, may transform the affective experience of Arabic writing from a performance-evaluation situation to a learning-engagement situation.

5. Conclusion

This study investigated the integration of Baamboozle as a game-based learning platform in Arabic writing skill instruction at MAPK MAN 1 Surakarta. The implementation followed a replicable four-stage sequence—material preparation, student orientation, quiz execution, and collective feedback review—that mapped the platform's affordances directly onto established principles of effective writing pedagogy: structured task parameters, visual scaffolding, individual production practice, and formative feedback.

Across all nine TAM-derived perception dimensions, students returned RAL scores between 83% and 91%, with an overall RAL of 87% (Excellent). Students rated perceived support for L2 Arabic writing development highest (91%); platform accessibility was marginally lower (83%) but stayed in the Good range. Students perceived Baamboozle as both usable and pedagogically supportive, consistent with TAM predictions about perceived usefulness and technology engagement. But it is worth being direct about what these data can and cannot say. They are perceptual judgments—not proficiency measures—and the study design does not support claims about actual skill development. What the data do support is more modest but still meaningful: students found the platform credible, accessible, and motivationally engaging as an L2 Arabic writing practice tool.

For CALL and L2 Arabic writing research, the findings raise three issues worth pursuing. TAM's perceived usefulness and ease-of-use constructs appear to travel reasonably well to an orthographically complex productive-skill context in a non-Western setting—something the TAM literature, dominated by Western HE and receptive-skill studies, has not tested much. The 91% rating for perceived writing support is also interesting from a cognitive load angle: it is consistent with the idea that image-based scaffolds reduce the topic-generation burden in Arabic writing tasks, freeing capacity for the orthographic and morphosyntactic work that actually matters. That aligns with Sweller's cognitive load theory and hints at a mechanism worth testing experimentally (Sweller, 1988). And the SDT patterns held up: tile selection (autonomy) and tiered prompts (competence) appear to sustain motivation in a writing context students typically find anxiety-provoking. None of this is definitive. But it points toward a design logic for CALL tools in productive L2 skill contexts that goes beyond engagement metrics. The

caveat remains: these are perceptual data. Whether students actually wrote better requires experimental follow-up with pre/post assessments and validated proficiency rubrics.

Several limitations constrain the generalizability of these conclusions. The 20-participant, all-female, single-class sample does not support broader inference. The cross-sectional design captures perceptions at one point after one lesson session; it says nothing about long-term skill development or motivational durability. The reliance on self-report data means that perceived effectiveness and actual skill gains may diverge. Future work should move toward designs that can actually test skill gains: longitudinal studies across multiple lessons, quasi-experimental comparisons with control groups, and writing artifact analysis alongside questionnaire data. Platform comparisons (Baamboozle vs. Kahoot!, Quizizz, Gimkit) would help isolate what drives outcomes. And larger, gender-diverse, multi-site samples are needed before any claim about Indonesian Islamic secondary school students in general can be made with confidence.

For practitioners, the immediate implication is practical: Baamboozle can be integrated into Arabic writing instruction without specialist equipment, institutional investment, or extensive teacher training. The four-stage model documented here provides a starting template that teachers can adapt to different writing task types by varying image prompt content and sentence complexity. The one consistent optimization suggested by the data—addressing the minor ease-of-access friction in Item 1—can be accomplished through pre-distributed QR codes or classroom setup time before the lesson officially begins.

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