INTAJIYA: Journal of *Ta'lim al-Lughah al-'Arabiyyah*
Vol. 3 No. 2 Oktober 2026
DOI: https://doi.org/10.35878/intajiya.v2i1.xxx
ISSN: 3063-8372

Beyond the Score: Wordwall Gamification and Arabic Vocabulary Learning in an Indonesian Madrasah Ibtidaiyah

ما وراء النقاط: التلعيب بمنصة وردوول في تعليم المفردات العربية بمدرسة ابتدائية إسلامية إندونيسية

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Abstract

This study examines how the interactive platform Wordwall is implemented in Arabic vocabulary learning at MI Muhammadiyah 22 Sugihwaras, Bojonegoro, Indonesia, and what supports and constrains its use. Using a qualitative case study design, data were collected through passive participant observation, semi-structured interviews with the Arabic teacher, the principal, the vice principal for curriculum, and purposively selected students, and document analysis, and were analyzed with the interactive model of Miles, Huberman, and Saldaña. Wordwall was integrated in stages, from vocabulary introduction and guided practice to retrieval and formative assessment, through the Match Up, Open the Box, Quiz, and Random Wheel templates. Images, varied game formats, repetition, and immediate feedback helped students link Arabic script, sound, picture, and meaning, and increased their willingness to answer and pronounce words. However, the platform's right-or-wrong feedback became useful only when the teacher explained the source of errors, and timers and competition motivated fluent readers while making weaker readers anxious. Teacher design skills, institutional support, and device availability supported implementation; unstable internet, limited devices, and uneven Arabic reading ability constrained it. The study proposes a teacher-mediated, three-phase sequence that moves from untimed recognition to guided retrieval and only then to timed fluency.

Keywords: Wordwall; gamification; Arabic vocabulary; teacher-mediated feedback; Madrasah Ibtidaiyah

Abstrak

Penelitian ini mengkaji bagaimana platform interaktif Wordwall diimplementasikan dalam pembelajaran kosakata bahasa Arab di MI Muhammadiyah 22 Sugihwaras, Bojonegoro, serta faktor yang mendukung dan menghambatnya. Dengan desain studi kasus kualitatif, data dikumpulkan melalui observasi partisipatif pasif, wawancara semi-terstruktur dengan guru bahasa Arab, kepala madrasah, wakil kepala bidang kurikulum, dan peserta didik yang dipilih

secara purposif, serta dokumentasi, lalu dianalisis dengan model interaktif Miles, Huberman, dan Saldaña. Wordwall diintegrasikan secara bertahap, dari pengenalan kosakata dan latihan terbimbing hingga pemanggilan kembali dan evaluasi formatif, melalui templat Match Up, Open the Box, Quiz, dan Random Wheel. Gambar, variasi permainan, pengulangan, dan umpan balik langsung membantu peserta didik menghubungkan tulisan Arab, bunyi, gambar, dan makna, serta meningkatkan keberanian menjawab dan melafalkan kata. Namun, umpan balik benar-salah dari aplikasi baru bermakna ketika guru menjelaskan sumber kesalahan, dan batas waktu serta kompetisi memotivasi pembaca lancar tetapi membuat pembaca lemah cemas. Kemampuan desain guru, dukungan madrasah, dan ketersediaan perangkat menjadi pendukung; jaringan internet yang tidak stabil, keterbatasan perangkat, dan perbedaan kemampuan membaca Arab menjadi penghambat. Penelitian ini mengusulkan urutan tiga fase yang dimediasi guru: pengenalan tanpa batas waktu, pemanggilan terbimbing, lalu kelancaran berbatas waktu.

Kata kunci: Wordwall; gamifikasi; kosakata bahasa Arab; umpan balik bermediasi guru; Madrasah Ibtidaiyah

ملخص

تبحث هذه الدراسة في كيفية توظيف منصة وردوول التفاعلية في تعليم المفردات العربية بمدرسة محمدية الابتدائية الإسلامية ٢٢ بسوغيهواراس، بوجونيغورو، إندونيسيا، وفي العوامل التي تدعمه أو تعوقه. واعتمدت تصميم دراسة الحالة النوعية، وجُمعت البيانات بالملاحظة بالمشاركة السلبية، والمقابلات شبه المنظمة مع معلم العربية ومدير المدرسة ونائبه لشؤون المنهج وطلاب مختارين قصديًا، وتحليل الوثائق، ثم حُلّلت بالنموذج التفاعلي لمايلز وهوبرمان وسالدانيا. وأظهرت النتائج أن وردوول أُدمج على مراحل، من تقديم المفردات والتدريب الموجّه إلى الاسترجاع والتقويم التكويني، عبر قوالب المطابقة وفتح الصندوق والاختبار والعجلة العشوائية. وأسهمت الصور وتنوع الألعاب والتكرار والتغذية الراجعة الفورية في ربط الطلاب بين الخط العربي والصوت والصورة والمعنى، وفي زيادة جرأتهم على الإجابة والنطق. غير أن تغذية المنصة الراجعة بالصواب والخطأ لم تكن مفيدة إلا حين شرح المعلم مصدر الخطأ، وكان التوقيت والمنافسة محفزين للقارئ الطليق ومقلقين للقارئ الضعيف. وتقترح الدراسة تسلسلًا من ثلاث مراحل بوساطة المعلم: التعرف دون توقيت، ثم الاسترجاع الموجّه، ثم الطلاقة الموقوتة.

الكلمات المفتاحية: وردوول؛ التلعيب؛ المفردات العربية؛ التغذية الراجعة بوساطة المعلم؛ المدرسة الابتدائية الإسلامية

INTRODUCTION

Arabic holds a special place in the curriculum of Indonesian Madrasah Ibtidaiyah (Islamic primary schools) because it lays the foundation for understanding the sources of Islamic teaching and for basic communication in the language. Among the components of Arabic learning, vocabulary is decisive: it underpins listening, speaking, reading, and writing, and learners with a limited lexicon struggle both to understand and to produce language (Schmitt, 2008). Vocabulary is not acquired by memorizing translations alone; it requires repeated encounters, use in context, visual representation, and opportunities for active response (Webb, 2007). Yet at the primary level, Arabic vocabulary is still

often taught through translation, copying, and repeated memorization, a pattern that tends to make learners passive recipients and quickly leads to boredom. Primary-age learners need media that are concrete, visual, interactive, and enjoyable, and that let them take part directly in learning activities (Plass, Homer, & Kinzer, 2015).

Developments in educational technology have made digital media and gamification an important trend in language learning (Hwang & Fu, 2019). Gamification integrates game elements such as challenges, scores, time limits, immediate feedback, and competition into activities that are not games in themselves (Hamari, Koivisto, & Sarsa, 2014; Koivisto & Hamari, 2019). A meta-analysis of 41 studies involving 5,071 participants found a large positive effect of gamified learning on learning outcomes (Hedges' g = 0.822) (Li, He, & Yuan, 2023), and other syntheses show effects on motivation, engagement, and the learning experience (Bai, Hew, & Huang, 2020; Sailer & Homner, 2020). Meta-analyses of mobile-assisted vocabulary learning likewise report positive effects (Mahdi, 2018; Lin & Lin, 2019). Nevertheless, these effects depend heavily on the fit between game design, learning objectives, learner characteristics, and the teacher's classroom management (Sailer & Homner, 2020), and poorly designed gamification can produce excessive competition, distraction, or dependence on scores (Hanus & Fox, 2015; Dichev & Dicheva, 2017). Its appeal may also fade as novelty wears off (Rodrigues et al., 2022).

Wordwall is a web-based platform that lets teachers build interactive exercises in many formats, such as matching words with pictures, opening boxes, grouping words, finding pairs, unjumbling, quizzes, and spinning a wheel. These formats allow Arabic vocabulary to be presented through combinations of script, image, sound, movement, and immediate feedback. Pedagogically, presenting verbal and visual information together helps learners connect a word's form, its meaning, and its referent (Mayer, 2021), while repeating vocabulary across different game formats strengthens storage and retrieval (Webb, 2007).

Previous Studies

Recent Indonesian studies have examined Wordwall in Arabic vocabulary learning, almost all of them quantitatively. Quasi-experiments in Islamic primary schools reported significant gains in *mufradāt* mastery after Wordwall instruction (Khotijah et al., 2022; Al Farahi & Ni'am, 2025). In an Islamic senior secondary school, combining Wordwall with an online dictionary produced higher posttest scores than conventional instruction, with a moderate-to-large effect (Nadzir, Taubah, & Hasyim, 2026). A pre-experiment in an Islamic junior secondary school found a modest increase in learning interest (Majid & Hamdun, 2024), and classroom action research in a pesantren used Wordwall as a gamified evaluation tool (Abdullah et al., 2026). Outside Arabic, gamified media helped students with ADHD in an Indonesian inclusive primary school concentrate better (Kusmawati, Fahrurrozi, & Supena, 2023).

These studies show *whether* Wordwall raises scores, but say little about *how* it is woven into lessons, how learners respond moment by moment, what the teacher does while the game runs, and what goes wrong in a typical madrasah. Most gamification and vocabulary research is also concentrated on English, secondary, or tertiary education (Lin & Lin, 2019; Bai et al., 2020). A qualitative account that captures the implementation process in context, rather than judging success only by changes in test scores, is therefore needed (Dichev & Dicheva, 2017).

This study therefore addresses three questions: (1) How is Wordwall implemented in Arabic vocabulary learning at MI Muhammadiyah 22 Sugihwaras, Bojonegoro? (2) How do students respond to and engage with the activities, and what role does the teacher play? (3) What factors support and constrain its implementation? Theoretically, the study contributes to research on gamification,

vocabulary learning, and technology in primary-level Arabic education; practically, it offers guidance for teachers in choosing and sequencing Wordwall activities to fit learning goals, learners' abilities, and school facilities.

Theoretical Framework

The study draws on three strands. First, multimedia learning theory holds that people learn better from words and pictures than from words alone, provided that extraneous material is minimized (Mayer, 2021). Second, vocabulary research shows that knowing a word involves its written form, spoken form, meaning, and use, and that durable learning requires repeated, spaced encounters in varied contexts (Webb, 2007; Schmitt, 2008). Third, game-based learning integrates cognitive, motivational, affective, and sociocultural dimensions (Plass et al., 2015), but its learning value depends on feedback quality: simple verification feedback (right or wrong) is less effective than elaborated feedback that explains why an answer is wrong and how to improve (Hattie & Timperley, 2007; Shute, 2008). These strands guided both the coding of the data and the interpretation of the findings.

METHOD

This study used a descriptive qualitative design with a case study approach, chosen because it seeks an in-depth understanding of how Wordwall is implemented in Arabic vocabulary learning in the natural setting of MI Muhammadiyah 22 Sugihwaras, Bojonegoro Regency, Indonesia. A case study allows the researcher to examine a phenomenon intensively and holistically, attending to classroom conditions, learning activities, student experiences, the teacher's role, and the factors that support or hinder the use of the platform (Creswell & Poth, 2018; Yin, 2018).

Primary data sources were the Arabic teacher who used Wordwall, the students who took part in the lessons, the principal, and the vice principal for curriculum. Secondary data comprised teaching modules, lesson plans, vocabulary materials, activity documentation, student work, screenshots of Wordwall activities, and related documents. Informants were selected by purposive sampling, that is, because they knew, experienced, and were directly involved in the phenomenon (Sugiyono, 2020). The teacher was included because she taught Arabic and used Wordwall for vocabulary; students were selected to vary in activeness, vocabulary mastery, and responses during learning; and school leaders were included because they knew the policies, facilities, and support for digital media. The number of informants was determined by information adequacy and data saturation, and data collection stopped when new data no longer produced new categories (Creswell & Poth, 2018).

Data were collected through observation, semi-structured interviews, and documentation. Observation was passive participant observation: the researcher attended and observed lessons without taking over the teacher's role, from preparation, presentation of material, and use of the templates to teacher–student interaction, student responses, feedback, and assessment. Interviews explored reasons for using Wordwall, experiences during learning, perceived benefits, changes in engagement, and technical and pedagogical constraints; interviews were held on 17 and 18 February 2026. Documentation was used to complement and cross-check the observation and interview data. Students are referred to by pseudonyms, and interview excerpts were translated from Indonesian by the authors.

Data were analyzed with the interactive model of Miles, Huberman, and Saldaña (2014): data condensation, data display, and conclusion drawing and verification (see also Rijali, 2018). In the condensation stage, transcripts, field notes, and documents were selected, coded, and grouped into themes: lesson planning, forms of Wordwall use, student engagement, the teacher's role, benefits, and constraints. Data were then displayed as narratives, matrices, and thematic groupings, and

conclusions were drawn gradually and continually checked against the field data. Trustworthiness was ensured through source triangulation, technique triangulation, member checking, prolonged observation, and an audit trail, addressing credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985; Moleong, 2017; Fadli, 2021).

RESULTS AND DISCUSSION

Results

1. Staged integration of Wordwall into vocabulary lessons

Wordwall was not added as a game at the end of the lesson but placed within a staged sequence. In the opening stage, the teacher checked readiness, linked the topic to objects in the classroom, and stated the objectives. She showed a book, a pen, a bag, a table, and a chair, and asked students to name them in Indonesian to activate prior knowledge before the Arabic forms were introduced. In the presentation stage, the teacher displayed pictures and written words together, read each word aloud, and had students repeat it chorally and individually, paying particular attention to vowel length and to sounds unfamiliar to Indonesian speakers. Only after students had met each word's form, sound, and meaning did the games begin; Wordwall thus reinforced, rather than replaced, direct teaching.

The vocabulary theme was school supplies (الأدوات المدرسية), a topic relevant to primary learners because the words refer to objects they meet every day: كِتَابٌ (book), قَلَمٌ (pen), مِسْطَرَةٌ (ruler), مِمْحَاةٌ (eraser), دَفْتَرٌ (exercise book), حَقِيبَةٌ (bag), كُرْسِيٌّ (chair), مَكْتَبٌ (desk), سَبُّورَةٌ (whiteboard), بَابٌ (door), نَافِذَةٌ (window), and مِقَصٌّ (scissors). The aim was not only translation but also recognizing Arabic script, pronouncing words correctly, matching words with pictures, and using some of them in simple expressions such as هَذَا كِتَابٌ and هَذِهِ حَقِيبَةٌ. The teacher prepared pictures, Arabic words, Indonesian meanings, and pronunciation drills, and arranged them across four templates, summarized in Table 1.

Table 1. Wordwall templates in the vocabulary lesson

Stage	Template	Learner activity	Vocabulary function
Guided practice	Match Up	Match Arabic words with pictures, first individually, then in groups	Link written form and meaning
Practice and retrieval	Open the Box	Open a random box; read the word, give its meaning, or point to the object	Retrieve form, sound, and meaning
Formative assessment	Quiz	Identify the meaning of a word	Check meaning recognition
Production	Random Wheel	Pronounce the word that appears or use it in a simple expression	Pronunciation and use

Source: observation and documentation.

In the Match Up activity, students first answered in turns, and the teacher then turned the activity into a simple group discussion. When an answer was wrong, Wordwall displayed an error

mark, but the teacher did not give the answer immediately; she asked students to look at the picture again, compare word shapes, and recall the pronunciation. In Open the Box, students chose a box containing a picture or word and had to read it, give its meaning, or point to the object. The element of surprise aroused curiosity: since students did not know which word would appear, they tried to attend to the whole set rather than to a few words. In Random Wheel, students pronounced the word that came up or used it in a simple expression. When a student struggled, the teacher scaffolded in steps: showing the picture, saying the first syllable, or asking a group member for a hint. In the closing stage, students recalled the words without looking at the screen, reflected on which words were easy, difficult, or most interesting, and were asked to find matching objects at home.

2. Linking script, sound, image, and meaning

Learning a word required students to connect at least three components: written form, sound, and meaning. Wordwall allowed the three to be presented close together through script, picture, and the teacher's pronunciation. In matching, students did not merely recall a translation but built a link between كِتَابٌ and a picture of a book; when the same word reappeared in the quiz or on the wheel, they had to retrieve it again. Repetition in different formats made practice feel less mechanical. The teacher described the difference from her previous practice:

> "When I only wrote the words on the board, the children would read along, but not all of them remembered for long. With Wordwall, they see the picture, read the word, and immediately know whether the answer is right or wrong." (Arabic teacher, personal communication, February 17, 2026)

The teacher could also recycle the same words through different templates without changing the core vocabulary, giving students several encounters with each word in activities that were not identical.

3. Automated feedback versus teacher-mediated feedback

Immediate feedback was central to the activities: when a choice was wrong, the system marked it at once. Yet the findings show that the platform's feedback was not enough on its own. A right-or-wrong mark tells students the outcome, whereas the teacher's explanation helps them understand the cause:

> "The children know straight away that their answer is wrong, but I still need to ask why it is wrong. Sometimes it is because they have not memorized the meaning, sometimes because the shapes of the words are almost the same, and sometimes because they are in a hurry." (Arabic teacher, personal communication, February 17, 2026)

The most valuable function of Wordwall was therefore not the score but the opportunity it created for formative assessment: wrong answers signaled which words were still difficult and needed further practice.

4. Engagement and its ambivalence

Observation showed that students' attention was easier to direct when vocabulary appeared as pictures and games. Students who at first only repeated words chorally began to raise their hands and ask for a turn, and interaction was no longer dominated by the teacher as students corrected one another and explained their choices. The game elements, however, produced both enjoyment and pressure:

> "I like the matching one because when I get it wrong I can try to remember again. The pictures make it easier for me to know the meaning." (Student A, personal communication, February 17, 2026)

> "I like spinning the wheel, but sometimes I am scared when the time is fast and I can't read the word yet." (Student B, personal communication, February 17, 2026)

Pictures, feedback, and the chance to try again helped; time limits and competition made students who were not yet fluent readers anxious or hurried. Students who already read Arabic script answered faster, while those who struggled needed pictures, repeated pronunciation, hints, and more time. Visible enthusiasm, then, did not automatically mean that every student had mastered the words; the teacher still had to check understanding of form, meaning, and use.

5. Supporting and constraining factors

The teacher remained central. She selected vocabulary suited to students' ability, chose easily recognizable pictures, adjusted the number of items and the difficulty, managed turns, formed small groups, and posed questions at different levels so that less confident students would not remain passive. When students focused too much on speed, she reminded them that reading accurately and understanding the word mattered more than the highest score. Institutional support also mattered. The principal described the school's position:

> "In principle, the madrasah supports the use of technology as long as it helps students understand the lesson. Media must be used purposefully, and teachers must still pay attention to the children's character and abilities." (Principal, personal communication, February 18, 2026)

The vice principal for curriculum stressed planning:

> "Wordwall should be part of lesson planning, not used on the spur of the moment. The objectives, material, type of game, and assessment must be visible in the teacher's lesson documents." (Vice principal for curriculum, personal communication, February 18, 2026)

Table 2 summarizes the supporting and constraining factors, and Table 3 summarizes the themes of the findings.

Table 2. Supporting and constraining factors

Supporting factors	Constraining factors
Teacher's skill in operating the platform and designing activities	Unstable internet connection
Availability of devices and a screen or projector	Limited devices; one device shared by the whole class
Support from the principal and the vice principal for curriculum	Time needed to prepare the games
Students' interest in visual and game-based activities	Uneven ability to read Arabic script
Vocabulary close to students' daily lives	Some students' focus on scores and speed

Source: interviews, observation, and documentation.

Table 3. Summary of findings

Theme	Evidence in observation	Corroborating source	Meaning of the finding
Planning	Words, pictures, and templates chosen to fit learning objectives	Teaching module; teacher interview	Wordwall is purposeful when integrated into planning
Student engagement	Students volunteer, answer, and discuss	Observation; student interviews	Learning becomes more active
Vocabulary recognition	Students link script with picture and sound	Practice observation	Visualization supports meaning-making
Repetition and feedback	Words recur across templates; errors shown immediately	Wordwall documentation	Provides practice and formative assessment
Teacher's role	Teacher models, scaffolds, corrects, and manages turns	Observation; teacher interview	Technology does not replace the teacher's pedagogical role
Constraints	Network, devices, timers, uneven reading ability	Interviews with all informants	Media must be adapted to learners and school conditions

Source: data analysis.

These findings describe changes in the learning process, student responses, and informants' perceptions; they do not establish statistical gains in vocabulary mastery, which would require specially designed tests.

Discussion

The findings show that Wordwall, as implemented in this madrasah, made vocabulary learning more active and participatory. Students matched words with pictures, answered quizzes, read words aloud, and used them in simple expressions rather than only listening and memorizing lists. This is consistent with multimedia learning theory, which predicts better learning when verbal and visual information are combined (Mayer, 2021), and with vocabulary research showing that more encounters with a word increase the chance that it is stored and retrieved (Webb, 2007). Recycling the same twelve words through four templates gave students multiple, varied encounters without monotony. The heightened attention and participation also support the view that game-based learning works through cognitive, motivational, affective, and social channels together (Plass et al., 2015). These process findings complement the quantitative gains reported in comparable Arabic classrooms (Khotijah et al., 2022; Al Farahi & Ni'am, 2025; Nadzir et al., 2026) by showing what happens inside the lesson to produce them.

The study's main contribution concerns feedback and timing. First, Wordwall's built-in feedback is verification feedback: it tells the learner whether an answer is right or wrong. The literature shows that such feedback is weaker than elaborated feedback that addresses the cause of the error and the next step (Hattie & Timperley, 2007; Shute, 2008). In this classroom, the teacher supplied the missing elaboration by asking why an answer was wrong and distinguishing three sources of error: an unlearned meaning, visually similar word shapes, and haste. The second source is specific to Arabic

for Indonesian learners, whose decoding of an unfamiliar script is still developing. Without the teacher, the game would have reported errors without diagnosing them. This is why the platform did not replace the teacher's pedagogical role, a conclusion consistent with evidence that the effect of gamification depends on how it is integrated into instruction (Sailer & Homner, 2020).

Second, the same game element affected learners differently according to their reading fluency. Timers and competition energized students who already read Arabic script but made weaker readers anxious and pushed them toward guessing. This mirrors evidence that competitive, score-driven gamification can harm motivation for some learners (Hanus & Fox, 2015). It suggests that game elements should be introduced in an order matched to the stage of vocabulary learning. Building on the teacher's own practice, Table 4 proposes a three-phase, teacher-mediated sequence.

Table 4. A teacher-mediated three-phase sequence for Wordwall vocabulary lessons

Phase	Suitable templates	Game settings	Teacher's role
1. Untimed recognition	Match Up; Open the Box	No timer; no leaderboard; picture and audio support	Model pronunciation; explain errors
2. Guided retrieval	Quiz; Open the Box	Generous timer; group answers	Diagnose error sources; give hints in steps
3. Timed fluency	Quiz; Random Wheel	Timer and scores enabled	Balance turns; stress accuracy over speed

Source: authors' proposal based on the findings.

Institutional support strengthened implementation by providing facilities and by expecting Wordwall to appear in lesson plans, which turned an individual teacher's initiative into part of the school's academic governance. At the same time, unstable internet, a single shared device, and the preparation time required show that the platform must be adapted to the conditions of each school. When only one device was available, students who did not have a turn risked becoming spectators unless the teacher organized group roles. Finally, because enthusiasm for game-based activities may fade over time (Rodrigues et al., 2022), teachers should rotate templates and anchor the games in clear vocabulary goals rather than rely on novelty.

This study has limitations. It examined one madrasah, a small number of informants, and a single vocabulary theme, and it did not measure vocabulary retention over time. Its findings are therefore analytic rather than statistical generalizations.

CONCLUSION

This study found that Wordwall was implemented in Arabic vocabulary learning at MI Muhammadiyah 22 Sugihwaras, Bojonegoro, as a staged sequence of introduction, guided practice, retrieval, and formative assessment, using the Match Up, Open the Box, Quiz, and Random Wheel templates. Pictures, varied games, repetition, and immediate feedback helped students link Arabic script, sound, image, and meaning, and increased their attention, confidence, and participation. Two qualifications emerged: the platform's right-or-wrong feedback became pedagogically useful only when the teacher explained the source of errors, and timers and competition helped fluent readers but made weaker readers anxious. Teacher design skills, institutional support, and device availability supported implementation, while unstable internet, limited devices, and uneven Arabic reading ability

constrained it. Teachers are advised to use Wordwall in a planned, staged manner that moves from untimed recognition to guided retrieval and only then to timed fluency, and to combine it with reading, pronunciation, and use of words in simple sentences. Schools should support facilities, teacher training, and the integration of digital media into lesson plans. Future research should involve more madrasahs, combine qualitative and quantitative methods, and examine the effects of different Wordwall templates on the reading, retention, and use of Arabic vocabulary over time.

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