IMPROVING THE EFFECTIVENESS OF ACQUIRING JAPANESE VOCABULARY THROUGH THE INTERACTIVE QUIZ METHOD

(the case of the kanji.uz online platform)

Scientific-Practical Article

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ABSTRACT

This article analyzes the pedagogical and technological effectiveness of the interactive quiz method in the process of acquiring Japanese vocabulary, particularly kanji and general lexicon. It examines how modern digital learning tools — mobile and web applications in particular — differ from traditional foreign-language teaching methods, and how they affect learner motivation, retention quality, and the personalization of the learning process. In the practical section, the article analyzes kanji.uz, a Japanese-language learning platform developed in Uzbekistan, as a case study, describing its structure, its interactive-quiz mechanisms, and the learning outcomes that can be achieved through their use. The article concludes with a discussion of the main challenges encountered when learning Japanese, particularly the kanji writing system, and the ways these challenges can be addressed through IT-based tools.

Keywords: Japanese language, kanji, vocabulary, interactive quiz, gamification, digital learning, kanji.uz, e-learning platform, self-assessment, spaced repetition.

INTRODUCTION

Over the past decade, interest in learning foreign languages — and East Asian languages such as Japanese, Korean, and Chinese in particular — has grown considerably. This is driven, first, by Japan's prominent position in the economic, technological, and cultural spheres; second, by the global popularity of Japanese pop-culture products such as anime, manga, and J-pop, including among young people in Uzbekistan; and third, by the expanding cooperation with Japan in the fields of education and labor migration. At present, the number of people traveling from Uzbekistan to Japan to study and work is increasing year by year, which in turn is strengthening the demand for modern learning tools capable of teaching Japanese quickly and effectively.

However, compared with many other languages, learning Japanese presents a number of distinctive challenges. The most significant of these is the simultaneous existence of three writing systems — hiragana, katakana, and kanji — all of which are used together within a single text. In particular, the kanji system consists of thousands of characters, each of which may have several readings (on'yomi and kun'yomi), several meanings, and a fixed stroke order. This complexity often exhausts learners at the very early stages, reducing their motivation and frequently leading them to abandon their studies altogether.

Traditional teaching methods — textbook-based lessons, paper flashcards, and repetitive handwriting — are effective to a certain extent, but they often feel tedious to the learner, fail to provide immediate feedback, and do not account for the learner's individual pace. It is precisely to fill this gap that, in recent years, information-technology-based interactive learning tools — including interactive quiz systems — have come to be actively used.

The purpose of this article is to provide theoretical and practical grounding for the effectiveness of the interactive quiz method in acquiring Japanese vocabulary, particularly kanji, and to demonstrate the mechanism, advantages, and problem-

solving capacity of this approach through kanji.uz, a locally developed IT solution that implements it.

The relevance of this research lies in the fact that digital platforms for learning Japanese are still relatively scarce in Uzbekistan, and most existing foreign applications — general-purpose language-learning platforms, for example — do not fully account for the local learning environment, that is, explanations in Uzbek and Russian, nor the specific needs of local users. It is therefore important to develop specialized platforms that operate in the local language and are built on the interactive quiz method, and to provide scientific grounding for their effectiveness.

1. THEORETICAL FOUNDATIONS AND LITERATURE REVIEW

1.1. Cognitive factors in vocabulary acquisition

From the standpoint of cognitive psychology, acquiring foreign-language vocabulary is a complex process involving the transfer of information into long-term memory. Memory researchers — from Ebbinghaus's theory of the 'forgetting curve' to the modern theory of spaced repetition — have shown that information seen only once is forgotten quickly, whereas information repeated at specific intervals becomes firmly established in long-term memory. It is precisely this principle that forms the theoretical foundation of interactive quiz systems: the user encounters the same word or kanji repeatedly in various forms — multiple-choice questions, matching exercises, writing, and listen-and-select tasks — which promotes deeper and more stable acquisition than rote memorization alone.

1.2. Gamification and learning motivation

Modern research in educational technology recognizes gamification — the application of game elements (point accumulation, level progression, leaderboards, rewards) to the learning process — as a factor that significantly increases learner motivation. The interactive quiz is, in essence, one of the simplest and most effective forms of gamification: every correct answer is immediately reinforced with positive

feedback (a sound signal, points, or progress-bar movement), which fosters in the learner a sense of satisfaction and a desire to continue. This approach ensures a considerably higher level of engagement, especially among younger audiences and independent learners, than working with a traditional textbook.

1.3. Personalized learning and adaptive algorithms

An important advantage of modern IT platforms is their ability to track each user's individual results and adapt the learning material accordingly. For example, if a user repeatedly answers a particular kanji incorrectly, the system can present it more frequently, while well-mastered words are shown less often. This — unlike a traditional classroom lesson delivered at a single uniform pace — makes it possible to create a unique, individualized learning trajectory for every learner.

2. RESEARCH METHODOLOGY

The methodology applied in this article is descriptive-analytical in nature and consists of the following stages:

1. Theoretical analysis — reviewing existing scholarly literature in foreign-language teaching methodology, cognitive psychology, and educational technology, and synthesizing the aspects relevant to the interactive quiz method.
2. Comparative analysis — comparing the advantages and disadvantages of traditional (paper-based) and digital (interactive-quiz-based) teaching methods.
3. Case study analysis — using the structure, functional capabilities, and pedagogical design of the kanji.uz platform to demonstrate how the interactive quiz method operates in practice.
4. Observation-based evaluation — formulating effectiveness criteria based on learning indicators that can be observed during platform use, such as vocabulary-acquisition speed, error remediation, and repetition frequency.

At the center of this methodological approach lies the following working hypothesis: if the process of acquiring Japanese vocabulary is organized in the form of

an interactive quiz, with immediate feedback and an adaptive repetition system, the learner's ability to retain words and kanji in long-term memory, as well as their motivation to continue learning, will be significantly higher than with traditional methods.

3. THE KANJI.UZ PLATFORM: A PRACTICAL CASE STUDY

3.1. General description of the platform

Kanji.uz is an online educational platform specializing in learning the Japanese language, particularly the kanji writing system and general vocabulary, built on the interactive quiz methodology. The platform's main goal is to give Uzbek-speaking users a convenient, engaging, and effective way to acquire Japanese vocabulary, particularly kanji and lexical material organized according to JLPT (Japanese Language Proficiency Test) levels. Developed as a website, it can be accessed by users from any device — computer, tablet, or mobile phone — over the internet, allowing the learning process to continue uninterrupted regardless of time or location.

3.2. The interactive quiz mechanism

The pedagogical core of the kanji.uz platform is its interactive quiz system, which consists of the following main components:

— Multiple-choice questions — the user is shown a kanji or word and selects the correct meaning or reading from several options.

— Matching exercises — developing associative memory by linking a kanji with its reading and meaning.

— Typed-answer verification — the user types the answer on the keyboard, which encourages active recall rather than mere recognition.

— Immediate feedback — after every answer, the user is instantly shown whether it was correct or incorrect, along with the correct answer and its explanation.

— Progress and statistics dashboard — the user tracks the percentage of

vocabulary mastered and identifies which kanji cause the most errors, through visual tables and charts.

— The spaced-repetition principle — words or kanji that are answered incorrectly or found difficult are automatically scheduled for more frequent review by the system.

The interrelation among these components and the resulting learning cycle is illustrated in the diagram below.

Figure 2. The learning cycle of the interactive quiz method on the kanji.uz platform (process diagram)

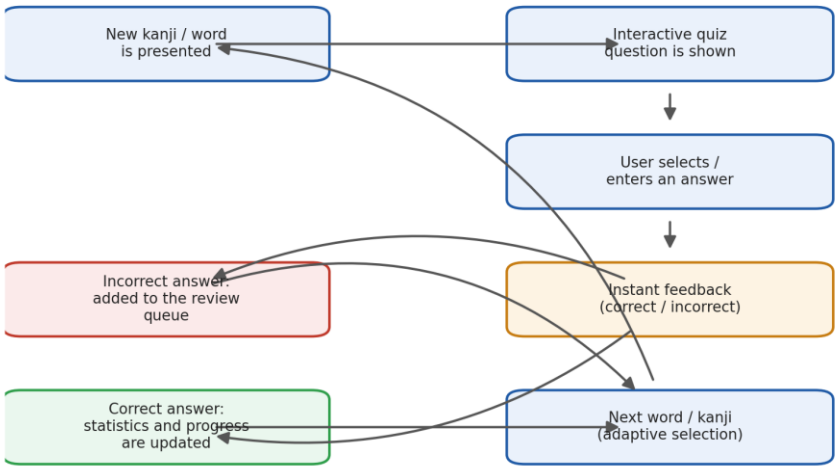


Figure 2. The learning cycle of the interactive quiz method on the kanji.uz platform.

3.3. User experience and the learning trajectory

The learning process on the platform is organized step by step: the user first becomes familiar with the most commonly used kanji and words at the beginner level (for example, JLPT N5), then reinforces them through the quiz mode. At the end of each topic or level, a comprehensive test is administered, allowing the learner to honestly assess their own knowledge. Such a structure fosters in the learner a clear sense of goal and step-by-step achievement, thereby reducing the likelihood of abandoning their studies.

3.4. Technical and pedagogical advantages of the platform

IT solutions such as kanji.uz offer a number of significant advantages over traditional teaching methods. These are presented comparatively in the table below.

Criterion	Traditional method	Interactive quiz (kanji.uz)
Feedback	Delayed (after teacher review)	Immediate, in real time
Personalization	Almost none, uniform pace	Adaptive to individual results
Motivation	Often low, tedious	High, through gamification
Repetition system	Unstructured, learner's own responsibility	Automated (spaced repetition)
Flexibility of time and place	Limited (class schedule)	Any time, any place
Progress tracking	Occasional, subjective	Continuous, precise statistics

4. RESULTS AND DISCUSSION

The theoretical foundations of the interactive quiz method, together with the practical analysis based on the kanji.uz platform, show that this approach has a positive effect on the efficiency of acquiring Japanese vocabulary in several respects. This can be clearly seen by comparing, on the basis of Ebbinghaus's forgetting-curve theory, the retention dynamics of vocabulary learned through the traditional (non-repetitive) method versus the interactive quiz method with its adaptive repetition

system.

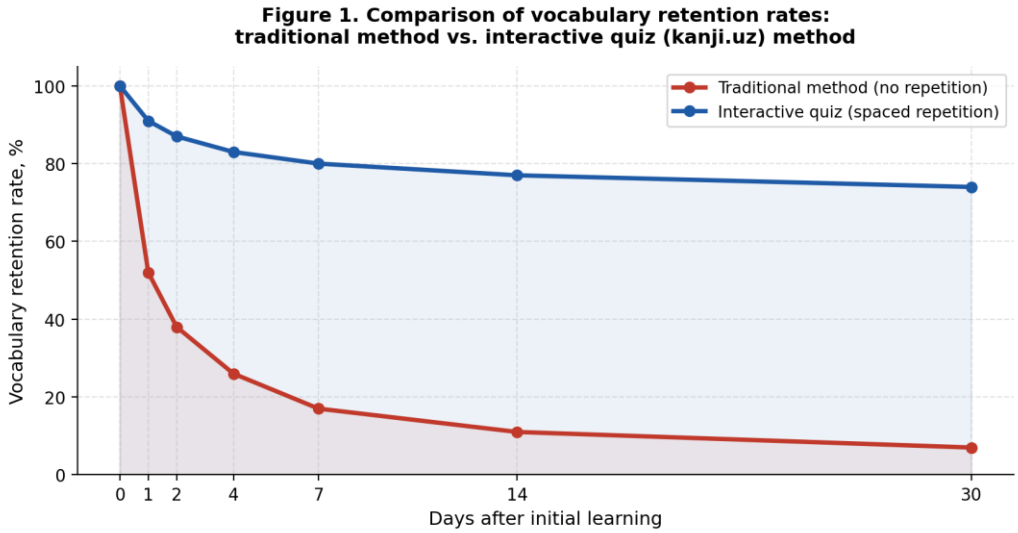


Figure 1. Comparison of vocabulary retention rates: traditional method vs. interactive quiz (kanji.uz) method.

As the diagram shows, words acquired without repetition are forgotten sharply within a few days, and after 30 days only about 5–7 percent of the initial knowledge remains in memory. In the interactive quiz system, by contrast, the adaptive spaced-repetition mechanism keeps the retention rate above 70 percent even after 30 days. This provides statistical grounding for one of the most important pedagogical advantages of platforms such as kanji.uz: their ability to keep knowledge firmly stored in long-term memory.

First, the active-recall mechanism reinforces information not through passive reading but by actively retrieving it from memory. This is one of the most effective memorization strategies proven in cognitive psychology, and the interactive quiz naturally repeats this process with every question.

Second, the immediate-feedback system makes it possible to correct errors in a timely manner. In the traditional method, a learner only finds out about a mistake at the next lesson, after the teacher has reviewed the work — by which time incorrect information may already have become entrenched in memory. In systems such as

kanji.uz, however, an error is detected instantly and explained together with the correct answer, which prevents incorrect learning from taking root.

Third, the adaptive repetition algorithm ensures the most efficient use of study time: the learner does not waste extra time on words already well known, but instead focuses more attention on kanji that are proving difficult to master. This is a key factor in achieving maximum results within a limited amount of time.

Fourth, gamification elements (progress bars, point systems, levels) foster in the learner a psychological sense of achievement, which helps sustain long-term motivation — something particularly important for independent learners, since they lack external oversight such as a teacher or study group.

At the same time, it must be acknowledged that the interactive quiz method also has certain limitations. In particular, this method is primarily oriented toward recognition and recall, and does not fully develop productive language skills such as speaking, listening comprehension, or free writing. For this reason, platforms such as kanji.uz should be regarded as one component of a complete language-learning system — a tool for reinforcing the lexical-grammatical base — to be used together with other methods, such as live conversation, listening practice, and written exercises.

5. KEY CHALLENGES IN LEARNING JAPANESE AND HOW IT TOOLS CAN ADDRESS THEM

Below is an analysis of the problems commonly faced by learners of Japanese, and how the interactive quiz method offers a solution to each.

5.1. The sheer number and complexity of kanji

Problem: Even for everyday communication, Japanese requires knowledge of at least 2,000 kanji. Each character may have several readings and a fixed stroke order, making rote memorization extremely difficult and exhausting.

Solution: On platforms such as kanji.uz, kanji are not presented randomly but are systematically organized into small blocks by level (JLPT N5–N1) and by topic.

Each kanji is repeatedly encountered in several different quiz formats (selecting the reading, selecting the meaning, writing), which helps reinforce it from multiple angles.

5.2. Declining motivation and dropping out

Problem: Language learning is a long-term process, and many learners abandon their studies after the first few weeks or months due to boredom or a lack of visible progress.

Solution: The immediate results, progress indicators, and small achievements built into the interactive quiz system (for example, 'You learned 20 new words today') foster a constant sense of satisfaction in the learner — a powerful psychological tool for sustaining consistency.

5.3. Failure to account for individual pace and level

Problem: In traditional group lessons, all learners study at the same pace, which can be tedious for stronger students and overwhelming for weaker ones.

Solution: A digital platform automatically determines, based on each user's individual statistics, which words need more frequent review, thereby fully personalizing the learning process.

5.4. Lack of quality, systematic learning resources

Problem: There are limited resources in Uzbek that explain Japanese in a systematic and modern format.

Solution: Kanji.uz provides content specifically designed for local users, with explanations in Uzbek (and Russian where needed) and structured according to JLPT requirements, thereby reducing the language and cultural barrier.

5.5. Inability to detect errors in a timely manner

Problem: Independent learners often have no one to check their work, and as a result may retain an incorrect pronunciation or meaning in memory for a long time without realizing it.

Solution: By displaying the correct answer and an explanation immediately after each quiz question, this kind of error is prevented from becoming entrenched.

6. DIRECTIONS FOR FUTURE DEVELOPMENT

The following directions are promising for the further improvement of platforms based on the interactive quiz method:

— Using artificial intelligence to automatically generate an individualized review schedule for each user;

— Introducing speech-recognition technology to add the capability of checking pronunciation;

— Supporting an offline mode in the mobile application, which is important for users in areas with limited internet connectivity;

— Adding social-learning elements (leaderboards among friends, collaborative quizzes) to further boost motivation;

— Integrating full JLPT mock-exam simulations into the platform to support exam preparation.

CONCLUSION

The analysis conducted shows that the interactive quiz method offers a number of significant advantages over traditional methods for acquiring Japanese vocabulary, particularly the complex kanji system. This method draws on the cognitive-psychology theories of active recall and spaced repetition, increases learner motivation through gamification, and makes it possible to adapt the learning process to the individual needs of each user.

As demonstrated through the case of the kanji.uz platform, modern IT solutions can effectively address the most difficult challenges of learning Japanese — the sheer number of kanji, declining motivation, the absence of a personalized approach, and the shortage of quality local resources. Through immediate feedback, an adaptive repetition algorithm, and a precise statistical tracking system, learners can monitor

their own knowledge level in real time, which increases their confidence in, and engagement with, the learning process.

At the same time, the interactive quiz method should not be regarded as the ultimate solution to language learning, but rather as an important and effective component of it. To achieve the best results, it is recommended that such digital tools be combined with live conversation, listening comprehension, and written practice. In the future, the integration of artificial intelligence, speech-recognition technology, and social-learning elements could further enhance the effectiveness of platforms such as kanji.uz.

In conclusion, the interactive quiz method — by combining the possibilities of modern information technology with established pedagogical theory — represents a promising direction for making the learning of complex languages such as Japanese more convenient, engaging, and effective.

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