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Gamification of Spelling Instruction in Primary Education through the Educandy Platform

Abstract:
The article examines the didactic potential of gamification in spelling instruction in primary education through the Educandy platform. The study responds to the need to transform traditional language learning into an interactive process in which pupils are not passive recipients of information, but active participants in constructing spelling knowledge. The research focuses on the digital game "Letter Jumble", an anagram-based resource designed to develop spelling literacy, linguistic reflection and learning motivation among second-grade pupils. The aim is to demonstrate how a simple digital game can transform spelling from a reproductive task into an engaging cognitive challenge supported by visual, auditory and kinaesthetic stimuli. The methodological framework combines theoretical analysis and synthesis, modelling, anagram analysis, pedagogical survey, visual-symbolic pupil survey, observation and a time stimulus. For the purposes of the research, an original digital resource was created in Educandy. It includes three automatically generated interactive formats — Anagrams, Spell it! and Word search — with the anagram module selected as the main object of approbation. The game requires pupils to decompose jumbled letters and reconstruct words in their correct orthographic form, while the platform provides immediate audio-visual feedback. This supports the automation of spelling habits and reduces the emotional tension associated with mistakes. The empirical study involved 92 second-grade pupils and 16 primary school teachers. The pupil survey showed a very high level of positive emotional response: 95.6% of pupils selected a smiling emoticon after playing the game, while only 2.2% selected a frowning face and 2.2% remained neutral. In terms of perceived cognitive difficulty, 84.8% of pupils reported no difficulty in solving the anagram tasks, 8.7% described them as slightly difficult, and 6.5% experienced clear difficulty. These data indicate that the complexity of the resource is appropriately calibrated to the age characteristics of second-grade pupils. The teacher survey confirmed the methodological relevance of the Educandy resource. A total of 62.5% of teachers assessed the game as extremely effective for consolidating spelling rules, especially because of its visual feedback, while 37.5% regarded it as a good alternative that should be combined with traditional exercises. None of the respondents considered the game distracting or difficult to assess. In addition, 75% of teachers stated that they would gladly integrate similar resources into regular practice. The results prove that gamification through Educandy does not replace classical spelling instruction, but enriches it with an accessible, motivating and methodologically sound digital tool. The "Letter Jumble" model confirms the didactic value of the anagram method and shows that properly structured technology can support spelling accuracy, learner engagement and the development of digital competence in primary education.

Keywords: gamification, spelling instruction, primary education, Educandy, anagram method, Letter Jumble, digital competence, game-based learning, learning motivation, spelling literacy.

Abbreviations:

GBL is Game-Based Learning.

Introduction

In contemporary primary education, there is a growing need to apply innovative methods in which pupils are not merely passive recipients of information, but active participants. Digitalisation requires a transformation of the learning environment, since traditional approaches often lose their effectiveness. According to Alexieva and Racheva, "digital competences should be developed from an early age through purposeful pedagogical work from the beginning of school education" (*Aleksieva & Racheva, p. 118*).

Linguistic and orthographic competence is a foundation of functional literacy. The new educational paradigm requires the use of interactive methods that place the pupil in an active position. When interactive learning is applied, the nature of the educational process changes "from static and passive to dynamic and interactive" (*Vasilev, 2015, p. 73*). Within this research framework, the Educandy platform transforms the lesson into a space for active communication, since, according to Atanasova, "interaction is a process in which information and social experience are exchanged between subjects… to achieve certain social goals" (*Atanasova, 2011, p. 6*). In the study, this task is the achievement of spelling accuracy through a shared game-based experience. In this context, the didactic game is established as a tool which, according to D. Dimitrova, "produces interest and a positive attitude towards knowledge and develops a number of social, intellectual and practical skills" (*Dimitrova, 2023, p. 133*). The didactic game requires participants to adapt their behaviour to one another, which, according to Veleva, "determines the decisive importance of play for developing social skills" (*Veleva, 2013, p. 24*). When working with the resource in Educandy, this is manifested through the aspiration towards common success in the digital environment.

The scientific novelty lies in the use of the Educandy platform to automate spelling skills through the format of anagrams. Today, digital competence goes beyond technical skills and includes "the ability to critically evaluate and adapt pedagogical practices to an electronic environment" (*Dimitrova, 2025, p. 14*). The game "Letter Jumble" achieves precisely this by transforming spelling into a process of sensory perception and reflection.

The integration of multimedia elements in Educandy follows the "golden rule" of J.A. Comenius that everything should be presented to the senses as far as possible (*Comenius, 1957, p. 187*). Since "there is nothing in the intellect that has not previously been in the senses", the game uses audio-visual stimuli which, according to Arora, "enhance concentration and help more anxious pupils become involved in the process" (*Comenius, 1992*; *Krasnova, 2015*).

The innovation is expressed in the use of game-based learning, which, according to Burov, "combines educational objectives with entertainment, training the ability to apply knowledge in the real world" (*Burov, 2022, p. 21*). Through Educandy, we demonstrate that "pupils' inertia can be overcome quickly if they are given interesting and challenging tasks" (*Vidergor, 2021, p. 75*). According to Shopova and Radev, "through game-based tests, pupils check the knowledge they have acquired, compete in teams and individually, which stimulates their activity, concentration and aspiration to achieve better results" (*Arora, 2013, p. 141*).

The subject of the study is the didactic potential of anagram games on the Educandy platform for improving spelling literacy.

The object of the study is the process of developing spelling skills and increasing learning motivation among second-grade pupils.

The study aims to demonstrate how the digital game "Letter Jumble" transforms spelling from a reproductive task into an engaging challenge that stimulates linguistic reflection.

According to the purpose, the following objectives are:

- to analyse the theoretical foundations of gamification and the role of the didactic game;
- to design and test the "Letter Jumble" resource in Educandy;
- to analyse feedback from teachers and pupils through adapted methods for diagnosing attitudes and achievements.

The article is aimed at primary school teachers and specialists in educational technologies. The model presented is evidence that "games are a good basis for the subjectivisation of significant roles and rules" (*Ivanova, 2023, p. 21*), which makes them an essential element of contemporary pedagogy.

Methods

Method of theoretical analysis and synthesis: This method is used to study the existing pedagogical literature on gamification. It made it possible to define digital competence not merely as a technical skill, but as the "confident, critical and responsible use of technologies for learning" (*Shopova & Radev, 2026, p. 116*). On this basis, the conceptual framework of the game "Letter Jumble" was developed.

Method of modelling: This method was used to design the structure of the anagram game on the Educandy platform. Modelling helped combine spelling rules with visual stimuli, supporting Krasnova's thesis that "people learn better if they have more than one medium to use" (*Nazarenko, 2015, p. 48*).

Method of anagram analysis (decomposition and reconstruction): This is the leading methodological tool in "Letter Jumble". It requires pupils to break down the jumbled letters and rearrange them into the correct spelling structure. This process activates linguistic reflection by transforming a dry rule into a logical ordering task.

Pedagogical survey of teachers: This method is applied to diagnose the methodological applicability of the Educandy resource. The survey focuses on two main indicators:

1. Effectiveness in consolidating knowledge: The extent to which, according to the teacher's observations, the game-based model helps pupils practically master spelling rules.
2. Technological sustainability and autonomy: The teacher's readiness to integrate similar resources in the future without the need for additional technical assistance.

Visual-symbolic survey of pupils (for Grade 2): Taking into account the age-specific characteristics of the respondents, a non-verbal feedback method was applied, including:

- Identification of emotional state: Self-assessment through three types of emoticons—smiling, neutral and frowning faces—reflecting the experience during the digital game.
- Assessment of cognitive difficulty: A direct question concerning the difficulty of the language task —Yes/No/A little—adapted for easy understanding by second-grade pupils.

Method of time stimulus (timer): This method is applied in Educandy's competitive mode. Its aim is to examine the influence of time pressure on pupils' ability to spell words correctly and on their level of concentration when solving anagrams.

Observation: This method is used to monitor pupils' direct reactions while working with the platform and the way in which they apply spelling rules in a dynamic environment.

For the purposes of the study, an original digital resource was developed in the cloud-based Educandy platform. The process of constructing the resource is characterised by a high degree of intuitiveness and efficiency. After entering a list of target words, the platform automatically generates several interactive formats, which enables the teacher to vary the methods of practice:

1. Anagrams: The main module selected for the present study under the title "Letter Jumble". It requires the pupil to reconstruct the word by correctly arranging jumbled letters.
2. Spell it!: A module in which the pupil has to spell the word letter by letter, while the platform provides immediate feedback for each correct or incorrect step.
3. Word search: A classic "crossword" format in which children have to find hidden words in a grid of symbols, thereby stimulating visual recognition of the graphic form of the word.

The game "Letter Jumble" functions through the drag-and-drop movement of letters. The interface provides dynamic audio-visual feedback: when the word is arranged correctly, it is visualised in a different colour and accompanied by an encouraging sound signal. The generation of a unique code or link gives pupils immediate access to the three versions of the game without the need for registration, which facilitates work at the primary stage of education.

Literature Review

The literature review shows that the problem of gamifying spelling instruction in primary education is situated at the intersection of digital competence, interactive learning, didactic play and game-based learning. Aleksieva and Racheva (*2024*) provide a detailed analysis of curricula and emphasise the need to integrate digital skills across all school subjects. Their study is used to substantiate the interdisciplinary nature of spelling instruction through digital technologies (*Aleksieva & Racheva, 2024*). Atanasova (*2011*) clarifies the etymology and pedagogical origins of interactive methods, and her work provides a basis for defining the technology of the systematic use of games in the primary grades. Vasilev (*2015*) argues that interactive technologies change the role of the pupil from that of a passive listener to an active subject of the educational process; this approach is embedded in the design of the game presented in the article.

A significant theoretical foundation for the present study is provided by research on didactic play and its role in the development of cognitive, practical and social skills. Veleva (*2013*) focuses on play as a driver of social intelligence, and her work is used to analyse team interaction in anagram-based tasks. D. Dimitrova (*2023*) examines interactivity and the development of practical skills through conditional situations, supporting the thesis that game-based tools can generate a positive attitude towards knowledge. Ivanova (*2023*), within a research project of Shumen University devoted to didactic-methodological technologies and the competence-based approach, considers play as a universal form for structuring social relations and demonstrates its capacity to "dress" learning tasks in a form attractive to children.

The methodological basis of game-based learning is further developed in Burov's work (*2022*), which examines the methodology of GBL as an innovation in contemporary education. Burov

defines GBL not merely as entertainment, but as an environment that enables pupils to train memory and transform theoretical knowledge into practical skills applicable to real-world situations. This work is essential for substantiating the effectiveness of digital games in the formation of key competences (*Burov, 2022*). Shopova and Radev (*2026*) demonstrate that the combination of an experimental-research approach, gamification and visual programming leads to increased motivation and the development of mathematical thinking among pupils. Their study is used as a parallel practice related to the application of gamification in education (*Shopova & Radev, 2026*).

The digital and multimedia aspects of the study are supported by works that examine the role of sensory perception, technological formats and digital competence in learning. Comenius (*1957*; *1992*) substantiates the principle of visualisation and sensory perception as a source of knowledge; his ideas are fundamental to the multimedia approach adopted in the article. Arora (*2013*) explains why a multimedia environment combining sound and image enhances concentration, and this study is used to justify the audio-visual design of the Educandy resource. Krasnova (*2015*) shows that the variety of digital formats contributes to more durable memorisation, which is important for structuring spelling exercises in the game. Nazarenko (*2015*) examines the response of the "digital native" generation to interactive stimuli, and this source is central to the motivational aspect of the present study.

The professional and competence-related context of the research is supported by studies on digital competence and the changing role of the teacher in a technology-rich educational environment. K. Dimitrova (*2025*) highlights the role of the teacher as a moderator and the importance of cybersecurity; her work is key to defining the professional profile of the teacher using the Educandy platform. Vuorikari et al. (*2022*) present the European DigComp 2.2 framework, which is used to define digital competence as a key competence of the twenty-first century. Vidergor (*2021*) empirically demonstrates how digital games improve collaboration and motivation among elementary school pupils, and this work serves as a methodological basis for the experimental orientation of the present study.

Thus, the analysed literature confirms that the use of Educandy in spelling instruction can be theoretically grounded through several complementary perspectives: the development of digital competence, the application of interactive methods, the pedagogical value of didactic play, the methodology of game-based learning, and the motivational potential of multimedia digital environments. These sources collectively justify the use of the anagram game "Letter Jumble" as a tool for improving spelling literacy and increasing learning motivation among primary school pupils.

Results

The empirical study covers a sample of 92 second-grade pupils who took part in the trial implementation of the digital game "Letter Jumble" on the Educandy platform, followed by a self-assessment survey of their experience.

The first question in the survey examines the emotional state of the respondents through the selection of a graphic symbol, namely an emoticon. The data show that 95.6% of the pupils, or 88 pupils, coloured in a "smiling face", which is an indicator of a high degree of satisfaction and positive experience. Only 2.2%, or 2 children, chose a "frowning face", while another 2.2%, or 2

children, remained indifferent to the game-based process (*Figure 1*). The high percentage of positive emotional reactions proves that the gamified model successfully transforms the learning task into a source of enjoyment, while at the same time supporting the improvement of the spelling competences embedded in the curriculum.

Thus, it is established that the digital game creates a stimulating emotional environment which neutralises barriers to learning and transforms spelling assessment into a desirable and motivating process for pupils.

The second aspect of the survey focuses on the subjective perception of cognitive difficulty in solving the language tasks ("Was it difficult to solve the language task?"). The analysis of the responses shows that the majority of pupils, 84.8%, or 78 children, did not experience difficulties when working with the anagrams in Educandy. Around 8.7%, or 8 pupils, defined the tasks as "slightly difficult", which may be due to external factors such as the influence of the timer or the individual pace of work. Only 6.5%, or 6 children, reported clear difficulty in solving the spelling game. These data confirm that the level of complexity of the resource is appropriately calibrated to the age-specific characteristics of second-grade pupils.

Thus, the low proportion of pupils who experienced difficulties indicates the accessibility of the Educandy interface and the effectiveness of the anagram method as a tool that makes spelling norms easy to perceive and apply.

The study also includes 16 primary school teachers who applied the digital game "Letter Jumble" in their practice. The first aspect of the survey examines the extent to which the game-based model supports the consolidation of spelling rules. The results show that 62.5%, or 10 teachers, define the resource as "extremely effective", emphasising visual feedback as a factor that facilitates memorisation. The remaining 37.5%, or 6 teachers, regard the game as a good alternative which, however, must necessarily be combined with traditional exercises (*Figure 2*). It is important to note that none of the respondents expressed the opinion that the digital resource distracts pupils or is difficult to assess.

Thus, the hypothesis is confirmed that gamification through Educandy does not replace but rather enhances the classical methodology, providing the teacher with a powerful tool for visual stimulation and the consolidation of spelling norms.

The second question analyses teachers' readiness to integrate similar resources in the future, as well as their technological autonomy. The data indicate that 75%, or 12 teachers, would gladly include the game in their regular practice. A total of 12.5%, or two respondents in each case, would use it only in revision lessons or if more detailed instructions were available. An extremely positive indicator is the fact that 0% of the respondents prefer only classical methods, which demonstrates the openness of contemporary teachers to digital innovations.

Thus, it is established that the Educandy platform offers a high degree of accessibility and pedagogical applicability, removing technological barriers and encouraging teachers to use interactive educational resources systematically.

Discussion

The high levels of emotional satisfaction (95.6%) and spelling effectiveness established in the study correspond directly to the concept of digital competence as a key factor in social

participation. The results obtained prove that when technology is properly didactically structured, it ceases to be an end in itself and becomes a "confident and responsible means of learning".

The survey data confirm Krasnova's thesis (*2015*) that the use of more than one medium—in this case, anagrams, sound and colour in Educandy—has a significant impact on the acquisition of knowledge. This explains why 84.8% of the pupils did not experience difficulties: the multimedia environment supports the cognitive processing of spelling information.

The fact that teachers recognise the game as effective, while at the same time seeking a balance with traditional methods, is consistent with Vidergor's research (*2021*). Although her work focuses on escape rooms, the conclusions regarding the "gameful experience" as a driver of motivation are fully applicable here as well. The present study expands this framework by demonstrating that even simpler game-based forms, such as anagrams, can achieve a similar motivational effect.

Conclusion

On the basis of the conducted study, the following general conclusions can be drawn.

The gamification of spelling instruction through the Educandy platform is a highly effective strategy which successfully transforms the passive acquisition of language norms into an active process of cognitive construction. The integration of interactive tools in the primary grades leads to a significant increase in pupils' motivation and creates a positive attitude towards the acquisition of written culture, regardless of the specific language environment.

The aim of the study was achieved by demonstrating the universal didactic value of the anagram method. It was established that the digital environment effectively reduces the stress associated with making mistakes and enables pupils to automate their spelling habits in the context of enjoyment and healthy competition. This model is applicable in different educational systems, as it is based on universally valid principles of sensory perception and the logical arrangement of letter structures.

The fulfilment of the research tasks confirmed that contemporary teachers are ready for digital transformation when they have access to intuitive and methodologically sound tools. The "Letter Jumble" model is established as a sustainable pedagogical innovation which successfully combines academic standards of literacy with the digital needs of 21st-century pupils, preparing them for successful communication in the global world.

Conflict of Interests

The author declares that there is no conflict of interests that could have influenced the objectivity of the study, the interpretation of the empirical results, or the presentation of the conclusions. The article was prepared independently, without external funding, institutional pressure or the involvement of organisations or individuals with a direct financial, commercial or personal interest in the outcomes of the research.

The study is based on theoretical analysis, pedagogical modelling, the design and approbation of an original digital educational resource, pupil feedback, teacher survey data and classroom observation. The use of the Educandy platform is considered exclusively from a didactic, methodological and technological perspective, namely as a tool for gamifying spelling instruction and supporting the development of spelling literacy, learning motivation and digital competence among primary school pupils.

The Educandy platform and the digital game "Letter Jumble" are mentioned in the article only as the technological environment and practical resource used for the purposes of pedagogical modelling and empirical approbation. The author declares that there is no financial, commercial, advertising or institutional relationship with the developers, owners or distributors of the Educandy platform. The inclusion of this platform in the study is determined solely by the research aim: to demonstrate how an anagram-based digital game can transform spelling instruction from a reproductive task into an interactive, motivating and cognitively meaningful learning activity for second-grade pupils.

The author confirms that the choice of the platform did not affect the independence of the analysis, the interpretation of the survey data or the formulation of the conclusions. The results concerning pupils' emotional response, perceived cognitive difficulty and teachers' assessment of methodological effectiveness are interpreted within the framework of primary education, game-based learning, interactive methods and digital competence, rather than as promotion of a specific commercial digital product.

The study does not promote any platform, software, digital service or technological solution as universally superior or exclusively necessary for spelling instruction. Educandy is analysed as one possible accessible tool that can enrich traditional methodology when it is used in a pedagogically justified, age-appropriate and methodologically balanced way. The article emphasises that gamification does not replace classical spelling instruction, but supplements it with visual feedback, immediate response, game-based motivation and opportunities for more active pupil participation.

The involvement of pupils and teachers in the empirical part of the study did not create any personal, financial or institutional dependency that could influence the research conclusions. Their responses were used only for pedagogical analysis of the effectiveness, accessibility and motivational potential of the digital resource.

Thus, the declaration confirms compliance with the principles of academic integrity, transparency of scholarly publication, independence of research interpretation and ethical standards of academic work in the field of primary education, spelling instruction, game-based learning and educational technologies.

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Appendix

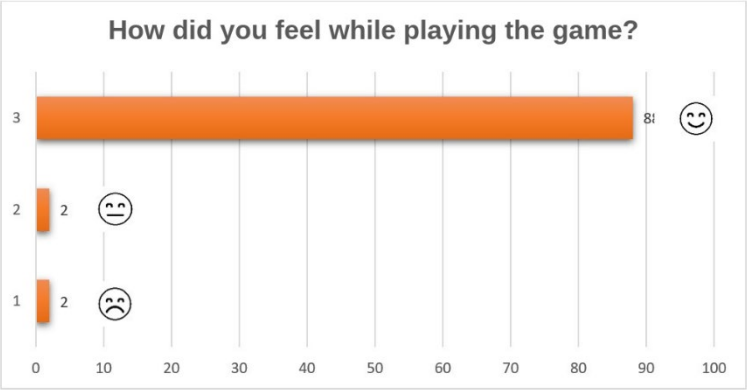

Figure 1. Diagram "Emotional State of Pupils during the 'Letter Jumble' Game" (based on the selection of emoticons) (author's work)

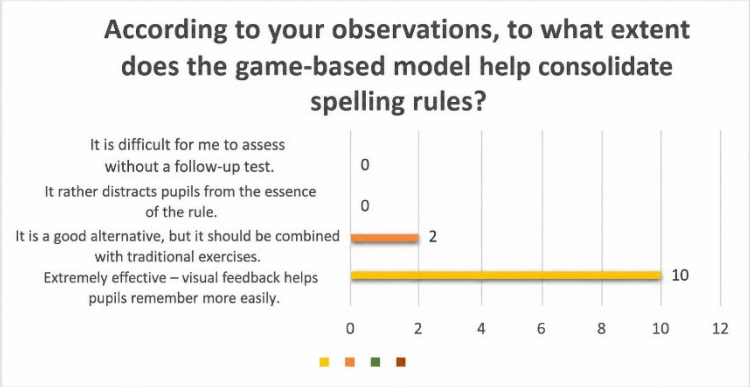

Figure 2. Diagram "Teachers' Assessment of the Methodological Effectiveness of the Educandy Platform for Consolidating Spelling Rules" (author's work)