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The Impact of Gamification Elements in Educational Videos on the Engagement of School Teachers in Kazakhstan.

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ABSTRACT

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In recent years, gamification has emerged as a promising strategy to enhance engagement and learning outcomes in educational settings. However, its specific application in teacher training through video-based mediums remains relatively unexplored, particularly within the context of Kazakhstan's educational landscape. This study aims to fill this gap by conducting a examination of the impact of gamification elements in educational videos for school teachers in Kazakhstan.
A mixed method was used to collect data for this project, which included 4 semi-structured interviews and a survey conducted among 50 public school teachers throughout Kazakhstan. This research aims to provide valuable insights into the potential benefits and challenges associated with the integration of gamified content in teacher professional development.
The results of surveys and interviews show that the majority of respondents have a positive attitude towards the use of gamified elements in educational videos for teachers.
But the results of the interviews showed that in the public school system of Kazakhstan there are difficulties with the technical support for the implementation of this approach, financing and motivation among teachers to learn.
This study showed that the main role in motivating a teacher to learn through online video format is played by the quality of educational content and understanding how a teacher will be able to integrate the received material into lessons.

Gamification, school, teacher, teacher training, Kazakhstan

CONTENTS

1. INTRODUCTION

In the dynamic educational environment of Kazakhstan, the adoption of innovative teaching approaches is essential to meet the evolving needs of educators and students alike. The utilization of technology-enhanced instructional materials, such as educational videos, presents a promising avenue for enhancing teacher training and professional development. According to Clark and Mayer (2016), multimedia and interactive content can significantly improve learning outcomes by catering to various learning styles and increasing engagement. However, the strategic integration of gamification elements into these videos remains an underexplored area, despite its potential to enhance engagement and learning outcomes. Gamification, defined as the use of game design elements in non-game contexts, has been shown to motivate learners and improve their interaction with educational content (Deterding et al., 2011).

The potential of gamification to create more engaging and interactive learning experiences aligns with the findings of Hamari, Koivisto, and Sarsa (2014), who demonstrated that gamification can enhance user motivation and participation in educational settings.

Understanding how these gamified elements affect teacher perceptions and experiences is crucial for designing effective professional development programs. As highlighted by Gee (2003), the incorporation of game-like elements can foster deeper learning and increased motivation, which are essential for successful educational interventions.

This study is motivated by the research problem of the lack of empirical evidence on the impact of gamification in teacher training in Kazakhstan. To address this issue, the research aims to answer the following questions:

RQ1: How does the incorporation of gamification elements in professional development videos affect the engagement levels of school teachers in Kazakhstan?

RQ2: What are the perceptions and experiences of school teachers in Kazakhstan regarding the use of gamified professional development videos compared to traditional non-gamified training methods?

By investigating these questions, this thesis seeks to provide valuable insights into the potential

benefits and challenges of using gamification in teacher training programs. The findings aim to inform educational policymakers and institutions in Kazakhstan about effective strategies for integrating gamified content into professional development initiatives, ultimately contributing to the enhancement of teaching practices and educational outcomes.

In the following chapters, this thesis will review relevant literature on gamification and teacher professional development, outline the research methodology, present and analyze the data collected, and discuss the implications of the findings. Through this comprehensive exploration, the study aims to advance our understanding of how gamification can be harnessed to improve teacher engagement and effectiveness in professional development con

2. THEORETICAL FRAMEWORK

In recent years, significant attention has been directed towards integrating gamification elements into educational settings, presenting a promising avenue for enhancing learning outcomes and engaging teachers. In Kazakhstan, where enhancing the professional development of school teachers is a paramount objective to elevate the quality of education, investigating the effectiveness of gamification elements in educational videos holds particular significance. The purpose of this section is to establish a theoretical foundation encompassing the contemporary system of advanced training for school teachers in Kazakhstan, defining gamification, and reviewing research on the efficacy of employing gamification elements in educational videos both globally.

2.1. The Traditional Approach to Teacher Training in Kazakhstan

Kazakhstan's educational system places significant emphasis on improving teaching standards, updating pedagogical approaches, and aligning with global educational trends to enhance the quality of education across the country. This commitment is evidenced by the structured professional development system for teachers, which aims to continuously enhance their skills, knowledge, and effectiveness.

According to the latest data of The National Center for Advanced Training "Orleu", in the first half of 2024, in center trained 8,595 teachers of preschool education and 36,707 teachers of secondary education. By the end of the year, the center plans to raise the level of knowledge of more than 80,000 teachers across the country (Ministry of Education of the Republic of Kazakhstan, 2024). This large-scale educational initiative reflects Kazakhstan's desire to improve the qualifications of its teachers and adapt to the changing demands of the education sector.

Several key institutions and centers play vital roles in providing professional development opportunities for teachers in Kazakhstan. These include:

1. **National Center for Professional Development "Orleu":** This center is a cornerstone institution responsible for teacher training and professional development in Kazakhstan. It offers a diverse range of programs and courses covering various pedagogical topics, subject

areas, and educational technologies (National Center for Professional Development "Orleu", 2024).

2. **Center of Pedagogical Excellence:** This central organization focuses on enhancing teacher skills through training programs, workshops, and curriculum development, aiming to improve overall educational quality (Center of Pedagogical Excellence, 2024).
3. **Republican Scientific and Practical Center "Daryn**": This center specializes in research and development of educational methods and materials, offering training and resources to support teacher development and student achievement (Republican Scientific and Practical Center "Daryn", 2024).
4. **National Academy of Education named after I. Altynsarin:** This academy is dedicated to advancing educational research and policy, and provides professional development programs to improve teaching practices and educational standards (National Academy of Education named after I. Altynsarin, 2024).
5. **Kazakh Ablai Khan University of International Relations and World Languages:** Known for its specialized programs in language education and international relations, this university offers professional development opportunities for language teachers and educators (Kazakh Ablai Khan UIR&WL, 2024).
6. **Kazakh National Women's Pedagogical University:** This institution provides training and resources specifically geared towards enhancing the skills of female educators and promoting gender equality in education (Kazakh National Women's Pedagogical University 2024).
7. **Regional Centers for Education Development:** These centers operate at the regional level, delivering tailored professional development programs and support to local educators, addressing specific regional needs and challenges.

In advanced training courses, various types of work are utilized, including seminars, webinars, field practical work, essays, presentation of demo lessons, and project defense. The allocation of time for practical seminars, field practical classes, and evaluation varies depending on the mode of training, with a significant emphasis on practical, hands-on learning experiences to enhance the effectiveness of professional development programs (Mukhametzhanova A., 2022).

In traditional full-time training programs, on average, out of 80 hours of educational professional development, 70 hours are dedicated to practical seminars, 6 hours to field practical classes, and 4 hours to evaluating student achievements on the course. This allocation underscores the

importance of hands-on, interactive learning experiences in enhancing teacher effectiveness and skill development (Mukhametzhanova A., 2022).

Conversely, in online training programs, out of 80 hours of the educational program, 36 hours are allocated for webinars, 4 hours for evaluating achievements, and 40 hours for SRS (Structured Reflective Sessions), which are purely practice-oriented. This distribution reflects the shift towards virtual learning environments and emphasizes the integration of practical, application-focused activities to facilitate meaningful learning outcomes in an online setting (Mukhametzhanova A., 2022).

With the substantial allocation of hours to online learning in professional development programs for teachers in Kazakhstan, there arises a critical need to develop new, effective approaches to ensure the efficacy and engagement of participants. The significant investment in online training underscores the recognition of its potential to reach a broader audience, provide flexible learning opportunities, and adapt to the evolving needs of educators in a rapidly changing educational landscape.

2.2. Defining Gamification: Concepts and Applications

Gamification refers to a design approach that incorporates elements typical of games into non-game contexts to evoke positive experiences and influence user behavior and cognitive processes. This concept has gained significant attention in educational and corporate training settings, where the goal is to enhance engagement and motivation. The academic literature on gamification generally highlights two primary aspects: the experiential dimension, which focuses on the gameful experience and satisfying intrinsic needs, and the game design dimension, which involves the specific elements of design that can be applied in gamification (Deterding et al., 2011).

In the context of game design and gamification, researchers often categorize game mechanics and player motivations into three primary dimensions: immersion, achievement, and social interaction. These dimensions align with the intrinsic needs identified by self-determination theory: autonomy (immersion), competence (achievement), and relatedness (social interaction) (Deci & Ryan, 2000). Immersion-related features engage users through self-directed, exploratory

activities, leveraging mechanics such as avatars, storytelling, narrative structures, and role-playing. These features aim to provide users with a sense of autonomy and creative involvement in the learning process.

Achievement-related features are designed to enhance the user's sense of competence and accomplishment. These features include badges, challenges, missions, goals, leaderboards, and progression metrics. These elements provide clear goals and benchmarks, which help users measure their progress and achievements. By offering rewards and recognition, these features can significantly boost motivation and encourage continued engagement (Werbach & Hunter, 2012).

Social interaction-related features promote user interaction and collaboration. These features often include team dynamics, group activities, and competitive elements such as leaderboards. By fostering a sense of community and competition, social interaction-related features can enhance users' sense of relatedness and belonging, which are crucial for sustained engagement (Sailer et al., 2017).

To illustrate these concepts, gamification elements such as points, badges, leaderboards, challenges, progress indicators, feedback, and quizzes have been integrated into training videos to increase user engagement and motivation. Each element serves a specific purpose in creating a more interactive and engaging learning environment. For instance, ***points*** are awarded for completing tasks or reaching milestones, providing users with a tangible measure of their progress and encouraging continued participation. Research by Hamari, Koivisto, and Sarse (2014) highlights that points can effectively motivate users by fostering a sense of accomplishment.

Badges, which are awarded for completing specific goals or overcoming challenges, act as visual markers of achievement. They contribute to a user's sense of accomplishment and recognition, which is crucial for maintaining motivation. Muntean (2011) notes that digital badges can significantly increase student motivation and academic performance, making them a valuable tool in educational settings.

Leaderboards introduce a competitive element by ranking users based on their performance metrics, such as points or achievements. This competitive aspect can stimulate users' desire to improve their standings, thereby increasing their engagement with the content. Anderson et al.

(2017) have shown that leaderboards can be particularly effective in harnessing competitive instincts, thus driving users to enhance their performance.

Challenges, often narrative-driven and time-bound, provide users with specific tasks or missions to complete. These challenges offer clear goals and rewards, which can maintain users' interest and engagement over time. Zichermann and Cunningham (2011) emphasize that well-designed challenges can sustain user engagement by providing a sense of purpose and accomplishment.

Progress indicators, such as progress bars, visually track the user's advancement toward a goal, providing immediate feedback on their efforts. This feature is particularly motivating as it allows users to see their progress and feel a sense of satisfaction as they move closer to completing their objectives. Kapp (2012) discusses how progress indicators can be crucial for maintaining user motivation in gamified environments.

Feedback, which can be either congratulatory or constructive, provides immediate responses to user actions. This element is vital for helping users understand the impact of their actions and for encouraging continuous engagement. According to Hattie and Timperley (2007), effective feedback is a critical component of the learning process, helping to reinforce positive behavior and identify areas for improvement.

Quizzes are interactive tools that assess users' knowledge and provide instant feedback. These tools are particularly effective in educational contexts as they engage users in active learning and offer opportunities for self-assessment. Chickering and Gamson (1987) found that quizzes could enhance learning outcomes by providing frequent opportunities for feedback and self-reflection.

In conclusion, the integration of these gamification elements into educational videos aims to create a more engaging and motivating learning experience. By leveraging well-established principles from game design, these elements help to make learning more interactive and enjoyable, thereby improving user engagement and learning outcomes. This approach aligns with best practices in gamified learning environments and offers a promising avenue for enhancing professional development for educators and other learners.

2.3. Assessing the Global Impact: Effectiveness of Gamification in Educational Videos

Gamification approaches are increasingly utilized across various fields, including business, healthcare, and education, to positively influence behavior and cognitive processes. By incorporating motivational elements similar to those found in games, gamification aims to enhance user engagement and effectiveness. In educational contexts, gamification seeks to make learning more interactive and enjoyable by integrating game-like features such as points, badges, leaderboards, and challenges into instructional content (Deterding et al., 2011). This approach not only motivates students but also enhances their learning experiences by providing immediate feedback and a sense of accomplishment.

The application of gamification in education has demonstrated significant potential to improve learning outcomes across various levels and subjects. Notable examples include language learning platforms like Duolingo, which boasts over 300 million active users, and software training tools such as Microsoft's Ribbon Hero, which uses game mechanics to teach users about software features (Pappano, 2012). Additionally, popular educational tools like Kahoot and Quizizz integrate game elements into classroom activities, making learning more engaging and interactive. These tools have shown that gamification can effectively enhance student motivation and participation, leading to better educational results.

Despite its widespread use, there is a notable lack of effective guidance on how to combine different gamification features to optimize learning performance across diverse educational contexts. The challenge lies in selecting and integrating the right game mechanics to fit specific educational goals and learner needs. For example, while gamified tools have been successful in various settings, there is still limited research on how to design and implement gamification strategies effectively across different subjects and educational levels (Hamari et al., 2014). This gap highlights the need for more comprehensive guidelines and empirical studies to understand how best to utilize gamification in education.

In the field of statistics education, gamification has gained recognition for its potential to improve data literacy, an essential skill for addressing contemporary challenges such as climate change and public health crises like COVID-19. However, the complexity and perceived difficulty of statistics courses often deter student engagement and comprehension. Gamification strategies that introduce elements such as points, levels, and challenges can help overcome these barriers by

making the subject matter more approachable and engaging, thus enhancing students' learning experiences and outcomes (Kapp, 2012).

Research on gamification in statistical forecasting and other specialized areas remains limited. While various gamification designs have been proposed, the challenge-based approach—incorporating elements such as points, levels, leaderboards, and clear goals—has shown particular promise. This approach aims to motivate students by providing structured tasks and feedback, yet effective design guidelines and empirical data on integrating these features into educational information systems are still scarce (Zichermann & Cunningham, 2011). The need for further research in this area is crucial to develop best practices and optimize the use of gamification in specialized educational contexts.

In conclusion, the integration of gamification into educational contexts represents a significant advancement in pedagogical strategies, offering the potential to enhance engagement and improve learning outcomes across diverse subjects. The effectiveness of gamification hinges on the thoughtful application of game mechanics such as points, badges, leaderboards, and challenges, tailored to specific educational goals and learner needs. While existing research demonstrates the benefits of gamification in various settings, including language learning and software training, there remains a need for more empirical studies to refine design guidelines and optimize its implementation in specialized areas such as statistical forecasting. As the educational landscape continues to evolve, the insights gained from examining the global impact of gamification will be crucial in shaping future instructional practices and developing more interactive and motivating learning environments. The ongoing exploration of gamification’s potential promises to further enrich the educational experience, driving innovation and effectiveness in teaching and learning.

3. METHODOLOGY

This thesis employs a mixed-methods research design, combining quantitative surveys and qualitative interviews to gather comprehensive insights into the impact of gamification elements in educational videos on the involvement of school teachers in Kazakhstan. A sample of school teachers from diverse regions of Kazakhstan will be recruited to participate in the study. Quantitative data will be collected through post-training surveys to assess participants' perceptions of engagement, effectiveness, and satisfaction with gamified educational videos. Additionally, qualitative interviews will be conducted to explore teachers' experiences and perspectives regarding the integration of gamification elements in video-based training.

This chapter outlines the methodological design implemented in this study. A description of each step of the research process is given, including the selection of participants, the data collection, and the analysis.

While gamification has been widely studied in general education contexts, its application in professional development for teachers, particularly in Kazakhstan, has not been extensively researched.

The research was conducted by Caravan of Knowledge, a Kazakh educational organization specializing in the development of STEAM education (Science, Technology, Engineering, Arts, and Mathematics) in Kazakhstan. This organization focuses on training teachers and students in contemporary methods, knowledge, and skills related to STEAM fields.

For the study, we utilized training videos developed for the "Why STEAM?" course (2022). The research also leveraged the organization's contact database, which includes teachers who were reached through email and WhatsApp for survey distribution. Additionally, announcements about the study were disseminated through social media platforms such as Instagram and Telegram to maximize outreach and participation.

3.1. First phase. Creating a Website with Gamified Video Content

The first stage of the research project involved the development and launch of a dedicated website. This website served multiple purposes: it provided a detailed description of the research project, hosted a gamified educational video, and featured a survey designed to capture

participants' feedback and experiences. The creation of this website was a fundamental step in preparing for the subsequent phases of the research, as it established the primary platform through which data collection would occur.

3.1.1. Choosing an educational platform for content creation

The EdApp platform was chosen to host educational videos because of its high ability to effectively integrate gamification elements, which is consistent with the research goals of improving learning outcomes. EdApp is a micro-learning platform that stands out for its ability to create engaging and interactive educational programs, making it an ideal choice for professional development programs aimed at school teachers.

One of the key advantages of EdApp is its user-friendly interface, which is highly intuitive and accessible. Thanks to this design, teachers with different levels of technical training can easily navigate the platform, focusing on the content and learning experience, without encountering difficult navigation or technical problems. This feature is especially important where the main goal is to facilitate the learning process without unnecessary distractions

The strength of EdApp lies in the effective integration of gamification elements such as scores, badges, leaderboards, assignments, progress indicators, reviews and quizzes. These features are designed to make the learning process more interactive and motivating, encouraging teachers to actively and consistently study the material.

Another important feature of EdApp is the convenience of accessing the course without the need for registration. This aspect is especially useful because it allows teachers to access learning materials immediately, without having to create accounts and remember login credentials. This ease of access reduces barriers to entry, encouraging more teachers to participate in learning and engage with content.

Using the advanced features and capabilities of EdApp, the instructional videos are designed to provide an attractive, efficient and scalable solution to facilitate teacher learning.

3.1.2. Gamification of video content

An educational course “Why STEAM?” (Caravan of Knowledge,2022) from the “Caravan of Knowledge” company was taken as a basis, which tells about the history of STEAM development, covers not only basic concepts, terms, but also provides real examples. This course includes 15 videos in Russian, the average duration of each video is 5-8 minutes.

In the research project, we selected two different videos from the "Why STEAM?" course for comparison, with the intention of adding gamified elements to one of them. This choice was made to address a critical methodological issue related to the objective evaluation of gamification's effectiveness in educational content.

Avoiding Repetition Bias. If the same training video were used for both the non-gamified and gamified versions, participants might remember the content from the first viewing, which could influence their responses and engagement levels during the second viewing. This repetition bias would make it challenging to isolate the effects of gamification, as any observed differences could be attributed to familiarity with the content rather than the gamification elements themselves.

Ensuring Objectivity. To achieve a more objective comparison, we selected two videos that were similar in theme, duration, and presentation format. This similarity helps ensure that any differences in engagement or learning outcomes can be more confidently attributed to the presence or absence of gamification, rather than differences in the inherent appeal or clarity of the video content.

Minimizing Learning Curve. By selecting videos that cover similar topics, we minimized the potential for a learning curve that could skew results. If the videos covered vastly different topics, the familiarity or unfamiliarity of participants with the subject matter could have influenced their engagement and performance, independent of the gamification elements.

Reducing Participant Fatigue. Participants are likely to experience fatigue if required to watch and engage with the same content repeatedly. This fatigue can reduce their overall engagement and the quality of their feedback, thereby impacting the study's validity. Using two distinct videos helps maintain participants' interest and attention, leading to more accurate and reliable data collection.

The decision to use two different, yet similar, videos was a deliberate methodological choice aimed at ensuring a fair, unbiased, and rigorous assessment of how gamification affects teacher

engagement and learning outcomes in professional development settings.

Video 1 – What is STEM? History of the Term

Video 2 – The Difference Between STEM, STEAM, and STREAM

In the research conducted for this thesis, a second video was utilized to introduce and test gamified elements.

The video, titled "The Difference Between STEM, STEAM, and STREAM," has a duration of 4 minutes and 13 seconds.

The process began with transcribing the video to ensure a thorough understanding of its content. This transcription was crucial for identifying key thematic elements and allowed for a detailed analysis and subsequent division of the video into distinct semantic parts, facilitating the integration of gamified elements.

After dividing the video into segments, each was prepared for the insertion of gamification features. This segmentation was a strategic decision to create opportunities for interaction and engagement at multiple points throughout the video, aligning with the educational goals of enhancing user involvement and comprehension. The segmentation process also ensured that the gamified elements could be seamlessly integrated without disrupting the flow of the educational content.

Following a review of foundational gamification theories and an exploration of the capabilities of the EdApp platform, several specific gamification elements were incorporated. These included Points, which served as a measure of user progress and accomplishment; Badges, awarded as visual symbols of achievement; Challenges, designed as structured tasks or missions to engage users actively; Progress Bars, providing visual feedback on progress toward completing tasks; Feedback, offering immediate responses to user actions; and Quizzes, serving as interactive assessments to reinforce learning and provide additional motivation through scoring and rewards.

The primary objective of incorporating these gamification elements was to gauge the teachers' responses to the integration of such features into educational content. The research sought to determine whether these elements enhanced the viewing experience and made the content more engaging and accessible for educators. This was particularly important for assessing the feasibility and effectiveness of using gamified videos in professional development and training programs for teachers.

Overall, the integration of gamification into the educational video was a key component of this research, providing valuable insights into the potential for gamified learning tools to enhance teacher engagement and learning outcomes. The findings contribute to the broader discourse on the use of technology in education, particularly regarding how gamification can be strategically implemented to support professional development and improve the effectiveness of educational content.

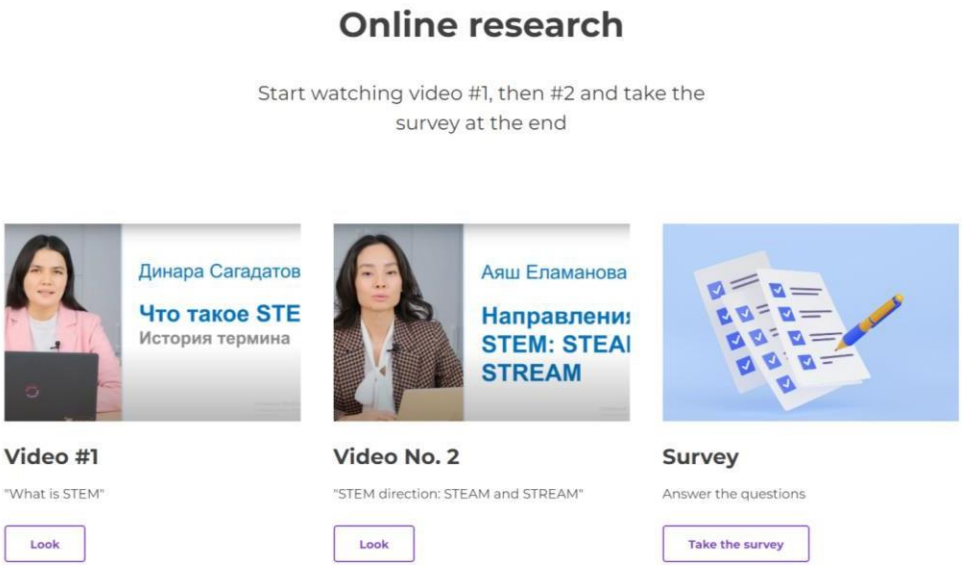
3.1.3. Creating a website page with video content and a survey

For the convenience of collecting information and to save time for the interviewed teachers, it was decided to create a page **caravanofknowledge.com/gamification** where information about the study, links to videos No. 1 and No. 2, and a link to the survey will be posted. In order to create a page, it was necessary to increase loyalty and interest in the research topic. It was necessary to place information and content in a simple and accessible way in order to facilitate the path of the subject and reduce the time spent by him (Caravan of Knowledge, 2022).

To facilitate the survey process, a dedicated one-page section was created on the company's website (FIGURE 1). This page was designed to be user-friendly and comprehensive, including essential elements to guide participants through the study. The page featured detailed information about the research, outlining its purpose and significance. Clear goals of the study were articulated to provide context and set expectations for participants. Additionally, the page hosted two training videos: a standard educational video and a gamified version, allowing participants to compare the two formats. After viewing the videos, participants were directed to a survey link, where they could provide their feedback and responses. This streamlined approach ensured that all necessary information and resources were easily accessible, enhancing the participants' experience and encouraging engagement with the study's materials.

FIGURE 1. Research site.

FIGURE 2. Research site.



In Figure 2, the site block outlines three key stages of the research:

1. Video No. 1 (standard educational video)

2. Video No. 2 (with the addition of gamified elements)

3. The Survey

Participants first watch Video No. 1, followed by Video No. 2, which includes gamified elements. After viewing these videos, participants are directed to complete a survey. This survey was designed to gather feedback on the videos, including participants' preferences and perceptions of the gamified content. This streamlined process was intended to maximize participation and engagement, providing valuable insights into the effectiveness of gamification in educational content.

The webpage's design prioritized clarity and ease of navigation. Each section was clearly labeled, with concise descriptions and action buttons linking directly to the videos and survey. This approach aimed to minimize potential barriers to participation, such as complex navigation or unclear instructions, ensuring a positive and seamless experience for all users.

Overall, the creation of this dedicated webpage was a strategic component of the study's design, focused on optimizing data collection and participant engagement. By providing a comprehensive, accessible, and user-friendly platform, the study successfully gathered valuable data and insights into the effectiveness of gamified educational videos, contributing to a broader understanding of

gamification's role in professional development for educators.

3.2. Second Phase. Quantitative Research

The quantitative research component of this thesis aims to systematically assess positive responses among teachers from various regions of Kazakhstan, across different ages and genders, to the use of gamification tools in educational videos. This method allows for objective measurements, providing a basis for generalizing the results to a broader population (Creswell, 2014).

Quantitative methods facilitate data collection from a larger sample, thereby enhancing the generalizability of the results. In the context of this study, the findings can be extrapolated to a wider group of teachers in Kazakhstan, providing insights that may inform educational policy and practice.

By employing a quantitative approach, this study seeks to obtain empirical data on positive feedback following the viewing of educational video clips that incorporate gamification elements.

3.2.1. Participants

The survey was conducted using the database of teachers of public secondary schools in Kazakhstan compiled by company “Caravan of Knowledge”. This database included the contact information of 150 teachers. A link to a website with training videos and a survey were distributed through various channels, including email, WhatsApp, Instagram and Telegram.

The initial announcement of the study was published on May 2, 2024 on Instagram and Telegram, as well as sent out by e-mail using the company's database of educators. Due to the low response rate, a repeat announcement was made in early June to attract even more people to participate. Data collection continued for 1.5 months, until July 15, 2024. Difficulties in getting answers were associated with workload at the end of the year and low motivation, which was compounded by the lack of certificates or awards for completing the survey.

The survey participants were expected to be:

1. Get acquainted with the training content: Click on the link to a set of training videos posted on a special website, watch the first video and the second video with gamification elements, compare.

2. Provide feedback: An anonymous online survey will be conducted in the Google-form.

Ethics and Consent

In conducting this study, careful consideration was given to ethical standards to ensure the protection and rights of all participants. The following steps outline the procedures taken to obtain informed consent and maintain ethical research practices:

Informed Consent: Before participating, teachers were provided with detailed information about the study, including its purpose, and the expected time commitment. This information was included in the initial announcement and accessible via the survey link.

Voluntary Participation: Participation in the survey was entirely voluntary. Teachers were informed that they could choose to withdraw from the study at any time without any consequences.

Confidentiality: Participants were assured that their responses would be kept confidential and used solely for research purposes. Identifiable information was not collected or shared outside the research team.

These measures ensured that participants were fully informed about the study and their rights, aligning with ethical research practices.

3.2.2. Data analysis

In the quantitative research part data analysis is a crucial step to evaluate the effectiveness of gamified elements in enhancing teacher engagement. Information is collected through the Google Forms platform and further uploaded to Excel for detailed analysis. The following sections outline the three key components of data analysis:

1. **Descriptive Statistics**

Descriptive statistics provide an initial understanding of the data by summarizing and describing its main features. This step involves:

a) Data Cleaning and Preparation:

Importing the collected data from Google Forms into Excel.

Checking for and handling missing values, outliers, and inconsistencies.

b) Summary Statistics:

Calculation of central trend indicators (mean, median, mode) for key engagement indicators such as time, age, region, positive feedback, positive trends.

2. **User Satisfaction Analysis:**

Analyzing responses to survey questions regarding user satisfaction with gamified versus non-gamified videos.

Using cross-tabulation to compare satisfaction levels across different demographic groups.

These analyses collectively provide a comprehensive understanding of the impact of gamification elements on teacher engagement in professional development videos. The insights gained will help inform recommendations for optimizing the design of future gamified educational content for teachers in Kazakhstan.

3.3. Third Phase: Qualitative Research

To comprehensively understand the impact of gamification elements on the engagement of school teachers in Kazakhstan, this study incorporates a qualitative research component. This approach aims to capture the nuanced experiences, perceptions, and attitudes of teachers toward gamified professional development videos. Qualitative research provides depth and context that complement quantitative data, offering a holistic view of the possibility of integrating gamification into educational courses for educators.

3.3.1. Participants

For this qualitative analysis, a diverse group of school teachers (four individuals) from various regions of Kazakhstan was selected. The participants were chosen to represent a range of teaching experiences, subject specializations, and levels of technological proficiency. This diversity ensures that the findings reflect a broad spectrum of perspectives within the educational community.

The interview questions were designed to elicit detailed responses regarding teachers' experiences with gamified videos, their perceptions of the effectiveness of these tools, and their views on potential challenges and benefits associated with gamification in professional development.

TABLE 1. Summary of interviews

	Pseudonym	City	Type of school	Teaching experience
1	Daryn	Almaty	Public school	11
2	Inna	Taraz	Public school	10 years
3	Irina	Arshaly, Aqmola Region	Public school	27 years
4	Aliya	Aqtau	Public school	7

A diverse group (4 people) of school teachers from different regions of Kazakhstan with different levels of teaching experience, subject specialization and knowledge of technology will be selected to conduct in-depth qualitative interviews.

3.3.2. Data analysis

Following the qualitative interviews, a systematic data analysis process was undertaken to interpret the insights provided by the participants. This process involved several key steps to ensure a thorough understanding of the teachers' experiences and perspectives on gamified professional development videos.

Transcription: The first step involved transcribing the audio recordings of the interviews. This transcription process was meticulous, capturing not only the words spoken by the participants but also noting any significant pauses, emphasis, and emotional cues that might indicate particular attitudes or feelings.

Coding: After transcription, the data was subjected to a coding process. Codes were assigned to specific segments of text that corresponded to different themes, topics, or concepts discussed during the interviews. This step helped organize the data and facilitated the identification of recurring patterns and key themes.

Thematic Analysis: Using the coded data, a thematic analysis was conducted. This method involves identifying and analyzing patterns (themes) within qualitative data. Themes were developed to reflect the core insights and commonalities in the participants' responses, such as attitudes towards gamification, perceived benefits and challenges, and the overall impact on engagement and learning.

Interpretation and Synthesis: The final step in the data analysis involved interpreting the themes in the context of the research questions. This interpretation was aimed at understanding how the gamification elements influenced teachers' engagement and their perceptions of professional development videos. The

synthesis also considered the diversity of perspectives based on different levels of experience, subject areas, and technological proficiency among the participants.

The qualitative data analysis provided rich, detailed insights into how gamification is perceived and experienced by teachers in Kazakhstan. These findings complement the quantitative data, offering a deeper understanding of the potential and challenges of integrating gamification into professional development programs for educators.

Ethics and Consent

Ethical considerations when conducting interviews with teachers are crucial to ensure the integrity and respect of the research process. Informed consent was a key aspect of this study. The participants were fully informed about the purpose of the study, the nature of the questions and how their data would be used. They were also informed of their right to withdraw from the study at any time without any consequences, ensuring that participation was voluntary and based on a clear understanding of the objectives and methods of the study. This consent process was necessary to maintain transparency and build trust between researchers and participants. Audio recordings of the interviews were used, as this format was the most convenient for the teachers involved.

The ethical framework of the study not only protected the participants, but also provided genuine and valuable information about the impact of gamification on the educational context.

4. RESULTS: SURVEY

The results of this study will be analyzed perceptions and experiences of school teachers in Kazakhstan regarding the use of gamified professional development videos compared to traditional non-gamified training methods. This chapter presents the results of a survey that was attended by 50 school teachers working in Kazakhstan. The results are divided into three parts. The first part (questions 1-4) clarifies the initial data of teachers (age, location, classes of teaching).). Next, we clarify the experience of interacting with gamified training videos (questions 5-7). And the last part, the purpose of which was to find out how teachers feel about integrating gamification into our existing system (questions 8-12).

This section will address the answers to the research questions posed at the beginning of this study (RQ2), which will provide a broader understanding of the current situation among the teaching community in the country.

4.1. Introductory data

It was very important for us to cover as many different regions of Kazakhstan as possible in order to get data not only from large regional centers (Almaty and Akmola regions. reference), where teachers have more access to modern learning technologies, but also information from small towns. 50 teachers from more than 20 cities of Kazakhstan participated in the survey. These data will be displayed in Figures 3 and 4.

Figure 3. Map of Kazakhstan highlighting cities where the survey was conducted

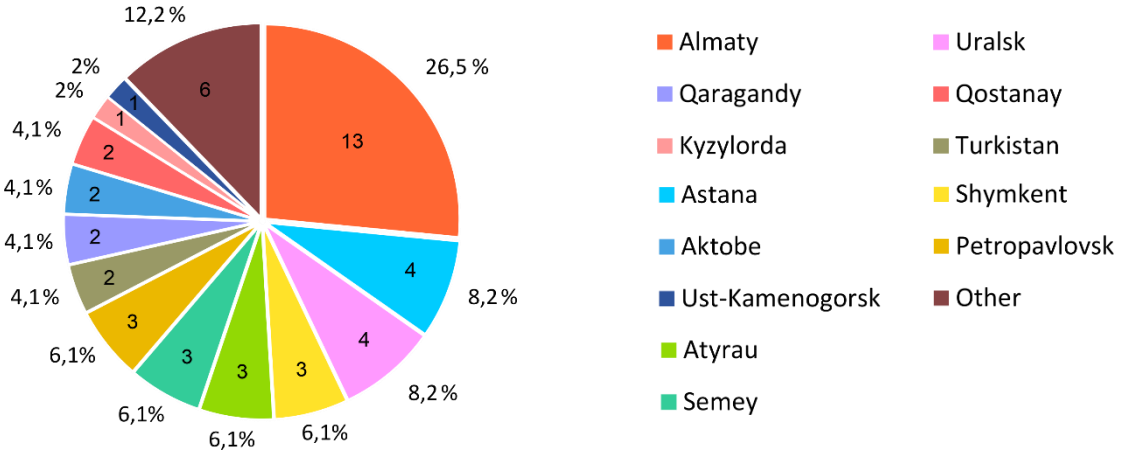


Figure 4. City of residence and work (Number of respondents per city)

The survey participants were geographically diverse, representing various regions across Kazakhstan. The largest group of respondents came from Almaty, accounting for 26.5% of the total. This was followed by educators from Astana and Uralsk, each comprising 8.2% of the participants. Teachers from Shymkent, Atyrau, Semey, and Petropavlovsk each represented 6.1% of the survey group. Additional cities such as Turkistan, Qaragandy, Aktobe, and Qostanay each contributed 4.1% to the participant pool, while Ust-Kamenogorsk and Kyzylorda had smaller representations, with 2% each. The category "Others," encompassing various smaller cities and regions, made up 12.2% of the respondents. This geographic distribution highlights the widespread interest and participation from teachers across different parts of the country.

The demographic analysis of the survey participants reveals a significant gender imbalance, with the majority being women. Specifically, 91.8% of the participants were female, while only 8.2% were male. This distribution reflects the broader trend in the teaching profession, where women are often overrepresented, particularly in primary and secondary education settings.

In terms of age, the data indicates a diverse range among the teachers who participated in the survey. The largest age group was those aged 36-40, accounting for 30% of the respondents. This was followed by the 41-45 age group, which comprised 26% of the participants. Teachers aged 31-35 made up 12% of the sample, while those in the 46-50, 51-55, and 56-60 age brackets each represented 10% of the respondents. The youngest age group, those under 25, constituted only 1% of the participants, suggesting that the majority of the surveyed educators are mid-career professionals.

Teachers with different levels of education participated in the survey, reflecting a diverse teaching experience. A significant part of them, including 23 teachers, work in both middle and high schools, which indicates a diverse interaction with high school students. Another 8 teachers specialize exclusively in secondary school education, and another 8 in teaching in high school. 6 teachers worked at all three levels: middle school, high school and elementary school, demonstrating a wide range of knowledge. In addition, 3 teachers work with both secondary and primary school students, and 2 teachers work exclusively in primary schools. This section provides an overview of the different learning environments and responsibilities of the teachers involved in the study.

In conclusion, the diverse geographical and demographic data of this study provide a comprehensive view of the teachers' experience in the field of gamification in Kazakhstan.

4.2. Experience of interacting

At this stage of the study, it was important to assess whether teachers use gamified tools in their teaching practice and what their previous experience is. The data showed that the majority of respondents, 36 teachers (72%), had previously watched educational videos using gamification. This indicates a relatively high level of familiarization of participants with the game content. However, 14 teachers (28%) reported that they had no previous experience with such videos.

The survey also explored the difficulties encountered by teachers while reviewing the gamified videos. The results were mixed: 29 teachers (58%) reported that there were no problems, indicating that everything went smoothly. On the contrary, 15 teachers (30%) noted that they managed to understand the content, but not immediately, which indicates a moderate level of difficulty in mastering the material. A smaller group of teachers, accounting for 12% of the respondents, faced significant difficulties.

These findings underscore the importance of addressing potential challenges in familiarizing teachers with gamified educational videos. The varying levels of ease with which teachers adapted to this content suggest that factors such as computer literacy and access to necessary technology play critical roles in the successful integration of gamified tools into the educational system. Ensuring adequate support and training for teachers, particularly those less familiar with digital tools, is crucial for maximizing the benefits of gamified educational content. This approach can help bridge the gap between technology availability and its effective use in enhancing educational practices.

4.3. Teachers' Feedback on the Integration of Gamified Elements

This section presents teachers' feedback and their opinions on integrating gamified elements into advanced training courses, compared to traditional methods. The survey results indicate strong support for gamified educational videos, with 100% of the participating teachers asserting that such videos would enhance their engagement in the learning process. Additionally, all respondents (100%) reported feeling more motivated to learn when the material is presented in a game format, underscoring the potential of gamification to increase motivation and interest in professional development.

When questioned about the value of gamified instructional videos as a complement to traditional teacher training methods, 98% of respondents answered affirmatively. This overwhelming endorsement highlights the perceived benefits of integrating gamification into existing training frameworks, suggesting that teachers see these elements as a valuable addition rather than a replacement for conventional methods. The positive response indicates a readiness among educators to embrace innovative teaching tools that make learning more interactive and enjoyable.

The final two survey questions were open-ended and voluntary, allowing teachers to express their thoughts more freely. We received 36 responses to the question, "What did you like about videos with gamification elements, and what did you not like?" All responses were positive, reflecting a general approval of the gamified approach. Examples of the feedback include statements such as:

“All.” (Respondents 12, 13, 21, 36)

“Important information, available. “ (Respondent 18)

“The presence of game elements brings variety, learning ceases to be boring and dryly academic. “ (Respondent 22)

“The game form allows you to focus on the main thing, return and memorize information to complete the stages. “ (Respondent 25)

“In short, it is clear, it makes it possible to remember the material better, not difficult tasks make you think. Gamble. I want to finish with the best result in the end. “ (Respondent 38)

These comments suggest that gamified videos not only make the content more engaging but also aid in information retention and focus.

Regarding the prospects of utilizing this approach in advanced training courses for teachers, 39 responses were received, all affirming the positive prospects for integrating gamification. Notable responses include:

“I believe that there is both a prospect and a need for this. “ (Respondent 23)

“If used as an addition to the study of theory. “ (Respondent 33)

“Yes, it is very necessary for teachers. “ (Respondent 27)

“There are undoubtedly prospects. But it is important to realize that these are not newfangled techniques, but very carefully thought-out tools.“ (Respondent 40)

These responses demonstrate strong and enthusiastic support for integrating gamified elements into teacher training programs, indicating a promising direction for enhancing professional development and engagement among educators in Kazakhstan. The feedback suggests that teachers see gamification as a beneficial and necessary innovation in their professional learning, with a keen interest in how it can be thoughtfully implemented to maximize its benefits.

In conclusion, the survey results provide a detailed picture of the teachers' experience and their attitude to game videos for professional development. The results show that although many teachers are familiar with and support gamification, problems such as different levels of previous experience and technical difficulties remain. Positive feedback on gamified elements indicates a great potential for integrating these methods into existing learning systems.

5. RESULTS: INTERVIEWS

This chapter presents the results of 4 interviews thematically analyzed to explore teachers' experiences and perceptions about the use of gamified educational videos. These interviews provided valuable information about the practical challenges and potential benefits of integrating gamification into the professional development of teachers. The analysis is organized according to specific topics that have arisen, which allows for a better understanding of the participants' points of view.

The interview questions were divided into three parts, each of which was aimed at understanding various aspects of the topic. The first two questions were devoted to the experience of teachers using game educational videos, their familiarity with this format and the feeling of comfort from it. The next set of questions, 3, 4 and 5, concerned teachers' opinions on the effectiveness and engagement of gamified videos compared to traditional methods. Finally, questions 6 and 7 dealt with teachers' opinions on the integration of gamification into the modern education system in Kazakhstan, providing a broader view of its potential implementation and impact. This structured approach made it possible to comprehensively study the subject, shedding light on both the possibilities and problems of using gamification in educational institutions.

5.1. Experience of interacting

The interview results revealed a diverse range of teacher experiences with gamified tools, shaped by various challenges and preferences. Key issues identified during the interviews included conflicts in time management and scheduling, language barriers and translation difficulties, differing levels of motivation and engagement, and varying attitudes toward self-development.

Conflicts in time management and scheduling. 2 teachers note that planning professional development activities is a difficult task due to differences of opinion about when such activities should be held. Some teachers prefer to engage in professional development during working hours, while others view it as an activity in their free time, including vacations or weekends. This division of preferences leads to conflicts, especially if courses are scheduled at times that some consider inappropriate, such as evenings or weekends.

Language barriers and translation problems. Another problem identified by 3 teachers is related to language barriers and translation problems. When courses are developed in one

language and then translated into another, problems arise with the accuracy and clarity of the translation. This can lead to misunderstandings or loss of meaning, which can interfere with effective learning.

"Sometimes there are problems with translation. Because there is still some language in which courses are developed, and then there is a translation. And sometimes there is a word translation. Not semantic, but sometimes the opposite. "(Daryn)

Different levels of motivation and engagement. All respondents raise the issue of internal motivation of teachers, suggesting that professional development should be based on the teacher's own desire to improve. They argue that forcing teachers to participate can be counterproductive if they are not personally interested. Teacher certification serves as an important lever of engagement, as it gives teachers a clear incentive to participate in professional development.

Interest in self-development and expectations. 3 teachers note the lack of interest in self-development among some teachers, combined with high expectations of salary increases with minimal effort. This attitude can become a serious obstacle to professional development, as it reflects a reluctance to invest in personal growth. These problems highlight the difficulty of involving teachers in professional development activities.

"Low interest in self-development and high expectations from the salary level with minimal teacher efficiency. " (Inna)

Answers to the question "Have you encountered gamification elements in educational videos before? If so, what has been your experience using them?" It is shown that all the teachers interviewed had experience interacting with such videos.

"Gamification, or, as we used to call it, the use of game/role-playing techniques in learning, is an excellent teaching method. But in general, unfortunately, our curriculum is so rich and complex that there is simply no time for it. "(Irina)

5.2. Effectiveness and engagement of gamify educational videos

At this stage, it was extremely important to understand whether the teachers had previous experience with gamified tools. This is a very important section in which we learn the opinion of

educators regarding the use of gamified tools in educational videos.

The question regarding the potential impact of gamification on their involvement in watching educational videos revealed different points of view. Daryn highlighted the potential of gamification to capture and maintain attention, noting that varying activities can reduce fatigue and enhance engagement. However, he was uncertain about the effect of gamification on learning outcomes, suggesting that content quality is crucial and advocating for collaboration between academic and IT professionals to create effective educational materials.

Inna expressed a more traditional viewpoint, suggesting that classic methods of watching videos and completing tasks are sufficient for teachers. She was skeptical about the need for gamification, implying that teachers are already accustomed to conventional methods of professional development.

Irina emphasized the importance of scientific accuracy, conciseness, and high-quality visuals in educational videos. She questioned the necessity of engaging teachers through gamification, arguing that teachers should naturally be motivated to enhance their skills due to their professional responsibilities. Irina also pointed out that the primary focus should be on engaging students rather than teachers, as the latter are expected to take the initiative in their learning.

When discussing the potential impact of gamification on learning outcomes, Daryn acknowledged that while the effect on learning might be uncertain, increasing interest and motivation could indirectly improve overall learning efficiency. He suggested that even a slight increase in engagement could enhance educational outcomes.

Inna remained unconvinced about the impact of gamification on learning outcomes, indicating that she did not see it as a significant factor. Her response reflects a belief that traditional methods suffice for professional development.

Irina argued that the effectiveness of gamification in improving learning outcomes depends on the willingness of teachers to engage with these tools. She emphasized the importance of having a live mentor who can provide immediate feedback and address questions, positioning video learning as a supplementary rather than primary educational tool.

Aliya echoed some of these sentiments, suggesting that while gamification can be a valuable supplementary tool, it should not overshadow the need for high-quality scientific content. She

viewed gamification as potentially beneficial, but not essential, for effective learning.

When asked about the importance of making professional development courses engaging, Daryn acknowledged that attractiveness and interest are important, though he personally prioritizes structured and clear content. He recognized that while some teachers might not focus on the aesthetic aspects, others find them crucial for engagement.

Inna noted that interest is a key driver of motivation, underscoring the importance of engaging content in professional development. Irina added that while some teachers may participate in professional development for certification purposes, the primary criteria should be the scientific quality and overall execution of the material. Aliya emphasized that interest is fundamental for professional growth, suggesting that engaging content is crucial for career development and continuous learning.

5.3. Gamification integration

In exploring the prospects of gamified educational videos in Kazakhstan, we sought to understand the barriers and limitations from the teachers' perspectives. The responses highlighted several key challenges:

Cost and Resource Allocation. Daryn emphasized the increased cost associated with producing gamified training videos. Traditional educational videos typically require an academic team for content development and instruction. In contrast, gamified videos necessitate additional IT specialists, which can significantly increase production costs. This financial concern is particularly pressing if there is uncertainty about the effectiveness and return on investment of these gamified tools.

Technical Limitations. Inna pointed out the limited technical capabilities as a significant barrier. This issue could pertain to both the availability of necessary technology and infrastructure, as well as the digital literacy of educators. Limited access to technology and inadequate training in using such tools can hinder the effective implementation of gamified educational content.

Content Quality and Relevance. Irina highlighted the importance of content quality and relevance. She stressed that for gamified videos to be effective, they must be visually appealing,

relevant, and engaging. Poorly produced content that is primitive or lacks depth will fail to engage viewers, including both teachers and students. There is a need for content that is not only high-quality but also directly applicable and beneficial to educators.

"The main thing is that videos should be in demand, relevant, visual, understandable, and interesting. If they are primitive and poor in quality and content, no one will watch them - neither teachers nor children." (Irina)

Lack of Specialized Talent. Aliya mentioned the scarcity of specialists capable of creating gamified content for educators. This shortage highlights a broader issue within the educational and technological sectors in Kazakhstan, where there may be insufficient expertise in merging educational content with gamification techniques effectively.

These responses collectively underscore significant challenges in introducing gamification into educational videos for teachers in Kazakhstan, including financial costs, technical limitations, content quality concerns, and a lack of specialized talent. Addressing these barriers will require a comprehensive approach, including investment in technology and training, ensuring high-quality content production, and developing a skilled workforce capable of integrating gamification into educational materials.

One of the key questions posed to educators was: "Based on your experience, what recommendations would you give for integrating effective gamification strategies into educational videos for teachers in Kazakhstan?" The responses provided valuable insights, leading to several recommendations for successfully incorporating gamification into educational videos:

Practical Application and Demonstration. Daryn suggests that educational videos should not only employ gamification in their own delivery but also demonstrate how these strategies can be applied in classroom settings. Courses that incorporate gamification to teach teachers how to implement similar strategies with their students can be particularly valuable. This practical, hands-on approach helps teachers understand the direct applicability of gamification in their teaching practices.

"Do teachers go to courses for what? In order to learn something further, then it's on the students, right? Well, conditionally, let's break down, for example, here is the first category, that is, the courses themselves take place with gamification, in which they explain how to apply this gamification, for example, in their lessons. Then these are very excellent straight courses."

(Daryn)

Theoretical and Practical Balance. Daryn also recommends a balanced approach, where courses include both theoretical explanations of gamification concepts and practical demonstrations of how to use specific tools and services to gamify lessons. This approach ensures that teachers are not only familiar with the theory behind gamification but also equipped with practical skills to implement these strategies effectively.

Differentiated Approach. Inna advocates for a differentiated approach in selecting gamification strategies, suggesting that the integration process should be tailored to the varying needs and capabilities of teachers. This may involve customizing training based on the specific educational context, the subjects being taught, and the technological proficiency of the teachers.

Targeted and Purposeful Use. Irina expresses caution, noting that while gamification can be a powerful tool, its effectiveness depends on the specific educational goals. She suggests that gamification strategies are particularly effective for engaging elementary and middle school students, but may not be as suitable for professional development courses for teachers. This highlights the importance of aligning gamification techniques with the intended learning outcomes and the target audience.

Focus on Practical Tools for Teachers. Aliya emphasizes that the most valuable aspect of gamification for teachers is its potential to simplify their work with students. Therefore, educational videos should focus on providing practical tools and strategies that teachers can easily integrate into their lessons. Training should also motivate teachers by showing the benefits of gamification in enhancing student engagement and learning outcomes.

"For teachers, the most important thing is the tools that would help simplify work with students. I would suggest teaching teachers how to introduce gamification into lessons. This is one of the approaches that will prepare the environment for the introduction of a new tool and motivate teachers to learn."(Aliya)

These recommendations suggest a comprehensive approach to integrating gamification into educational videos for teachers, emphasizing practical application, balanced content, differentiation, targeted use, and practical tools. Addressing these aspects will enable educational videos to support teachers effectively in adopting gamification techniques, thereby enhancing their teaching practices and improving student engagement and learning outcomes.

6. CONCLUSION

This study, which examines the impact of gamified content on teacher engagement and learning outcomes, aims to inform education policy makers, curriculum developers and teacher trainers about the potential of gamification to improve teacher training initiatives in Kazakhstan. Ultimately, the findings of this work can be used to improve the quality and effectiveness of teacher training programs through the strategic integration of gamification elements into educational videos.

RQ1: How does the incorporation of gamification elements in professional development videos affect the engagement levels of school teachers in Kazakhstan?

The incorporation of gamification elements into professional development videos has positively impacted the engagement levels of school teachers in Kazakhstan. Interviews and feedback revealed that gamified content makes learning more engaging and motivating, transforming traditional, often monotonous professional development into a more interactive and enjoyable experience. Teachers reported that elements like rewards, challenges, and interactive components increased their involvement and investment in the learning process, suggesting that gamification can enhance engagement.

Teachers also highlighted the importance of practical relevance in gamified content. The most effective videos are those that not only engage but also provide practical tools and strategies that teachers can implement in their classrooms. This dual focus ensures that professional development is both interesting and beneficial, enhancing the practical application of learned concepts.

The feedback indicates that a one-size-fits-all approach to gamification may not be effective. Instead, strategies should be tailored to meet the specific needs of different educational contexts, subjects, and teacher demographics. A differentiated approach can help ensure that gamified content is relevant and effective across various settings.

In conclusion, the integration of gamification elements into professional development videos has the potential to enhance teacher engagement and improve educational outcomes. However, to fully realize these benefits, it is essential to address the challenges of cost, technical limitations, and content quality. A balanced approach that combines the strengths of both gamified and

traditional training methods can create more effective professional development programs, catering to the diverse needs of teachers and ultimately benefiting students.

RQ2: What are the perceptions and experiences of school teachers in Kazakhstan regarding the use of gamified professional development videos compared to traditional non-gamified training methods?

The perceptions and experiences of school teachers in Kazakhstan regarding the use of gamified professional development videos, as compared to traditional non-gamified training methods, reveal a nuanced understanding of the benefits and challenges associated with each approach.

Teachers consistently reported that gamified professional development videos are more engaging and motivating than traditional methods. The interactive nature of gamification elements, such as points, badges, and quizzes, helps maintain interest and encourages active participation. This increased engagement is particularly beneficial in maintaining attention and involvement in what can otherwise be a passive learning experience.

One of the standout benefits of gamified content, as perceived by teachers, is its practical applicability. Videos that not only incorporate gamification elements but also demonstrate how these techniques can be implemented in classroom settings are highly valued. This practical relevance ensures that the training is directly beneficial to teachers' day-to-day instructional practices, making the learning experience more meaningful and applicable.

Despite the positive aspects, several challenges limit the broader adoption of gamified professional development videos. These include the high costs of production, technical barriers, and the need for specialized talent to develop high-quality, engaging content. Teachers expressed concerns that without addressing these challenges, the effectiveness of gamified videos could be compromised, leading to superficial engagement without substantive learning outcomes.

Teachers also emphasized the importance of a differentiated approach to gamification, tailored to the specific needs of various educational contexts and teacher demographics. They recognized that while gamification can be highly effective for certain age groups and subjects, it may not be universally applicable or beneficial, especially for professional development aimed at more experienced educators.

When comparing gamified and traditional non-gamified training methods, many teachers noted that while

traditional methods offer structured and content-rich experiences, they often lack the engaging and interactive elements that gamification provides. However, they also cautioned that the novelty of gamification should not overshadow the importance of content quality and educational value. Both approaches have their strengths, and the choice between them should depend on the specific training objectives and the target audience.

In summary, school teachers in Kazakhstan perceive gamified professional development videos as a promising complement to traditional training methods. They appreciate the increased engagement and practical relevance that gamification offers but also recognize the need for careful implementation to address technical, financial, and content quality challenges. By balancing the innovative aspects of gamification with the proven benefits of traditional approaches, educational stakeholders can create more effective professional development programs that cater to the diverse needs of teachers. This balanced integration holds the potential to enhance teacher development, ultimately leading to improved educational outcomes for students..

7. DISCUSSION

This chapter will begin by providing a short summary of the findings, as well as limitations of the study, followed by recommendations for further research.

Summary of Findings

The primary research question guiding this thesis was: ***How does the incorporation of gamification elements in professional development videos affect the engagement levels of school teachers in Kazakhstan?*** The study aimed to explore how gamification influences teacher engagement and whether it offers a more effective approach to professional development. According to the quantitative data collected, respondents from over 21 cities across Kazakhstan generally expressed a positive attitude towards gamified training videos. This widespread positive reception suggests that gamification could be a promising strategy for enhancing the appeal and effectiveness of professional development resources for educators.

The quantitative analysis revealed that teachers appreciated the interactive and engaging nature of gamified videos.

However, the interviews also indicated that while gamified videos were well-received, there were some concerns about their implementation. Teachers highlighted the importance of content quality and relevance, noting that gamification should not come at the expense of educational value. They emphasized that for gamified content to be effective, it must be well-designed and pedagogically sound, reinforcing the idea that gamification should enhance, not replace, the educational content (Hamari, Koivisto, & Sarsa, 2014).

In summary, the research found that school teachers in Kazakhstan generally perceive gamified professional development videos positively, appreciating their engaging and interactive elements. However, for these tools to be effective, they must be integrated thoughtfully, ensuring that the educational content remains of high quality and relevance. These findings highlight the potential of gamification in professional development while also underscoring the need for careful design and implementation to fully realize its benefits.

Limitations

The research encountered several key limitations, particularly in data collection. One of the primary challenges was understanding teachers' motivation for engaging with gamified educational content. This aspect is critical for assessing the effectiveness of gamification strategies and their impact on teacher engagement and professional development (Creswell & Creswell, 2017). Without a clear understanding of what motivates teachers to engage with gamified materials, it becomes difficult to tailor these tools to meet their needs effectively.

Another significant limitation was the limited sample size and response rate. The study was based on a database of 150 teachers, which may not adequately represent the diverse educational landscape of Kazakhstan. Moreover, the low response rate, despite multiple reminders, indicates potential issues with participant engagement or accessibility (Fowler, 2014). This limited response not only affects the generalizability of the findings but also highlights the challenge of engaging educators in research initiatives, particularly those involving innovative methodologies like gamification.

Timing and contextual factors also played a crucial role in the research limitations. Data collection coincided with the end of the school year, a period typically characterized by high workloads and limited availability for teachers. This likely contributed to the low response rate, as teachers were preoccupied with end-of-year responsibilities and may not have had the capacity to engage with the study (Bryman, 2016). These challenges underscore the need for future research to consider better timing and more diverse sampling strategies to ensure more comprehensive and representative data collection. Addressing these limitations can enhance the understanding of gamification's role in educational training programs and its potential to improve teacher engagement and learning outcomes.

Recommendation

To build on the findings of this study and further explore the impact of gamified content in education, several key recommendations for future research are proposed. First, broadening the participant base to include both school and university students alongside educators would provide a more comprehensive view of the educational ecosystem. Students are the primary recipients of educational materials, and understanding their engagement with gamified content is crucial. As suggested by Hamari et al. (2014), student engagement is a critical factor in the effectiveness of

gamification, and insights into student preferences can inform the development of more engaging and impactful educational tools.

Second, conducting comparative studies across different educational levels—primary, secondary, and tertiary—can reveal variations in the effectiveness of gamified content among different age groups. Such studies could identify which gamification strategies are most suitable for each educational stage, tailoring interventions to better meet the developmental needs of students. This approach aligns with the research by Dichev and Dicheva (2017), which emphasizes the importance of context-specific gamification strategies in education. Additionally, exploring these dynamics in diverse cultural and regional contexts can help distinguish universal principles of effective gamification from those that are context-specific, as different cultural settings may influence how gamification elements are perceived and utilized.

Lastly, there is a need for longitudinal studies to track the long-term impact of gamified content on engagement and learning outcomes. Such research can provide valuable insights into whether initial increases in engagement lead to sustained interest and improved academic performance. Additionally, future research should focus on the specific effects of individual gamification elements, like points, badges, and leaderboards, to determine which are most effective in enhancing learning experiences (Sailer et al., 2017). Given the rapid evolution of technology, it is also essential to explore how emerging technologies, such as virtual reality, augmented reality, and AI-driven personalization, can be integrated into gamification strategies to further enhance educational outcomes. By addressing these areas, future research can contribute significantly to optimizing gamification practices in education.

Key Contributions of this Study

This study significantly enhances the understanding of gamification's role in educational videos for teachers in Kazakhstan. A key finding is the importance of understanding the specific needs and motivations of educators when introducing new teaching methodologies like gamification. According to Sailer et al. (2017), the effectiveness of gamification in educational settings heavily depends on aligning the tools with users' intrinsic and extrinsic motivations. This study supports that view, showing that teachers' engagement with professional development content is greatly influenced by how well these resources align with their expectations and professional goals.

The research underscores that understanding educators' desires from professional development resources is not just beneficial but essential for designing effective and engaging content. Teachers, like all learners, are more likely to engage with material they find relevant and beneficial to their professional growth (Ryan & Deci, 2000). This study highlights that failing to address these needs can lead to disengagement, regardless of the innovative nature of the content. Thus, developers of educational materials must conduct thorough needs assessments and incorporate feedback from educators to ensure the content is truly valuable and applicable to their daily teaching practices.

In addition, the study examines various factors that motivate or deter teachers from using gamified content. Although gamification can make learning more interactive and enjoyable, practical implementation of such tools is often hindered by practical considerations such as workload and available resources. This conclusion is consistent with the conclusions of Deterding and co-authors (2011), who noted that successful gamification implementation requires a well-thought-out system and a supportive environment. In Kazakhstan, where teachers often face a significant workload and limited resources, the introduction of gamified content requires a careful approach to avoid increasing their workload.

The research also suggests a broader context to consider when implementing new educational technologies. It indicates that some teachers, overwhelmed by current responsibilities, may prefer stability and simplicity over adopting new, potentially disruptive technologies. This observation is crucial, as it highlights a possible mismatch between the availability of innovative educational tools and the practical capacity or willingness of teachers to integrate these tools into their teaching practices. As noted by Rogers (2003) in his diffusion of innovations theory, the adoption of new technologies depends not only on their availability but also on the perceived ease of use and compatibility with existing practices.

Lastly, this study lays a foundation for future research and policy development. It highlights the need for comparative studies to evaluate the effectiveness of gamified versus traditional professional development programs, providing a nuanced understanding of their respective impacts on teacher engagement and learning outcomes. Additionally, the findings suggest that educational policies should be developed with a keen awareness of the actual conditions under which teachers operate, ensuring that new initiatives are not only theoretically sound but also practically viable. By aligning educational innovations with the realities of teachers' work environments and preferences, policymakers and educational leaders can foster a more

supportive and conducive atmosphere for adopting new teaching methodologies, ultimately enhancing educational quality and outcomes in Kazakhstan.

Finally, this study lays the foundation for future research and policy development. It highlights the need for comparative studies to evaluate the effectiveness of gamified and traditional professional development programs, which allows for a better understanding of their impact on teacher engagement and learning outcomes. In addition, the results suggest that education policy should be developed with a deep understanding of the real conditions in which teachers work, ensuring that new initiatives are not only theoretically sound, but also practically viable. By bringing educational innovations in line with the realities of the work environment and the preferences of teachers, education policy makers and managers can create a more favorable atmosphere for the introduction of new teaching methods, which will ultimately improve the quality of education and its results in Kazakhstan.

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APPENDICES

QUESTIONNAIRE: Quantitative Research

1. Your age

☐ Up to 25

☐ 25-30

☐ 31-35

☐ 36-40

☐ 41-45

☐ 46-50

☐ 51-55

☐ 56-60

☐ 61-65

2. Your gender

☐ Women

☐ Man

3. City of residence and work

☐ Almaty and Almaty region

☐ Astana and Akmola region

☐ Shymkent

☐ Atyrau

☐ Karaganda

☐ Uralsk

☐ Aktobe

☐ Kostanay

☐ Pavlodar

☐ Semey

☐ Aktau

☐ Ust-Kamenogorsk

☐ Taraz

☐ Kyzylorda

☐ Petropavlovsk

☐ Kokshetau

☐ Zhezkazgan

☐ Turkestan

☐ Another

4. What classes do you work in?

☐ Elementary school

☐ Middle classes

☐ High school

5. Have you watched educational videos with gamification elements before as part of your professional development?

☐ Yes

☐ No

6. Was it interesting to watch video No. 2 with gamification elements?

☐ Yes

☐ No

7. Were there any difficulties in completing the tasks in video №2?

☐ Yes

☐ No

☐ We figured it out, but it didn't work out right away

8. Do you think that educational videos with gamification elements would increase the degree of involvement in the learning process?

☐ Yes

☐ No

9. Do you feel more motivated to learn when it is presented in a game format?

☐ Yes

☐ No

10. Do you think that educational videos using gamification are a good addition to traditional teacher training methods?

☐ Yes

☐ No

11. What did you like about the video with gamification elements and what didn't?

_____

12. In your opinion, are there any prospects for using this approach in teacher training courses?

_____

QUESTIONNAIRE: Qualitative Research

1) What, in your opinion, are the main problems that arise when involving teachers in professional development activities?

2) Have you encountered gamification elements in educational videos before? If so, what has been your experience using them?

3) How do you think gamification can increase teacher engagement in watching educational videos?

4) How do you think gamification in educational videos can affect teacher learning outcomes?

5) How important do you think it is for advanced training courses, such as instructional videos, to be of interest to teachers? Why?

6) What barriers or limitations do you see when introducing gamification into educational videos for teachers in Kazakhstan?

7) Based on your experience, what recommendations would you give for integrating effective gamification strategies into educational videos for teachers in Kazakhstan?