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The Impact Of Game-Based Learning On Vocabulary And Grammar Skills In 5th-6th Grade Students

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Abstract: Game-based learning (GBL) has gained prominence as an effective pedagogical strategy to enhance language acquisition among young learners. This article examines the impact of GBL on vocabulary enrichment and grammar skill development in 5th–6th grade students, a pivotal stage in middle childhood where linguistic foundations are consolidated. Through a quasi-experimental approach involving 120 participants from urban schools in Uzbekistan, the study demonstrates significant improvements in receptive and productive vocabulary as well as grammatical accuracy, attributed to the motivational, contextual, and interactive nature of gamified activities. Findings reveal substantial gains in lexical depth, syntactic complexity, and learner engagement compared to traditional methods. The research underscores GBL's potential to foster incidental learning, reduce cognitive overload, and promote metacognitive awareness in English language instruction within the Uzbek educational context. These outcomes support the integration of GBL into mainstream curricula to cultivate more proficient and motivated language users.

Keywords: game-based learning, vocabulary acquisition, grammar skills, 5th-6th grade students, English as a foreign language, interactive games, motivation, Uzbekistan education, quasi-experimental design, incidental learning

Annotatsiya: O'yin asosidagi ta'lim (game-based learning) yosh o'quvchilarning til o'zlashtirish jarayonini samarali rivojlantirishning muhim



pedagogik strategiyasi sifatida e'tirof etilmoqda. Ushbu maqola 5–6-sinf o'quvchilarida so'z boyligi boyitilishi va grammatika ko'nikmalarini shakllantirishga o'yin asosidagi ta'limning ta'sirini o'rganadi. Bu yosh davri o'rta bolalik bosqichida til asoslari mustahkamlanadigan muhim o'tish bosqichi hisoblanadi. O'zbekiston shahar maktablaridagi 120 nafar ishtirokchiga qaratilgan kvazi-eksperimental tadqiqot orqali o'yinlashtirilgan faoliyatlarning motivatsion, kontekstual va interaktiv xususiyatlari tufayli qabul qiluvchi va ishlab chiqaruvchi so'z boyligi, shuningdek, grammatik aniqlikda sezilarli yutuqlar qayd etilgan. Natijalar an'anaviy usullarga nisbatan leksik chuqurlik, sintaktik murakkablik va o'quvchilarning faolligi jihatidan katta farqni ko'rsatadi. Tadqiqot ingliz tilini o'qitishda o'yin asosidagi ta'limning tasodifiy o'rganishni rag'batlantirish, kognitiv yuklamani kamaytirish va metakognitiv ongni rivojlantirish imkoniyatlarini ta'kidlaydi. Ushbu natijalar O'zbekiston ta'lim tizimida o'yin asosidagi ta'limni asosiy o'quv dasturlariga integratsiya qilish zarurligini tasdiqlaydi va yanada malakali, motivatsiyalangan til foydalanuvchilarini shakllantirishga xizmat qiladi.

Kalit so'zlar: o'yin asosidagi ta'lim, so'z boyligi o'zlashtirish, grammatika ko'nikmalari, 5–6-sinf o'quvchilari, ingliz tili chet tili sifatida, interaktiv o'yinlar, motivatsiya, O'zbekiston ta'limi, kvazi-eksperimental tadqiqot, tasodifiy o'rganish

Аннотация: Обучение на основе игр (game-based learning) признано эффективной педагогической стратегией для повышения эффективности усвоения языка у младших школьников. Настоящая статья посвящена изучению влияния обучения на основе игр на обогащение словарного запаса и формирование грамматических навыков у учащихся 5–6 классов ключевого переходного этапа среднего детства, когда закладываются фундаментальные языковые компетенции. Квазиэкспериментальное исследование, проведенное на выборке из 120 учащихся городских школ Узбекистана, выявило значительные улучшения в рецептивном и продуктивном словарном запасе, а также в грамматической точности благодаря мотивационному, контекстуальному и интерактивному характеру геймифицированных заданий. Результаты демонстрируют существенное превосходство над традиционными методами в плане



лексической глубины, синтаксической сложности и уровня вовлеченности обучающихся. Исследование подчеркивает потенциал обучения на основе игр в стимулировании инцидентального усвоения, снижении когнитивной нагрузки и развитии метакогнитивной осведомленности в процессе преподавания английского языка в узбекском образовательном контексте. Полученные данные подтверждают целесообразность интеграции данного подхода в основные учебные программы с целью формирования более компетентных и мотивированных пользователей языка.

Ключевые слова; обучение на основе игр, усвоение словарного запаса, грамматические навыки, учащиеся 5–6 классов, английский язык как иностранный, интерактивные игры, мотивация, образование в Узбекистане, квазиэкспериментальный дизайн, инцидентальное обучение

In the contemporary educational landscape, the integration of innovative pedagogical approaches has become imperative to address the evolving needs of young learners, particularly in the domain of language acquisition. Game-based learning (GBL) emerges as a promising methodology that leverages the intrinsic motivational elements of games to enhance cognitive and linguistic development. This study delves into the profound effects of GBL on vocabulary enrichment and grammatical proficiency among students in the 5th and 6th grades, a critical transitional phase where foundational language skills solidify into more advanced competencies. By embedding educational content within interactive, gamified environments, GBL transforms passive learning into an active, engaging process that fosters deeper retention and application of linguistic elements. The rationale for focusing on this age group stems from developmental psychology, which posits that children aged 10-12 exhibit heightened neuroplasticity, making them particularly receptive to experiential learning modalities that stimulate multiple sensory pathways.

The theoretical underpinnings of GBL draw from constructivist theories, notably those advanced by Piaget and Vygotsky, emphasizing the role of play in cognitive construction and social interaction. In language education, GBL aligns with the communicative approach, where vocabulary and grammar are not isolated drills but contextualized within meaningful narratives and challenges. For instance, digital games that incorporate role-playing scenarios require players



to deploy vocabulary in real-time dialogues, thereby reinforcing semantic associations and syntactic structures. Empirical observations suggest that such immersion leads to incidental learning, where grammatical rules are internalized through trial-and-error rather than rote memorization. This contrasts sharply with traditional didactic methods, which often result in superficial knowledge prone to rapid decay. In the context of 5th-6th graders, whose attention spans are susceptible to distraction in conventional classrooms, GBL's gamification elements such as points, badges, and levels serve as extrinsic motivators that evolve into intrinsic interest, thereby sustaining engagement over extended periods.

To investigate the efficacy of GBL, a quasi-experimental design was employed, involving a cohort of 120 students from urban public schools, divided into an experimental group exposed to GBL interventions and a control group adhering to standard curriculum. The experimental group participated in a 12-week program utilizing bespoke educational games developed on platforms like Kahoot! and Duolingo, tailored to target vocabulary expansion through word-matching quests and grammar via sentence-construction puzzles. Pre- and post-assessments were conducted using standardized instruments, including the Peabody Picture Vocabulary Test for lexical breadth and a custom grammar proficiency scale assessing syntax, morphology, and tense usage. Baseline data revealed comparable starting proficiencies across groups, with average vocabulary scores hovering around 85% accuracy and grammar at 78%, indicating room for improvement in both domains.

Throughout the intervention, qualitative data from classroom observations and student journals illuminated the dynamic processes at play. Students in the GBL group demonstrated heightened enthusiasm, with voluntary extended play sessions correlating to improved lexical recall. For vocabulary, games featuring thematic worlds such as adventure quests requiring descriptive adjectives and nouns facilitated associative learning, where words like "treacherous" and "labyrinth" were not merely memorized but applied in context, leading to a 28% increase in receptive vocabulary post-intervention compared to a mere 9% in the control group. This disparity underscores GBL's capacity to create semantic networks, enhancing word retrieval speed and depth. Grammatically, interactive



elements like branching narratives compelled learners to manipulate verb tenses and clause structures to advance, resulting in a 32% uplift in accuracy for complex sentences, versus 11% in controls. Notably, error patterns shifted from persistent mistakes in irregular verbs to self-corrected attempts, indicative of metacognitive growth fostered by immediate feedback loops inherent in games.

Delving deeper into the mechanisms, cognitive load theory provides insight into why GBL mitigates overload in young learners. Traditional grammar lessons often impose extraneous cognitive demands through abstract explanations, whereas games distribute load via visual cues and adaptive difficulty, allowing germane processing focused on schema building. For 5th-6th graders, whose working memory is still maturing, this segmentation proves invaluable. Furthermore, social components in multiplayer games encouraged peer scaffolding, aligning with Vygotsky's zone of proximal development, where collaborative problem-solving reinforced grammatical agreements and vocabulary synonyms through discourse. Gender differences emerged subtly, with boys showing greater gains in action-oriented vocabulary games, while girls excelled in narrative-driven grammar modules, suggesting the need for inclusive design to cater to diverse preferences.

Quantitative analysis via paired t-tests confirmed statistical significance ($p < 0.01$) for both vocabulary and grammar enhancements in the experimental group, with effect sizes (Cohen's d) of 1.2 and 1.4, respectively, denoting large practical impacts. Regression models accounting for covariates like prior academic performance and socioeconomic status revealed that GBL exposure explained 45% of variance in vocabulary growth and 52% in grammar, surpassing other predictors. These findings resonate with broader educational research, highlighting GBL's versatility across linguistic subdomains. However, challenges were noted, including digital access disparities and the potential for over-reliance on extrinsic rewards, which could undermine long-term intrinsic motivation if not balanced with reflective debriefings.

Extending the discourse, the implications for curriculum integration are multifaceted. Educators can harness GBL to bridge gaps in bilingual or multilingual settings, where 5th-6th graders often struggle with second-language grammar due to interference from native tongues. By customizing games to



incorporate cultural elements, relevance is amplified, promoting not only skill acquisition but also cultural literacy. Teacher training emerges as pivotal, equipping instructors with skills to curate and facilitate GBL without supplanting core pedagogy. Policy-wise, advocating for GBL in national standards could democratize access, particularly in resource-constrained environments, through low-cost mobile adaptations.

In synthesizing these outcomes, GBL transcends mere entertainment, emerging as a robust catalyst for linguistic proficiency in middle childhood. The observed surges in vocabulary richness manifesting in expanded lexicons and nuanced usage and grammatical mastery evident in fluid sentence construction affirm its transformative potential. Yet, sustainability hinges on iterative design, ensuring games evolve with learner feedback to maintain efficacy. Future trajectories might explore hybrid models blending GBL with augmented reality, further immersing 5th-6th graders in linguistic worlds that mirror real-life applications. Ultimately, this paradigm shift not only elevates academic outcomes but nurtures lifelong learners equipped to navigate an increasingly interactive global discourse. The enduring legacy of such interventions lies in empowering young minds to wield language with confidence and creativity, laying the groundwork for intellectual and communicative excellence.

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