



**PURPOSE, OBJECTIVES, CONTENT, AND STAGES OF THE
EXPERIMENTAL STUDY AND THE METHODOLOGICAL DESIGN OF GAME-
BASED INSTRUCTION**

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Annotation: *This article presents the purpose, objectives, content, and stages of an experimental pedagogical study designed to evaluate the effectiveness of game-based instruction in foreign language teaching. It describes the overall logic of the pedagogical experiment, including its ascertaining, formative, and control stages, and outlines the criteria, indicators, and levels used to assess learners' progress throughout the study. The article further explains the methodological design of the game-based instructional model applied during the formative stage, detailing its guiding principles, structural components, and procedures of implementation, as well as the statistical methods used to verify the reliability of the obtained results. The article concludes with recommendations for organizing methodologically sound experimental studies in language education.*

Keywords: *pedagogical experiment, experimental study, game-based instruction, research design, ascertaining stage, formative stage, control stage, methodological model.*

**TAJIRIBA-SINOV ISHINING MAQSADI, VAZIFALARI, MAZMUNI VA
BOSQICHLARI HAMDA O'YINGA ASOSLANGAN TA'LIMNING METODIK
DIZAYNI**

Annotatsiya: *Ushbu maqolada chet tili ta'limida o'yinga asoslangan ta'limning samaradorligini baholashga qaratilgan tajriba-sinov pedagogik tadqiqotining maqsadi, vazifalari, mazmuni va bosqichlari yoritiladi. Pedagogik tajribaning umumiy mantig'i, jumladan uning aniqlovchi, shakllantiruvchi va nazorat bosqichlari tavsiflanadi, shuningdek tadqiqot davomida o'quvchilar rivojlanishini baholash uchun qo'llaniladigan mezon, ko'rsatkich va darajalar ko'rsatiladi. Maqolada shakllantiruvchi bosqichda qo'llanilgan o'yinga asoslangan ta'lim modelining metodik dizayni — uning yo'naltiruvchi tamoyillari, tarkibiy qismlari va amalga oshirish tartib-qoidalari, shuningdek olingan natijalarning ishonchliligini tekshirish uchun qo'llanilgan statistik usullar batafsil izohlanadi. Maqola til ta'limida metodik jihatdan puxta tajriba-sinov ishlarini tashkil etish bo'yicha tavsiyalar bilan yakunlanadi.*

Kalit so'zlar: *pedagogik tajriba, tajriba-sinov ishi, o'yinga asoslangan ta'lim, tadqiqot dizayni, aniqlovchi bosqich, shakllantiruvchi bosqich, nazorat bosqichi, metodik model.*



ЦЕЛЬ, ЗАДАЧИ, СОДЕРЖАНИЕ И ЭТАПЫ ЭКСПЕРИМЕНТАЛЬНОГО ИССЛЕДОВАНИЯ И МЕТОДИЧЕСКИЙ ДИЗАЙН ИГРОВОГО ОБУЧЕНИЯ

Аннотация: В данной статье раскрываются цель, задачи, содержание и этапы экспериментального педагогического исследования, направленного на оценку эффективности игрового обучения в преподавании иностранного языка. Описывается общая логика педагогического эксперимента, включая констатирующий, формирующий и контрольный этапы, а также приводятся критерии, показатели и уровни, используемые для оценки динамики развития обучающихся на протяжении исследования. В статье подробно объясняется методический дизайн модели игрового обучения, применяемой на формирующем этапе, включая её принципы, структурные компоненты и порядок реализации, а также статистические методы, использованные для проверки достоверности полученных результатов. Статья завершается рекомендациями по организации методически обоснованных экспериментальных исследований в языковом образовании.

Ключевые слова: педагогический эксперимент, экспериментальное исследование, игровое обучение, дизайн исследования, констатирующий этап, формирующий этап, контрольный этап, методическая модель.

INTRODUCTION

The credibility of any pedagogical innovation, including game-based instruction in foreign language teaching, ultimately depends on rigorous empirical verification rather than intuitive plausibility alone. While theoretical arguments in favor of game-based instruction are well established in the literature, only a carefully designed pedagogical experiment can demonstrate whether such an approach produces measurable improvements in learners' language competence under real classroom conditions. Organizing such an experiment requires a clearly articulated purpose, a coherent set of objectives, a well-defined content structure, and a logically sequenced set of stages, all of which together constitute the overall research design of the study.

The purpose of this article is to present, in a systematic manner, the purpose, objectives, content, and stages of an experimental pedagogical study conducted to evaluate the effectiveness of game-based instruction, and to describe in detail the methodological design of the instructional model applied during the experiment. Particular attention is given to explaining how each stage of the experiment was structured, what criteria and indicators were used to measure learners' progress, and how the game-based instructional model itself was constructed and implemented in the classroom.

The overall purpose of the experimental study was to scientifically substantiate the pedagogical effectiveness of game-based instruction as a means of developing learners' language competence, compared with instruction organized according to traditional, non-game-based methods. In accordance with this general purpose, the study pursued several



specific objectives: to determine the initial level of the relevant competence among learners prior to the experimental intervention; to develop a methodologically grounded model of game-based instruction suitable for the target learner group and language content; to implement this model systematically within an experimental group over a defined instructional period; to measure and compare the resulting level of competence in both the experimental and control groups following the intervention; and to analyze the obtained data using appropriate statistical procedures in order to determine whether observed differences were pedagogically and statistically significant.

The content of the experimental study encompassed several interrelated components. At the theoretical level, the study involved a review of existing research on game-based instruction and the theoretical justification of the criteria and indicators selected for assessing learner competence. At the empirical level, the study involved the selection and formation of experimental and control groups of comparable initial characteristics, the design and administration of diagnostic instruments such as tests, questionnaires, and observation protocols, and the practical implementation of the game-based instructional model within the experimental group over a series of lessons, while the control group continued to receive instruction through conventional methods covering the same language content. At the analytical level, the study involved the processing and interpretation of quantitative data obtained at different points in the experiment, culminating in conclusions regarding the comparative effectiveness of the two instructional approaches.

The pedagogical experiment was organized according to the classical three-stage design widely used in educational research, comprising an ascertaining (diagnostic) stage, a formative stage, and a control (final) stage. During the ascertaining stage, the initial level of learners' relevant competence was measured in both the experimental and control groups using identical diagnostic instruments, in order to establish a reliable baseline and to confirm that the two groups did not differ significantly from one another prior to the intervention. This stage also involved observation of ongoing lessons and, where appropriate, questionnaires or interviews with teachers and learners, in order to gain a fuller qualitative picture of existing instructional practices and learner attitudes before the experimental intervention began.

During the formative stage, which constituted the central and most extended phase of the experiment, the specially designed game-based instructional model was systematically implemented within the experimental group over a defined number of lessons, while the control group continued to study the same thematic content through the institution's standard, non-game-based instructional methods. Careful attention was paid to ensuring that both groups covered identical language content and were taught for an equivalent amount of instructional time, so that any differences observed at the end of the experiment could be attributed with greater confidence to the instructional approach itself rather than to extraneous factors such as differences in content coverage or time on task. Throughout the formative stage, ongoing observation and, where relevant, intermediate assessment were used to





monitor the fidelity of implementation and to make minor adjustments to the instructional model where necessary.

The control stage, conducted upon completion of the formative stage, involved re-administering diagnostic instruments equivalent in difficulty and format to those used at the ascertaining stage, in order to measure the final level of competence achieved by learners in both groups. The resulting data were then compared both within each group, to determine the extent of improvement over the course of the experiment, and between the experimental and control groups, to determine whether the game-based instructional model produced significantly greater gains than the traditional method. Quantitative comparison at this stage typically relied on descriptive statistics, such as mean scores and level distributions, supplemented by inferential statistical procedures, such as Student's t-test or the chi-square test, in order to establish whether the observed differences between groups were statistically significant rather than attributable to chance.

To ensure that learner progress could be assessed consistently and objectively throughout the experiment, a set of clearly defined criteria and corresponding indicators was developed prior to the ascertaining stage. These criteria typically addressed dimensions such as accuracy and range of language use, fluency and spontaneity in communicative tasks, and learners' willingness and confidence to participate actively in classroom interaction. For each criterion, learners were classified into three broad levels, conventionally labeled low, medium, and high, with specific, observable indicators defining what performance at each level looked like in practice. This criterion-based approach allowed the qualitative richness of learners' language performance to be translated into quantifiable data suitable for statistical comparison, while still remaining grounded in concrete, pedagogically meaningful descriptions of what learners could actually do at each level.

The methodological design of the game-based instructional model applied during the formative stage was guided by several core principles. The principle of systematicity required that games and gamified tasks be integrated into the instructional sequence in a planned, cumulative manner, rather than used sporadically as isolated diversions from the main lesson content. The principle of gradual complexity required that game-based tasks progress from simpler, more controlled formats toward more open-ended, communicatively demanding activities as learners' competence developed over the course of the experiment. The principle of learner-centeredness required that game selection and adaptation take into account the age, interests, and proficiency level of the specific learner group involved in the study, rather than applying a fixed, one-size-fits-all set of activities.

Structurally, the game-based instructional model organized each lesson within the formative stage around a consistent sequence of phases: a brief warm-up phase using a simple game to activate prior knowledge and establish a positive affective climate; a presentation phase in which new language material was introduced, where possible, through a game-like framing rather than direct explanation alone; a practice phase consisting of one or more structured games or gamified tasks designed to provide repeated, meaningful engagement





with the target material; and a closing phase involving a brief communicative or reflective game-based task intended to consolidate learning and provide the teacher with an informal indication of learners' progress. This consistent lesson structure ensured that the experimental intervention was implemented in a comparable, replicable manner across all lessons and all members of the teaching team involved in the study, thereby strengthening the internal validity of the experiment.

Several practical considerations further influenced the reliability of the experimental design. Sample size and group comparability were addressed by selecting experimental and control groups of similar size, drawn from parallel classes at the same educational level and, where possible, taught by teachers of comparable experience, in order to minimize the influence of extraneous variables unrelated to the instructional method under investigation. Instrumentation validity was addressed through the piloting of diagnostic tests and observation protocols on a small group of learners outside the main study prior to their use in the ascertaining stage, allowing ambiguous items or unclear instructions to be identified and revised in advance. Finally, ethical considerations, including obtaining appropriate institutional permissions and ensuring that the control group was not disadvantaged in terms of overall curriculum coverage, were addressed by ensuring that both groups received full, curriculum-aligned instruction, with the control group given the opportunity to experience elements of the game-based model after the completion of the formal experiment.

It is also important to acknowledge certain limitations inherent in this type of classroom-based experimental design. Because true random assignment of individual learners to groups is rarely feasible in ordinary school settings, the study necessarily relied on intact, pre-existing classes, which introduces the possibility that unmeasured differences between groups, such as variation in prior learning experiences or classroom dynamics, may have influenced the results alongside the instructional method itself. The relatively limited duration of the formative stage, dictated by practical constraints of the academic calendar, also means that the findings primarily speak to short- to medium-term effects of game-based instruction, and longer-term follow-up studies would be needed to determine whether observed gains in competence are maintained over extended periods. Acknowledging these limitations does not undermine the value of the experimental findings but rather clarifies the scope within which they should be interpreted and highlights promising directions for future, more extensive research.

Finally, the timing and frequency of assessment within the experimental design deserve brief additional comment. Rather than relying solely on a single measurement at the ascertaining stage and a single measurement at the control stage, several intermediate checkpoints were incorporated at regular intervals during the formative stage, allowing the research team to track the trajectory of learners' progress over time rather than only its final outcome. Such intermediate data proved valuable not only for monitoring the fidelity and impact of the game-based instructional model as it was being implemented, but also for identifying, at an early point, any unexpected difficulties or uneven progress among particular





subgroups of learners, which could then be addressed through minor, timely adjustments to the instructional approach without compromising the overall integrity or comparability of the experimental design.

CONCLUSION

The analysis presented in this article demonstrates that a methodologically sound pedagogical experiment requires far more than the simple introduction of a new instructional technique into the classroom; it requires a clearly defined purpose and set of objectives, a carefully structured content encompassing theoretical, empirical, and analytical components, and a logically sequenced set of ascertaining, formative, and control stages capable of generating reliable, comparable data. The experimental design outlined here, together with the accompanying system of criteria, indicators, and levels, provides a replicable framework for evaluating not only game-based instruction but, with appropriate adaptation, other pedagogical innovations in language education.

The methodological design of the game-based instructional model itself, grounded in the principles of systematicity, gradual complexity, and learner-centeredness, and organized around a consistent, replicable lesson structure, offers a practical example of how theoretical principles can be translated into a concrete, testable instructional intervention. Researchers and practitioners undertaking similar experimental studies are encouraged to invest sufficient attention in the careful design of diagnostic instruments and assessment criteria at the outset of their research, since the validity and usefulness of the entire experiment ultimately depend on the rigor and clarity with which these foundational elements are established.

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