IMPACT OF AN EDUCATIONAL PROGRAM USING AUDITORY AND VISUAL FEEDBACK TO LEARN PRACTICAL PERFORMANCE ACCORDING TO PHYSICAL EDUCATION LESSON PLAN

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ABSTRACT

Background. The background of this study is based on the importance of improving the quality of practical learning in physical education, particularly through the use of sensory-based feedback such as auditory and visual cues. **Objectives.** The purpose of this research was to investigate the impact of an educational program using auditory and visual feedback on enhancing students' practical performance in accordance with the physical education lesson plan. **Method.** This study employed an experimental method suitable for the research objectives. The research population consisted of 58 third-stage female students from the Department of Theoretical Sciences, College of Physical Education and Sports Sciences, University of Basra, during the academic year 2023–2024. The sample was selected randomly by a lottery method based on class divisions. Class 1 consisted of 30 students, from which 8 students (26.66%) were selected for the experimental group that received auditory and visual feedback. Class 2 consisted of 28 students, from which 8 were randomly selected for the control group using traditional methods. **Results.** The results showed that the use of auditory and visual feedback led to a significant improvement in students' practical performance compared to the conventional teaching method. The data indicated a marked difference in skill enhancement between the experimental and control groups. **Conclusion.** The study concluded that the educational program based on auditory and visual feedback was effective in improving students' practical performance. Therefore, it is recommended that this approach be integrated into physical education learning programs, especially in preparation phases leading to practical application. The contribution of this study lies in providing empirical evidence on the effectiveness of sensory-based methods in practical learning processes and offering insights for pedagogical innovation in modern physical education curricula..

Keywords; educational program, auditory feedback, visual feedback, physical education.

A. INTRODUCTION

Modern science and the advancement of technology have introduced a variety of contemporary tools that significantly enhance the educational process, enabling it to progress effectively and prepare students with high-level competencies to meet the demands of the modern era (Nuriddinov, 2023). In the field of physical education, scientific analysis has highlighted remarkable developments in teaching approaches aimed at creating appropriate educational settings, where instructional methods play a vital role in delivering information from teacher to student (Karasievych et al., 2021). The effectiveness of a teaching style is closely tied to how well it aligns with students' interests and learning tendencies (Melnyk et al., 2021).

As a result, the educational process becomes more efficient, faster, and requires less effort, provided that the teacher effectively communicates ideas and concepts. Increasing attention is now directed not solely at educational content or tools, but more importantly, at the strategies employed by educators (Gustian, Saputra, Rakhmat, Yustiana, & Primayanti, 2024). This shift has led to the emergence of modern teaching methods that surpass traditional ones, as they prioritize individual learners' capabilities, needs, and learning differences (ÖZCAN & SARAÇ, 2021; Skinner, Smith, Read, Burch, & Mueller, 2024).

To enhance professional competencies and ensure student-teachers can fulfill their teaching roles effectively, they must possess adequate practical skills, especially in alignment with physical education lesson plans. These competencies are critical for successful instructional delivery and improving learning outcomes through hands-on experience (Qutaiba Younus, 2021). Achieving this requires the integration of effective teaching methods that utilize multimedia tools—such as audio, visual texts, and sequential video presentations—tailored to each phase of the physical education and sports science lesson plan (Shareef, 2025).

The importance of this research lies in enhancing students' ability to perform practical teaching tasks effectively, particularly those in the third stage of the "Teaching Methods" course, and preparing them for real-world application in schools. Central to this goal is the development of the student as the core of the educational process, emphasizing cognitive, pedagogical, and professional preparation (Mohammed Jihad, 2024). It is therefore

imperative to continuously train and evaluate students to renew their knowledge, refine their teaching skills, and improve the overall quality of education (Vasileva & Chumakov, 2024).

The core problem identified in this research is the limited availability of practical sessions, particularly in the "Teaching Methods" subject for third-year students. Compounding this issue is the absence of an integrated audiovisual-based curriculum that utilizes multimedia (text, movement, video, and real-time observation) to guide students through the practical stages of physical education lesson planning. This lack of structured multimedia resources restricts students from accessing visual and auditory models that are essential for mastering the sequential flow of teaching tasks. Moreover, the feedback mechanisms in current practice are often delayed or absent, hindering meaningful dialogue between instructors and students, as well as among peers (Salimi, Gere, Talley, & Irioogbe, 2023).

This research seeks to address that gap by proposing a systematic, media-supported, feedback-rich approach that supports structured learning, goal-oriented practice, and timely feedback. Such an approach is essential to replacing fragmented and random student training with an organized, well-planned process designed to raise the efficiency of the education system and ensure student preparedness and safety (Septiana & Supriadi, 2022).

The objectives of this research are twofold. First, it aims to develop educational units that utilize audio-visual feedback and multimedia presentations, structured according to the physical education lesson plan, specifically designed for third-year female students enrolled in the "Teaching Methods" course. Second, the study seeks to examine the effectiveness of implementing audio-visual feedback in enhancing students' practical performance, in alignment with the structured stages of the physical education and sports science lesson plan.

Based on these objectives, the study is guided by the following hypotheses: (1) there are significant differences between the pre-test and post-test results in the learning of practical performance based on the physical education lesson plan among third-stage students, and (2) there are significant differences between the post-test outcomes of the experimental group and the control group, with the experimental group—exposed to audio-visual

feedback—showing superior performance in practical learning outcomes related to the physical education lesson plan.

B. METHOD

Participant

The researcher chose research community intentionally, which is female students in third stage in Department of Theoretical Sciences in College of Physical Education and Sports Sciences at University of Basra for academic year (2023-2024), and their number amounted to (58) students. The researcher chose research sample randomly, the random sample was chosen by selecting odd numbers for all sections and by lottery method and through existing sections, as it included section (1) with a number of (30) female students. The researcher did not use homogeneity because sample is from one class and teaching methods subject is not affected. By anthropometric measurements (weight, height and gender).

The researcher chose a sample of Experimental from this section, their number was (8) students, at a rate of (26.66%), who used method of audio and visual feedback. As for section (2), their number was (28) female students. The researcher chose a control sample using random method, who used followed method, and their number was (8) female students. Through this, sample of female students for two methods reached (16) female students. The absent female students, whose number was (8), and sample of exploratory experiments, whose number was (8), were excluded. Table (1) shows this.

Table 1. Shows sample size details

The method used	The branch	Number of sample members	Total number of students in the department	Sample percentage
Auditory and visual feedback	1	8 female students	30	26.66%
The method followed	2	8 female students	28	28.57%

Research Design

The most important feature of precise scientific activity is use of experimental method. Since nature of problem requires following experimental method, this method was chosen "as it is closest research method to solving problem in order to prove validity or invalidity of

hypotheses by controlling various factors that can affect phenomenon of research topic (Wijaya, Kartiko, Pranoto, Kusuma, & Phanpheng, 2024).

One of things that must be taken into consideration in field of research is choosing a sample that truly represents research community, as it is "part that represents original community, or model on which researcher conducts entirety and focus of work.

1. Audio-visual feeding method educational program

The researcher used a special educational program approved by experts and specialists in field of teaching methods, as it included a presentation of all sections of physical education and sports lesson plan in teaching methods subject in practical aspect, including audio text and viewing a practical model for all sections of lesson plan, as educational program contained (6) educational units, each educational unit includes practical material for each part of lesson plan.

2. Mechanism of work according to method of audio-visual feedback
    a. Go to designated place for female students to attend.
    b. Taking attendance and greeting.
    c. Go to showroom to watch required part according to lesson plan.
    d. Display and watch practical part according to educational unit and discuss. performance between students and teacher.
    e. Back to practical performance area.
    f. Continue with teacher and rest of the students in regular lesson according to lesson plan.
    g. This process takes (30 minutes).

Table 2. Shows the size and sections of the educational unit using audio-visual feedback.

Department	Part	week	Number of units	Unity history	Location of educational unit
Preparatory	the introduction	the first	1	11/15/2023	Computer Hall in the College of Physical Education
	physical exercises	the second	1	11/22/2023	
Main	Educational activity	the third	1	12/2023	
	Practical activity	Fourth	1	12/2023	

Final	mini game End of lesson	Fifth	1	12/2023
Comprehensive presentation of the educational unit		Sixth	1	/2/2023

Procedure

The objectives of this study were twofold. First, the research aimed to develop educational units utilizing audio-visual feedback and multimedia presentations aligned with the physical education lesson plan for third-year female students in the "Teaching Methods" course. Second, it sought to examine the effectiveness of using such feedback in improving students' practical performance based on the structured stages of the physical education and sports science lesson plan. To guide the research, the following hypotheses were formulated: (1) There are significant differences between the pre-test and post-test results in learning practical performance of the physical education lesson plan among third-year students; and (2) There are significant differences between the post-test outcomes of the experimental group and the control group, with the experimental group—who received audio-visual feedback—demonstrating superior performance in practical application.

In terms of procedure, the researcher adhered to the existing curriculum implemented at the College of Physical Education and Sports Sciences, University of Basra, for the academic year 2023–2024. This approved program, which focused solely on the practical components of the subject, was delivered under the supervision of a teaching methods instructor. The researcher did not intervene in the delivery of this curriculum for the control group, thereby preserving the integrity of the approved method. To assess the practical performance of the students, the researcher adopted a standardized evaluation form specifically designed for assessing teaching methods in the Iraqi academic context, particularly at the University of Basra. This form was used to objectively evaluate student performance in alignment with the physical education lesson plan.

Before the main study, a pilot experiment was conducted on Thursday, November 2, 2023. This pilot involved a random sample of six third-year students from Section (1), who were later excluded from the main experiment. Conducted in the designated presentation hall of the college, the pilot aimed to test the suitability of the multimedia content, examine

the flow of the proposed procedures, verify presentation timing, assess room lighting, seating arrangements, and available tools, as well as to identify potential issues that might affect the execution of the main study.

The pre-tests for both the control and experimental groups were carried out on Monday and Tuesday, November 13–14, 2023. These tests involved filming each student's implementation of a physical education lesson plan. The recorded performances were then presented to expert evaluators, who provided objective assessments based on the standardized evaluation form.

The main experiment, which involved the implementation of the proposed educational program using audio-visual feedback, was conducted from Wednesday, November 15, 2023, to Sunday, December 31, 2023. During this period, the experimental group received instruction enriched with multimedia materials, including sequential presentations of text, movement demonstrations, and videos designed according to the structured stages of the physical education lesson plan.

The post-tests were conducted on Tuesday, January 2, 2024. The researcher again recorded the students' performances and transferred the videos onto laser discs. These recordings were then reviewed by experts in teaching methods to provide final evaluations based on the same standardized student performance form used during the pre-tests. This process allowed for a consistent and comprehensive comparison between pre- and post-intervention performance levels.

Data Analysis

The researcher utilized the Statistical Package for the Social Sciences (SPSS) to process and analyze the research data. To determine the significance of the intervention's effect, a paired sample *t*-test was performed. The level of significance was set at $p < 0.05$.

C. RESULTS AND DISCUSSION

Results

The results of both the pre- and post-tests for the two research groups of third-year female students are shown. According to the followed method and the method of audio-visual feedback, this is done by displaying the results and values of the arithmetic means and

standard deviations, as well as the value of each of the tabular (T) and the value of the calculated (T) according to the followed methods, in illustrative tables for ease of observing the statistical differences and comparing the results of the statistical operations in order to achieve the research objectives and its statistical hypotheses in light of the results that came from the educational program.

We note from Table (3) that mean of pre-test reached (47) with a standard deviation of (8.21), while the value of the arithmetic mean in the post-test reached (61.25) with a standard deviation of (4.13), while the calculated value of (T) was (4.13) It is greater than the table value of (T) and below the significance level of (0.05) and the degree of freedom (7) amounting to (2.36), which indicates the existence of significant differences between the two tests in favor of the post-test for the group that used the approved method for the student, which indicates the existence of significant differences between the two tests in favor of the post-test for the group that used the approved method for the students.

Table 3. Shows means, standard deviations, calculated and tabulated t -value, and statistical significance of the method adopted for students.

Statistical features style	lonliness Measurement	Pre-test		Post-test		value of (t)	value of (t)*	Statistical significance
		Mean	St.d	Mean	St.d			
Approved for students	degree	47	8.21	61.25	4.13	4.13	2.36	Sig.

* The tabular value of (t) at a significance level of (0.05) and a degree of freedom of (7) = (2.36)

We note from Table (4) that the arithmetic mean value of the pre-test for the female students reached (49.75) with a standard deviation of (8.64), while the arithmetic mean value for the female students in the post-test reached (69) with a standard deviation of (5.75), while the calculated (T) value was (10.13), which is greater than the tabular (T) value under a significance level of (0.05) and a degree of freedom of (7), which amounted to (2.36), which indicates the presence of significant differences between the two tests in favor of the post-test for the group that used the audio-visual feedback method.

Table 4. Shows means, standard deviations, calculated and tabulated t -value, and statistical significance of audio-visual feedback method.

Statistical features	lonliness	Pre-test	Post-test	value of (t)	value of (t)*	Statistical

style	Measure ment	Mean	St.d	Mean	St.d			significa nce
audio-visual nutrition	degree	49.75	8.64	69	5.75	10.13	2.36	moral

* The tabular value of (t) at a significance level of (0.05) and a degree of freedom of (7) = (2.36)

From above and from results that appeared in table (4), we note that there is a difference in the students' performance according to the method of audio-visual feedback and their ability to practice the necessary teaching skills through real educational situations during the teaching of the physical education lesson in the daily lecture.

The researcher attributes this to arousing their interest and motivating them to make an effort and not feel bored through feedback during the presentation of the educational material and the good design of the material's content and dividing and segmenting the material through small steps in an organized and sequential manner interspersed with several effects such as sound and image as well as the method of presenting the text and its movement and the presence of other effects that helped focus attention and understanding of each part of the lesson plan in physical education, which led to quality in teaching and the student's success in practical performance.

Discussion

Therefore, this supported students in performing more positively and acceptably during practical lessons, applying what they had learned from the college curriculum related to practical implementation. This curriculum was activated in real field settings by equipping learners with sports and motor skills, fostering physical fitness components, and monitoring students' classroom activities according to a physical education lesson plan that integrates theory and practice throughout the educational process (Ruiz-Navarro, López-Belmonte, Gay, Cuenca-Fernández, & Arellano, 2023). Teachers must expand their roles to incorporate not only comprehensive theoretical knowledge but also specialized practical skills. It is essential for students to acquire the competencies and abilities required to meet the demands of scientific and social changes, which are vital for the evolving role of educators. Furthermore, those responsible for teacher preparation programs must be capable of anticipating such changes and adapting their teaching methods accordingly (Amigó & Rosso, 2023).

This reflects a critical need in modern education—to emphasize learning through application rather than through rote memorization. As educator Thompson emphasized, effective education is achieved through experience and action, reinforcing the idea that educational theories must be connected to real teaching situations (Thompson, Rongen, Cowburn, & Till, 2022). In many cases, teaching remains predominantly theoretical, despite the urgent need for a more holistic approach—one that develops students physically, psychologically, mentally, emotionally, and socially. The goal is to prepare them for real-life challenges after graduation and guide them toward professions that align with their skills, competencies, and interests (Johansson, 2021).

This necessity is also evident in instructional design and classroom teaching. The assessment of students' skills, knowledge, and attitudes is not consistently applied throughout the academic year. Much of modern education is built on prior learning experiences (Ihsan, Mario, & Mardesia, 2023). Testing students after a segment of instruction offers insights into their readiness to proceed. End-of-unit assessments not only measure what has been learned but also indicate whether students have the prerequisites necessary for future units (Hall & Holt, 2023). Thus, a fundamental challenge arises: whether additional instructional time should be allocated for students who lack these prerequisites. It is not simply about providing the same amount of instructional time for all learners, but ensuring each student receives the time and support needed for meaningful learning (Ramadhan, Effendy, & Putra Pratama, 2023).

The problem is further compounded by traditional learning models, where students often have no choice in how they learn. Instruction is typically delivered through a single method with minimal interactive activities, relying on one source—usually the teacher—and presented in a static format that has remained unchanged for years (Kooli & Abadli, 2022). As a result, students exposed only to conventional methods often do not reach the expected levels of performance. This is supported by evidence that traditional learning sources give students only one route to follow—the standard instructional method—without offering a variety of learning paths. These methods often lack guidance, feedback, or interactive elements that help learners solve problems they encounter during the learning process (Agustin, Oktora Mudzakir, & Naim Fadilah, 2023). Moreover, traditional educational content is typically delivered using a single approach and style, without mechanisms to

gather or respond to the learner's perspective. There is little consideration for how students understand and engage with the material, which undermines the effectiveness of the learning experience (Ramírez-Montoya, Andrade-Vargas, Rivera-Rogel, & Portuguez-Castro, 2021).

This aligns with what Petancevski et al. (2022) stated—that dividing the educational situation helps avoid student passivity and fosters greater engagement in gaining experience. This is exemplified through the use of audio-visual feedback methods. Hribernik et al. (2022) further supported this by explaining that a method based on listening and observing performance allows the teacher to address individual differences among learners, offering tailored experiences that increase student engagement, stimulate enthusiasm, encourage positive thinking, and ultimately enhance teaching quality. The use of multiple instructional tools, therefore, supports a variety of educational objectives.

The researcher notes that the audio-visual feedback method positively influenced the development of the experimental group by effectively delivering scientific content. This was achieved by presenting audio-visual materials through videos, followed by discussions and interactive responses to the content. Jeong, Healy, and McEwan (2023) confirmed this, stating that many communication problems in education today can be resolved through broader use of audio-visual technologies. Research has shown that people remember approximately 10% of what they read, 20% of what they hear, 50% of what they see and hear, and 90% of what they say and do simultaneously.

Mödinger, Woll, and Wagner (2022) emphasized that the information provided during skill acquisition is a crucial element of the learning process. This information can originate from both educational and experimental settings and must be delivered efficiently during or after performance—or both. A lack of such feedback can hinder or even completely obstruct the learning process. Additionally, the format and timing of information delivery significantly impact learning outcomes. The group using the audio-visual feedback method demonstrated superior teaching performance and acquired essential teaching competencies. This was achieved through active interaction between students and teachers, including constructive dialogue and opinion exchange facilitated by audio-visual media. Lessons and content were delivered in a clear, repeatable format, utilizing visual and auditory

technologies, which led to improved efficiency in student teaching performance (Boeske, 2023).

This is further supported by Riggio and Newstead (2023), who highlighted that encouraging learners to engage with challenging situations promotes stronger, longer-lasting educational experiences. The ability to review and repeat information as needed enhances comprehension and supports the acquisition of new knowledge. Yu (2021) also emphasized the importance of feedback in the educational process. When applied effectively, feedback aids in the strategic distribution of educational resources, offers realistic or simulated experiences, and brings learning closer to real-life contexts. It enhances student motivation, enjoyment, and willingness to engage with the subject matter, thereby fostering curiosity, active participation, and deeper inquiry into scientific facts.

Petancevski et al. (2022) also noted that feedback improves the teacher's or trainer's ability to present material clearly and create a psychologically supportive learning environment. It breaks traditional routines and encourages participation from shy or hesitant students by fostering open interaction and discussion. This exchange of opinions and information leads to behavioral improvements and more positive learning outcomes. Moreover, Hribernik et al. (2022) reiterated that audio-visual feedback enhances teacher-student interaction by promoting discussion, the sharing of experiences, and the acquisition of communication and information technology skills. This method allows education to occur anytime and anywhere, accommodating individual learning abilities and encouraging student autonomy. In this model, the teacher transitions from being a mere transmitter of information to a facilitator and motivator—guiding students to independently seek knowledge and build skills, thereby promoting independence and self-reliance.

D. CONCLUSION

Based on the research findings, statistical analysis, and discussion, the researcher concluded that both groups—those using the approved method and those using the audio-visual feedback method—showed improvement in their post-test scores compared to the pre-test in the practical performance assessment of the physical education lesson plan. However, the group that used the audio-visual feedback method demonstrated the greatest progress, ranking highest in the evaluation of practical performance, followed by the group

using the approved method. In light of these results, the researcher recommends the integration of audio-visual feedback methods into preparation programs that lead to practical application. It is also suggested to organize more physical education lesson observations for college students, increase the number of practical units within the annual curriculum, and provide students with access to modern lesson plan models covering all educational stages—from elementary to preparatory levels.

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