



## The effect of the interactive videogames on fostering the physical activity practice for the university students

تأثير الألعاب الإلكترونية التفاعلية على تعزيز ممارسة النشاط البدني لدى طلاب التعليم العالي

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### Abstract:

This study tackles the effect of the interactive videogames on fostering the physical activity practice for university students. In this regard, we used the descriptive method with a sample of 50 students from the teachers' higher college in Laghouat, majoring in sport and physical education. Besides, we collected data using a questionnaire. Findings show that the interactive videogames remarkably increase the level of the informants' physical activity, as they adhere to sport activities and drills.

**Keywords:** interactive videogames; physical activity; university students.

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## **Introduction:**

The interactive videogames are a modern phenomenon that highly affects lifestyles, as they turned into an integral part of the daily life of some people, mainly the youths. In the beginning, the videogames were highly seen as a negative entertainment, as most gamers spent long hours in front of the screens without any physical interaction. With time, these games remarkably developed, as their use required physical and mental interactions, what is known as the interactive videogames (Jonson & Turner, 2019). They provide a good chance for combining technology with the physical movement, making the games more attractive, mainly for the youths who are easily attracted by the modern technology.

These games foster the users' physical activity through including the sport activities in the technological interaction to increase the physical activity in an exciting manner. For example, the sport games and augmented reality games require the gamers to perform physical movements that imitate those of the traditional sports (Williams, 2020). In addition, the games improve the users' social interaction, as the individuals can compete with each other and get excited to practice the physical activity (Zhang & Lee, 2022). Thus, the interactive videogames are a good tool that encourages the higher education students to practice the physical activity, mainly amid the daily challenges they face, which decrease their physical activities. In this regard, most of the university students suffer social and educational stress that may push them to ignore the importance of sport and physical activities. Therefore, there is an urgent need to adopt new innovative solutions to foster the physical activity at the university (Smith & Thompson, 2021).

The low physical activity of the university students is an alarming health issue, as it may cause chronic diseases, such as obesity and heart diseases (Johnson & Turner, 2019). In addition, it negatively affects the mental abilities, concentration, and the academic performance. Studies show that the university students spend long time in the non-motor activities, such as the use of the electronic devices and sitting long hours in lectures, what may increase stress and depression (Chang & Lee, 2022). Consequently, it is necessary to find innovative solutions for the low physical activity of the university students. In this regard, the interactive videogames seem a good tool to solve such issue, mainly that they had gained much attention from scholars (Williams, 2020). They are an entertaining and efficient tool to motivate students to untraditionally exercise. However, despite the high benefits, we still find questions about their efficiency compared to the traditional sports, such as the collective games and organized physical activities. In addition, we find other questions such as "can the interactive videogames be a sufficient and efficient alternative to the traditional physical activities? Can these games change the established concepts about the importance of the physical activity? (Smith & Thompson, 2021)

The university students majoring in sport and physical education continuously need a high level of physical activity, which is part of their academic and professional training and competency. In this regard, their low physical activity negatively affects their academic performance and future professional career (Yacine Amirat & Sahnoune Mohamed, 2004, p. 05). Based on what was said, this study aims at finding out the effect of the interactive videogames on fostering the physical activity of the university students, and at examining their efficiency in motivating the sport and physical education students to continuously

exercise sport. Besides, it targets providing innovative solutions that combine technology and education to foster the general health and entertainment of the university students (Debbah Abderrahman & Hbara Mohamed, 2024, p. 38).

In this regard, many studies confirm the efficiency of the interactive videogames in fostering the physical activity of the university students. For instance, the study "Vigorous Video Games for Physical Activity and Health" showed that games like "Wii Fit" and "Just Dance" increased the physical activity levels, mainly for the young people thanks to the body interaction that fosters the physical activity and improves the general health. Besides, the study "The Impact of Interactive Video Games on the Physical Activity of University Students" showed that the games that need a physical movement, such as Dance Revolution" and "Xbox Kinect", motivate the students to participate in the physical activities regularly, as they encourage cooperation and entertainment during the exercise of the physical activity. These findings show the role of video games in attractively fostering the physical activity. Based on the importance of the physical activity for the sport and physical education students, we raise the following problematic, "Can the interactive videogames foster a sustainable physical activity for the university students better than the traditional sports?"

#### **1. General hypothesis:**

The interactive videogames positively affect the physical activity practice for the university students.

#### **2. Aims of the study:**

- Evaluating the effect of videogames on the physical activity of the university students.
- Comparing the efficiency of the interactive videogames with the traditional sports in motivating the physical activity.
- Analyzing the effect of videogames on the social interaction and collective sport activity for the university students, mainly those majoring in sport and physical education.

#### **3. Importance of the study:**

The study provides a comprehensive view on the effect of the interactive videogames on the practice of physical activities by the university students to better understand the role of technology in improving the general health. In addition, it compares these games with the traditional sports. Besides, it sheds light on the social and psychological potentials of these games in fostering entertainment and social interaction during the exercise to motivate the students to adopt a healthy and active lifestyle.

#### **4. Definition of the concepts and terms:**

##### **4.1 The interactive videogames:**

They are games that rely on interaction between the gamer and the virtual environment using sophisticated digital techniques, such as the virtual reality and the games that use developed consoles. They may be collective or individual, and need strategic decisions and body movements in some cases (Behnke & Reiser, 2017).

##### **The procedural definition:**

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They are sophisticated digital techniques, such as the augmented reality and the advanced consoles, which require an active interaction from the gamer with the virtual environment. In this context, the interactive videogames are individual or collective games that require the players to take strategic decisions and take part in physical movements during the game.



### 4.2 The physical activity:

It is the body movements that result from the structural muscles contractions and consume energy. It includes different examples, such as jogging, collective sports, and the physical drills. This activity is vital for the general health and agility (World Health Organization, 2020).

**The procedural definition:**

It is the body movements that result from the structural muscles contractions and consume energy. It includes different examples, such as jogging, collective sports, and the physical drills. In this context, it is a basic part for improving the public health and agility, and has a direct effect on the students' physical activity.



**4.3 The university students:**

They are people aged between 18 and 25 pursuing advanced studies at universities to get an academic degree, such as the bachelor, Master, and PhD (National Center for Education Statistics, 2020)..

**The procedural definition:**

They are people aged between 18 and 25 pursuing advanced studies at universities to get an academic degree, such as the bachelor, Master, and PhD. They study different fields based on different specialized educational curricula.

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### **5. Methodology:**

#### **5.1 Method of the study:**

The study uses the descriptive analytical method to collect and analyze data, and describe and interpret the phenomena in an exact way. It aims at identifying the behavioral and interactive patterns of the sport and physical education students in dealing with the interactive videogames, and at showing their effect on the level of physical activity. In this regard, the method focuses on collecting data on the students' practice of these games, and on their relation with the practice of the ordinary physical activity.

#### **5.2 The study population:**

It includes the university students who use the interactive videogames in education and entertainment.

#### **5.3 Sample of the study:**

We selected the sample on purpose. In this context, we chose 50 male and female students majoring in sport and physical education at the teachers' higher college in Laghouat based on specific criteria, namely the use of interactive videogames.

#### **5.4 The study limitations:**

##### **5.4.1 The spatial limitations:**

The department of sport and physical education at the teachers' higher college in Laghouat.

##### **5.4.2 The temporal limitations:**

The academic year 2024/2025.

#### 5.4.3 The human limitations:

The 1<sup>st</sup> year students majoring in sport and physical education at the teachers' higher college in Laghouat.

#### 5.4 The study tools:

We used the questionnaire for collecting exact and comprehensive data on the effect of the interactive videogames on the physical activity of the informants.

#### 5.5 The psychometric properties:

##### 5.5.1 The face validity:

To ensure the validity of the tool, we used the face validity and consulted 04 teachers specialized in the field. They carefully reviewed the questionnaire to make sure the questions exactly reflect the study topic and its analytical goals.

##### 5.5.2 The consistency:

**Table 01: The consistency values of each axis and the aggregate of all axes**

| Variables               | Items | Cronbach's Alpha |
|-------------------------|-------|------------------|
| The whole questionnaire | 12    | 0.734            |

Source: The outputs of SPSS

Table 01 shows that the coefficient of Cronbach's Alpha for each axis is 0.734, showing a strong consistency. In this regard, Cronbach's Alpha is an important criterion to evaluate the consistency and ability of the tool to measure the concepts exactly.

#### The intrinsic validity:

It is measured using this equation:

The quadratic root of the consistency coefficient

$$r = \sqrt{0,734} = 0,856$$

Thus, the validity coefficient is 0.856 and is statistically significant. Therefore, the questionnaire has a high degree of validity and can be applied on the study sample.

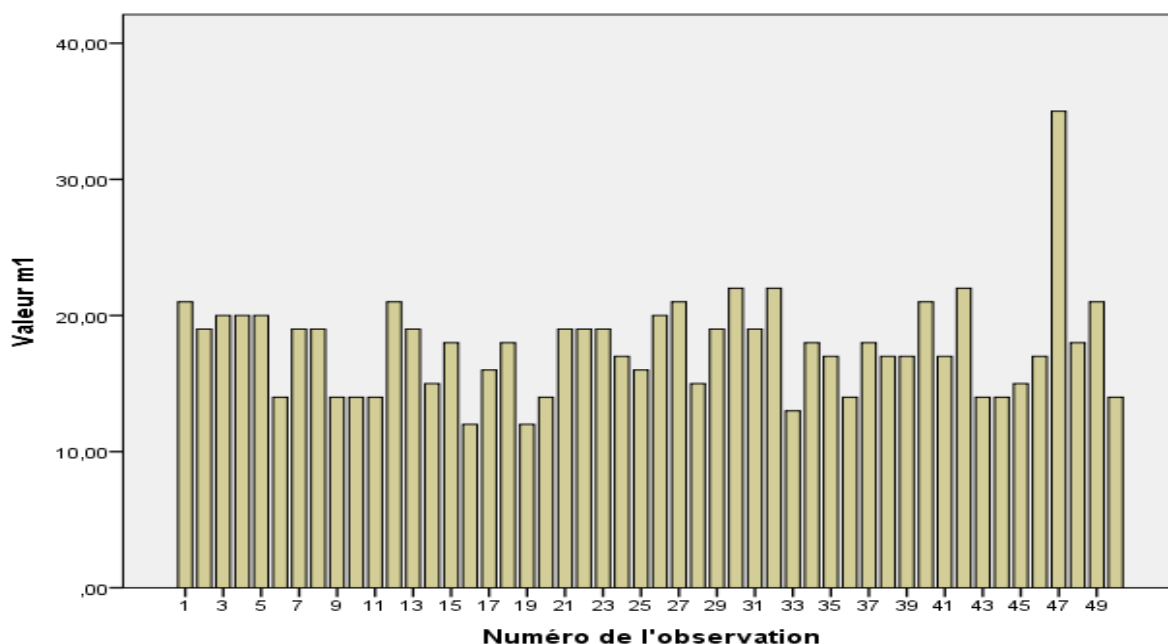
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### 6. Presentation, interpretation, and discussion of the results:

**Table No°2: The statistical processes**

| Items     | Answers | Percentage<br>% | Answers | Percentage<br>% | Calculated<br>Chi <sup>2</sup> | Table<br>Chi <sup>2</sup> | Degree<br>of<br>freedom | Significance<br>level |
|-----------|---------|-----------------|---------|-----------------|--------------------------------|---------------------------|-------------------------|-----------------------|
| <b>01</b> | Yes     | 86              | No      | 14              | 25.920                         | 3.841                     | <b>01</b>               | 0.05                  |
| <b>02</b> | Yes     | 48              | No      | 52              | 0.80                           | 3.841                     | <b>01</b>               | 0.05                  |
| <b>03</b> | Yes     | 76              | No      | 24              | 13.520                         | 3.841                     | <b>01</b>               | 0.05                  |
| <b>04</b> | Yes     | 60              | No      | 40              | 2.000                          | 3.841                     | <b>01</b>               | 0.05                  |
| <b>05</b> | Yes     | 42              | No      | 56              | 23.560                         | 3.841                     | <b>01</b>               | 0.05                  |
| <b>06</b> | Yes     | 56              | No      | 44              | 0.720                          | 3.841                     | <b>01</b>               | 0.05                  |
| <b>07</b> | Yes     | 36              | No      | 64              | 3.920                          | 3.841                     | <b>01</b>               | 0.05                  |
| <b>08</b> | Yes     | 38              | No      | 62              | 2.880                          | 3.841                     | <b>01</b>               | 0.05                  |
| <b>09</b> | Yes     | 46              | No      | 54              | 0.32                           | 3.841                     | <b>01</b>               | 0.05                  |
| <b>10</b> | Yes     | 72              | No      | 36              | 9.689                          | 3.841                     | <b>01</b>               | 0.05                  |
| <b>11</b> | Yes     | 76              | No      | 24              | 13.520                         | 3.841                     | <b>01</b>               | 0.05                  |
| <b>12</b> | Yes     | 58              | No      | 42              | 1.280                          | 3.841                     | <b>01</b>               | 0.05                  |

**Source:** by the authors based on the outputs of SPSS



The study shows that 86% of the informants see that the interactive videogames, such as the virtual reality and Kinect, foster the physical activity.  $\chi^2$  is estimated at 25.920, reflecting the importance of this result. However, only 48% support the notion that the interactive videogames foster the sport practice more than the traditional methods, and 52% refuse the idea. The statistical significance ( $\chi^2 = 0.80$ ) was not enough to confirm the difference, indicating challenges in proving that these games are better than the traditional methods. In addition, 76% see that interactive videogames are an exciting tool to motivate the physical activity. The value of  $\chi^2$ , estimated at 13.520, supports this belief. Nevertheless, only 60% see that these games help regularly practice sport, and the differences were statistically insignificant ( $\chi^2 = 2.000$ ). Regarding the attractiveness of these games compared to the traditional activities, 42% support the idea about their attraction while 56% refuse it. However, the statistical significance ( $\chi^2 = 23.560$ ) confirmed the importance of the different views.

On the other hand, 56% see that the games motivate them to exercise the physical activity for longer periods; however, the differences were not statistically significant, as  $\chi^2$  is 00.720. For the improvement of the agility, 36% point that the interactive videogames improve it more than the traditional activities, while 64% refused the idea. The differences were close to the statistical significance ( $\chi^2 = 3.920$ ). Concerning the improvement of balance and agility, 38% supported the idea while 62% did not; the statistical significance ( $\chi^2 = 2.880$ ) is not sufficient to confirm the difference.

As for the efficiency of evaluating the physical performance, such as speed and endurance, 46% tell that these games are efficient while the rest refused. The statistical significance ( $\chi^2 = 0.32$ ) is not sufficient to confirm the difference. Moreover, 72% confirm their readiness to participate in sports that use the interactive videogames if the university provides them, reflecting a high excitement. The statistical significance ( $\chi^2 = 9.689$ )

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supports this trend. Moreover, 76% said that these games may enhance the students' participation in the university physical activities, as confirmed by the statistical significance ( $\chi^2=13.520$ ). Finally, 58% believe that the interactive videogames may be an efficient alternative to some traditional games, while 42% refused the idea; the differences were not statistically significant ( $\chi^2=1.280$ ).

### **6.1 Interpretation of the results:**

Our findings show that the interactive videogames are an innovative and exciting tool to foster the university students' physical activity, as they provide modern solutions to motivate students to exercise sport. These findings agree with different studies that focused on the efficiency of these games in fostering the physical activity, developing agility, and improving health. The study of "Vigorous Video Games for Physical Activity and Health" showed that the interactive videogames that rely on movement, such as "Wii Fit" and "just Dance" increase the physical activity and provide an exciting experience full of challenges, what makes them an excellent tool that attracts youths towards sport far from the traditional routine lifestyles. Besides, the study "The Impact of Interactive Video Games on the Physical Activity of University Students" in 2017 confirmed that the interactive videogames, such as "Dance Revolution" and "Xbox Kinect" encourage the students to regularly adhere to the physical activities, and combine entertainment and the physical challenge, making the activities more funny and easily applicable. Furthermore, the study showed that such games reduce feeling of fatigue and motivate the students to follow a more sustainable sport routine.

In addition, the study "Active Video Games as a Tool for Promoting Physical Activity Among College Students" in 2018 reflected the positive role of the interactive videogames in fostering the physical activity and improving the social interaction. It showed that the collective activities that include these games build strong social ties between students and encourage them to participate. Furthermore, it found out that these games provide a secure encouraging environment that suits different age categories and agility levels. Based on these studies, we can say that the interactive videogames have different positives, including the improvement of the social interaction, agility, more attractive and inclusive sport experience, and sport activity. These findings confirm the importance of integrating this technique in the university curricula to motivate the sustainable participation and innovatively improve the students' health. In addition, the use of these games in universities may be part of bigger strategies to support the physical activity and social interaction, taking into account the need for providing an infrastructure and resources that increase the efficiency of this method.

## 7. Conclusion:

Amid the rapid technological developments, the interactive videogames turned into an innovative attractive tool that fosters the physical activity, mainly for the youths and higher education students. They represent a sport experience that combines joy and challenge, making them an optimal alternative to some traditional sport activities that may be boring and exhaustive. In this regard, they provide drills that combine entertainment and physical motivation, change the individuals' attitudes towards sport, and make it part of their lives. In addition, these games foster the social interaction thanks to the collective games and build positive social ties between the students. Furthermore, they help overcome the obstacles that hinder sport practice, such as the low excitement and lack of time, and provide entertaining solutions that integrate the drills in their lives. However, the use of these techniques requires collaboration between the universities and decision makers to provide the suitable environment and raise the students' awareness about their social and health benefits.

Based on these findings, we recommend:

1. Fostering the use of the interactive video games in the universities through integrating them in the university sport curricula in the practical sessions and entertainment activities to encourage the students to regularly practice sport.
2. Providing a suitable infrastructure through equipping the universities with the modern techniques of interactive videogames, such as the augmented reality and Kinect devices to ensure the students' easy access to the games.
3. Organizing collective competitions and activities that rely on the interactive videogames to foster the social interaction and encourage the healthy competition between students.
4. Raising awareness about the importance of the interactive videogames through organizing workshops and awareness campaigns that shed light on the benefits and role of these games in improving the general health and fostering the physical activity.
5. Encouraging research and development to measure the efficiency of the interactive videogames in improving the agility and develop innovative programs that target different students' categories.
6. Encouraging the integration of the interactive videogames in the educational curricula of the sport and physical education to foster learning and make it more exciting.
7. Devoting training programs for the teachers on the use of the interactive videogames and how to integrate them in the educational and sport activities to ensure the efficient and beneficial use.
8. Supporting collaboration with the technical companies through establishing partnerships to provide the modern devices and techniques to the universities to facilitate the students' access to the modern innovations in the interactive videogames.
9. Integrating the students in designing the activities to foster their sense of responsibility and interaction with their educational environment.
10. Monitoring and evaluating the effects through periodical measurements to detect the effect of the games on the agility and physical activity of the students and ensure the achievement of the target educational and health goals.

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11. Diversifying the activities and challenges through designing interactive videogames that suit the different agility levels and personal interests and ensure diverse challenges that motivate the continuous participation and improve the physical abilities.
12. Integrating the interactive activities in the healthcare programs in the universities to prevent the diseases resulting from lack of sport, such as obesity and heart diseases.

In the end, we can consider the interactive videogames an advanced step towards developing modern styles that foster the physical activity, improve the students' health, and enrich their university experiences.

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