THE EFFECT OF USING COMPUTER-PROGRAMMED INSTRUCTION ON LEARNING SOME BASIC SKILLS IN KARATE FOR DEAF-MUTE STUDENTS

Mohannad Odeh Al Zughialat*

Faculty of Sports Sciences, Mutah University, Jordan

Abstract

The study aimed to identify the effect of using programmed instruction to learn some basic skills in karate for deaf-mute students, and the researcher used the empirical research using the design of the two groups (experimental and control). The sample of the study included (12) students who were deliberately selected deaf-mute students from the Faculty of Sports Science at Mutah University. The educational program included educational units that included an explanation of the technical points for each skill, in addition to pictures and infographic videos of some basic skills in karate (Gedan barai, Age Uke, Soto Uke, Uchi Uke, Shuto Uke, Gyaki Zuki, Mae Geri). Statistical correlations were used (arithmetical means and standard deviations, Pearson correlation coefficient, Spearman correlation coefficient, Wilcoxon test, Mann–Whitney test), and the study results showed that there were statistically significant differences between the results of the post-test of the experimental group and the control group in the performance of skills and in favor of the experimental group. The most important recommendations referred to the use of programmed instruction in learning and training karate skills in general, and conducting similar studies on skills for other sports.

Keywords: Programmed Instruction. Basic skills. Deaf-mute.

Abstracto

El estudio tuvo como objetivo identificar el efecto del uso programado para aprender algunas habilidades básicas en karate para estudiantes sordomudos, y el investigador utilizó la investigación empírica utilizando el diseño de los dos grupos de instrucción (experimental y de control). La muestra del estudio incluyó (12) estudiantes que fueron seleccionados deliberadamente estudiantes sordomudos de la Facultad de Ciencias del Deporte de la Universidad de Mutah. El programa educativo incluyó unidades educativas que incluyeron una explicación de los puntos técnicos de cada habilidad, además de imágenes y videos infográficos de algunas habilidades básicas en karate (Gedan barai, Age Uke, Soto Uke, Uchi Uke, Shuto Uke, Gyaki Zuki, Mae Geri). Se utilizaron correlaciones estadísticas (medias aritméticas y desviaciones estándar, coeficiente de correlación de Pearson, coeficiente de correlación de Spearman, prueba de Wilcoxon, prueba de Mann-Whitney), y los resultados del estudio mostraron que hubo diferencias estadísticamente significativas entre los resultados de la prueba posterior de la experimental grupo y el grupo de control en el desempeño de habilidades y a favor del grupo experimental. Las recomendaciones más importantes se referían al uso de la instrucción programada en el aprendizaje y entrenamiento de las habilidades de kárate en general, y la realización de estudios similares

*Corresponding Author: Mohannad Odeh Al Zughialat,
Faculty of Sports Sciences, Mutah University, Jordan,

Tel: +00962796984840

Correo-e: MOH_ZGH@YAHOO.COM

sobre habilidades para otros deportes.

Palabras clave: Instrucción programada. Habilidades básicas. Sordomudos.

Abstrato

O estudo teve como objetivo identificar o efeito do uso de programação para aprender algumas habilidades básicas em caratê para alunos surdos-mudos, e o pesquisador usou a pesquisa empírica usando o design dos dois grupos de instrução (experimental e controle). A amostra do estudo incluiu (12) alunos que foram deliberadamente selecionados como alunos surdos-mudos da Faculdade de Ciências do Esporte da Mutah University. O programa educacional incluiu unidades educativas que incluíam a explicação dos pontos técnicos de cada habilidade, além de fotos e vídeos infográficos de algumas habilidades básicas do karatê (Gedan barai, Age Uke, Soto Uke, Uchi Uke, Shuto Uke, Gyaki Zuki, Mãe Geri). Correlações estatísticas foram usadas (média aritmética e desvio padrão, coeficiente de correlação de Pearson, coeficiente de correlação de Spearman, teste de Wilcoxon, teste de Mann-Whitney), e os resultados do estudo mostraram que houve diferenças estatisticamente significativas entre os resultados do pós-teste do experimento grupo e o grupo controle no desempenho das habilidades e a favor do grupo experimental. As recomendações mais importantes referem-se ao uso de instrução programada no aprendizado e treinamento de habilidades de karatê em geral, e realização de estudos semelhantes sobre habilidades para outros esportes.

Palavras-chave: Instrução programada. Habilidades básicas. Surdo-mudo.

Introduction

The world has witnessed rapid progress and significant development in all spheres of life, and this scientific and technological development has led to looking at the sports education and training system, as the use of modern technologies in education and training has opened new horizons in various aspects of the sports education and training system. Its use also led to an increase in the importance of physical skills (Al-Mabrouk, 2006). Shehata (2003) also stressed that the methods used by teachers and trainers are considered one of the most important aspects of the educational and training process.

Programmed instruction is currently one of the latest contemporary methods that rely on educational experience in which programmed units replace traditional education (Awad Allah, 2014). Mostafa (2017) confirmed that distance education (e-learning) using online programs and computers allows the provision of educational and training materials easily due to the ability of e-learning to publish the educational and training content available in multimedia such as audio, images, presentations and video. It also works to arouse students' interest and motivate them, and to confront their individual differences in an effective manner (Zaghloul, 2001), (Khatibah, 2021). It provides a factor of suspense and excitement for the learner, as shown by the study (Al-Suoub, 2002). In addition, the computer saves effort in explaining difficult skills, and saves the time it takes to learn compared to other traditional methods (Al-Shaalan ,2017).

Programmed instruction is considered one of the systematic educational methods, which were based on empirical foundations, aimed at reaching an effective system in presenting information and concepts to the learner, and ensuring his understanding, through the positive activities he performs by promptly correcting the response and sequencing the experience step by step. (Faraj, 2005).

Zaghloul (2001) defines programmed instruction as one of the types of self- and individual education, and it is a type of educational experience that the learner acquires by himself, through programmed units, that replace the teacher and through which he can follow a desired path. Sharaf (2000) defines it as the acquisition of experiences as a result of the interaction between the learner and the program in the absence of the teacher.

Taking care of the deaf-mute is considered one of the signs of the progress of any society, and from this point of view, this category began to take its natural right to care, guidance and rehabilitation for a life in which they can live happily according to their capabilities and abilities and in line with humane attitudes (Al-Jamasi, 1983).

Al-Arusi (2014) also confirms that modern societies competed to pay attention to this segment, believing that it represents idle capacities that can be creative. People with disabilities have demonstrated their advantage in many areas, especially in the sports, which is considered one of the necessary and important areas in the lives of people with disabilities in general, and the deaf-mute in particular. Sports for this category is not just an integral part of treatment or rehabilitation, but rather an integrated and harmonious system in all motor, physical and psychological aspects.

Study Problem and Importance

Despite the great technological progress in various fields of life, including education, the university learning (faculties of sports science) still depends on the traditional method of teaching, which depends on diction and indoctrination, although the field of motor skills education requires giving more accurate and clear models to the learners in order for the skill to be learned properly and correctly and to clarify the method of performing the skill for the learners accurately.

Karate is considered one of the sports that contain some complex, difficult and dangerous movements and skills. Through the researcher's teaching of the self-defense games training course and his specialization in the Karate as a coach, he noticed that there are some difficulties facing the deaf-mute students category in the Faculty of Sports Science in learning this sport due to the difficulty of their movements and inability to communicate with the teacher in the way through which they can inquire about the performance of these skills or their lack of proficiency in the correct manner and the difficulty of the teacher also communicating with this group in the event that he feels that the information has not been received properly. The teacher also noticed the absence of the role of technology, which meets the needs of students and takes into account individual differences, which could be the appropriate means to deliver information in one way or another to a group of students who are unable to express the extent of their understanding and acceptance of these skills, which can be difficult for normal students, how about students who are unable to hear and speak.

Based on the aforementioned, the researcher dealt with a group of students who may have misunderstood their nature and considered them as individuals who are incapable of social life and their ability to communicate and adapt is weak or non-existent, noting that the difference between them and other students is limited to that they are not prepared by virtue of his disability to receive the means of communication that depend on the senses of hearing and speak, and therefore the exploitation of the rest of his senses, the most important of which is the sense of sight in the field of physical education, can compensate for these two lost senses.

In this sense, the researcher will try to study the impact of programmed instruction as a process that directly affects learning some of the basic skills of the Karate to help this group learn and apply them in a simplified, appropriate and correct way. Based on the above, the importance of the study lies in the following:

1.   Raising awareness about the importance of research that is concerned with the deaf-mute.

2.   Develop ways and means to benefit from the sense of sight of the deaf-mute category, as a compensation for the loss of the sense of hearing and speak.

3.   Helping teachers or trainers who do not have the ability to perform an ideal model of some skills to deliver the performance of the skill to students or trainees through computer programmed instruction.

4.   Demonstrating the role of using the educational computer and educational program in stimulating students' learning motivation.

5.   This program can help to acquire some relatively difficult skills through visual learning and the ability to repeat the skill and watch it in a way that enables the student to perform it well.

6.   Diversity in the methods used in education and training in order to facilitate the delivery of information and skill, especially in teaching basic skills.

7.   It is hoped that this study will draw the attention of teachers and trainers in charge of teaching Karate in particular and self-defense games in general to benefit from the computer in the production of educational program and their use in education and training.

Study objectives

1.   The effect of using computer-programmed instruction on learning some basic skills in Karate for deaf-mute students.

2.   The effect of using the traditional method on learning some basic skills in Karate for deaf-mute students.

3.   Differences between the computer-programmed instruction method and the traditional method to learn some basic skills in Karate for deaf-mute students.

Study hypotheses

1.   There are statistically significant differences at the level of significance ($\alpha \leq 0.05$) between the pre and post-measurements in favor of the post-measurement in learning some basic skills in Karate for the deaf-mute students of the control group.

2.   There are statistically significant differences at the level of significance ($\alpha \leq 0.05$) between the pre and post-measurements in favor of the post-measurement in learning some basic skills in Karate for the deaf-mute students of the experimental group.

3.   There are statistically significant differences at the level of significance ($\alpha \leq 0.05$) between the post-measurement of the study variables between the experimental group and the control group, in favor of the experimental group.

Study approach

The researcher used the experimental approach due to its suitability to the nature and objectives of the study.

Study sample: The sample of the study was chosen by the intentional method from deaf-mute students of the Faculty of Sports Sciences. Their number reached (12) students, who had not practiced Karate or a sport similar to it before. They were divided into two groups:

Experimental group: It consisted of (6) students learning through the proposed educational program by computer. The program was applied for a period of six weeks, with three meetings per week for (50) minutes each time.

Control group: It consisted of (6) students who learn in the traditional way. The program was applied for six weeks, three times a week, for (50) minutes each time. Table No. (1) shows the distribution of the study sample members in the two groups (Table 1).

Study Tools

To verify the equivalence of the two study groups: (experimental) and (control) group in order to verify that the improvement in the study variables: (Gedan barai, Age Uke, Soto Uke, Uchi Uke, Shuto Uke, Gyaki Zuki, Mae Geri) is due to the program. The abilities of the players' skills under study were determined through evaluation scores made by arbitrators who are experts in Karate. In addition to verifying the equality of the members of the (experimental) and (control) groups in each of the variables (tall, weight, age). For this purpose, the arithmetic means, standard deviations, and the results of the Mann-Whitney test were used to the significance of the study variables in the post measurement between the two study groups (Table 2 and Figure 1).

It is clear from table 2 that there are no statistically significant differences ($\alpha \leq 0.05$) between the two groups: the control and the experimental groups on all study variables (Gedan barai, Age Uke, Soto Uke, Uchi Uke, Shuto Uke, Gyaki Zuki, Mae Geri). It is evident that the members of the two groups are equal in the level of these variables before starting the application of the program. After verifying the equivalence of the two groups, pretest measurements were taken for both groups. Then, the proposed program was applied to the experimental group by the researcher, and the traditional program was applied to the control group by the subject teacher for a period of (6 weeks) with the same period of time, conditions, and number of units for the two groups. Then after which measurements of the post-tests were taken for both groups.

Content Validity: The researcher prepared the applied steps and educational aspects of the skills under study (Gedan barai, Age Uke, Soto Uke, Uchi Uke, Shuto Uke, Gyaki Zuki, Mae Geri). They were presented to a group of (6) expert arbitrators to express their opinion who agreed on the ability of the program to achieve the desired objectives.

Content Stability: The stability coefficient was calculated using the test and re-test method on an exploratory sample consisting of (4) students. The test was applied to students and reapplied after three days. Table 3 shows the stability value (Table 3).

It is clear from the previous table 3 that there is a statistically significant correlation at the level of significance ($\alpha \leq 0.05$) between application and re-application on tests (Gedan barai, Age Uke, Soto Uke, Uchi Uke, Shuto Uke, Gyaki Zuki, Mae Geri) which is evidence of the stability and validity of these tests.

Study Variables

1.   **Independent variables:** the programmed instruction method using the proposed educational program on the computer and the usual teaching method.

Table 1: Distribution of the study sample.

No.	Group Name	Member No.
1	Experimental group	6
2	Control group	6
Total		12

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Table 2: The arithmetic means, standard deviations, and the results of the (Mann-Whitney) test for the significance of the study variables in the post measurement between the two study groups.

	Group	Arithmetic Mean	Standard Deviation	No.	Average ranks	Total ranks	U-value	Z-value	Significance level
Weight	Experimental	71.33	3.983	6	6.00	36.00	15.000	-.486	.627
	Control	72.00	3.688	6	7.00	42.00			
	Total			12					
Tall	Experimental	175.67	2.805	6	6.75	40.50	16.500	-.243	.808
	Control	175.50	1.378	6	6.75	37.50			
	Total			12					
Age	Experimental	19.00	.894	6	7.50	45.00	12.000	-1.042	.297
	Control	18.00	.837	6	5.50	33.00			
	Total			12					
Gedan barai	Experimental	1.17	.408	6	6.00	36.00	15.000	-.638	.523
	Control	1.33	.516	6	7.00	42.00			
	Total			12					
Age Uke	Experimental	1.67	.816	6	6.75	40.50	16.500	-.267	.789
	Control	1.50	.548	6	6.25	37.50			
	Total			12					
Soto Uke	Experimental	1.67	.816	6	6.75	40.50	16.500	-.267	.789
	Control	1.50	.548	6	6.25	37.50			
	Total			12					
Uchi Uke	Experimental	1.83	.408	6	6.08	36.50	15.500	-.527	.598
	Control	2.00	.632	6	6.92	41.50			
	Total			12					
Shuto Uke	Experimental	1.33	.516	6	5.50	33.00	12.000	-1.106	.269
	Control	1.67	.516	6	7.50	45.00			
	Total			12					
Gyaki Zuki	Experimental	2.17	.753	6	6.92	41.50	15.500	-.451	.652
	Control	2.00	.632	6	6.08	36.50			
	Total			12					
Mae Geri	Experimental	1.50	.548	6	6.00	36.00	15.000	-.561	.575
	Control	1.67	.516	6	7.00	42.00			
	Total			12					
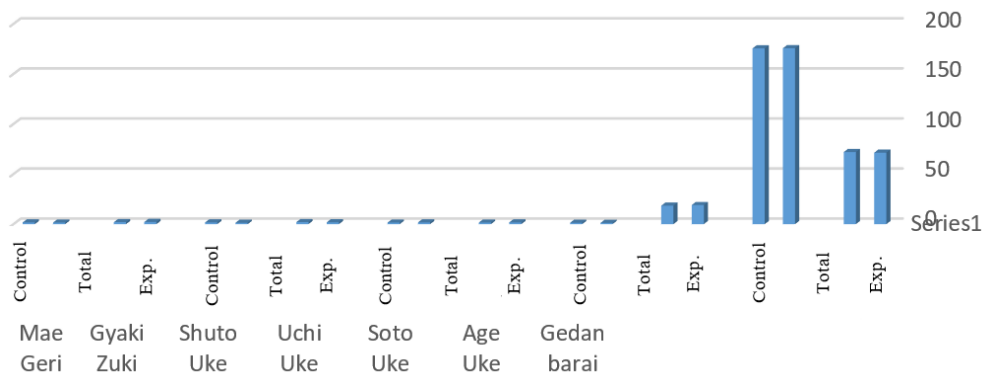
Figure 1: The arithmetic means, standard deviations, and the results of the (Mann-Whitney) test for the significance of the study variables in the post measurement between the two study groups.

Table 3: Pearson correlation coefficient and Spearman's correlation coefficient between application and reapplication.

Test/ Skill	Spearman's correlation coefficient (Abnormal)
Gedan barai	0.912*
Age Uke	0.880*
Soto Uke	0.826*
Uchi Uke	0.804
Shuto Uke	0.846*
Gyaki Zuki	0.902*
Mae Geri	0.886*
*Statistically significant at the level of significance (α≤0.05)	

2. **Dependent variables:** (Gedan barai, Age Uke, Soto Uke, Uchi Uke, Shuto Uke, Gyaki Zuki, Mae Geri).

Statistical Treatments

To test the validity of the study hypotheses, statistical treatments were performed using the statistical package for social sciences (SPSS) as follows:

Arithmetic means, standard deviations, Pearson correlation coefficient, Spearman's correlation coefficient, Clarkson test, Mann–Whitney U test.

Results Presentation and Discussion

To answer the first hypothesis: "There are statistically significant differences at the level of significance (α≤0.05) between the pre and post measurements in favor of the post measurement in learning some basic skills in Karate for the deaf-mute students of the control group.

To test the validity of this hypothesis, the researcher measured the level of skillful performance of the control group members before starting the application of the traditional program, then the Wilcoxon test was used to indicate the differences between the pre and post applications of the variables (Gedan barai, Age Uke, Soto Uke, Uchi Uke, Shuto Uke, Gyaki Zuki, Mae Geri). Table 4 shows the results (Table 4 and Figure 2).

The data presented in table 4 show that there are statistically significant differences at the level of significance (α≤0.05) in terms of the value of (k) and the level of significance associated with it in the level of performance of the control group members in the variables (Gedan barai, Age Uke, Soto Uke, Uchi Uke, Shuto Uke, Gyaki Zuki, Mae Geri) in favor of the post measurement. The researcher attributes this to the fact that the improvement of the members of this group is normal due to their exposure to an educational program for a sufficient period of time to cause a change in their motor level related to the skills being studied. This is through what the teacher provides to the students in terms of information and experiences that contribute as much as possible to achieving the general objective of the lesson and learning the skills in terms of familiarity and knowledge of the skills to be learned, in addition to

Table 4: Arithmetic means, standard deviations, and (Wilcoxon) test results to significant differences among the control group members between the pre and post measurements of the study variables.

Skills	Measurements	Arithmetic Mean	Standard Deviation	Ranks	No.	Average Ranks	Total Ranks	Z-Value	Significance Level
Gedan barai	Pre	1.33	.516	Negative	0[a]	.00	.00	-2.232[b]	.026
	Post	4.00	.632	Positive	6[b]	3.50	21.00		
				Equal	0[c]				
				Total	6				
Age Uke	Pre	1.50	.548	Negative	0[d]	.00	.00	-2.232[b]	.026
	Post	4.33	.516	Positive	6[e]	3.50	21.00		
				Equal	0[f]				
				Total	6				
Soto Uke	Pre	1.50	.548	Negative	0[g]	.00	.00	-2.220[b]	.026
	Post	4.50	.548	Positive	6[h]	3.50	21.00		
				Equal	0[i]				
				Total	6				
Uchi Uke	Pre	2.00	.632	Negative	0[j]	.00	.00	-2.232[b]	.026
	Post	4.67	.816	Positive	6[k]	3.50	21.00		
				Equal	0[l]				
				Total	6				
Shuto Uke	Pre	1.67	.516	Negative	0[m]	.00	.00	-2.232[b]	.026
	Post	4.50	.548	Positive	6[n]	3.50	21.00		
				Equal	0[o]				
				Total	6				
Gyaki Zuki	Pre	2.00	.632	Negative	0[p]	.00	.00	-2.264[b]	.024
	Post	4.50	.548	Positive	6[q]	3.50	21.00		
				Equal	0[r]				
				Total	6				
Mae Geri	Pre	1.67	.516	Negative	0[s]	.00	.00	-2.264[b]	.024
	Post	4.50	.837	Positive	6[t]	3.50	21.00		
				Equal	0[u]				
				Total	6				

*Statistically significant at the level of significance (α≤0.05)
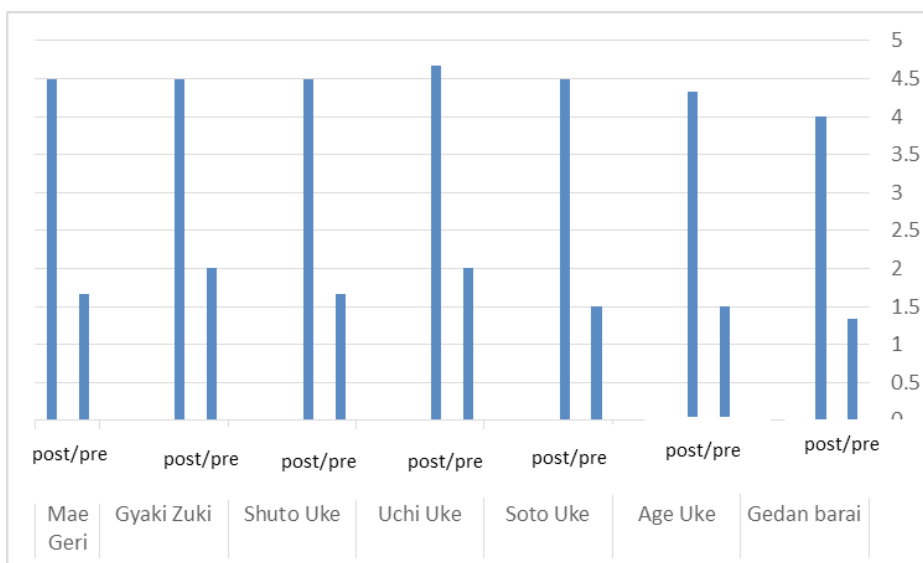
Figure 2: The arithmetic means, standard deviations, and the results of the (Wilcoxon) test to indicate differences among the control group members between the pre and post measurements of the study variables.

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the teacher's behavior during the teaching process, as the teacher describes how to perform the skill and make the appropriate model for it and provide the feedback. However, this improvement is not at the required level, due to the difficulty of communication between the teacher and the study sample of the deaf-mute class, and the students' poor ability to ask some questions related to the performance of these skills. This result agreed with the study of Al-Fawara (2021) and the study of (Al-Soub, 2002) and differed with the study of each of them, the study of Al-Dasouki (2021), the study of Abdel Hamid (2021), the study of Al-Qawaqzah (2018), the study of (Vranadakis, 2018), and the study of (Butler, 2015).

To answer the second hypothesis: There are statistically significant differences at the level of significance (α≤0.05) between the pre and post measurements in favor of the post measurement in learning some basic skills in the Karate for the deaf-mute students of the experimental group.

To test the validity of this hypothesis, the researcher measured the level of skillful performance of the experimental group members before starting the application of the program, then the Wilcoxon test was used to indicate the differences between the pre and post applications of the variables (Gedan barai, Age Uke, Soto Uke, Uchi Uke, Shuto Uke, Gyaki Zuki, Mae Geri) table 5 shows the results of that (Table 5 and Figure 3).

The data presented in table 5 show that there are statistically significant differences at the level of significance (α≤0.05) in terms of the value of (k) and the level of significance associated with it in the level of performance of the experimental group in the variables (Gedan barai, Age Uke, Soto Uke, Uchi Uke, Shuto Uke, Gyaki Zuki, Mae Geri) in favor of post measurement. The researcher believes that the improvement in learning the skills being studied is due to the educational programming used, which focused on the sense of sight and was able to deal with the deaf-mute respondents according to their individual abilities considering individual differences and the learner's needs and readiness is one of the most important characteristics of self-learning, which takes into account the speed and slowness of learning according to the learner's ability and potential, and this was indicated by both Al-Shaalan, (2008) and Jamal, (2000). The proposed program using the computer provides the opportunity for the learner to view all the technical aspects of the skill through the information on the program, through the technical details of the

skill, which explains to the learner the steps that he should take to perform the skill optimally, as well as the common mistakes that are expected to happen during the performance, in addition to the ease of retrieving information and details that he wishes to review at any time and view them immediately, which provides educational experiences, and this is confirmed by Al-Soub (2002), and this result agreed with the study of Al-Fawara (2022), the study of Al-Dasouki (2021), the study of Abdel-Hamid (2021), and the study of Al-Qawaqzah (2018).

To answer the third hypothesis: There are statistically significant differences at the level of significance (α≤0.05) between the post measurement of the study variables between the experimental group and the control group, in favor of the experimental group.

To verify this hypothesis, the arithmetic means and standard deviations of the Mann-Whitney test for independent samples were used, which is one of the appropriate non-parametric tests to reveal the presence of statistically significant differences between the performances of the two groups in the post-application. Table 6 shows the results of that (Table 6 and Figure 4).
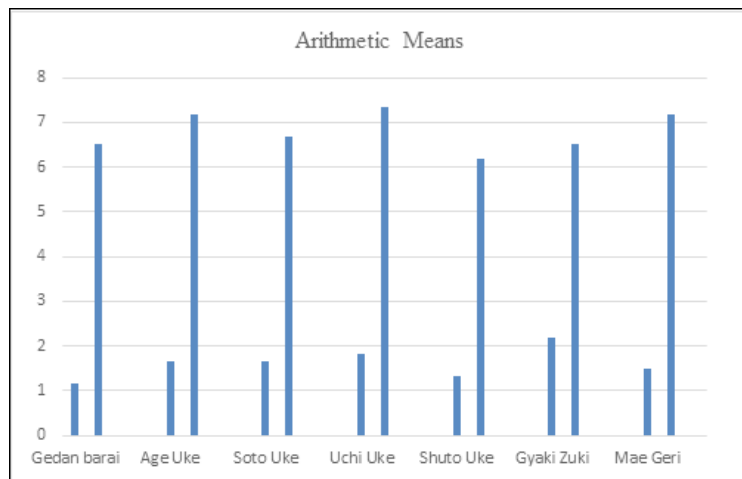
It is clear from Table 6 that there are statistically significant differences at the level of significance (α≤0.05) between the two groups: control and experimental in the variables (Gedan barai, Age Uke, Soto Uke, Uchi Uke, Shuto Uke, Gyaki Zuki, Mae Geri) and in favor of the experimental group. This result can be explained by the fact that the experimental sample used program that combined the features of the successful program in terms of general and specific criteria for the deaf-mute category, which focused on defining the goal and the appropriateness of the content for this category by exploiting the sense of sight as a substitute for the lost hearing and speak senses in this category within a program that helped the students to learn the required skills through proper motor perception of the skills, as focus, attention, and discovery of the fine details of the skill lead to its clarity and thus the clear improvement in its performance, and this is indicated by Al-Shaalan (2008), Al-Hayek (2003) and Al- Suoub (2002).

Mostafa (2017) confirmed that e-learning using programs associated with the Internet and computers allows the provision of educational and training materials easily due to the ability of e-learning to publish educational and training content available in multimedia such as images, presentations and

Table 5: Arithmetic means, standard deviations, and (Wilcoxon) test results to indicate differences among the experimental group members between the pre and post measurements of the study variables.

Skills	Measurement	Arithmetic Mean	Standard Deviation	Ranks	No.	Rank Average	Total Ranks	Z-Value	Significance Level
Gedan barai	Pre	1.17	.408	Negative	0	.00	.00	-2.207[b]	.027
	Post	6.50	1.378	Positive	6	3.50	21.00		
				Equal	0				
				Total	6				
Age Uke	Pre	1.67	.816	Negative	0	.00	.00	-2.214[b]	.027
	Post	7.17	.753	Positive	6	3.50	21.00		
				Equal	0				
				Total	6				
Soto Uke	Pre	1.67	.816	Negative	0	.00	.00	-2.214b	.027
	Post	6.67	1.211	Positive	6	3.50	21.00		
				Equal	0				
				Total	6				
Uchi Uke	Pre	1.83	.408	Negative	0	.00	.00	-2.251b	.024
	Post	7.33	.816	Positive	6	3.50	21.00		
				Equal	0				
				Total	6				
Shuto Uke	Pre	1.33	.516	Negative	0	.00	.00	-2.232b	.026
	Post	6.17	.983	Positive	6	3.50	21.00		
				Equal	0				
				Total	6				
Gyaki Zuki	Pre	2.17	.753	Negative	0	.00	.00	-2.214b	.027
	Post	6.50	.837	Positive	6	3.50	21.00		
				Equal	0				
				Total	6	.00	.00	-2.226b	.026
Mae Geri	Pre	1.50	.548	Negative	0	3.50	21.00		
	Post	7.17	.983	Positive	6				
				Equal	0				
				Total	6				
*Statistically significant at the level of significance (α≤0.05).									

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Figure 3: The arithmetic means, standard deviations, and the results of the (Wilcoxon) test to indicate the differences among the experimental group members between the pre and post measurements of the study variables.

Table 6: Arithmetic means, standard deviations, and the results of the (Mann-Whitney) test for the significance of the study variables in the post-measurement between the two study groups.

Skills	Group	Arithmetic Mean	Standard Deviation	No.	Rank Average	Total Ranks	U-Value	Z-Value	Significance Level
Gedan barai	Experimental	6.50	1.378	6	9.33	56.00	1.000	-2.812	*.005
	Control	4.00	-632	6	3.67	22.00			
	Total			12					
Age Uke	Experimental	7.17	-753	6	9.50	57.00	.000	-2.978	*.003
	Control	4.33	.516	6	3.50	21.00			
	Total			12					
Soto Uke	Experimental	6.67	1.211	6	9.25	55.50	1.500	-2.760	*.006
	Control	4.50	-548	6	3.75	22.50			
	Total			12					
Uchi Uke	Experimental	7.33	-816	6	9.42	56.50	.500	-2.858	*.004
	Control	4.67	-816	6	3.58	21.50			
	Total			12					
Shuto Uke	Experimental	6.17	-983	6	9.25	55.50	1.500	-2.719	*.007
	Control	4.50	-548	6	3.75	22.50			
	Total			12					
Gyaki Zuki	Experimental	6.50	-837	6	9.50	57.00	.000	-2.966	*.003
	Control	4.50	-548	6	3.50	21.00			
	Total			12					
Mae Geri	Experimental	7.17	-983	6	9.33	56.00	1.000	-2.797	*.005
	Control	4.50	-837	6	3.67	22.00			
	Total			12					
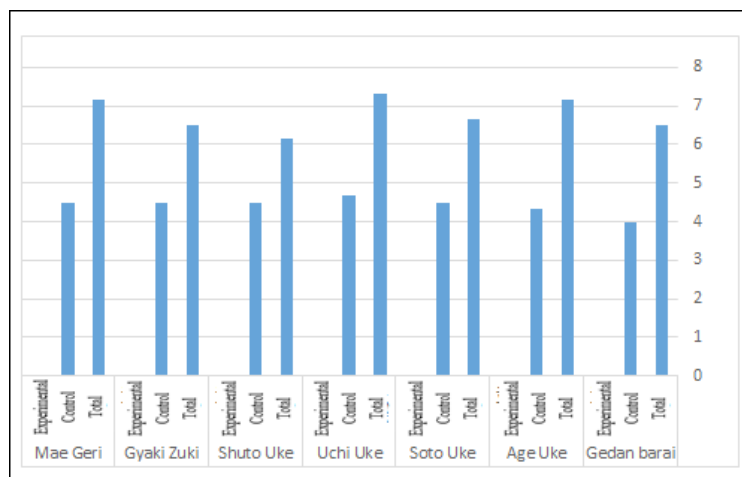
Figure 4: The Arithmetic means, standard deviations, and the results of the (Mann-Whitney) test for the significance of the study variables in the post-measurement between the two study groups.

videos. In addition, programmed instruction saves time and effort, considers the individual differences, and shows the excitement in the learning process effectively and performs better than traditional learning, which usually gives an instantaneous model for performing the skill with specific repetition of the skill and limits the optimal use of time. The traditional learning does not give full freedom to learn to the student by following the instructions and orders of the teacher, in addition to the difficulty that the deaf-mute student faces in communicating with the teacher, in addition to the difficulty that the teacher also faces in communicating with this category of students, which reduces the opportunity to deliver the information completely and correctly, and the opportunity to guide the student on the part of the teacher in an effective manner and the difficulty of correcting mistakes due to the absence of the appropriate communication, unlike programmed instruction, which allows the model to be repeated a large number of times at any time within the performance and model of the utmost precision and workmanship. This was confirmed by Eyadat (2004). This result agreed with the study of Al-Fawara(2022), the study of Al-Dasouki (2021), the study of Abdel Hamid (2021), the study of Al-Qawaqzah (2018), the study of (Vranadakis, 2018), and the study of (Butler, 2015), the study of Al-Shaalan (2008), and the study of Al-Suoub (2002).

Conclusions

1. Programmed instruction is an effective way to learn basic skills in karate for deaf-mute students, more than the traditional method.

2. Programmed instruction provides a better opportunity to learn the details of skills, retrieve information and correct errors better than the traditional method.

Recommendations

1. Using programmed instruction to learn and train karate skills in general and conduct similar studies on skills for other sports and categories.

2. Holding specialized courses for teachers and trainers in the field of using technology and programmed instruction.

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