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TRANSVERSAL TRANSFER IN PHYSICAL AND SPORTS ACTIVITIES

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الانتقال العرضي لأثر تعلم الأنشطة البدنية والرياض

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Abstract:

This study aims to explore the different learning transfers that can occur during different physical and sportive activities, specifically the practice of football in the context of extracurricular activities and the speed racing activity within Physical education classes. It is a comparative study based on an experiment realized with two groups of pupils that practice regularly PSE courses, while only one of its two groups participate in sessions and school competitions of football

The two groups were chosen so that they met the conditions of homogeneity at the beginning.

Regarding behavioral gains, it was necessary to establish an "observation grid" that identifies behaviors related to the discipline to make comparisons feasible.

The video recording was used to collect the results and Kinovia application to analyze performances and motor behaviors

After 9 trainings and competitions practiced within the framework of the school competition, a post test of performances and motor behaviors is carried out on the two groups.

Comparisons of post-tests between the two groups show a greater improvement in speed, and scores of some gestural behaviors of the group practicing school activities compared to the second group.

These results show that:

- There is an inter-specific learning transfer between two different activities: football training which has led to progress in the speed.

It is this transfer of learning outcome of a discipline to another discipline, which is sometimes presented in school curricula under the notion of " Transversal transfer " considered as the issue of educational projects of schools.

Keywords:
Transversal transfer, Physical education classes, extracurricular activities, intra-specific, inter-specific.

ملخص البحث

تهدف هذه الدراسة إلى استكشاف انتقال أثر التعلم الذي يمكن أن يحدث أثناء ممارسة مختلف الأنشطة البدنية والرياضية، وتحديدًا ممارسة كرة القدم في سياق الأنشطة اللاصفية ونشاط سباق السرعة ضمن حصص التربية البدنية. هي دراسة مقارنة مبنية على تجربة تم تحقيقها مع مجموعتين من التلاميذ تمارس بانتظام حصص التربية البدنية، بينما واحدة منها فقط تشارك (المجموعة الأولى) في المنافسة المدرسية لكرة القدم

تم اختيار المجموعتين بحيث تلبيا شروط التجانس في البداية.

فيما يتعلق بالمكتسبات السلوكية، كان من الضروري إنشاء "شبكة ملاحظة" تحدد السلوكيات المتعلقة بالتعلم لجعل المقارنات ممكنة.

تم استخدام تسجيل الفيديو لجمع النتائج وتطبيق Kinovia لتحليل الأداء والسلوكيات الحركية

بعد 9 حصص تدريبية وتنافسية تمارس في إطار المسابقة المدرسية، يتم إجراء الاختبار البعدي للأداء والتعلم الحركي على المجموعتين.

تظهر المقارنات بين الاختبارات البعدية بين المجموعتين تحسنا أكبر في السرعة، وبعض السلوكيات الحركية في المجموعة التي تمارس الأنشطة المدرسية مقارنة بالمجموعة الثانية.

تظهر نتائجه ما يلي:

هناك انتقال أثر تعلم بين نشاطين مختلفين: تدريب كرة القدم الذي أدى إلى التقدم في السرعة.

هذا هو انتقال أثر تعلم من نشاط إلى آخر، والذي يعرض في بعض الأحيان في المناهج الدراسية في إطار مفهوم الانتقال العرضي لأثر التعلم ويعرض كمسألة أساسية ضمن المشروع التربوي للمؤسسة.

الكلمات المفتاحية:

الانتقال العرضي لأثر التعلم، حصص التربية البدنية، الأنشطة اللاصفية، الانتقال الداخلي، الانتقال البيني.

INTRODUCTION AND PROBLEMATIC

Physical education and sports classes have become a discipline in their own right[1] in the education system, however, the current concern is the attitude to be taken to overcome certain constraints, particularly the inadequacy of time allowed for this discipline[2]. A solution can be considered for this question, it is to use extracurricular physical activities (comission nationale des curriculums, 2003) to promote learning in physical education and sports, and the question that arises here is the following: Can the practice of physical activities in an extracurricular context affect the learning of physical education classes? in other words, is there a transfer of learning between one discipline and another discipline in another context?

Hypotheses:

Because of the degree of training at the first activity, the similarity between the two tasks to be performed and the time between the two tasks, the training sessions in football will promote learning speed races (THOMAS, Edgar THILL/Raymond, 2000).

Keywords:

Transversal transfer: There is a transfer when the ease of learning of an activity is modified by the previous learning of another activity. In sport, when having learned a technique can learn another faster.

Physical education classes: it is a compulsory teaching discipline where physical activity is a medium to achieve educational skills

Extracurricular activities: are optional activities, practiced outside the hourly load.

Intra-specific: or "near transfer" (schmidt R, 1993), when it is a transfer between stages and situations within the same activity.

Inter-specific: when it is a transfer between several activities.

Methodology:

To answer to this question, it was important to adopt the experimental method, it is a comparative study based on an experiment carried out with two groups, its two groups practice regular sessions of physical and sport education (PSE), while only the first group participates in training and school competition. The two groups were chosen so that they met the conditions of homogeneity (Ferguen, 2011) at the beginning. With regard to Behavioral Learning, it was necessary to establish an "observation grid (Parlebas, 2005)" that identifies behaviors related to the discipline to make comparisons feasible. The speed races made by 70 students of the middle cycle were filmed so that they could be observed offline: continuously, and image by

[1]Law No. 13-05 of 14 Ramadhan 1434 corresponding to July 23, 2013 on the organization and development of physical and sports activities stipulates in its Art. 15 The teaching of physical education and sports is compulsory at all levels of national education. It is sanctioned by evaluation tests.

[2] in the national education system, two hours of physical activity practice each week

image. The films were analyzed by kinovia. Concerning significance tests of differences, we have used xlstat.

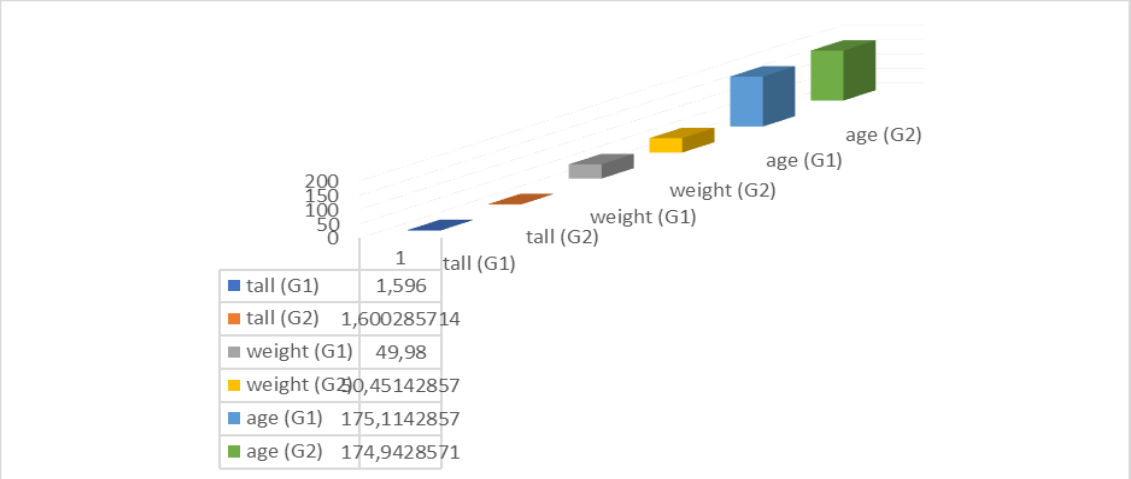
Presentation and discussion of the results:

1- Checking the homogeneity of the two groups:

Table n°1: *(age, tall, weight) between the two groups at the 1st test*

Descriptive statistics						t-test for two independent samples						
Variable	ns	Minimum	Maximum	Mean	Standard deviation	Difference	t (Observed	| t | (Critical	DDL	p-value (bilateral)	alpha	Test
Tall (test1, G1)	35	0	0	1,596	0,036	-0,004	-0,499	1,995	68	0,619	0,05	Not significant
Tall (test1, G2)	35	1,550	1,700	1,600	0,035							
Weight (test1, G1)	35	0	0	49,980	1,752	-0,471	-1,015	1,995	68	0,314	0,05	
Weight (test1, G2)	35	0	0	50,45	2,11							
Age (test1, G1)	35	170,00	180,00	175,11	3,13	0,171	0,229	1,995	68	0,819	0,05	Not significant
Age (test1, G2)	35	0	0	174,943	3,124							

Histogram n°1: *(age, tall, weight) between the two groups at the 1st test*



source: results of the field study

The comparison between means of the two groups shows the existence of small differences

In the other side the T test indicates values of P-value lower than the level of significance equal to 0.05, which makes these differences are not significant, so these groups are homogeneous

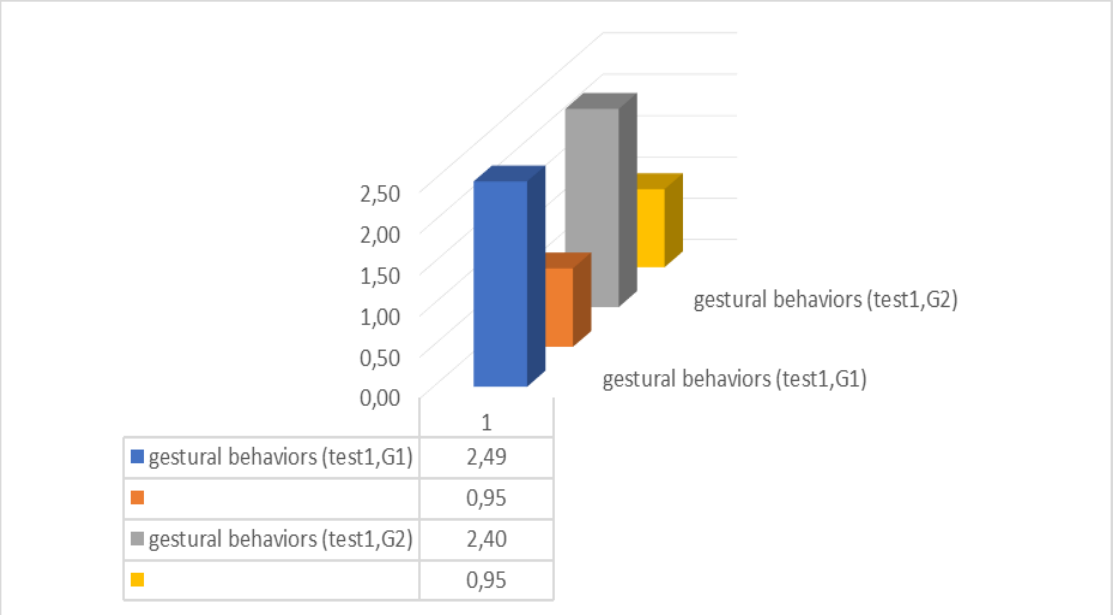
2- Comparison of study variables between the two groups at the first test (equivalence):

Table n°2: *gestural behavioral between the two groups at the 1st test*

Descriptive statistics						t-test for two independent samples						
Variable	Observations	Minimum	Maximum	Mean	Standard deviation	Difference	t (Observed value)	| t | (Critical value)	DDL	P-value (bilateral)	alpha	Test interpretation
Gest beh_t1,g1	35	0,000	4,000	2,486	0,951							
Gest beh_t1,g2	35	0,000	4,000	2,400	0,946	0,086	0,378	1,995	68	0,707	0,05	Since the calculated p-value is greater than the alpha threshold significance level = 0.05, the null hypothesis H0 can't be rejected.

source: results of the field study

histogram n°2: *gestural behaviors between the two groups at the first test*



source: results of the field study

According to the table above there are small differences between the two groups

The T-test shows that the P value = 0,707> 0.05 so the difference is not significant, what makes the two groups have an identical initial level regarding the gestural behaviors of the race speed

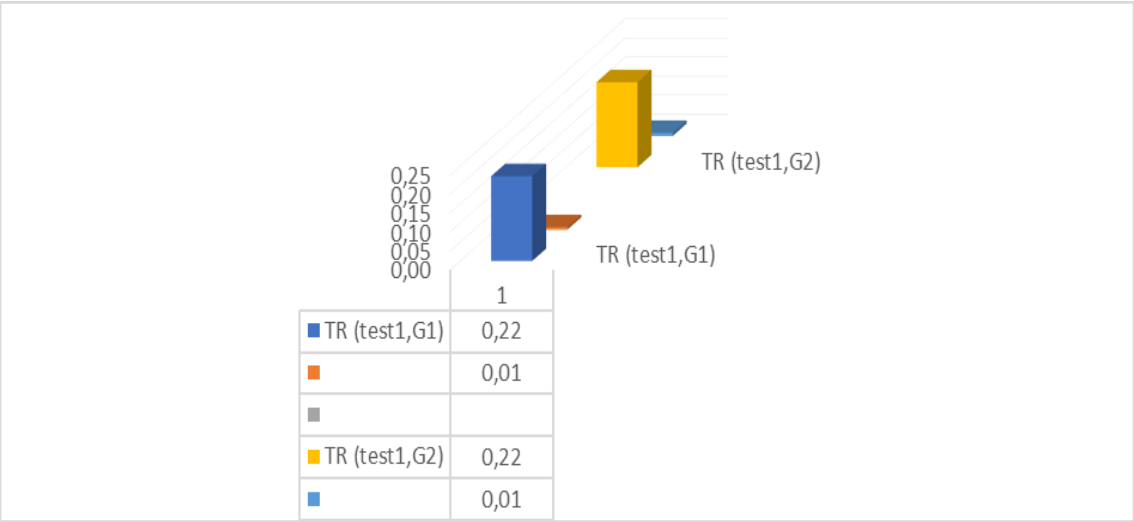
3- Presentation and comparison of the reaction time results at the first test between the two groups:

Table n°3: *time reaction between the two groups at the 1st test*

Descriptive statistics						t-test for two independent samples						
Variable	Observations	Minimum	Maximum	Mean	Standard deviation	Difference	t (Observed value)	| t | (Critical value)	DDL	p-value (bilateral)	alpha	Test interpretation
TR	35	0,208	0,232	0,223	0,007							Since the calculated p-value is greater than the alpha threshold significance level = 0.05, the null hypothesis H0 can't be rejected.
TR g2_av	35	0,208	0,240	0,224	0,008	-0,001	-0,449	1,995	68	0,655	0,05	

source: results of the field study

histogram n°3: time reaction between the two groups at the 1st test



source: results of the field study

According to the table above there are no differences between the two groups

The T-test shows that the P- value = 0,655> 0.05 so the difference is not significant, what makes the two groups have an identical initial level regarding reaction time in time reaction.

4- Presentation and comparison of the results of the performance at the first test between the two groups:

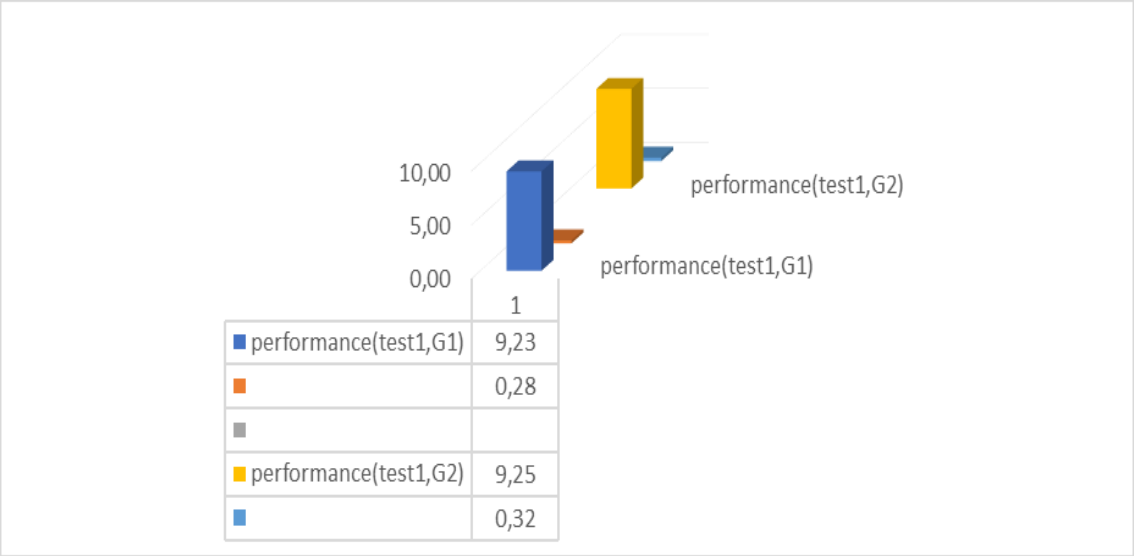
Table n°4: *performance between the two groups at the 1st test*

Descriptive statistics						t-test for two independent samples						
Variable	Observations	Minimum	Maximum	Mean	Standard deviation	Difference	t (Observed value)	| t | (Critical value)	DDL	p-value (bilateral)	alpha	Test interpretation
perfor 1	35	8,600	9,600	9,227	0,284	-0,021	-0,284	1,995	68	0,777	0,05	Since the calculated p-value is greater than the alpha threshold significance level = 0.05, the null hypothesis
perfor 2	35	8,600	9,800	9,247	0,321							

												H0 can't be rejected.

source: results of the field study

Histogram n°4: *performance between the two groups at the 1st test*



source: results of the field study

According to the table above there are small differences between the two groups

The T-test shows that the P-value = 0,777> 0.05 so the difference is not significant, what makes the two groups have an identical initial level concerning the performance.

5- Presentation and comparison of the straight amplitude results at the first test between the two groups:

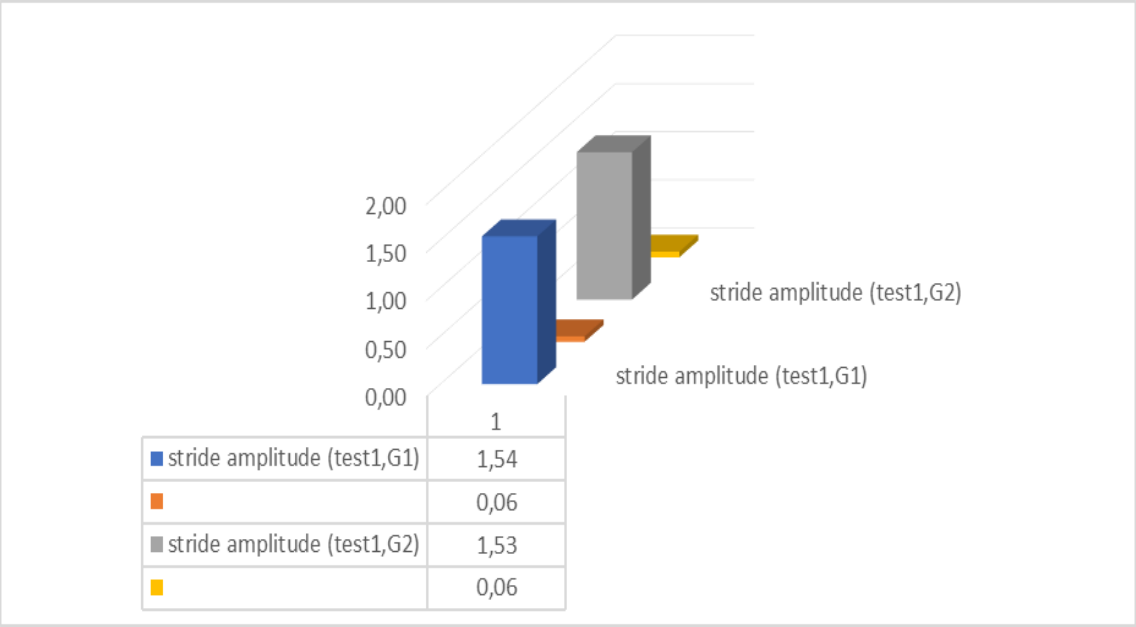
Table n°5: *stride amplitude between the two groups at the 1st test*

Descriptive statistics						t-test for two independent samples						
Variable	Observations	Minimum	Maximum	Mean	Standard deviation	Difference	t (Observed value)	| t | (Critical value)	DDL	p-value (bilateral)	alpha	Test interpretation

Stride amp _g1	35	1,440	1,660	1,537	0,057	0,004	0,310	1,995	68	0,757	0,05	Since the calculated p-value is greater than the alpha threshold significance level = 0.05, the null hypothesis H0 can't be rejected.
Stride amp _g2	35	1,440	1,660	1,532	0,059							

source: results of the field study

Histogram n°5: *stride amplitude between the two groups at the 1st test*



source: results of the field study

According to the table above there are small differences between the two groups

The T-test shows that the P-value = 0.757> 0.05 so the difference is not significant, what makes the two groups have an identical initial level regarding the race performance speed

6- Presentation and comparison of the results of gestural behaviors at the second test between the two groups

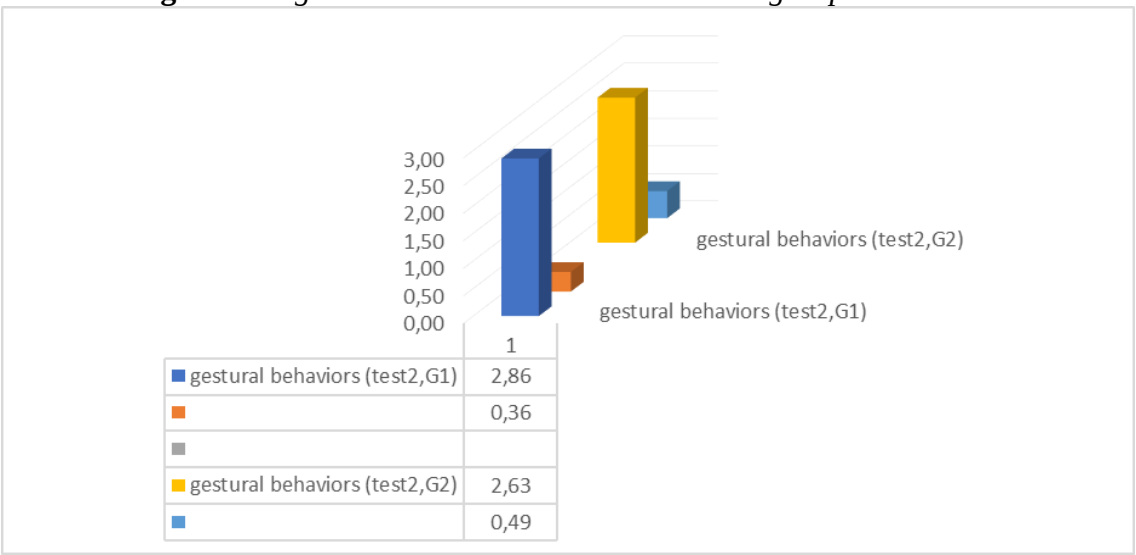
Table n°5: *gestural behavioral between the two groups at the 2nd test*

Descriptive statistics	t-test for two independent samples

Variable	Observations	Minimum	Maximum	Mean	Standard deviation	Difference	t (Observed value)	| t | (Critical value)	DDL	p-value (bilateral)	alpha	Test interpretation
gest beh (t2,g1)	35	2,000	3,000	2,857	0,355	2,639	43,945	1,995	68	< 0,0001	0,05	Since the calculated p-value is less than the significance level alpha = 0.05, the null hypothesis H0 must be rejected, and the alternative hypothesis Ha should be kept.
gest beh (t2,g2)	35	0,193	0,240	0,218	0,013							

source: results of the field study

Histogram n°5: *gestural behavioral between the two groups at the 2nd test*



source: results of the field study

Based on the table above, the level of gestural behaviors of the second group at the second test is higher than the level of the first group at the second test.
In the same sense, the T-test shows that P-value<0,001 <0.05 so its differences are significant, which makes the results of gestural behaviors of the first group better than those of the second group at the second test.

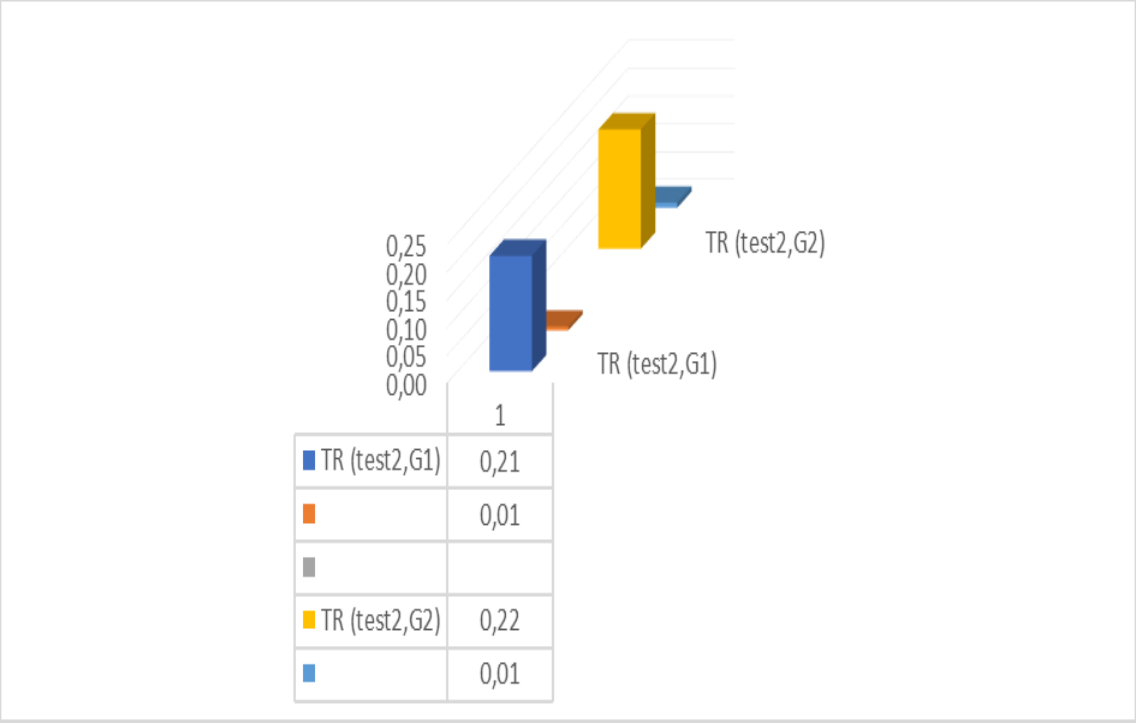
7- Presentation and comparison of reaction time results at the second test between the two groups

Table n°6: *reaction time between the two groups at the 2nd test*

Descriptive statistics						t-test for two independent samples						
Variable	Observations	Minimum	Maximum	Mean	Standard deviation	Difference	t (Observed value)	| t | (Critical value)	DDL	p-value (bilateral)	alpha	Test interpretation
TR t2,g1	35	0,196	0,220	0,213	0,007	-0,002	-1,076	1,995	68	0,286	0,05	Since the calculated p-value is greater than the alpha threshold significance level = 0.05, the null hypothesis H0 can't be rejected.
TR t2,g2	35	0,193	0,230	0,215	0,009							

source: results of the field study

Histogram n°6: *reaction time between the two groups at the 2nd test*



source: results of the field study

According to the table above, the reaction time level of the first group at the second test is slightly higher than the level of the first group at the second test.

In the same sense, the T-test shows that P-value = 0,286 <0.05 so this difference is not significant, which makes the reaction time results of the two groups at the second test are equals.

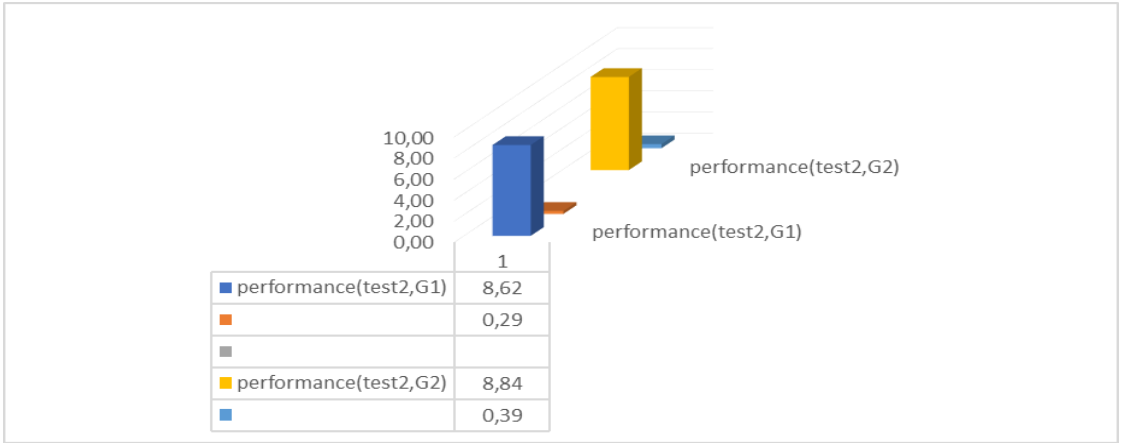
8- Presentation and comparison of reaction time results at the second test between the two groups

Table n° 7: *performance between the two groups at the 2nd test*

Descriptive statistics						t-test for two independent samples						
Variable	Observations	Minimum	Maximum	Mean	Standard deviation	Difference	t (Observed value)	| t | (Critical value)	DDL	p-value (bilateral)	alpha	Test interpretation
Perfor t2,g1	35	8,000	9,000	8,620	0,287							
Perfor t2,g2	35	8,000	9,300	8,841	0,388	-0,221	-2,705	1,995	68	0,009	0,05	Since the calculated p-value is less than the significance level alpha = 0.05, the null hypothesis H0 must be rejected, and the alternative hypothesis Ha should be kept.

source: results of the field study

Histogram n°7: *performance between the two groups at the 2nd test*



source: results of the field study

According to the table above, the level of performance of the first group at the second test is better than the level of the second group at the second test. In the same sense, the T-test shows that P-value = 0.009 <0.05 so its differences are significant, which makes the results of the performance of the first group at the second test better than those of the second group at the second test.

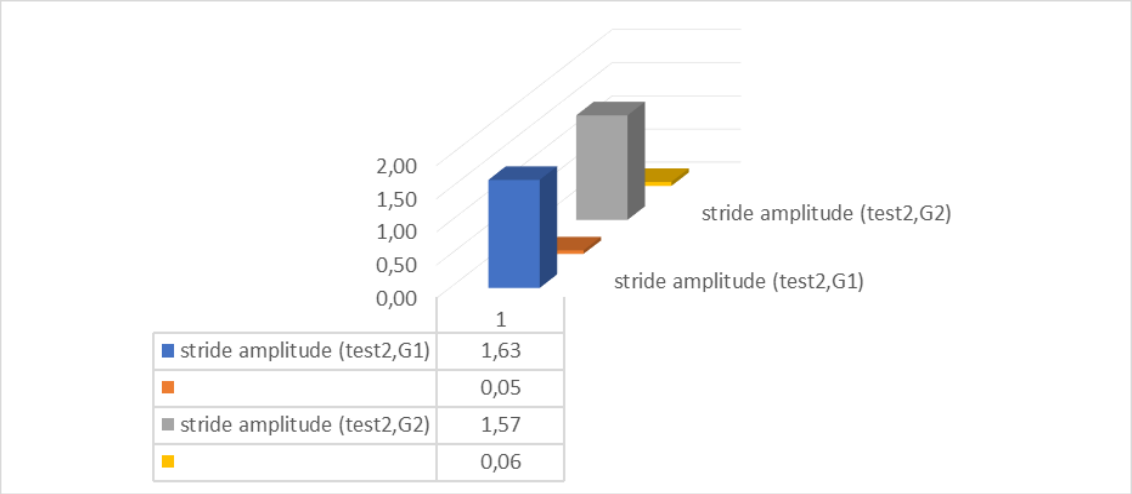
9-Presentation and comparison of the results of the stride amplitude at the second test between the two groups

Table n°8: *stride amplitude between the two groups at the 2nd test*

Descriptive statistics						t-test for two independent samples						
Variable	Observations	Minimum	Maximum	Mean	Standard deviation	Difference	t (Observed value)	| t | (Critical value)	DDL	p-value (bilateral)	alpha	Test interpretation
ampl t2,g1	35	1,560	1,750	1,628	0,054							
ampl t2,,g2	35	1,480	1,700	1,575	0,059	0,053	3,921	1,995	68	0,000	0,05	Since the calculated p-value is less than the significance level alpha = 0.05, the null hypothesis H0 must be rejected, and the alternative hypothesis Ha should be kept.

source: results of the field study

Histogram n°8: *stride amplitude between the two groups at the 2nd test*



source: results of the field study

From the table above, the stride amplitude level of the first group at the second test is higher than the level of the second group at the second test

In the same sense, the T-test shows that P-value = 0.000 <0.05 so its differences are significant, which makes the stride amplitude results of the first group at the second test better than those of the second group at the second test.

Discussion

In agreement with the theories of the acquisition and automation of motor skills (Winnykamen, 1990), notably the theories of training of motor coordination proposed by ecological theory, first group performances and their behavioral gestures improve by advantage over those of the first group by conditions of practice characterized by the volume and the time interval between practices.

However, the small differences not significant of the TRs confirmed by the comparison of the TR between the two groups at the second test, characterizes a risk-taking strategy by the anticipation which is a "bet", which does not exclude the error of the false start (Abderezzak Benmansour, 2013).

CONCLUSION

At the end of this study we can conclude that extracurricular activities can contribute to the improvement of motor learning during the sessions of physical and sport education through a transversal transfer of learning, and therefore a means that can respond to the concern of the insufficient of allowed time, however the teacher must take into account when programming these activities, the different factors that influence the transfer, such as the similarity of activities, the volume and the time interval between practices.

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