Original Article

The practical importance of movements with high precision, easiness and rapidity indices in the context of automation skills

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Abstract

In the present study we wanted to determine the causes generating frequent confusion made by driving school students in practical training classes who confuse left from right. The following steps were taken: an interview-based survey among driving instructors in Arges county, a study of the physical education curriculum for primary and secondary cycles, two tests with the fifth formers (the latest class to which are provided instantly turning left and right), analysis and comparison of results. The final conclusion is that these errors occur because the motor skill to respond correctly to left 'or' 'right' commands has not been strengthened sufficiently under varied working conditions.

Keywords: automation, right, student, practical training, left.

Introduction:

The idea of carrying out this work came from my husband's repeated reports on the inability of a large number of students in driving schools to follow the direction (left or right) indicated by the automotive instructor during the practical training classes. To determine the causes generating this confusion (left from right or right from left) the interview-based survey method was applied to a total of 30 driving school instructors in Arges county. Following the centralization of the survey results we concluded that a significant proportion of students in driving school went wrong in changing direction. Thus, we have learned that 72% of girls and 41% of boys confuse left with right, which is an average of 56.5% of the total number of students.

The aim of the study is to determine the causes of the students' permanent error not to turn in the direction indicated by the driving instructors during the training sessions within the driving schools.

Approach Method:

In order to better understand the phenomenon, we have studied physical education curricula in primary and secondary school regarding the students' performance in organizing practical activities during their physical education lessons – about-turn. Following the study we have noticed that the about-turn is provided in the curriculum of the 1st, 2nd, 3rd, 4th and 5th formers. Next we shall present the learning content specified in the curriculum, elements and forms of organization of sport activities in the above-mentioned forms (table 1).

Table 1 – Elements and organisation forms of practical activities for the 1st, 2nd, 3rd, 4th and 5th formers

Form	Elements and organisation forms of practical activities (according to physical education curricula)
1st	<ul style="list-style-type: none">- group gathering (in line in one and two rows); moving in row one by one and in twos.- upright position and at ease;- turn to left and right while jumping
2nd	<ul style="list-style-type: none">- ranging in line and row- upright position and at ease- turn to left and right while jumping;- start while treading and stop (moving and stop treading);- crossing the line in a row in a semicircle and circle formation, passing one by one in a semi-circle and circle formation.
3rd	<ul style="list-style-type: none">- group gathering in line in two rows;- ranging in line and row- upright position and at ease;- report;- about-turn to left and right;- start and stop treading ;- forming and gathering of the gym row in four

4th	<ul style="list-style-type: none"> - gathering groups (in line in one and two rows) - ranging in line and in depth; - upright position and at ease; wide position – at ease; - turn to left and right; about-turn; - start and stop treading in two motions; - forming and gathering of the gym row
5th	<ul style="list-style-type: none"> - gathering groups in line in one and two rows; - standing position and its derivatives; - ranging in line and row; - about-turns

We have also tested a number of 70 students (32 boys and 38 girls) in the 5th form, the last one which still provides about-turns in the school curriculum. The test was the following: the student is standing with clenched fists to chest level, at a distance of 3 meters from the teacher who throws a volleyball at the student, while giving orders, *right* or *left*. Depending on the teacher's command, the student had to hit the ball with his right or left fist. Each student hit the ball seven times. Those who had fewer than four correct throws (using the fist specified by the teacher) received 0 points and those who had more than three correct throws received 1 point.

The results of the test (girls and boys) are presented in figures 1 and 2.

Figure 1 – Results obtained by girls after the test

Figure 2 – Results obtained by boys after the test

It can be noticed from figure 1 that 23 girls received 1 point which is 60.52%. Figure 2 reveals that 21 of 32 boys received a point representing a rate of 65.62%.

Relating to the total number of students tested (70), there was a rate of 62.85% for students who received 1 point and 37.15% for those who received 0 points.

Table 2 presents a comparison between the results obtained from testing 5th formers and the initial data obtained from driving instructors.

Table 2 - Comparing the results obtained from testing 5th formers and the initial data obtained from driving instructors.

Results	Girls 1 point (%)	Girls 0 points (%)	Boys 1 point (%)	Boys 0 points (%)
Driving instructors' survey	28 %	72 %	59 %	41 %
Students' testing	60,52 %	39,48 %	65,62 %	34,38 %

The results showed that under normal conditions without disruptive factors (fear, stress, excitement), many students responded correctly to the commands received.

Given that the test results of the 5th formers disagree with the views of the driving instructors interviewed we considered necessary to conduct a new test on students while entering additional motor skill tasks and team race as a new element. For this new assessment we made the following test: two lines are drawn on the ground with a length of 30 m at a distance of 5 m. Basketballs baskets were placed to the left and right of the two lines both at the start and the finish line. The start is given by the teacher commanding *left* or *right* , at which time the student will choose the basketball from the left or right basket depending on the command received. The latter will dribble on the drawn line with one hand at will, until the teacher commands left or right, in which case the student will execute dribbling in the specified direction. The teacher will give three such commands along the 30m distance. At the end of the route the teacher will indicate the position of the basket to put the ball, by the *left* or *right* command and the student must put the ball in the basket shown (figure 3).

Figure 3 – The graphic representation of the second test

Students who fail more than twice will receive 0 points and those who fail more than three times will receive 1 point. For this test was organized two groups of girls and two groups of boys. The results of the second test (girls and boys) are shown in figures 4 and 5.

Figure 4 – Results obtained by girls after the second test **Figure 5 – Results obtained by boys after the second test**

The analysis of Figure 4 shows that 18 girls received 1 point which is 47.36%. Figure 5 reveals that 18 of 32 boys received a point representing a rate of 56.25%. Relating to the total number of students tested (70), there was a rate of 51.42% for students who received 1 point and 48.58% for those who received 0 points.

Table 3 shows a comparison between the two test results of students in the fifth form and the initial data obtained from driving instructors.

Table 3 – Comparing the two test results of students in the fifth form and the initial data obtained from driving instructors

Results	Girls 1 point (%)	Girls 0 point (%)	Boys 1 point (%)	Boys 0 points (%)
Driving instructors's survey	28 %	72 %	59 %	41 %
Students'testing (1)	60,52 %	39,48 %	65,62 %	34,38 %
Students'testing(2)	47,36 %	52,64 %	56,25 %	43,75 %

Table 4 contains the average of the results obtained in the three cases (data obtained from the driving instructors' survey, test 1 and test 2 for the 5th formers).

Table 4 - Results obtained from the survey applied to driving instructors, in test 1 and test 2 for the 5th formers

Results	Average of the results	
	1 point	0 point
Driving instructors'survey	43,50 %	56,50 %
Students' testing (1)	63,07 %	36,93 %
Students' testing (2)	51,80 %	48,20 %

Table 4 shows that the introduction of additional motor tasks and race caused the coefficient decrease with favorable results with a ratio of 11.27%.

Conclusions:

Following the study, we found out in the first test that although most of the students tested were able to distinguish left from right, under the emergence of additional driving task or disruptive factors (fear, stress, excitement) or due to the need to simultaneously perform several actions (observation, signposting, insurance, slowdowns, etc.) increased risk of making the wrong choice of direction. This occurred due to the automatic execution of movements and the fact that the motor skills to respond correctly to *left* or *right* commands, to signal left or right, to turn left or right was not consolidated enough under various working conditions.

The situation is considered due to the fact that the physical education curriculum provides left and right turns as elements and forms of organization of sport activities only in primary school and the 5th form without paying proper attention to them in higher education as well.

Considering that more and more everyday life uses GPS electronic maps as a means of orientation in traffic, where voice commands are received (turn left to the first street etc.), we find that the inability of students to respond in a short time to a firm command creates serious and very serious situations that may endanger personal life or / and other persons involved in traffic.

Minimizing risk of this type of errors can be achieved by introducing in physical education lessons in primary and secondary education more efficient and attractive means to automate skills that will lead to their execution with high index of stability, accuracy, fluency, coordination, ease and speed.

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