Natasa Zenić[1]*
BiljanaTrajkovski [2]
Mario Tomljanović[1]

ABILITY GROUPING AND IMPROVEMENT IN SWIMMING SKILLS: AN ANALYSIS OF THE OBJECTIVE EFFECTS AND STUDENTS' SUBJECTIVE ATTITUDES

RAZVRŠČANJE PO SPOSOBNOSTIH IN IZBOLJŠANJE PLAVALNIH SPOSOBNOSTI; ANALIZA OBJEKTIVNIH UČINKOV IN SUBJEKTIVNEGA ODNOSA ŠTUDENTOV

ABSTRACT

There is a clear lack of studies dealing with the characteristic skills and motor knowledge in sport and exercise science and studying the effects of ability grouping on them. The aim of the present study was to examine the differential effects of ability grouping versus heterogeneous grouping practice on improvement in selected swimming skills. The sample of subjects consisted of male university students (age: 21 ± 0.9 years; in good health), divided into an experimental group (E; n = 37) and a control group (C; n = 42). Both groups participated in the nine-month, three-times-a-week swimming curriculum. The C group was randomly divided into three heterogeneous subgroups, while the E group was clustered in three homogenous subgroups (low, average and high achievers). The sample of variables consisted of 12 swimming skill variables measured before (I) and after the studied programme (F) and students' thoughts regarding their teaching practice. An analysis of variance showed the beneficial effects of ability grouping for the high and average achievers and no significant differences between the C and E programmes for the low achievers. The results of our study do not allow us to support some previous negative findings concerning ability grouping where it was stated that this practice may communicate self-fulfilling low expectations in low-ability students.

Key words: swimming, motor learning, effectiveness, questionnaire, abilities

[1] University of Split, Faculty of Kinesiology, Teslina 6, 21000 Split, CROATIA

[2] University of Rijeka, Faculty of Teacher Education, Slavka Krautzeka bb, 51000 Rijeka

IZVLEČEK

Ni veliko raziskav, ki bi se ukvarjale s tipičnimi spretnostmi in motoričnim znanjem v znanosti o športu in vadbi ter na ta način preučevale učinke razvrščanja po skupinah. Cilj pričujoče raziskave je bil preučiti različne učinke razvrščanja po sposobnostih na izboljšanje izbranih plavalnih sposobnosti v primerjavi s prakso razvrščanja v heterogene skupine. Vzorec merjencev je obsegal univerzitetne študente (moški, stari 21 ± 0,9 let in v dobrem zdravstvenem stanju), ki so bili razdeljeni na eksperimentalno (E; n = 37) in kontrolno skupino (K; n = 42). Obe skupini sta bili vključeni v devetmesečni plavalni študijski program in sta v raziskavi sodelovali trikrat na teden. Skupina K je bila naključno razdeljena v tri heterogene podskupine, skupina E pa v tri homogene podskupine (neuspešni, povprečni in zelo uspešni). Vzorec spremenljivk je vseboval dvanajst spremenljivk sposobnosti plavanja, ki so bile izmerjene pred (I) in po izvedbi preučevanega programa (F), ter mnenja študentov o njihovi praksi učenja. Analiza variance je pokazala koristne učinke razvrščanja glede na sposobnosti pri zelo uspešnih in povprečnih plavalcih, pri neuspešnih pa med programom K in E ni bilo značilnih razlik. Na podlagi rezultatov raziskave ni mogoče potrditi predhodnih negativnih ugotovitev glede razvrščanja po sposobnostih, kjer so avtorji izjavili, da lahko ta praksa pri neuspešnih študentih spodbudi nizka pričakovanja glede lastne uspešnosti.

Ključne besede: plavanje, motorično učenje, uspešnost, vprašalnik, sposobnosti

**Corresponding author:*
University of Split, Faculty of Kinesiology, Nataša Zenić, PhD
Teslina 6, CRO-21000 Split, Croatia
E-mail: natasazenic@yahoo.com

INTRODUCTION

In sport and exercise science (SES), various methods of improvement in teaching effectiveness have been suggested and studied (Fredenburg, Lee, & Solmon, 2001; Harrison et al., 1999; Sariscsany & Pettigrew, 1997; Wang et al., 2005; Wilkinson, 1992). Silverman and Skonie (1997) indicated that most of the research published in physical education (PE; they reviewed more than 2,700 papers) were focused on the effectiveness of the programmes. This is logical because each course in SES can be observed as a teaching process, irrespective of whether it is sport training, PE and/or a sport/recreation session. Therefore, in all disciplines of the applied SES the aim and one of teachers' focuses should be improving their pedagogical (teaching, training) effectiveness (Škof, Cecić Erpič, Boben, & Zabukovec, 2004).

One of the approaches used for increasing teaching (training, education) efficacy is ability grouping (AG). Ability grouping, or tracking, is the practice of separating students into achievement groups and tailoring their curriculum accordingly. In theory, AG increases student achievement by reducing the disparity in student ability levels, and this increases the likelihood that teachers can provide instruction that is neither too easy nor too hard for most students. The assumption is that AG allows a teacher-instructor (1) to increase the pace and raise the level of instruction for high achievers and (2) to provide more individual attention, repetition and review for low achievers (adapted from Bunton et al., 2000, and Chambers, 1988). Proponents of AG argue that a unique, generalised curriculum short-changes both high-achieving and low-achieving students. They point out the advantages it offers gifted students who may not thrive unless they are challenged, as well as slower learners who may grow weary of trying and failing to keep up with their more able peers (Linchevski & Kutscher, 1998; Lou et al., 1996). By contrast, one of the main arguments against AG is that the practice creates classes or groups of low achievers who are deprived of the example and stimulation provided by high achievers. Further, there is some evidence that groups with a low performance often receive lower quality instruction than other groups. Slavin (1990 and 1991) sees the creation of "academic elites", a practice which goes against democratic ideals, as the most compelling argument against AG.

Finally, in PE and sport there is an obvious deficiency of experimental evidence of the effects of AG. In one of the rare studies dealing with AG effects, Zenić and Grčić Zubčević (2006) noted the positive effects of AG in a swimming curriculum but also pointed out the need to investigate the students' attitudes to such a practice, as previously suggested by Linchevski and Kutscher, Lou et al., and Slavin (see above).

Zenić and Grčić Zubčević (2006) discussed the reasons for the lack of experimental studies on AG in SES and identified the following problems: (1) for the experimental evaluation of AG practice in PE and sport, at least two experimental and two control groups should be organised (low achievers and high achievers in the experimental group, and two heterogeneous subgroups in the control group). This definitely enlarges the required number of subjects. (2) The same PE teacher (trainer or instructor) has to tutor all the groups in the same environment to ensure instruction of an equal quality and type for all the students. This certainly may cause difficulties in the experiment. (3) Since the control groups are not classical "passive" groups (they perform the curriculum but in heterogeneous groups), significant improvements in the analysed variables should be expected for both the control and experimental groups. As a result, the authors concluded that probable differential effects can only be expected after a substantial period, which increases the duration of the experiment. To the best of our knowledge, no study has so far dealt with characteristic skills and motor knowledge in SES and studied the effects of AG on them.

Consequently, the aim of the present study was to examine the differential effects of AG versus heterogeneous grouping practices on improvement in selected swimming skills. We thus posed the following questions: (1) Does AG generally increase the efficacy of the swimming curriculum in the improvement of swimming skills? (2) Does AG increase the efficacy of the swimming curriculum particularly for the low achievers? (3) Does AG increase the efficacy of the swimming curriculum particularly for the average achievers? (4) Does AG increase the efficacy of the swimming curriculum particularly for the high achievers? (5) Do negative consequences arise regarding the students' thoughts (psychological damage) due to the AG?

Apart from the clear lack of studies examining the effects of AG in PE and sport, the authors believe that AG, as a possible strategy to improve teaching effectiveness, should be studied in the context of swimming particularly due to the well-known high utility of swimming for everyday and critical circumstances, which makes swimming one of the most important motor skills and motor abilities generally (Brenner, Saluja, & Smith, 2003; Ostrowska, Domaradzki, & Rożek-Mroz, 2005).

METHODS

Subjects: Male university students (age: 21 ± 0.9 years; in good health) served as the subject sample. Their informed consent was obtained before the experiment. The total sample (N = 79) was divided into an experimental group (E; n = 37) and a control group (C; n = 42). The groups did not differ significantly in the initial (pre-testing) status of their swimming abilities (explained later in the text). The C group participated in the swimming curriculum after being randomly divided into three heterogeneous subgroups. Prior to this experiment, using discriminant analysis we found no significant differences between the C subgroups in their analysed swimming abilities. On the contrary, using cluster analysis (K-means clustering) based on the initial swimming achievements the E group was clustered in three homogenous subgroups (low, average and high achievers), which were significantly different in their analysed swimming abilities. Although the results of the discriminant and cluster analyses are not presented in the paper, the authors may be contacted for more specific details of these methodological procedures. At the end of the programme, based on their initial swimming achievements the C group also was divided into three swimming ability-based subgroups (low, average and high achievers). Although the C group did not perform the programme in the ability groups, the explained homogenisation in the C group was necessary to allow a final comparison of the results achieved by the low achievers, average achievers and high achievers from the C and E groups (see the objectives of the study).

Variables: The sample of variables consisted of 12 swimming skill variables, namely, start, swimming technique, and turn for: (1) freestyle swimming (FS-START, FS-SWIM, FS-TURN); (2) breaststroke swimming (BrS-START, BrS-SWIM, BrS-TURN); (3) butterfly stroke (BF-START, BF-SWIM, BF-TURN); and (4) backstroke (BaS-START, BaS-SWIM, BaS-TURN). All the variables were measured by two independent examiners who are swimming teachers using a Likert scale ranging from one to five. Following the reliability estimation (see the text below), the overall result was calculated as an average of the two observers. All the subjects were tested initially (PRE) at the beginning and finally (POST) at the end (in the last week) of the swimming programme.

Apart from swimming skills, we observed students' thoughts regarding the teaching programme they had participated in. For this purpose, we used a simplified version of the Questionnaire on Students' Thoughts (Hebert, Landin, & Solmon, 2000). From the originally proposed question-

naire (comprising nine questions), we selected six questions on the basis of the factor validity presented in the same paper. Since Hebert et al. used the questionnaire to study tennis, we had to adapt it to swimming. After each session, we randomly selected one-third of the participants, who answered six questions/statements (presented in Table 5). The scale for each statement was as follows: -2 (absolute disagreement); -1 (relative disagreement); 0 (neutral); +1 (relative agreement); and +2 (absolute agreement). Namely, the statements were as follows: *(1) I was very successful in the tasks we practiced today; (2) Today, my performance was good; (3) I'll never be a good swimmer; (4) The tasks we practiced were too hard for me; (5) I really concentrated on the tasks we practiced today; (6) I tried very hard to do the best I could.*

Programme: The C group participated in the PE swimming curriculum after having been grouped in three heterogeneous subgroups, while the E group performed the PE swimming programme in three swimming ability-based subgroups. Generally, the swimming curriculum programmes of the E and C groups were equal, meaning: a) each group participated in 60 training sessions (45 minutes each; 3 times a week); b) both groups completed the same university swimming PE course; c) the objectives of a single training session were the same for both the C and E groups (for example, in the two groups the 19th session was aimed at an analytical approach to improve the butterfly stroke , the 20th session was aimed at an integrative approach to the butterfly stroke etc). Meanwhile, the actual single-lesson routine was adapted according to the needs of the individual subgroup. The authors note that the variations of the C and E programmes were not planned in advance but were dependent on and induced by the current needs of a particular subgroup in each training session.

Statistical analysis: Apart from the standard descriptive statistics (means and standard deviations), the significance of the differences between the PRE and POST achievements of the C and E groups and the three subgroups (low, average and high achievers) were defined using repeated measures analysis of the variance (ANOVA). ANOVA was used to determine the differences in the variables of students' thoughts about the programme in which they were participating. For the variables of students' thoughts regarding the teaching programme, when ANOVA was found to be significant Tukey's post-hoc analysis was applied. The level of significance was set at 95% ($p < 0.05$).

RESULTS

Table 1: Descriptive statistics (Mean and standard deviations – SD) for the PRE and POST measurement in both groups; analysis of the differences within groups (* denotes significant differences)

TOTAL SAMPLE	CONTROL		EXPERIMENTAL	
	PRE	POST	PRE	POST
	MEAN± SD	MEAN± SD	MEAN± SD	MEAN± SD
FS-START	3.48±1.14	3.86±0.99*	3.39±1.07	3.67±0.99*
FS-SWIM	3.49±1.13	3.91±1.02*	3.37±1.08	3.64±1.03*
FS-TURN	3.34±1.23	3.68±1.14*	3.28±1.07	3.64±1.01*
BaS-START	3.30±1.22	3.69±1.00*	3.22±1.04	3.58±0.93*
BaS-SWIM	3.22±1.24	3.63±0.98*	3.20±1.05	3.57±0.97*

TOTAL SAMPLE	CONTROL		EXPERIMENTAL	
	PRE	POST	PRE	POST
	MEAN± SD	MEAN± SD	MEAN± SD	MEAN± SD
BaS-TURN	3.16±1.14	3.60±1.02*	3.24±1.02	3.60±0.92*
BrS-START	3.70±1.06	3.97±0.98*	3.33±1.08	3.61±1.03*
BrS-SWIM	3.65±1.08	3.89±1.07*	3.36±1.11	3.62±1.01*
BrS-TURN	3.65±1.03	3.87±1.05*	3.29±1.08	3.67±0.98*
BF-START	3.36±1.36	3.94±1.01*	3.31±1.09	3.80±1.00*
BF-SWIM	3.12±1.38	3.77±1.06*	3.19±1.13	3.71±0.99*
BF-TURN	3.30±1.33	4.00±1.02*	3.29±1.09	3.84±0.93*

Legend: Freestyle start - FS-START; Freestyle technique - FS-SWIM; Freestyle turn - FS-TURN; backstroke start - BaS-START; backstroke technique - BaS-SWIM; backstroke turn - BaS-TURN breaststroke start - BrS-START; breaststroke technique - BrS-SWIM; breaststroke turn - BrS-TURN; butterfly stroke start - BF-START; butterfly stroke technique - BF-SWIM; butterfly stroke turn - BF-TURN

Table 2: Descriptive statistics (Mean and standard deviations – SD) for the PRE and POST measurement in both groups; analysis of the differences within groups (* denotes significant differences) – high achievers

HIGH ACHIEVERS	CONTROL		EXPERIMENTAL	
	PRE	POST	PRE	POST
	MEAN± SD	MEAN± SD	MEAN± SD	MEAN± SD
FS-START	4.69±0.43	4.81±0.35	4.45±0.68	4.60±0.60*
FS-SWIM	4.81±0.35	5.00±0.00	4.43±0.72	4.58±0.56*
FS-TURN	4.72±0.42	4.86±0.33	4.28±0.81	4.53±0.66*
BaS-START	4.67±0.56	4.75±0.50	4.17±0.83	4.35±0.68*
BaS-SWIM	4.47±0.64	4.50±0.60	4.13±0.81	4.40±0.75*
BaS-TURN	4.28±0.51	4.64±0.47*	4.07±0.79	4.27±0.78*
BrS-START	4.81±0.41	4.89±0.33	4.23±0.92	4.42±0.67
BrS-SWIM	4.78±0.42	4.94±0.17	4.32±0.92	4.40±0.65
BrS-TURN	4.67±0.54	4.81±0.43	4.22±0.93	4.43±0.70
BF-START	4.86±0.33	4.89±0.33	4.40±0.78	4.70±0.48*
BF-SWIM	4.61±0.38	4.83±0.35	4.28±0.87	4.57±0.65*
BF-TURN	4.78±0.34	5.00±0.00	4.37±0.81	4.65±0.61*

Legend: Freestyle start - FS-START; Freestyle technique - FS-SWIM; Freestyle turn - FS-TURN; backstroke start - BaS-START; backstroke technique - BaS-SWIM; backstroke turn - BaS-TURN breaststroke start - BrS-START; breaststroke technique - BrS-SWIM; breaststroke turn - BrS-TURN; butterfly stroke start - BF-START; butterfly stroke technique - BF-SWIM; butterfly stroke turn - BF-TURN

Table 3: Descriptive statistics (Mean and standard deviations – SD) for the PRE and POST measurement in both groups; analysis of the differences within groups (* denotes significant differences) – average achievers

AVERAGE ACHIEVERS	CONTROL		EXPERIMENTAL	
	PRE	POST	PRE	POST
	MEAN± SD	MEAN± SD	MEAN± SD	MEAN± SD
FS-START	3.47±0.99	3.81±1.06*	3.27±0.76	3.55±0.70*
FS-SWIM	3.44±0.97	3.78±0.96*	3.28±0.76	3.60±0.83*
FS-TURN	3.31±1.01	3.67±1.11*	3.23±0.76	3.63±0.71*
BaS-START	3.08±1.00	3.53±0.87*	3.15±0.65	3.55±0.64*
BaS-SWIM	3.14±0.98	3.53±0.93*	3.10±0.75	3.53±0.65*
BaS-TURN	3.14±0.98	3.58±0.81*	3.23±0.77	3.60±0.71*
BrS-START	3.86±0.89	4.00±0.82	3.20±0.79	3.55±0.85*
BrS-SWIM	3.92±0.92	4.08±1.03	3.12±0.75	3.48±0.79*
BrS-TURN	3.78±0.91	3.94±1.00	3.07±0.79	3.53±0.76*
BF-START	3.42±1.14	4.08±0.89*	3.17±0.76	3.65±0.89*
BF-SWIM	3.22±1.3’	3.97±0.87*	3.02±0.83	3.58±0.79*
BF-TURN	3.33±1.17	4.17±0.78*	3.15±0.75	3.73±0.72*

Legend: Freestyle start - FS-START; Freestyle technique - FS-SWIM; Freestyle turn - FS-TURN; backstroke start - BaS-START; backstroke technique - BaS-SWIM; backstroke turn - BaS-TURN breaststroke start - BrS-START; breaststroke technique - BrS-SWIM; breaststroke turn - BrS-TURN; butterfly stroke start - BF-START; butterfly stroke technique - BF-SWIM; butterfly stroke turn - BF-TURN

Table 4: Descriptive statistics (Mean and standard deviations – SD) for the PRE and POST measurement in both groups; analysis of the differences within groups (* denotes significant differences) – low achievers

LOW ACHIEVERS	CONTROL		EXPERIMENTAL	
	PRE	POST	PRE	POST
	MEAN± SD	MEAN± SD	MEAN± SD	MEAN± SD
FS-START	2.63±0.83	3.25±0.78*	2.41±0.59	2.86±0.81*
FS-SWIM	2.62±0.69	3.27±0.85*	2.36±0.59	2.73±0.77*
FS-TURN	2.38±0.81	2.87±0.82*	2.29±0.57	2.75±0.81*
BaS-START	2.52±0.93	3.08±0.8*	2.34±0.74	2.88±0.83*
BaS-SWIM	2.42±1.09	3.08±0.87*	2.39±0.75	2.80±0.77*
BaS-TURN	2.40±0.98	2.98±0.89*	2.41±0.79	2.93±0.82*
BrS-START	2.81±0.69	3.31±0.92*	2.54±0.84	2.84±0.96*
BrS-SWIM	2.73±0.59	3.06±0.78*	2.63±0.96	2.96±1.06*
BrS-TURN	2.85±0.71	3.15±0.91*	2.55±0.86	3.02±0.99*
BF-START	2.25±0.88	3.17±0.83*	2.36±0.59	3.05±0.83*
BF-SWIM	2.02±0.83	2.91±0.78*	2.25±0.58	2.96±0.81*
BF-TURN	2.25±0.88	3.21±0.91*	2.36±0.58	3.13±0.82*

Legend: Freestyle start - FS-START; Freestyle technique - FS-SWIM; Freestyle turn - FS-TURN; backstroke start - BaS-START; backstroke technique - BaS-SWIM; backstroke turn - BaS-TURN breaststroke start - BrS-START; breaststroke technique - BrS-SWIM; breaststroke turn - BrS-TURN; butterfly stroke start - BF-START; butterfly stroke technique - BF-SWIM; butterfly stroke turn - BF-TURN

Table 5. Questionnaire on students' thoughts regarding success, self-confidence and motivation; ANOVA differences

	EXPERIMENTAL			CONTROL		
	LA	AA	HA	LA	AA	HA
SUCCESS						
I was very successful in tasks we practiced today	2.67*	3.44	4.01	2.01*[a]	3.37	4.56[a]
Today my performance was good	2.35	3.27*	4.22	2.23*	3.13	4.39*
SELF-CONFIDENCE (SELF-EFFICACY)						
I'll never be a good swimmer	3.66	3.02	1.99*	4.34*[a]	2.76	1.34[a]
The tasks we practiced were too hard for me	2.03	2.77	2.01*	3.11[a]	2.98	1.55*[a]
MOTIVATION						
I really concentrated on the tasks we practiced today	3.77	3.43	4.01	2.75*[a]	3.7	3.45[a]
I tried very hard to do the best I could	3.81	3.90	4.12	3.65	3.45	3.76[a]

*denotes a significant difference compared to the other sub-groups in the same programme
[a]denotes a significant difference compared to the same ability group in the E programme
LA – low achievers; AA – average achievers; HA – high achievers

In Table 1, results of the overall pre-post differences for the E and C groups are presented. Evidently, both groups achieved significant improvements in all of the measured variables.

Results for the high achievers are presented in Table 2. It is clear that the high achievers of the E group improved their swimming skills in nine elements (all of the observed swimming skills excluding the breaststroke technique), whereas the high achievers from the C group performed significantly better in only one of the observed variables (backstroke turn).

The average achievers from the C group improved their skills in nine variables from the pre to post measurement. At the same time, their peers from the E group performed better in all the swimming skills we observed (Table 3).

There is no evident difference in the improvement of swimming skills for the E and C low achievers. Put briefly, both groups improved significantly in all the variables (Table 4).

DISCUSSION

Ability grouping effects

In the introduction, we specified that one of the possible causes of the deficiency of empirical/experimental data concerning AG effects in SES can probably be found in the (supposed) fact that significant improvements are expectable in the control group. Because both the C and E groups improved their swimming skills significantly, this statement is supported by our results. Therefore, the possible differential effects of the two programmes cannot be defined according to the pre-post differences of the total sample exclusively, but any programme-differences should be studied more precisely, most particularly through an analysis of the improvement in

selected swimming skills separately for the low achievers (LAs), average achievers (AAs) and high achievers (HAs).

One of the main contradictions which follows AG is the so-called "labelling of students," which may communicate self-fulfilling low expectations (Kulik, 1991). Those opposed to AG are concerned about the perceived psychological damage to low achievers, the slower pace and (potentially) lower quality of instruction, the low expectations for student performance held by teachers, and the absence of strong behavioural peer role models in the classes for low-ability students. Many "middle level" theorists believe that young adolescents cannot meet the goals related to their personal development through AG. They argue that "young people, naturally inclined toward learning from their peers, need to be grouped with individuals who are different from themselves." In addition, "adolescents are vulnerable as they struggle to establish a sense of their own identity; AG often creates negative perceptions of lower-ability students that affect their "self-perceptions"'. Ability grouping, the literature says, has a negative effect on lower achieving students' motivation and opportunities to improve as well as they are able to (adapted after Fuligni, Eccles, & Barber, 1995). However, the results of our study do not support the negative observations on AG practice, mainly considering the "low achievers". Quite the opposite, the low-achievers evidently benefit from AG in a swimming curriculum as much as their colleagues who participated in a heterogenic environment (e.g., both groups improved their swimming skills in all measured variables). However (and as previously suggested by Kulik, 1991, and Fuligni, Eccles, & Barber, 1995), at the beginning of our experiment the problem of the absence of a "model" seemed reasonable so we included one excellent swimmer in each C and E subgroup as a model, which probably allowed the low achievers from the E group to avoid any negative consequences of the absence of a role model.

It seems that the high achievers mostly benefitted from the AG. Compared with the initial measurement, high achievers from the E group improved nine of their swimming skills, whereas their colleagues who participated in the C programme only improved one swimming skill during the course. The authors of the paper will briefly discuss possible explanations of such a finding from an "insider's" perspective. Put briefly, when grouped heterogeneously the high achievers are rarely in the teacher's focus, mostly due to the low achievers. A teacher is naturally mostly inclined to the needs of those students who are lagging behind and pays special attention to their needs. This logically puts high achievers into the background and out of the focus. In our study, it was probably even more of an issue because the groups were relatively large (up to 15 students at the same time). On the contrary, when grouped according to their swimming ability, the high achievers were trained according to their specific needs, sometimes even individually, allowing them to improve their swimming skills far better in comparison to their peers from the C programme.

The differences in the pre-to-post improvement of the C and E average achievers support all of the previously discussed findings. In short, those average achievers who participated in the C programme improved all of the measured swimming skills. On the other hand, average achievers from the E programme improved all skills excluding the breaststroke variables. Such an incidence (e.g., the non-significant improvement of breaststroke skills) probably relates to the fact that the breaststroke swimming technique is (as far as the authors of this study are aware) less interesting than others (butterfly, crawl and backstroke), mainly because it is the slowest technique of all (Zenić & Grčić Zubčević, 2006) and, therefore, the least attractive, while it is also often seen as a "female technique." Both reasons possibly led to students' decreased interest in improving

their breaststroke skills. Although we did not study the problem more specifically, previous investigations of pupils' interest and its direct influence on educational achievement support our considerations (Koller et al., 2001).

Most of what was discussed above can be supported by the discussion offered by Hebert, Landin, and Solmon (2000). Briefly, the authors stated that "when task difficulty exceeds the skill level of the learner, practice is typically inappropriate, unsuccessful, and of little apparent value." Further, "individuals who experience failure are likely to develop low levels of self-efficacy, motivation, and task persistence, as they do not perceive themselves to be able to master the task." There is no doubt that the low achievers in the heterogeneous groups (the C programme) feel failure while competing with their more able colleagues. On the contrary, in the E programme the students were initially grouped according to their actual swimming abilities and skills. The teacher adapted the training tasks easily according to the students' (subgroups') specific needs, which led to a superior improvement for the E subgroups.

Ability grouping consequences

Compared with average- and high-ability students from the same programme, the low-ability students from the E and C groups reported significantly lower results for the first question, but only those from the C group reported significantly lower levels for the second question regarding the personal feeling of success (Table 5). Even more interesting is that the personal feeling of success, self-confidence and concentration is significantly higher among the low achievers from the E group than those from the C group. Moreover, when observing the differences between the low-ability students and their more able colleagues in the C programme it seems that the heterogeneous grouping negatively affected the concentration and self-confidence of the low-ability students. As a result, we cannot support some previous negative findings concerning AG where it was stated that this practice may communicate self-fulfilling low expectations in low-ability students (after Kulik, 1991). It is very interesting that we did not establish any significant differences among the results observed by average achievers from the C and E groups. It seems that those students benefit equally from ability and heterogeneous grouping in swimming. Naturally, the high-ability students perceived themselves as more successful and self-confident when they were grouped with less able colleagues but, according to the previously discussed results, this does not necessarily positively affect any improvement in their swimming abilities.

Separately from the previous discussions, certain difficulties arise when teaching students grouped according to their ability. They mainly relate to the differentiated instructions which should be tailored specifically to each class (group). Although clearly effective, such practices put a special emphasis on the teacher (instructor) and demand their constant concentration and commitment. However, the results of such approach are evident.

CONCLUSION

Researchers have struggled for decades to find answers to questions about AG: Does anyone benefit from it? Is anyone harmed by it? Who benefits (or is harmed) the most? Why? The answers are not always clear-cut and often depend on who you ask and which outcomes are deemed important. For many educators, AG is considered a sensible response to academic diversity. For others, the practice has harmful unintended consequences and should be abandoned. However,

according to the presented results grouping on the basis of ability with appropriate differentiated instruction is clearly beneficial in the swimming curriculum. For the swimming skills we studied, while not statistically observable in general, AG should certainly be considered as a superior teaching method for high and low achievers. Most likely, the high achievers benefited from having to compete with one another, whereas the low achievers benefited from not having to compete with their more able peers.

Although the results presented in this paper are generalisable on a similar sample of subjects (adults and/or adolescent males), there is a certain possibility that we could expect similar effects in other samples of subjects. Evidently, the benefits of AG mostly relate to the possibility of specifically tailoring an educational programme in which the subjects are involved. However, we must not ignore the fact that we studied adult males and it would therefore be hard to expect some negative psychological consequences of AG (i.e., they were well aware they should benefit from such a practice and that the instructors did not intend to "label" them). Therefore, this issue should be noted in future research, especially among younger students.

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