Teaching Methodology of Kinesiology

Metodika 20 (1/2010), 113-123
Review paper
Paper submitted: 14th June 2010

METHODOLOGICAL ORANIZATIONAL FORMS OF WORK AND THEIR EFFECTIVNES IN KINEZIOLOGICAL EDUCATION

Prof. dr. sc. Ivan Prskalo
Faculty of Teacher Education of the University of Zagreb

Prof. dr. sc. Josip Babin
Tonči Bavčević
Faculty of Kinesiology of the University of Split

INTRODUCTION

The organization of a training process depends primarily on whether it is organized for an individual or a large groups of people, as well as on material conditions (Mraković, 1997), but the characteristics of a group, such as age, gender, the current state of kinanthropological characteristics, the level of motor knowledge and achievements must not be neglected either.

Methodological organizational forms of work represent a way to organize the exercising process and achieve the aims of physical education (Findak and Prskalo, 2004). Motor efficiency depends on the appropriate selection and application of methodological organizational form of work as a precondition of modernization. Special emphasis should be placed on the application of more complex methodological organizational forms of work under poorer material conditions thus increasing effective exercise time. Considering the fact that teaching is a multifunctional

process oriented towards the transformation of the anthropological status and learning, so that the effectiveness of physical education lesson cannot be judged solely on the basis of effective exercise time (Findak, 1992), time is still an indispensable factor in the success of the transformation process and the process of motor learning. In fact, the most common reason for the insufficient utilization of physical education lessons is "queuing", mostly because of insufficient methodological application of more complex organizational forms of work (Findak, 1992). Such forms of work virtually eliminate this phenomenon and are far superior to the transformation of the three targeted anthropological areas (Bavčević et al. 2006), and with the appropriate homogenization of the group, they represent a significant factor in the individualization of work, which is becoming the paradigm of modern methodological systems in general. It is not surprising, therefore, that the focus of a series of studies on the effectiveness of motor learning, including methods enhancing work efficiency, is on notions such as teaching styles (Byra and Jenkins, 1998), organization of work (Ernst and Byra, 1998), models of teaching (Harrison et al. 1999), frontal work issues in large classes (Hastie, Sanders, and Rowland, 1999), etc.

A well-chosen organizational form of work is one that contributes to the intensification and optimization of the work, thus contributing to humanizing the teaching and exercising process. A kind of "evolution" from the frontal to other simpler and more complex forms of group work is the result of the attempt to intensify and optimize exercise in the physical education lesson, resulting in the increase of effective exercise time, the total workload in the lesson and ultimately meeting the authentic needs of pupils and the humanization of the total exercise process.

As kinesiological education is a comprehensive process that accompanies every human being from pre-school to higher education (Prskalo and Babin, 2006), which itself imposes a higher level of accountability to this applied field, the optimization of the training process becomes an imperative. Organizational forms of work may be an important way to optimize the process of exercise, which implies creating a strategic algorithm of the procedures used by kinesiologists, teachers and preschool teachers who are focused on the best possible effects in the polyvalent process dominated by the transformation process and the process of information exchange (Prskalo and Babin, 2009). In other words, in childhood and adolescence, quality psychological development requires sufficient amounts of psychological stimulation in the form of intellectual and emotional stimuli. In the same way, physical activity, that is, sufficient quality kinesiological stimuli is required for the development of morphological features, and motor and functional skills (Bavčević et al. 2006).

METHODOLOGICAL ORGANIZATIONAL FORMS OF WORK AND MATERIAL CONDITIONS

Mediocrity of the material conditions of work as an essential factor of success of the process of physical exercise is a fact and reality of our educational system,

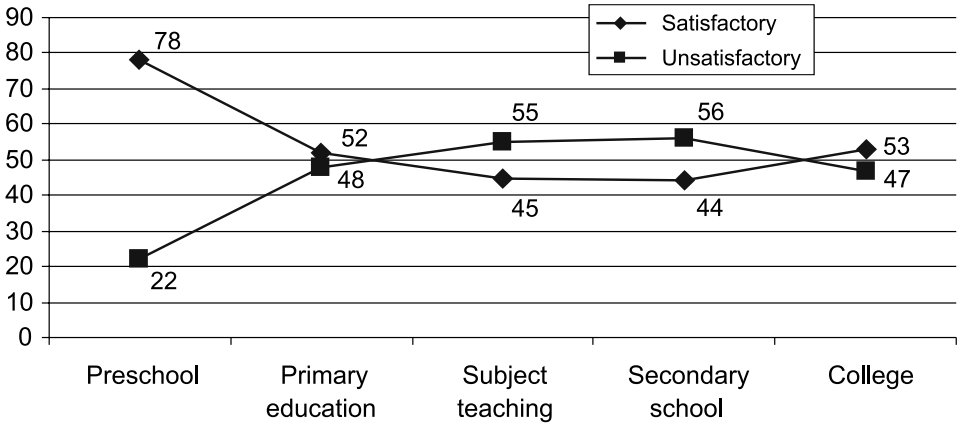

Figure 1 Percentage estimates of material conditions in the function of the individualization process of physical exercise

which is the objective result of historical events and material power of society. Figure 1 shows the responses of 220 teachers regarding material conditions as a prerequisite for the individualization of work.

Optimization is reflected in the fact that exercise takes place under more modest conditions. This can be seen in the simplest example where there is a parallel presentation of the need for devices and props in frontal work and in a few simple forms of group work. Alternate-group form and more complex forms of work offer the possibility of introducing topics with one required piece of equipment or prop with multiple increases in efficiency. A special sensitivity to the material conditions of work is evident in the frontal form of work which is virtually impossible to carry out under poor material conditions. Optimizing work in poor material conditions primarily involves the choice of more complex forms of work that represent a step towards rationalizing the existing equipment and also a multiple increase in all the parameters relevant for the effect of the process of exercise in the information and energy area.

METHODOLOGICAL ORGANIZATIONAL FORMS OF WORK AND EFFECTIVE EXERCISE TIME

The choice of appropriate forms of work in kinesiological methodology will contribute to reducing the loss of time in any organizational form of work in the field of physical and health education including physical education lessons. It primarily depends on the "A" part of the lesson in which, according to the aims and available time, the most complex methodological organizational forms of work can be applied. Any increase in the number of subgroups with the same number of

pupils will also increase the effective exercise time as shown by Figure 2 (Prskalo, 2000). The inclusion of additional exercise increases effective exercise time, provided that they do not last longer than the main exercises (Prskalo, Findak, 2003). The problem of effective time increases under modern conditions of life, especially in urban areas. An insufficient number of physical education lessons and the reduced share of movement in everyday life become a factor of low quality of life as well as a health damaging factor. Based on the experiences from abroad, it is

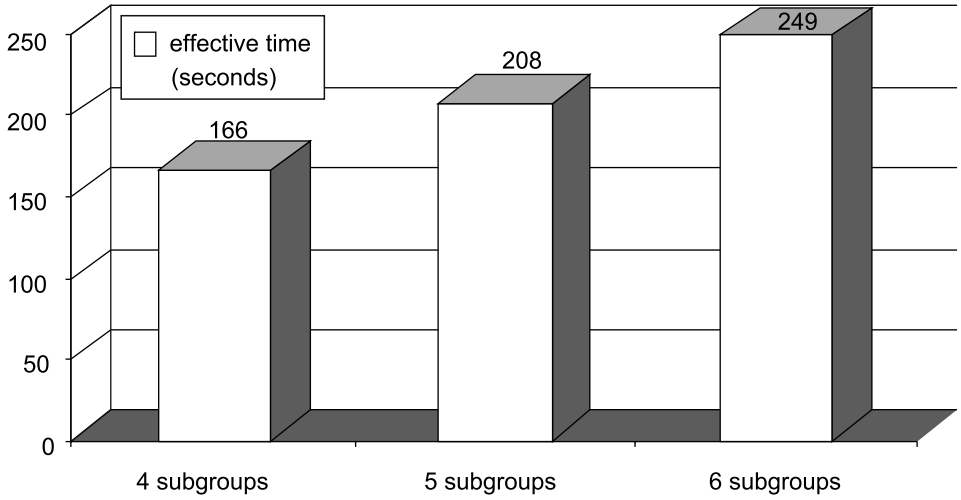

Figure 2 Effective exercise time depending on the number of subgroups – in alternate-group form of work without additional exercise

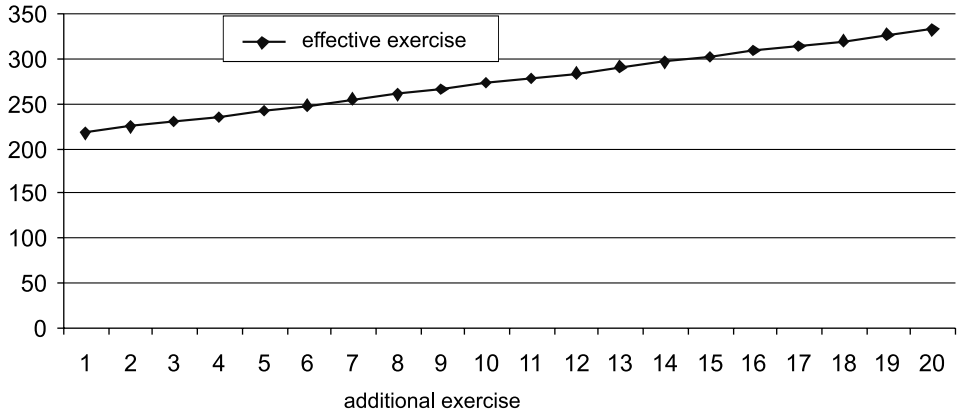

Figure 3 Duration of additional exercise and effective exercise in the main "A" part of the physical education lesson

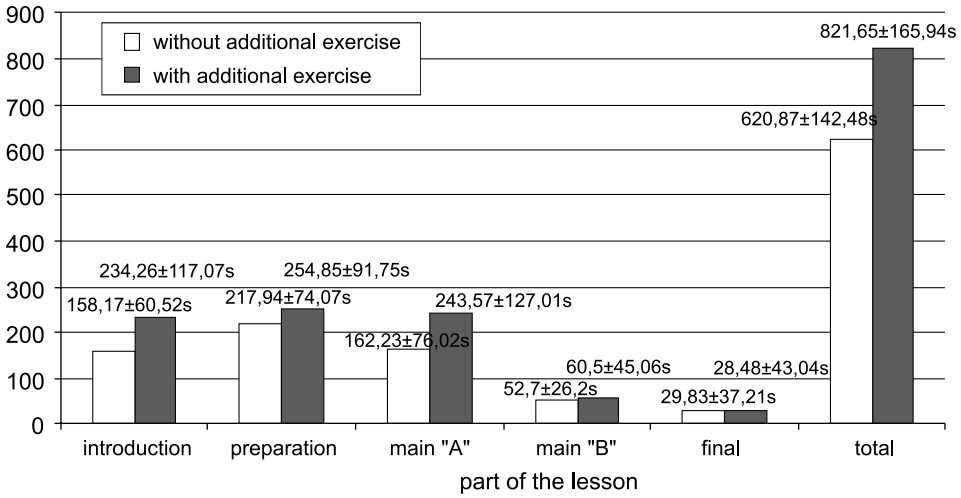

Figure 4 Effective exercise time, depending on the application of additional exercises

evident that short-term health programs do not have a significant impact on obesity and the prevention of chronic disease, a condition that is characteristic of contemporary society, while physical activity is proven to be successful in the prevention and reduction of obesity (Flynn et al., 2006).

The empirical results of monitoring the percentage of utilization of individual parts of physical education lessons among first grade pupils, depending on the application of additional sessions with analogous-alternate forms of work on two topics are shown in Figure 4 (Findak et al., 2003).

Although effective exercise time is not the only criterion for the effectiveness of a lesson, in a situation where the number of physical education lessons is insufficient to meet the minimum motivation for movement at all levels of education, the increase in the effective time through the application of more complex methodological organizational forms of work is a necessary response by the experts. For such a response, a high level of professional and methodological training is required, which is a particularly responsible task of higher education institutions which educate professionals for physical and health education.

METHODOLOGICAL ORGANIZATIONAL FORMS OF WORK AND TRANSFORMATIONAL POWER OF EXERCISE

Figure 5 shows the physiological component of the workload expressed through values for the heart rate that was measured during physical education lessons, which shows the total impact on the body during the lesson, that is, the dominance of physiological workload during a more demanding methodological

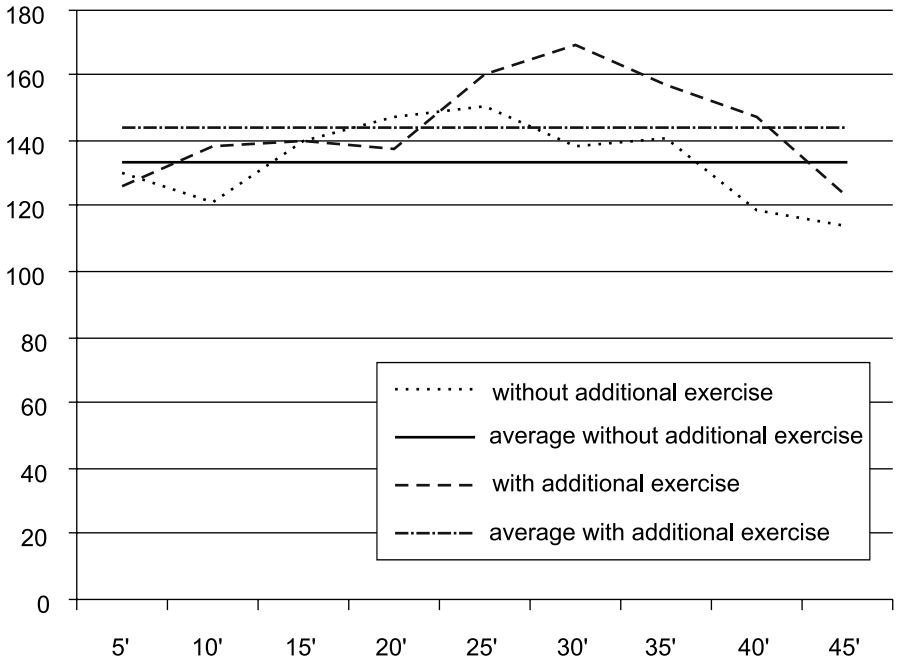

Figure 5 Heart rate measured during a lesson using analogous-alternate methodological organizational form of work, with and without additional exercises

organizational form of work (Findak et al. 2004). This indicates that the level of stress is a significant factor in the transformation of physical exercise.

Research by Bavčević et al. in 2004 also evaluates the effects of group methodological organizational forms of work among 114 first grade schoolgirls suggesting the effectiveness of group methodological organizational forms of work with the aim to intensify physical exercise and optimize the process of transformation and the need for implementation of more complex methodological organisational forms of work in physical education lessons.

However, the application of more complex forms of work has resulted in the difference between the two variously treated groups of subjects, and this difference is most obvious in the field of strength (Bavčević et al. 2006), in favour of the experimental group. A significant effect of all manifest forms of strength on distinguishing the two groups is also visible. Significant results of univariate analysis for the explosive strength (MSD, P = 0.00) (Figure 8), static strength (MIV, p = 0.00) and repetitive strength (MPT, p = 0.00) confirm the hypothesis about the effectiveness of more complex group work forms on the development of strength, but are superior in the transformation of all three targeted anthropological areas (Bavčević et al. 2006) since they provide an increase in the effective exercise time, and with the appropriate homogenizing of the classes, they present a significant factor in the individualization of work.

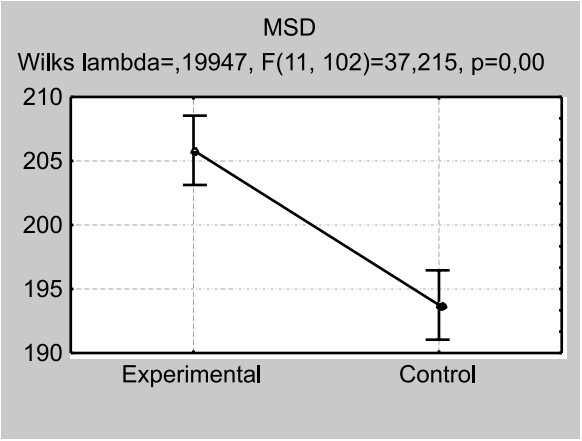

Figure 6 The differences in arithmetic means for the final testing of the groups for which various methodological organizational forms of work in the standing long jump variable were applied

More complex forms of work offer the possibility for targeted training of motor skills and achievements, as is the case in the work in stations; or pronounced impact on functional abilities, as is the case in circular exercise.

THE DYNAMICS OF APPLYING OPTIMAL METHODOLOGICAL ORGANIZATIONAL FORMS OF WORK

The actual application of certain organizational forms of work depends on the objectives and tasks that need to be realized, while simultaneously respecting other factors affecting the preparation, organization and realization of the lesson, as pupils' age and their number, the character of a unit, place of work, area available for exercise, the number of available equipment and props, microclimatic conditions and other. Pupils' age as the default size, should be given a special attention, and in accordance, despite the shortcomings of frontal work, with its help, first grade pupils may, in the simplest way prepare for the transition to more demanding forms of group work. A prerequisite for the application of more demanding forms of work are the simpler forms of work with additional exercise as an important link (Findak, 1992; Sinibaldi, 2002). The application of group forms of work in which the basic organizational unit is a class should be implemented as soon as possible by using analogous group form of work, then analogous group form of work with additional exercises, and analogous-alternate forms of work as well as analogous-alternate forms of work with additional exercises, and finally alternate group forms of work and alternate group forms of work with additional exercises. In working with pupils in the fifth grade, simpler as well as more complex forms of group

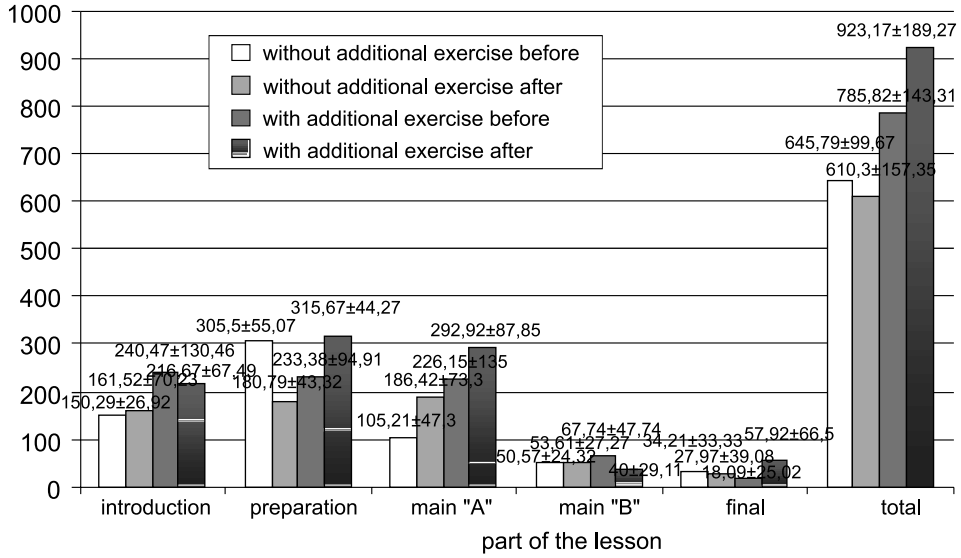

Figure 7 Effective exercise time, depending on the application of additional exercises before and after 3 months of preparation for the more demanding methodological organizational forms of work

work are still applied, especially station work, circular work, work on the track and polygon obstacles. More complex forms of group work should predominate in the higher grades of primary and secondary school providing the largest possible effects in physical and health education (Findak, 1999).

Simpler forms of work create preconditions for transition to more complex forms. This transition is in the function of intensification, rationalization, humanization and optimization of the teaching process and the managed process of physical exercise. Respecting the principle of gradualism, inclusion of forms of work starting from simple to more complex ones, requires a specific level of preparation and maturity of pupils, as is the case in the research by Findak et al. (2003) where the differences between the effective exercise time in the preparation and the main "A" part of a lesson in physical education without additional exercise and in the preparation and total time in a physical education lesson with additional exercise is observed after the application of experimental treatments – a three-month work with students of the Faculty of Teacher Education (Figure 7).

However, the consequences of readiness for a more demanding organizational form of work is also the possibility of a greater energy loss followed by pulse rate during the physical education lessons, especially in its main "A" part, where there is a significant influence of a more complex form of work which is applicable in that part of the lesson (Figure 8). Readiness for the implementation of more demanding and more complex methodological organizational forms of work results

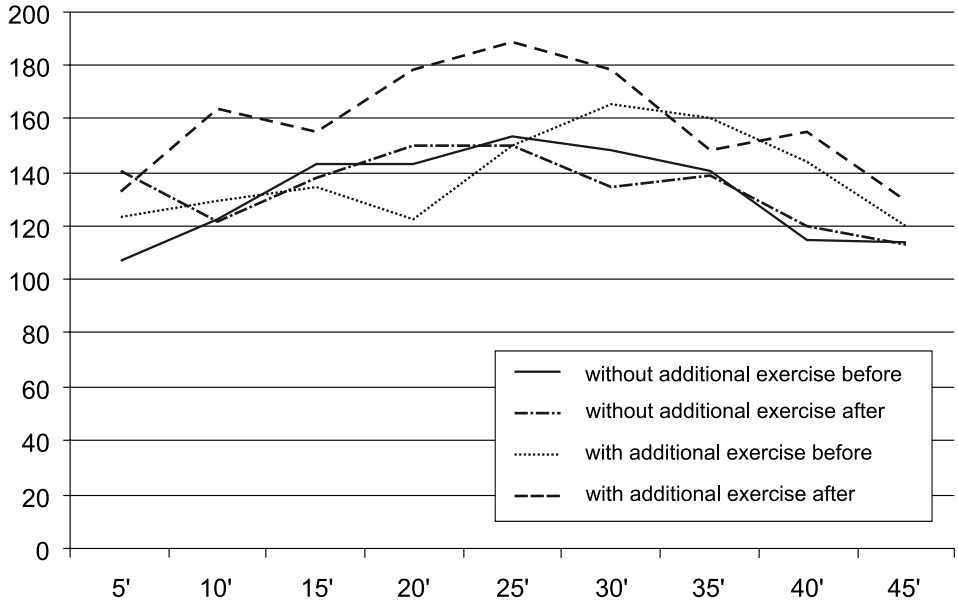

Figure 8 Heart rate measured during the lesson with analogous-alternate methodological organizational form of work, with and without additional exercises before and after preparation for more demanding organizational forms of work (Findak et al. 2003)

in less downtime, better connection of the tasks and total effective exercise time and the required increase in the level of energetic processes that are reflected in the observed heart rate and in synergy with kinesiological stimuli responsible for the transformational effect of the exercise.

The application of more demanding and more complex organizational forms of work, in addition to teacher preparation, implies the appropriate readiness of pupils in accordance with the principle of gradualism, and their proper application, apart from the expected improved efficiency and achievement of objectives and tasks, will help achieve diversity and motivation needed to work. In the interaction between teachers and pupils, the emphasis is on the creativity of those who, recognizing and respecting the characteristics of pupils, are the first to interpret methodological organizational forms of work according to their extent and in accordance with their needs individualize the process of physical exercise in the best possible way.

CONCLUSION

Given the material and personnel prerequisites of kinesiology education, it can be concluded that the methodological organizational forms of work can be an

important path to individualization and optimization of the process of exercise, dominated by the transformation process and the process of information exchange. Since individualisation implies adjustment of the exercise program to the known anthropological condition for pre-defined objective, and depends largely on the material conditions of work and time of exposure to kinesiological stimuli, it is clear that the more demanding and more complex forms of work implemented in accordance with age and other features are its unavoidable factor. The efficacy of physical education lessons and other organizational forms of work cannot be assessed only on the basis of physical education lessons or the effective exercise time, but time is an essential prerequisite for a successful transformation process and the process of motor learning dominated by iterative methods. Therefore, it is insisted that in addition to a guaranteed minimum number of physical education lessons, children, pupils and university students should be included in other organizational forms of work, thus ensuring at least one hour of exercise a day. The limiting factor in exercise time can be overcome by applying more demanding and more complex methodological organizational forms of work appropriate to the age of the participants as the default size, and in accordance with the principle of gradualism and the readiness of children, pupils and university students for the specific methodological organizational form of work. A well-chosen organizational form of work is the one that contributes to the intensification and optimization of the work thus contributing to the humanization of the teaching process and physical exercise as well as adapting to the real needs of each child, pupil and university student as a prerequisite for individualization in every modern concept of education.

REFERENCES

Anić, Š., Klaić, N., Domović, Ž. (2002). Rječnik stranih riječi. Zagreb: SANI-PLUS.

Bavčević, T., Babin, J., Prskalo, I. (2006). Complex group organizational forms - an optimizing factor in Physical education instruction. Kinesiology, 38 (1): 28-39.

Bavčević, T., Babin, J., Vlahović, L. (2004). Skupni metodički organizacijski oblici rada kao značajan čimbenik razvoja nekih antropoloških obilježja kod učenica najmlađe školske dobi. In V. Findak (Ed.), *Proceedings of the 13nt Summer School of Croatian PE Educators*, Rovinj: Hrvatski kineziološki savez, 222-225..

Byra, M., & Jenkins, J. (1998). The thoughts and behaviors of learners in the inclusion style of teaching. Journal of Teaching in Physical Education, 18, 26-42.

Ernst, M., & Byra, M. (1998). Pairing learners in the reciprocal style of teaching: Influence on student skills, knowledge, and socialization. The Physical Educator, 55, 22-37.

Findak, V. (1992). *Metodički organizacijski oblici rada u edukaciji, športu i športskoj rekreaciji.* [Methodological organisational work forms in education, sport and sport recreation.] Zagreb: Hrvatski savez za športsku rekreaciju, MENTOREX.

Findak, V. (1999). Metodika tjelesne i zdravstvene kulture. Zagreb, Školska knjiga.

Flynn, M.A.T., McNeil, D.A., Maloff, B., Mutsingwa, D., Wu, M., Ford, C., Tough, S. C. (2006). Reducing obesity and related chronic disease risk in children and youth:

a synthesis of evidence with „best practice“ recommendations. Obesity Reviews. 7 (Suppl. 1): 7-66.

Harrison, J.M., Preece, L.A., Blakemore, C.L., Richards, R.P., Wilkinson, C., & Fellingham, G.W. (1999). Effects of two instructional models – skill teaching and mastery learning – on skill development, knowledge, self-efficacy, and game play in volleyball. Journal of Teaching in Physical Education, 19, 34-57.

Hastie, P.A., Sanders, S.W., & Rowland, R.S. (1999). Where good intentions meet harsh realities: Teaching large classes in physical education. Journal of Teaching in Physical Education, 18, 277-289.

Mraković, M. (1997). Uvod u sistematsku kineziologiju. Zagreb: Fakultet za fizičku kulturu Sveučilišta u Zagrebu.

Prskalo, I., Babin, J. (2006). Kvaliteta rada u području edukacije. U: Zbornik radova “15. ljetna škola kineziologa Republike Hrvatske” (ed. V. Findak), 26-34. Rovinj, Hrvatski kineziološki savez.

Prskalo, I., Babin, J. (2008). Stanje i perspektiva razvoja u području edukacije. U: Zbornik radova “17. ljetna škola kineziologa Republike Hrvatske” (ed. V. Findak), 30-41. Poreč, Hrvatski kineziološki savez.

Prskalo, I., Babin, J. (2009). Metodički organizacijski oblici rada u području edukacije. U: Zbornik radova “18. ljetna škola kineziologa Republike Hrvatske” (ed. B. Neljak), 55-64. Poreč, Hrvatski kineziološki savez.

Prskalo, I., Findak, V. (2003). Metodički organizacijski oblici rada u funkciji optimalizacije nastavnog procesa. Napredak. 144 (1), 53-65.

Prskalo, I., Ružić, E., Mašić, I. (2007). Materijalno tehnički uvjeti za provedbu organizacijskih oblika rada u tjelesnom i zdravstvenom odgojno-obrazovnom području In: Zbornik radova “16. ljetna škola kineziologa Republike Hrvatske” (ed. V. Findak), 482-486. Poreč, Hrvatski kineziološki savez.

Sinibaldi, R. (2002). The alternating station line: Reducing transition time during station work. Teaching Elementary Physical Education, 13 (4), 30.

Note: The results presented have been obtained from the research project (Kinesiological education in preschool and primary education), supported by the Ministry of Science, Education and Sports of the Republic of Croatia. The paper was published in an incomplete form as a report at the 18th Summer School of Kinesiologists of the Republic of Croatia (Prskalo and Babin, 2009).

Translation from Croatian: Alenka Mikulec