

УДК 796.56

Pedagogical Strategy of Technical Training in Ski-Orienteering

Valentina S. Bliznevskaja and Aleksandr J. Bliznevskij*

Siberian Federal University,
79 Svobodny, Krasnoyarsk, 660041 Russia ¹

Received 05.08.2008, received in revised form 10.09.2008, accepted 17.09.2008

In the following article we consider factors of technical mastery of sportsmen, going in for ski-orienteeing, the ways of improvement of reliability and stability while covering modern ski-courses. Here, we also systemize some possible reasons of qualified ski-orienteeers losing out to competition leaders and suggest some remedies for it. Besides, we substantiate a high degree of coach-teacher's influence over his trainee on the basis of analysis of qualitative and quantitative criteria of his work on the competitive ski-course and we mention the main directions of effective pedagogical stimulation.

Keywords: ski-orienteeing, competitive activity, coach-teacher, psychological readiness, technical mastery.

Relevance: at ski-orienteeing competitions the task of sportsmen is in the following: to ski through a row of control points in a strictly defined order, the points being marked by circles on the sports map of the region, where the competition takes place. Control points are set in the ground points, which correspond to the map. The skier-orienteeer volitionally chooses a ski-route between the check points in the net of ski-runs, denoted by lines of corresponding graduation in the map, and realizes it. His mastery is in the following: to move quickly and unmistakably through all the check points, being marked on the map (*The Ski-orienteeing...*, 1999).

By the nature of muscle loading, ski-orienteeing can be compared to ski-racing. Ski-orienteeing tasks demand practical knowledge of topography from the participants, salvation

of navigational problems with a big number of landmarks – linear (ski-runs of various graduation, automobile roads, borders of various forest trees), areal (openings of different configuration, areas of natural growth of various forest trees, forest plantations, engineering structures) and point landmarks (any types of crossings of linear and areal landmarks, relief micro-objects). The sportsman needs reed map while moving forward and think under conditions of physical strain, he must choose the most rational routes of movement and unmistakably control the point of his movement in the map and on the ski-course. Thereat, one of the most important roles in the competitive atmosphere is played by the organization of rational and reliable (unmistakable) actions – the tactics of working with map and land environment (Akimov, 1975).

* Corresponding author E-mail address: bliznevsky58@mail.ru

¹ © Siberian Federal University. All rights reserved

Ski- orienteering competitive activity goes always under the condition of strong psychological tension and its result is mainly defined by the character of sportsman's behavior during the orienteering course. The price of even a minor mistake of a technique character or of excess of caution, in order to improve the orienteering reliability, can be too high and may put the sportsman far back from the upper line of the finish formulary. It is a cyclic speed-strength kind of sport, testing endurance, and these kinds of sport specify such general psychological requirements, as readiness to overcome strong physical resistance for a long period of time, within which basis there is the activity of neuromuscular apparatus, and sportsman's volitional effort is connected with it (Butin, 2000). Indeed, skier's exertion of particular endurance inevitably brings to fatigue increase – subjective experience of fatigue signs and the sportsman needs consciously make efforts over himself to overcome internal and external hardships. Moreover, emotional excitement and buck fever are typical for the sportsman's general fore-working condition in the course of activity, being important for him, and with an equivocal outcome.

There are also some specific psychological hardships for the skier-orienteer, connected with the choice of optimal solutions and realization of the adopted decision, which demand successive actions from the sportsman, based on the psychological activity, being specific for this kind of sport – visual sense modality, concentration and switch of attention, peculiar «map memory», «distance feeling», and «direction feeling». Here, psychological tension of the sportsman is connected to some risk and constant feeling of «time deficit». Here, an optimal level of sportsman's psychological activity is needed, which would help him to make maximum volitional efforts in the course of competition, keeping high speed, and simultaneously taking

tactically rational decisions and unmistakably realizing them.

That is why, all-the-year-around technical training of the skier-orienteer is a process of technical skills mastering for efficient map usage, unmistakable racing along the net of ski-runs, skiing speed regulation according to the task, having been given to him, and abilities to make tactically correct decisions in the process of racing, taking in account all the subjective and objective factors (Bliznevskij, 1999; 2004). The task is not simple and demands not only mastering of some orienteering technique elements, but good experience of competitions participation as well, as far as only real distance situation can be the most effective for improvement of this very mastery component. No models can be compared to the participation in real competitions. Thorough analysis of skier-orienteer's technical actions in the course of a competition or on training ski-runs must be directed to the revealing of reasons of defective work and to the defining of technical reserves. And right here, the help of the coach-teacher cannot be overestimated.

The main task of the coach-teacher in the course of sportsman's preparation to competitions is to create the integrity of technical, tactical and functional preparedness and, on its basis, sportsman's psychological readiness for taking part in competitions. Pedagogical aspect of the problem is the search of ways and means of competition psychological readiness maintenance in the process of teaching and training of the sportsman. The main moments of coach-teacher's psychological influence are his skills to prepare the sportsman in such a way, that he could act in accordance to the current situation, that he could possess himself during the training and competitive periods (Vorob'ev, 1986). Coach-teacher's psychological knowledge is more often of applicative character and its high evaluation can be given mainly for its practical use. In most

cases, when skier's psychological readiness for achieving high results is accomplished, we can also find there a fore-going psychological preparation. The other thing is that it is mostly often unseen as an independent process; it is not organized on purpose and is performed spontaneously. Coach of high qualification may not fail using a wide range of physiological knowledge and mindsets in his work. Otherwise, he would not have been able to make a success in this field. That is why, when the coach confirms his professional level by high results of his trainees, he has a right to consider himself a good psychologist. And it is understandable, as far as along with the development of muscles and functions of the organism, he carries out the development of neuropsychic mechanisms of motor activity regulation and of sportsman's behavior on the whole, he forms the character of a champion and of a socially important person. The coach, who has achieved success in ski-orienteering, undoubtedly knows his trainees well; he knows common and situational ways of influencing over them while solving the problems of sport training and competition, even if he cannot formulate quite precisely peculiarities of their mental make-up.

Psychical dependability is out of the question, if the sportsman does not possess physical, technical and tactical preparedness in an enough high degree. It is a basis, a foundation of skier-orienteer's reliability from the psychological point of view as well (Voronov, 2002; Giljazova, 1988; *Psychology: Education...*, 1987).

Ski-orienteering is one of the most complicated kinds of sports for performing the analysis of sportsmen competitive activity. It is connected with the fact, that sportsmen go away from the start field into the forest and move along a quite large cross country locality, and the sportsmen are hidden from the spectator by the forest areas and the land topography. In the course of training spells, all the coach and the sportsmen

undergo hardships, as far as the coach almost loses the connection with the sportsmen while they fulfilling the technical task. That is why, it is impossible to analyze all the necessary mental processes and decision making during the race along the ski-course without the data, acquired from the sportsmen themselves.

Methodology: All the sportsmen make a post-competitive analysis of the ski-course in this or that form, though, there is no any well-developed methodic of such an analysis. After having finished, sportsmen, as a rule, consider: alternative variants of the route, which have been chosen by other sportsmen; the land topography; the ski-course complexity; the map correctness and readability; the results of other participants; the influence of weather conditions over the quality of the net of ski-runs. Obviously, the method of interviewing, as of the strongest sportsmen, so of their trainees, turns out to be the most informative for the coaches for researching the technical component of sportsmen's competitive activity. Such sort of work has been held by us with the members of the Russia national team, which consists of sports masters of Russia, World-class masters, and merited sports masters. And the long-term practice of coach's work in the Russia national ski- orienteering team has allowed us constant analyzing of the technical action components of the strongest skiers-orienteers during preparations towards starts and competitive ski-courses.

The complexity of pedagogical interrelations in ski- orienteering is first of all hidden in objective hardships. Full analysis can be done only having the map of the one, who has passed the start, having the results and the routes of the winners. The competition map is not given to the sportsmen at the end of the competition, in case the following competition is organized at least partially on the area of the former one. And it happens quite often. It is very laborious and expensive to prepare a ski-orienteering competition, when one needs to

make the net of ski-runs of various gradations and of total length 100–120 km. That is why the starting stadium is usually prepared for 2–3 ski-orienteering disciplines and, correspondingly, the part of the area, adjacent to the starting field, is included into the map of all the competitive days. In this case, competition organizers have no right to hand out the map of any of the competitive days before the competition is over.

The coach and the sportsman have to be satisfied only with the operational analysis. It is, first of all, the scheme of ski-courses, drawn on the paper. In order to make this, one needs to restore mentally the ski-course configuration in one's memory, one's variants of racing on the ski-course stages, main relief forms of the route, and, if possible, the scheme of the ski-runs net. Discussions with the competition participants, who have used different route variants, help to evaluate the work results on separate ski-course stages. After the competition is over, every participant gets the maps, he has been using at the ski-course. Now, he may plot there his routes and clear up the individual parameters of the competition ski-courses, which are of his and his coach's special interest. Moreover, during last years the competition participant gets his intermediate results of his every ski-course stage covering immediately after the finish. It has become possible because of a new electronic control system of check points visiting, which not only makes the sportsman's task easier, much reducing the risk of incorrect punch scoring, but it also fixes the check point passing time automatically. After all the participants have come to finish, the organizers publish all the time-splits (time schedules) of every ski-course stage passing of all the participants. It gives additional possibilities for qualitative analysis of the results by the sportsmen and the coaches. Today, electronic checking system is obligatory for organization of all the international and All-Russian ski- orienteering competitions.

In the given research, the main task of the analysis of the skier-orienteer's work at the ski-course is a precise evaluation of time losses at his result being compared with the result of «the best sportsmen». The result of «the best sportsmen» at the ski-orienteering competition is formed from the best results, achieved by different sportsmen at separate stages. The key point of the analysis is to reveal the reasons of the loss to the winner at every ski-course stage. There have been evaluated different variants of routing, having been used by different sportsmen with the help of curvimeter (a device for curved lines length measuring at topographical maps) and the relief with counting all the horizontals of the area. There have also been studied sports dairies of the skiers-orienteers.

Results and their discussion. The performed researches have shown, that the competitive (or training) ski-course analysis is better to be begun with the map reconstruction of the realized route, and then the sportsman should plot the optimal, to his mind, route. What is it needed for? It gives the possibility to estimate subjectively one's own work at the ski-course and the degree of coincidence of the chosen route variants in quiescent state and in competitive one.

On the second stage of the route variants analysis it is necessary to compare one's time-splits and route variants with the data of «the best sportsman». In order to do it, one need plotting the correspondent rout variants of these sportsmen onto the map. The researches have proved that most variants on all the ski-course stages do coincide for the sportsmen, who have got places from 1 down to 20th at All-Russian competitions. But those several non-coincidences turn out to be right crucial and influence the final result.

If, in the result of all-round analysis of competitive ski-courses it turns out, that the skier-orienteer constantly covers some part of the ski-course by non-rational routes, this technical skill should be purposefully trained. In this case, the

most effective and timely means would be the measuring of alternative route variants, done with the help of curvimeter, and the counting of all the horizontals of the area, what will need time for forming of the skill of optimal variants choosing. Visual comparative evaluation of different route variants can turn out to be a mistake and, using the curvimeter, the sportsman significantly improves the level of comparative route evaluation.

If non-coincidences of the chosen route variants both in quiescent state and in competitive regime are systematic, then the reason of non-rational choice lies in the skiing over-speed at the moment of choice. In order to get rid of this shortcoming, one needs temporary reduce the speed while choosing variants in the process of training or competition, as far as the time losses, because of incorrectly chosen route, are usually much higher than the time winning, due to higher speed in the process of choice. The sportsmen spend 20–30 s to choose a variant even on a very long and complex stage, and the failure on such a stage at the expense of wrongly chosen route can be reckoned by minutes.

Here, the experience of stronger sportsmen can be very useful. The more ski-courses will be worked through this way, the more self-assured will be the sportsman at the choice of routes under competitive conditions, the quicker and more precise will be the variant choice and the decision adoption. Non-rational decisions put the ski-orienteer in a predeterminedly losing position.

The performed analysis of qualified sportsmen's work at ski-orienteering courses, which has been based on the data of time-splits and interviewing of qualified skiers-orienteers (n = 68), has given a possibility to reveal some other potentially weak points of the sportsman's training. Indeed, the sportsman can choose just the same routes as the winners do on some stages, but still be a failure. If the sportsman's loss is gradually spread along all the ski-course stages,

then it means he has a lower level of training in ski- orienteering, which will not allow him to be competitive with the leader. But more often it turns out, that the sportsman loses due to time losses only on some parts of the ski-course and it is necessary to reveal the reason of such losses.

If the sportsman's time loss is mainly concentrated only on technically difficult stages with a big number of orienting points, then he cedes in the speed of mental processes of orienteering. While covering such ski-course stages, one needs move through a dense net of traces, every time comparing the map with the landscape, and make technical-tactical decisions quicker. Sportsmen, with a lower level of technical training, speed down more than others do. Thereat, they feel sure on technically simple stages with small number of technical tasks, passing them on high speed, never losing or even winning their competitors on these stages. And, on the contrary, weak physical readiness of sportsmen with high level of orienteering technique gives them a possibility not to lose on technically-complicated stages, while on simple ones their gap is significant. Sportsmen, having weak skiing readiness, visibly lose on those parts of the ski-course, where there are complicated descents. Indeed, skiers-orienteers pass all the complicated down-runs of ski-courses for the first time, being guided only by the map data and by vision. The more and the longer are the down-runs, the bigger is the loss of such sportsmen. And finally, non-effective free style technique, while moving fast along the net of ski-runs (1–1.5 m wide, without ski-traces), which is typical only for the skiers-orienteers; it will affect the resulting time on the ski-course stages with its prior use. The sportsmen with such a training shortcoming can manage not to lose in speed to the leaders of the competition at speed ski-runs (not less than 2 m wide, prepared for free style skiing). But, when passing to a fast ski-run, their speed is significantly reduced in comparison

with the leaders. Usually, such a shortcoming is typical for qualified ski-racers, having come to ski-orienteeing. All these technical or physical training shortcomings of the sportsman must be revealed by the coach and the sportsman with the help of analysis of competitive ski-courses passing, in order to correct properly the corresponding components of the training process.

The leading sportsmen of Russia have a high level of preparedness with respect to the mentioned mastery components. Nevertheless, nobody is perfect. They can also fail to perform a qualitative piece of technical work at the ski-course, and even sometimes they can totally lose. Formation of the sportsman's readiness to a highly-effective activity at the necessary moment appears to come to the foreground directly before the competition. The sportsman's emotions under the competitive conditions can be so strong, than one needs know how to control oneself properly in a hard competitive situation. The sportsman must be sure, that he has rather strong elements of special training – skiing effective techniques for different gradation ski-courses, well-developed specialized memory, map-reading ability without reducing the skiing speed and correct understanding of the map content, high concentration of attention to the ski-course. This self-confidence must be supported with the help of the coach.

That is why the program of sportsman's tactic actions before the start and during the skiing under various competitive conditions is so important in the coach-trainer's work with sportsman and must be prepared beforehand. Absence of such a plan and of reliable criteria of one's own activity estimation brings to feelings of uncertainty, nervousness, and distraction and, finally, to inattentiveness, which inevitably brings to mistakes at the ski-course (Bliznevskaja, 2006).

First of all, an intensive technical training at the test range must be foreseen beforehand, before

the competition. To organize it according to the principle of a training start is the most effective way, when the sportsmen simulate technical skills and tactical actions almost in competitive regime, at the same time preserving their neuropsychic freshness for the official start. For this purpose, the coach must plan and prepare such a training start himself by the test range maps, being handed out on the day before the competition. It is not prohibited by the rules of the test range usage. In the result, the sportsman acquires additional confidence in his abilities to work qualitatively on the competition area, as far as the test range area is immediately adjacent to the region of their training. Free style is by no means acceptable, while entering the test range, it is a methodical miscount. But after the finish, the skier-orienteer should free style the ski-runs of the test range, and attentively look through the map drawing style, the readiness quality of various gradation ski-courses, and the correspondence of cross-traces' geometrical forms and ski-courses' Y-intersections in the map and on the field. It is highly valuable information for the sportsman, as far as both the test range and the competition area are prepared by one and the same team of organizers. In the result of such a complex training on the test range, the coach manages for the sportsman to achieve some inner physiological comfort, which positively influences over the physiological readiness for the work in a concrete area.

In order to reduce physiological tension just before the start, the sportsman needs use self-persuasion, directed to self-stabilization, and also switching of his thoughts and attention from the competitors over to the actions to be done immediately after the starting signal. Thereat, one must concentrate oneself exactly on the technical side of the actions, but not on the expected result and the place in the final formulary.

After the starting signal has been given, the main thing is to control the racing speed in

accordance to the level of one's technical mastery. On one hand, the skier-orienteer strives to develop his speed at maximum, comprehending, that it is impossible to show a good result without it. On the other hand, the higher is the speed, the bigger is the flow of information. The sportsman reduces the reliability of unmistakable work at the ski-course, if he fulfills the necessary mental and technical operations of orienteering too quickly and superficially. He can percept the map data incorrectly, collate wrongly the landscape orienting points with their map location or miss some of them at all, having failed to pay attention to them. The consequence of such actions is a deviation from the chosen route of skiing, the search of one's point of skiing in the map, and it means additional time losses. The sportsman moves mentally along the mapped line, but not in reality. The irony of such a situation is in the following, that very often there are actually very similar trace relationships in the dense net of ski-courses, especially on the landscape almost with no relief. At low speed, upon «reliable racing» almost every sportsman is able unmistakably to overcome even a very technically complicated ski-course, and visa versa, at maximum speed even very experienced sportsmen of the elite are not always able to fulfill the task.

According to the questionnaire survey of skiers-orientees, the biggest amount of technical mistakes, made by sportsmen at the ski-course (n = 68), happens because of wakening of attention. The main reason is distraction; it is exactly «the cause of all the troubles» of the skier-orienteer, when he makes mistakes. Moreover, after having made a mistake on the ski-course, some sportsmen act irrationally in this situation. In spite of addressing that part of map, where the sportsman knew his position for sure, and finding the point, where he lost the connection with the map, on the contrary, the skier-orienteer convulsively «leads himself» about a large part of the map, which still precedes,

where he has not been yet, and all the time he is trying to connect the landscape, where he is, to these parts of the map. Thereat, he still continues skiing all the time, very often hit-and-miss. It is very often the way of behavior of candidate masters and first-grade sportsmen, but sportsmen of higher classes can episodically turn out to be in such a situation too. That is why, in case of a mistake in the process of working at the ski-course, the sportsman should remember and define the location in the map, where he knew his point of skiing for certain. If he ignores the procedure, he deprives himself of the «peg», which he could have grasped at and could have failed to spend more time on correcting his mistakes.

Conclusion: Thus, sportsman's effective competitive activity in ski- orienteering is possible upon the interaction of all the training factors – the use of effective methods of training for improving all the aspects of the mastery, the teaching influence of the coach and the proper influence of the sportsman himself in the form of self-regulation. The process of getting prepared to a concrete competition and the mental approach for struggle create a very unique atmosphere both for the sportsman and the coach, which is difficult to get accustomed to and not to react. In the very word «to start» there is already something thrilling, causing man's excitement. Moreover, the condition of psychological tension is a positive factor by itself, which reflects the activation of all the organism's functions and systems, harmoniously switching into the activity and providing their high productivity. But the level of this tension before the start must be controlled by the sportsman himself and his coach according to the sportsman's individual tactical plan of actions at the ski-course. That is why, independently from the competition level, the sportsman must work self-confidently, to be concentrated, paying attention only to the tasks of orienteering, from start up to finish. One cannot

be mentally mixed up in the map even for a short period of time, distracting to the competitors, and step off the earlier planned scheme. In case of a mistake having been done, one should take a hold of oneself and concentrate one's attention to the left part of the competitive ski-course, as far as the sportsman usually gains the feeling of «lost time», which distracts him, creates a negative psychological background and interferes with the

further effective mental process of orienteering tasks' salvation.

Skier-orienteer's psychological readiness is defined by: self-assurance in one's forces to participate in the struggle for the highest places; high competitive spirit, providing the striving for victory and contributing to ability reserve usage; composure (cold blood) in extreme situations in case of technical or tactical mistakes being done.

References

- The Ski-orienteering International Federation Competition Rules* (Moscow, 1999), 46.
- V.G. Akimov, *Ski-orienteering Fundamental Techniques and Tactics Afield* (Minsk: BSU, 1975), 58.
- I.M. Butin, *Skiing: Education Guidance for the Students of Higher Pedagogical Institutions* (Moscow: Academy, 2000), 368.
- A.Ju. Bliznevskij, *Competitive Activity and Pre-competitive Preparation of Skier-orientees: doctoral dissertation* (Krasnoyarsk, 1999), 122.
- A.Ju. Bliznevskij, *The Main Ski-orienteering Result Indicators and Ski-Course Technical Parameters, Which Influence Them*, Theory and Practice of Physical Culture, № 11 (2004), 33–36.
- A.N. Vorob'ev, *The Individualization Principal – Fiction or Regularity in the Modern Training Process?* Theory and Practice of Physical Culture, № 6 (1986), 29-31.
- Ju.S. Voronov, *Techniques and Tactics Activity Efficiency of Qualified Skier-orientees while Covering Competitive Ski-Courses*, Questions of the Training Process Perfecting in Ski-racing and Sport Ski-orienteering: Scientific Works Collection (Smolensk: SSIPC, 2002), 14–21.
- V.V. Giljazova, F.P. Suslov, B.N. Shustin, *Annual Cycle Training Organization with Dominating Endurance Exertion in Cyclic Kinds of Sports*, Organization and Content of the Training Process of Highly Qualified Sportsmen on Different Stages of the Training Cyclic: Scientific Works Collection (Moscow, 1988), 55–71.
- Psychology: Education Guidance for Physical Culture Institutes*, ed. by V.M. Mel'nikova (Moscow: Physical Culture and Sport, 1987), 367.
- V.S. Bliznevskaja, *Ski-orienteering. Theory and Technology of Special Training of Qualified Sportsmen* (Moscow: PH «Theory and Practice of Physical Culture, 2006), 268.