Abstract:

Aim. In the study, the authors undertook the task of searching for reasons regarding the high impact of behavioural interpretation in behaviourism on theoretical assumptions and practical implications in the field of improving the process of learning and teaching motor (movement) skills.

Research questions. 1. To what extent did behavioural interpretation in behaviourism have influence on the formation of the theoretical foundations of didactics and the methodology of learning and teaching motor skills in physical education and in sport? 2. To what extent are the theoretical assumptions and practical implications of contemporary didactics in Poland based on the theoretical foundations of teaching and learning shaped in the 20th century under the influence of behaviourism?

Material and methods. The method of document analysis was used in the study. In the research on behaviourism and its influence on the didactics and methodology of physical education and sport, the following were taken into account: monographic studies, which were published by well-known Polish and foreign publishing houses and articles published in scientific journals indexed in reputable databases of scientific periodicals.

Results. 1. Analysis of selected documents showed great impact of various paradigms of behavioural interpretation in behaviourism on the dynamics of theoretical foundations and practical implications in terms of learning and teaching motor activities. 2. Despite the recognition of behaviourism in psychology as a historical field, in Poland, it still very clearly reveals itself in sport and physical education within the theory and practice of learning and teaching motor activities.

Conclusions. It would be wise to undertake research aimed at estimating the potential of cognitive psychology in the field of modernising the didactic process. 2. There is a need to look for reasons for conservatism in Polish didactics and methodology of learning and teaching motor skills and the basis for justifying necessary reforms in this aspect of school pedagogy and competitive sport.
Introduction

The issue of research presented in this paper deals with issues related to the process of teaching and learning motor activities during school physical education and in sport. It can be counted among the issues dealt with in didactics, aspiring to become independent in science. Formally, it is a main field of pedagogy [1, 2]. As it is known, the theoretical assumptions and practical implications of pedagogy began to be formed after separating it, along with other social sciences (or humanities), from its common stem, which is philosophy. Such a common etiology means that, despite autonomy, pedagogical sciences base their practical assumptions on the theoretical foundations of related sciences, especially psychology [1]. In this way, the theory borrowed from it in the didactics of physical education and sport is verified, and in practice—in upbringing as well as teaching and learning [2]. For decades, practice has shown that this is a necessary and effective marriage of autonomous sciences. Psychology lends its own system of concepts and theories to explaining many pedagogical facts that have a direct connection with educational practice [2]. Among them, an important place can be attributed to the problem of learning and teaching motor activities, which has been chosen as the subject of the authors’ research.

By signalling the background of their research penetration in the introductory chapter and the scope of research undertaken, the authors attempted to indicate their originality. Using the method typical for social sciences, it was decided to point to the not always conscious effect of the signalled relationship between the essence of a specific direction of psychology (and micro-theories or micro-paradigms formed within it) on selected, detailed didactics, which is an important field of pedagogy, fulfilling both theoretical and practical functions, mainly of a diagnostic, prognostic and instrumental nature [1, 2]. Its task is to achieve instrumental goals in the process of learning and teaching motor skills for the purposes of achieving results in competitive sports, or also only for the main health effects in physical education. The analysis of collected data and the authors’ experience shows that, generally speaking, such a relationship between pedagogy and psychology is invisible in practice, and sometimes, in theoretical publications as well. In the authors’ research, it was decided to stimulate the awareness of the existence of mutual relations by demonstrating the determinants of the concept of learning and teaching motor skills, which can be viewed from various perspectives and in the interpretation of human behaviour regarding different directions of psychology. It is also possible to hypothesize that they are not always connected vessels. A characteristic feature of contemporary trends in psychology is its dynamic development, both in synchronous and diachronic terms. This results in some fragmentation. Such a state also entails a small effect of psychology on pedagogy and its fields, including school didactics. However, this cannot always be justified by the lack of didactics behind psychology, or phenomena that delay the (seemingly) necessary convergence.

Within the context of the considered issues, it was also decided to focus attention to the issue of learning and teaching motor skills which is not visible in didactics—this should be a problem to be solved in subsequent studies. A particular paradigm constituting a certain canon of theoretical assumptions and methodical proceedings, based on the assumptions of behaviourism, is still sanctioned. Teaching movement refers to certain forms of behaviour (motor activities) that enable an individual to perform a task in an economical and effective manner. In the description of teaching and learning motor skills in sport or in physical education, it is sometimes added that it should also be in accordance with the sports regulations of a given discipline. The effectiveness of the task performed this way is measured in physical units.

The above-described state leads to far-reaching theoretical and practical consequences, unfortunately, shifting in the wrong direction. In this approach, man becomes a machine that mechanically moves or—as behaviourists want—an animal carrying out motion tasks on a reflexive basis. Important issues concerning the phenomenon of simultaneous consolidation of mental and cognitive programmes (related to the way of executing the movement) which are the driving force of the energetic and coordination functions of the movement apparatus, are omitted. The head cannot be disconnected from the body and memory cannot be turned off during movement; the functions of neurons cannot be ignored when the legs and hands are at work! Such elements of the human movement structure cannot be separated [3]. Athletes looking for paths to the economics of movement know this well. Perhaps the signalled problem is a relic of the past referring to the former separation of the psyche from the soma and thus, the separation of physical (somatic, functional and motor) from psychological development, which—so far—sanctions even physical anthropology and auxology [4]. Based on this interpretation, it can be concluded that the theory and practice of learning and teaching motor skills, which are based on the assumptions of behaviourism, can be included in this group.

So far, the need for holistic consideration of human movement has drawn attention—unfortunately, with little effect—by the theory of human motility in two emerging scientific sub-disciplines, which are: psychomotorics [3] and, above all, anthropomotorics [4, 5], which in the structure of science of the 21st century, is aborting its in statu nascendi state [6, 7]. The suggestions of sports
Methodology of motor training, the task of which is learning and teaching movement (techniques), most often using the concept of creating motor habits in accordance with the behavioural interpretation of human behaviour. This results in the fact that, in the theory and practice of learning and teaching, the physiological processes underlying the phenomenon of human motion [4, 5] are not taken into account. In this convention of behaviouralism, attention is only focused on the processes taking place between the movement effect and the broadly understood environment as its determinant. The body is considered a black box.

It is difficult to justify the reason for popularity of the discussed psychological direction, taking the achievements of contemporary cognitive Psychology into account. It seems that the possibility to solve the problem of the holistic approach to learning and teaching motor skills has been confirmed at the beginning of its development by the suggestion of philosopher G. Ryle [8,9] on the existence of two types of knowledge: propositional (I know that . . .) and skills (I know how . . .). The scientific achievements of psychologist J.R. Anderson [10] and neuropsychologist L.R. Squire [11, 12] from the second half of the 20th century provided evidence of two types of memory: procedural (I know how . . .) and declarative (I know that . . .).

Up to now, the problematic issue, which is one of the most important trends in contemporary cognitive science [13-17], has not found interest among sport theorists [20] or physical education representatives [21, 22]. The analysis of theoretical assumptions and practical implications of modern didactics shows that pedagogy overlooks the biological aspect in learning and teaching movement [19], exclusively focusing on the interpretation of the determinants of behavioural efficiency according to the principles of behaviouralism. The validity of such a hypothesis can also be confirmed by the assumptions of Polish sports theory [20], physical education [21, 22], as well as human motor ability [4, 5]. This entails far-reaching axiological consequences, and following them, the unnecessary creation of two theories of the didactic process [20, 25]:
1. Learning and teaching movement (techniques), most often using the concept of creating motor habits in accordance with the assumptions of behaviouralism. The aim of the didactic process is to master motor skills for the needs of sport and utilitarian forms of physical activity.
2. Methodology of motor training, the task of which is to analytically improve the somatic, functional and mental potential in specific forms of movement. For this purpose, methods of physiological (biological) adaptation to specific physical exercises are used.

In the newly emerging paradigm of sports psychology [6, 7], slowly, an attempt is being made to link unnecessary dissonance in the didactics of learning and teaching motor skills within one of the micro-theses of learning movement, which is motor learning. Thus, there is a problem that needs to be solved: why are the concepts of learning and teaching movement based on the assumptions of behaviourism so important in the Polish didactics of sport and physical education?

Research aim. In the undertaken research, it has been attempted to find reasons for such huge impact of behavioural interpretation in behaviourism based on theoretical assumptions and practical implications in the process of motor (movement) learning and teaching.

Research questions. 1. To what extent did behavioural interpretation in behaviourism have impact on the formation of the theoretical foundations of didactics and the methodology of student learning and teaching physical skills in the process of physical education and sports? 2. Why are the theoretical foundations of learning and teaching motor skills, shaped in the 20th century under the influence of behaviourism, still valid in the theoretical assumptions and practical implications of modern didactics in Poland?

Research material

The implementation of the research project led to the review of publications that are:
1. In indexed and reputable journal databases, such as: ARIANTA (scientific and subject-related Polish electronic journals), Baidu Scholar (search engine of scientific sources), BASE (Bielefeld Academic Search Engine), CEON (Science Library), List of MNISW (Ministry of Science and Higher Education) journals, DOAJ (catalogue open access of journals), EBSCOhost (Academic Search Complete database), Web of Science ESCI - (database belonging to Web of Science™), GIF (Global Impact Factor), Google Scholar (scientific publications from around the world), ImpactFactor.pl (compendium of knowledge about scientific journals), Index Copernicus International (specialist platform promoting scientific achievements), InfoBase Index (international database of scientific journals), INFO NA (Scientific Communication Portal), NUKAT (catalogue of collections of Polish scientific libraries), OCLC WorldCat (database of scientific publications), PBN (Polish Scientific Bibliography), POL-index (Polish Citation Database), SJIFactor (Scientific Journal Impact Factor).
2. In scientific monographs (mostly published by Polish and American university publishing houses).
Research methods

The method of document analysis was used in the study.

Research results

1. Behavioural theory as a basis for learning and teaching motor skills in sport and physical education

Attempting to answer the question as to the reasons for the popularity of the concept of learning and teaching based on the concept of behaviourism, which is already a relic of the past in the development of psychological knowledge about behaviour, one should pay attention to its characteristic features.

Behaviourism emphasized the importance of experiences in learning by acquiring new information. It drew attention to the influence of other people on behaviour. This was referred to as learning through models [29]. Since then, a lot of models have appeared that have been used (and still are) to explain difficult relationships [Fig. 1].

The contribution of the mentioned direction of psychology was to create a model of developing movement habits through simple stimulation via an environmental stimulus (S), which triggers the desired response (R) [Fig. 1]. The discovery of this phenomenon is connected with the name of the American psychologist – John Broadus Watson, and the Russian Nobel prize winner, neuroscientist – Ivan Petrovich Pavlov, who carried out successful experiments on conditional reactions in a dog [26]. The inspiration for John B. Watson’s actions was also the famous work titled Man a Machine, by the 18th-century rationalist and physician – Julien Offray de La Mettrie [26].

The main representatives of behaviourism who shaped views on didactics of teaching and learning were: Burroughs Frederic Skinner (radical behaviourism) and Edward Tolman and Edward Lee Thorndike (moderate behaviourism) [30]. With time, the founders of behaviourism began to meet with criticism. As a result, the branches of this trend were described as neobehaviourism. Such trends include: Clark Leonard Hull and Robert Sessions Woodworth, as well as the contemporary Canadian psychologist Albert Bandura, creator of the social learning theory [18].

The functionalist approach to the interpretation of Robert S. Woodworth’s behaviour was of great importance in the improvement of teaching methods regarding motor activities in the field of behaviourism [31]. Similarly as in the moderate behaviourism of E.C. Tolman [32], an intermediate variable (O) was introduced to the acronym (S-R), which was called the “organism” [32]. The S – O – R acronym and the content given to it largely reflected the originality of this approach to the interpretation of activity in relation to classical behaviourism. According to the American psychologist, important stimulators of human activity (behaviour) included: motivation, as well as awareness of the decisions made [31]. The suggested stimulators became the nucleus of a new approach to the interpretation of human action and the emergence of humanistic [33] and transpersonal psychology. Currently, motivation and informed decision-making, along with other psychological traits, are considered to be the goal and component of the teaching and learning methodology of physical activities in physical education and in sport [33-40].

In another approach of the behaviourists, the intermediary variable “O” had symbolic rather than ontological nature. Exploring the internal image of the discussed process was not taken into account by them. The student was treated like a “black box”, and the entire cognitive process was only analysed externally; it included objective reactions [33]. The method of self-observation, self-control and self-assessment was not admissible, as it was believed that it may contain biased elements related to self-awareness and experiences [42]. Therefore, R.S. Woodworth’s interpretative approach can be considered a precursor of cognitive psychology.

As noted earlier, despite the passage of a hundred years since the publication of J.B. Watson and I. Pavlov’s experiences, still in Poland, the proposals of methodical solutions for teaching physical exercises are often based on older theories of developing movement habits (conditioned reflexes) according to the simple rule of: stimulus – response [21-25, 44-45]. This can also be proved by the recommendations contained in methodological
guides and in studies with scientific and methodological ambitions [44-55]. It is difficult to consider them desirable. Proper remarks about their value are expressed in polemics and discussions. Their meaning can be reduced to the following conclusions: the implementation of recommendations based on the assumptions of extreme behaviourism (S-R) without proper reflection and without taking the results of the development of didactic theory into account can lead to far-reaching, undesirable effects. Extreme traditionalism in the transmission of didactic recommendations caused the broader context of conditioning behaviour depending on environmental situations to be omitted, which was pointed out by newer directions of developing movement habits in the behaviourist convention [21-22, 56-63].

In detailed pedagogical considerations based on behaviourist theory, attempts were made to prove what kind of stimuli (positive or negative) may affect the effectiveness of teaching. Among others, in some concepts [24, 33-40], attention was focused on reinforcing behaviours (so-called motivating operations, abolishing operations, etc.). Based on observations of animal behaviour, the theory of classical conditioning was developed in the middle of previous century by American psychologist Burrhus F. Skinner [63-64]. In his radical behaviourism, he emphasized the importance of verbal encouragement and good grades as well as penalties for incorrect answers in the effectiveness of the teaching process. Originally, this phenomenon was called instrumental conditioning. However, the results of the work of Polish researchers – Jerzy Konorski [65] and Stefan Miller [66] – resulted in the fact that they were named 2nd degree conditions by the creator of this field of psychology [67], as opposed to classical conditioning. The aforementioned theories have had significant impact on the concepts of positive or negative reinforcement of the process of acquiring physical activity, based on possessed reflexes. Until today, not only in teaching motor activities, it is believed that what is rewarded is better consolidated, while situations subject to punishment will be avoided. This fact was first documented by E.L. Thorndike in the early 20th century [68]. In light of contemporary pedagogical views, such statements should be considered debatable [69-71].

In a series of experimental works, the effects of the influence of other environmental stimuli on the process of learning were studied [58, 72-74]. Undoubtedly, the creation of such teaching concepts was strongly influenced by the field of psychology called activity theory created in the 1960s in Poland by Prof. Tadeusz Tomaszewski [75-76]. Its novelty was based on expanding the prevailing behavioural formula of the S-R acronym: first, by the task (T), which triggers the process of behaviour (according to T. Tomaszewski – activities) and, secondly, the outcome (O), or otherwise – the goal to which the activity leads. As a consequence, the essence of assumptions of the theory of activity is reflected by the extended acronym S-R [75-77]:

$$T \ (S - R) \ O.$$

It should be noted that the Polish theory of activity, along with other similar psychological concepts [78], was an important bridge between behavioural and cognitive psychology [79].

Until now, the most important achievement of behaviourism in didactics was the implementation of the concept of reinforcing learning and teaching (to a lesser extent, motor activities). This was done by B.F. Skinner, creating the principles of programmable learning [80, 81], the idea of which was based on the assumption that the learner should be given portions of information which s/he receives by means of the senses, and then, the results of such actions are checked. If the reaction was correct, s/he had to undertake a new attempt to find the correct answer (Fig. 2).

Such – it would seem – simple and logical principles, in Poland, in the second half of the 20th century, were the basis for the development of linear programmed

![Fig. 2. The flow of information in the programme-based teaching method considering the behavioural approach](image-url)
teaching of various school subjects [82, 83]. It should be noted that this attracted little interest among sports educators [72, 87] or physical education [84, 85, 86], although proposals were made to use specially prepared correctness regulators for tasks [88, 89]. In teaching various subjects, for some time, attempts were made in Poland to introduce, with small success, variations of programmed teaching under the name of block teaching [90]. Such proposals have also not found wider application in learning or teaching motor skills, both in competitive sport as well as physical education.

Linear methods of programmed teaching have been criticized. It was pointed out that in the case of a correct response (reaction), there was praise in the form advancing to the next steps, or punishment, consisting in searching for the right way to solve the problem. It can be assumed that in this case, the methodology was based on the principles of the previously mentioned 1st level reinforcement. It does not include rights related to 2nd degree conditioning. Moreover, in programmed teaching, the usage of positive reinforcement was to be present: reward for positive solution of the task. Practice has proven that constant praise (rewards), after correct answers or reprimands (punishments) after erroneous ones quickly cease to have meaning. In the curriculum of linear programmed teaching, other imperfections were also noted, such as: mastery of facts, not skills, slowing down the teaching process by focusing on acquiring encyclopaedic knowledge, the influence of the quality of information transfer by the teacher [91].

The attempt to modify linear programmed teaching – under the name branched programming - by Norman Crowder, did not bring about the expected results [92-94]. There was also lack of interest in proposals for basing didactics on so-called network learning models [95]. Currently, only a small group of educators base teaching and learning on their own curricula [96].

As stated earlier, the assumptions of behaviourism still form the basis of canons shaping movement habits in the methodology of physical education and sport [21, 22]. The theoretical foundation of the methodology of their formation - and in a sense, the psychology of sport [6] – can be owed to Soviet psychologists [97, 98]. The views of N. Bernstein played a special role in creating the scientific foundations of learning and teaching as well as the interpretation of human movement [99-101].

Polish researchers, at a certain period of development of experimental psychology, also joined in on the attempt to modify the theoretical assumptions of developing motor habits. Based on the assumptions of biomechanics, a newly created scientific discipline in the mid-20th century owed to N. Bernstein, subsequent stages of their development were distinguished [21] by Osiński in 2003:

1) excluding excessive degrees of freedom of movement,
2) utilizing the degrees of freedom of movement and external forces,
3) economization and stabilization of movement habit.

It was also attempted to broaden the basic three phases of developing movement habits by a final stage, calling it: the phase of motor activity plasticization [102] or the solution to the problem [26, 103]. For the needs of sport didactics, two types of habits were also distinguished: open and closed [56, 58, 72].

The principles of developing habits are used in sports and physical education of the 21st century. In these kinds of trends, learning is considered to be the basic process governing the human body. It is mainly connected transferring information to the learner and controlling the results of teaching. According to some views [104], such behaviour should be based on the seven canons developed at the end of the 20th century:

1) curricula in which specific information is passed on to learners according to a specific plan, leading to a predetermined pedagogical objective;
2) specific teaching measures are used to achieve a previously indicated objective;
3) learning is conditioned by revision, positive and negative reinforcement and by modelling the behaviour of a learner who reacts to stimuli given by the teacher;
4) the learner does not control the learning processes, its time or place;
5) the teacher manages the course of the learning processes and is the source of information;
6) assessment is performed individually to check if the goals have been achieved;
7) no indications that the goals have been achieved (negative test result) cause the whole process to be repeated.

The recommendations presented are convergent with the previously discussed concepts contained in T. Tomaszewski’s theory of activity [75, 76] and Galparin’s concept of phased motor action teaching, which were further evolved by: Czabański in Poland [58, 72-73] and Weinberg in former GDR [74]. The following table presents its main assumptions.

From the above list containing concepts of learning and teaching motor skills in the field of behaviourism, it appears that the learner had to passively absorb the knowledge conveyed by the teacher. As mentioned earlier, according to behaviourists, psychic phenomena, which cannot be observed or measured, could not be the subject of science. They only concerned the measurement of specific stimuli and reactions that could be objectively observed and described in physical units of measurement.
Summary and conclusions

Analysis of selected documents showed large influence of various paradigms of behaviour interpretation in behaviourism on the dynamics of theoretical foundations and practical implications in terms of learning and teaching motor activities. Despite the recognition of behaviourism in psychology as historical, it is still in Poland that its influence on the theory and practice of learning and teaching movement activities is clearly visible in sport and physical education.

The views presented in numerous publications on the theoretical foundations of learning and teaching motor activities, which could be found in studies documenting the progress in the behaviourism interpretation of behaviour, lead to the conclusion that traditional didactics should already exceed the existing limits of affinity of two currently separate sciences – psychology and pedagogy – and include a holistic approach to the teaching–learning process in the theoretical considerations and practical implications of the subject. In this case, an equivalent role could be included in the interpretation and the process of learning and teaching human movement: mental processes, somatic features, energetic functions and motion control. The views of sports psychologists shift attention to this [27, 28].

In the undertaken research, a broader approach to the signalled problem was abandoned. Its weight requires discussion in the next study. In this work, it was decided to focus only on the results of analysis of the collected materials, which concern the development of a narrowly understood theory of learning and teaching motor activities, based on traditional teaching and learning movement skills. Summarizing only such a narrow range of research results, it can be concluded that in the current theory and practice of professional sport and physical education, legalisation of older concepts of learning and teaching motor activities takes place. Justifying the necessity for modification, it should be noted that a great part of the theoretical assumptions were based on various concepts of human behaviour interpretation, which arose in trends of behaviourism already at the beginning of the 20th century.

Regardless of its debatable nature, behaviourism has played a significant role in the penetration of psychological and pedagogical knowledge [29]. It also shapes the views of pedagogues and practitioners on learning and teaching, including motor activities. It has its positive and negative sides. First, maybe one of the good ones. The behavioural approach to interpretation of pedagogical phenomena allowed to describe and explain human behaviour in the situation of learning and teaching in a clear and justified way. Thanks to the applied language, taken over from the sciences, such a direction of psychology offered knowledge suggesting how... and with high probability, it was possible to induce, modify and extinguish certain behaviours. In educational practice, behaviour based on such assumptions was and is identified with the right path leading to the implementation of specific pedagogical goals [19-22].

And, on the other hand...

In the extreme form, behaviourists thought that man is similar to animals and works according to simple principles that are based on solid, learned responses to stimuli. In their opinion, it is possible to influence behaviour and modify it similarly in humans and animals [29].

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Tab. 1. The step-by-step approach to learning how to teach motor activities according to Galparin

<table>
<thead>
<tr>
<th>STAGE</th>
<th>Content of the stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>EXPLAINING THE ORIENTATION BASIS OF ACTION</td>
<td>The student recognizes the task; general structure of activities, learning conditions. Determination of the purpose of the action, familiarization with the resources, recognition of objective possibilities of action.</td>
</tr>
<tr>
<td>II</td>
<td>MOTOR ACTIVITY AS A MATERIALISED ACTION AT THE LEVEL OF IMAGINING MOVEMENTS AND ACTIONS</td>
<td>The activity becomes tangible, it materializes, the image of the activity emerges, the movement algorithm (verbal and visual information) arises; Correction and self-correction, internal speech.</td>
</tr>
<tr>
<td>III</td>
<td>MOTOR ACTIVITY AT THE LEVEL OF MATERIAL ACTION AND PERFORMANCE</td>
<td>Practical trials, transformation of the image into action, the inclusion of particular operations and the whole activity into words, the role of the kinesthetic analyser, activation of the emotional system.</td>
</tr>
<tr>
<td>IV</td>
<td>MOTOR ACTIVITY AT THE LEVEL OF ABILITY</td>
<td>Attention focused not on action (elements), but on its effectiveness; control and evaluation of results (exercise); stabilization of operation, “repeating without repetitions”.</td>
</tr>
<tr>
<td>V</td>
<td>MOTOR ACTIVITY AT THE LEVEL OF PLANNED STRATEGY</td>
<td>Interiorisation of the activity; learning social behaviour (partner, opponent); motor procedure – strategy of action.</td>
</tr>
</tbody>
</table>

Source: 58,72-74
Representatives of such a paradigm considered learning as the basic process ruling the human organism. Behaviour, however, was to be the result of the influence of external stimuli, the learner assuming a passive approach. Teaching was limited only to providing information to pupils, and it consisted in controlling the results of learning and teaching. This can be considered as the negative side of behaviourism.

The laws of classical behaviourism, especially those established at the beginning of the 20th century, became the main point of its criticism in the middle of the previous century. It reached its critical point in the review by N.A. Chomsky [105] in B.F. Skinner’s publication: Verbal Behaviour [67]. The essence of behaviourism was accused of comparing people to animals, not taking higher achievements into account [106, 107]. For these reasons, among others, in contemporary psychology, behaviourism—as a subject of scientific research—is already at a period of advanced decay. A significant part of its achievements are now debatable against the findings of the paradigms of contemporary cognitive psychology, which expanded the field of psychological observation by focusing attention to the processes of consciousness and memory.

Conclusions

1. Research should be undertaken to assess the potential of cognitive psychology in the field of modernising the didactic process.
2. There is a need to search for reasons regarding the occurrence of conservatism in Polish didactics and the methodology of learning and teaching motor skills, as well as the basis for justifying necessary reforms in this aspect of school pedagogy and competitive sports.

References:

Behaviouristic traditions in the relationship between psychology...


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