BJMB
Brazilian Journal of Motor Behavior

Special issue:
15 years of Brazilian Journal of Motor Behavior

Contributions of Motor Behavior to Physical Education: what has changed in the last 15 years?

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https://doi.org/10.20338/bjmb.v15i5.256

HIGHLIGHTS

- As BJMB shows, research on motor behavior has increased considerably in the last 15 years in Brazil.
- The discussion on the relationships between motor behavior and physical education has not advanced.
- Without clarifying these relationships the relevance of motor behavior research to the improvement of physical education continues to be ambiguous.

ABBREVIATIONS

BJMB	Brazilian Journal of Motor Behavior
MB	Motor Behavior
ML	Motor Learning
PE	Physical Education
TGMD	Test of Gross Motor Development
SOCIBRACOM	Brazilian Society of Motor Behavior

PUBLICATION DATA
Received 03 08 2021
Accepted 04 10 2021
Published 01 12 2021

ABSTRACT

This article aimed to continue with the reflections on the relationship between Motor Behavior as a field of investigation and Physical Education as an area of knowledge, seeking to analyze what changes have occurred in the last 15 years, regarding the challenges and suggestions formulated in an article that I have published in the Brazilian Journal of Motor Behavior's first issue, in 2006. The analyzes carried out that were based on data extracted from publications throughout this period allow us to conclude that the picture has not had significant changes, particularly concerning the contribution of Motor Behavior researchers to a better definition of the academic identity of Physical Education, which is necessary for the proper contextualization of researches performed on motor behavior in the field. The results show the researchers' lack of interest in discussing more macroscopic themes of epistemological nature, concentrating on the publication of articles to increase their scientific productivity.

KEYWORDS: Motor Behavior | Physical Education | Basic Research | Applied Research | Epistemology

INTRODUCTION

The Brazilian Journal of Motor Behavior (BJMB) completes 15 years of existence. By itself, this is a great achievement. Everyone knows how difficult it is for a journal representing a scientific society to keep regularity and periodicity in a developing country for a long time. Just count how many journals with similar characteristics have achieved this accomplishment in Brazil. In addition, this achievement takes on an even greater sense of attainment when one realizes that the Journal has managed to climb increasingly higher academic-scientific qualifications, which is evidenced by its acceptance by increasingly demanding indexers. Evidently, these were not easy years, with moments of enormous difficulties, when there was no clear goal over the horizon for the survival of the Journal.

For all that, it was with great honor that I received the invitation to participate in this commemorative edition. In addition to the kindness that usually accompanies such an invitation, I was surprised by the reason that I was receiving it. The invitation referred to an

article that I have published in the Journal's first issue, in 2006; an article in which I reflected on the relationship between Motor Behavior (MB) as a field of investigation and Physical Education (PE) as an area of knowledge, launching challenges and research suggestions. The invitation asked me to revisit the theme for an appreciation of any changes that have taken place since then.

The relationship between MB and PE has been one of the main academic concerns of my career. I did, in fact, publish three manuscripts aimed specifically to expose reflections and discussions on this theme.[1-3] The underlying concern comes from the issue that research on motor behavior can be carried out by researchers in different areas of knowledge, for example, in Psychology, Physiotherapy, Occupational Therapy, Ergonomics, Education, among others. However, do MB researchers seek answers to specific questions within their original area of knowledge or to generic questions that could be pursued in any of these areas without distinction? For example, do two MB laboratories, one located in a PE department and another in Physiotherapy, investigate the same themes or themes linked to their respective academic specificities? If their research is directed to specific themes, it is worth analyzing the relationship between the research performed and the specificity of the area of knowledge. If they are generic, it is worth asking: after all are researches contributing to the improvement of which area of knowledge? Without an answer to this question, MB could be considered a "homeless" field of investigation.

Obviously, in arguing on this issue, the BJMB's mission is not being judged – the Journal aims to publish articles on motor behavior (learning, control, and development) regardless of their relationship with any specific area of knowledge. It is a Journal that receives contributions from researchers with different academic backgrounds and working in a several areas of knowledge. It is, therefore, essentially multidisciplinary. Evidently, the Brazilian Society of Motor Behavior (SOCIBRACOM), of which BJMB is the representative journal, has the same identity.

However, the researchers who publish in BJMB are linked to a certain area of knowledge. Thus, it is expected that their academic interests are related to (if not constrained by) their area's interests. The big question is what are the characteristics of the knowledge areas to which they belong. This shows the need for an epistemological reflection on the subject, that is, to discuss the nature and structure of the area of knowledge. If the area of knowledge is academic in nature (basic research), there would not exist, in principle, any epistemological conflict concerning conducting research on motor behavior. However, if the area of knowledge is of a professional nature (applied research), the problem arises as research carried out within it is, supposedly, committed to solving problems that arise in the professional intervention. In short, what kind of areas of knowledge are PE, Physiotherapy, Occupational Therapy, among other areas to which researchers who publish in BJMB and are members of SOCIBRACOM belong? What epistemological basis and status do these areas have?

The purpose of this essay article is to further discuss the relationship between MB and PE, seeking to analyze the changes that have taken place in these 15 years considering the challenges posed and actions suggested in the previous article. In this sense, I apologize in advance to the readers for the fact that I am bringing, in a commemorative issue of BJMB, a somewhat "bitter" topic for discussion. Commemoration is usually related to celebrating conquests and achievements. I am aware of this. However, it seems redundant to me to reiterate the accomplishments of the Journal as, strictly speaking, one can simply look at the

published numbers of the Journal, which will reveal a significant qualitative improvement in recent years. I'm not just referring to the regularity or periodicity of the Journal, but the quality of the articles published. It is known that an important thermometer of the maturity stage of a field of investigation is the quality of its representative journal. It is clear that Brazilian MB researchers seek to publish their articles, primarily, in international journals of recognized impact, but that is exactly why the achievement of a national journal, evaluated by the quality of its publications, is something to be recognized, praised, and celebrated. There was, in fact, a handover from the editors to improve the quality of the Journal, which deserves all our recognition and consideration. However, it is widely known that reflecting on achievements is an essential step to pave the way for the future.

SOME PREMISES OF REFLECTION

It is said that in an academic discussion it is important to make clear the background from which the themes are critically approached. Thus, I think that initially presenting some premises derived from this background, which were used in my previous articles, will facilitate the understanding.

PE researchers involved with the study of the phenomenon of motor behavior may think that discussing the relationship between MB and PE is a meaningless effort, as it is enough that the knowledge produced is contributing to the advancement of science, that is, demonstrates scientific merit. In fact, it makes no sense to carry out research that does not result in advances in knowledge. However, in this case, probably the term science is being used in a global sense based on the assumption that it is unique, and not a set formed by specific areas of knowledge. This, of course, is not real, since science is made up of several areas, each with its own identity. And research is done to advance knowledge in each of these areas. In contemporary science, the different areas are merging to compose more integrated areas of knowledge which is another matter, and only proves the existence of areas.

Others may argue that this compartmentalized view of science, formed by distinct areas of knowledge, is retrograde, as contemporary science is eminently interdisciplinary, multidisciplinary, or transdisciplinary. In other words, discussing the identity of each area is a waste of time. However, it cannot be forgotten that interdisciplinarity, multidisciplinarity, or transdisciplinarity presupposes disciplines, which means that if there were no disciplines, these qualifications would have no meaning. Furthermore, care must be taken in the use of these terms to not confuse their use to characterize different things. For example, using them to express the modus operandi of science to tackle complex problems in society, the constitution of professional teams involved in this endeavor or the characteristic of the curriculum of professional preparation courses, which are eminently multi or interdisciplinary, is a thing; another is its use in an epistemological reflection on areas of knowledge, i.e, in understanding the nature and structure of the knowledge they produce.

Science is not free from preconceptions. For example, there is a false idea that an area of knowledge of a professional nature is less scientific than an academic one.[2,3] More than that, some researchers consider only the basic or pure sciences as science, thus not recognizing the existence of the applied sciences. In this case, it is worth asking: Are not Medicine, Engineering, and Business Administration sciences? Still, is Medicine less scientific than Physiology? Is Engineering less than Physics? Is Business Administration

less than Economics? Implicit in this view of science is a criterion of scientificity that is not consistent with a contemporary view, which is admittedly multiple.

On the other hand, because applied research is oriented towards the search for solutions to practical problems in real life, many researchers consider it more socially committed and, thus, more relevant than basic research which deserve to be prioritized by society.[2,3] The rationale behind this point of view is that, in a world where humanity faces so many fundamental survival problems, uncommitted basic research to solve these problems would be a luxury that should be given less priority. This is, clearly, an ideological stance that disregards the fact that basic research provides the raw material in terms of knowledge that is used as a starting point for conducting applied research. In the defense of applied research, it is often forgotten that being linked to the solution of practical problems in the real world does not necessarily mean that all these problems are relevant or noble.

Basic science researchers, in turn, have the understanding that basic research ultimately contributes to the cultural enrichment of humanity and this, in itself, fully justifies its realization.[2,3] Thus, basic research would make it possible to satisfy men's eternal curiosity to know himself, such as the world one lives in and the universe in which one is inserted, or to answer fundamental questions such as the origin of life, the universe, and the mind. The effort on basic sciences would contribute to expanding the cultural heritage of humanity, regardless of the question of applicability of knowledge in a solution or if it tackles practical problems in society.

In reality, the relationship between basic and applied research is one of interaction and not one of unilateral dependence of the second in regard to the first. There is no doubt that applied research is in some ways an extension of basic research. Nonetheless, it is necessary to recognize the feedback role that applied research has to basic research – not only providing new insights but also supplying parameters for controlling its quality[2,3]. Furthermore, in this interaction, the temporal issue for the transformation of basic research into applied research also needs to be considered. There is a tendency to attribute to applied research the merit of solving immediate or pressing problems in society. However, good applied research often comes from the knowledge produced by basic research carried out a long time ago, so the merit needs to be shared.

Care must also be taken in understanding the relationship between basic and applied research concerning the relevance of applied knowledge to solve concrete problems in the society. If the knowledge produced by basic research is not directly applicable to problem-solving, this does not automatically mean that the applied ones are. Applied knowledge also has limitations. They are often too specific and therefore difficult to generalize. In other words, they apply to particular situations, probably similar to those in which the applied knowledge was originally produced.[2,3]

Finally, there is a need to reflect on the social relevance of scientific research. There is a demand from society about the purpose served by the scientific knowledge produced. This has placed a question mark in basic research that has knowledge as its endpoint and does not result in applied research that can produce knowledge to solve important problems in society. In other words, from the point of view of social relevance, there is a criticism that half of science is being carried out, evidenced, for example, by the few researches that result in patents[4]. It is clear that there is a danger of transforming science into an essentially utilitarian and marketing activity, valuing only instrumental knowledge of the practical application. On the other hand, not looking at society's pressing problems deserves

rethinking. Over the past two years, we have been living a unique situation that exemplifies the issue: the mobilization of science from all over the globe for the production of a vaccine against Covid-19 in a record time. An achievement that in normal times took more than a decade was accomplished in less than a year, starting with basic research on the genetic mapping of the virus. If we think of other humanitarian tragedies that persist, such as hunger, poor sanitation conditions, contagious diseases, illiteracy, among several others, that punish a significant part of humanity, the question that arises is, given the remarkable growth in the volume of knowledge produced, why is research to meet these fundamental needs not carried out with the same priority and speed? There is an argument that the solution to these problems is not of a scientific nature, but a political decision. Yes, there is no doubt about that; however, it is necessary to question whether it is possible and desirable to take political decisions without solid scientific knowledge.

I think that many PE researchers involved with the investigation of motor behavior carry out studies without being interested or involved in these discussions of epistemological nature. I conjecture that many, naively, believe that by contributing to the understanding of the phenomenon, they will automatically be contributing to the improvement of knowledge in the area. In my view, the lack of interest or ignorance of these epistemological issues may, despite all the efforts undertaken and the quality of the work produced in scientific terms, lead the researcher to be questioned about his effective contribution to the advancement of PE.[2,3]

THE TRAJECTORY OF REFLECTIONS TO THE PRESENT

In the first article of the three previously mentioned, "Contributions of motor learning to physical education: a critical analysis" published in the Revista Paulista de Educação Física in 1992, the conclusion was that the knowledge produced by Motor Learning (ML) can be useful in the solution of practical problems that arise in PE, but a more careful analysis showed that they were not causing effective changes in professional interventions. Of course, this conclusion could be extended to other fields of investigation that make up MB. It is interesting to note that PE, at that time, particularly in the US, was going through a great internal dispute regarding its academic identity, favoring reflections on the contribution of research performed in each of its sub-areas of investigation. American researchers from ML also considered the issue[5-8] and reached similar conclusions.

Several causes of this failure were pointed out in the 1992 article. I highlighted, among them, the fact that researches were directed to the investigation of the mechanisms involved in motor learning and not to the testing of conditions and ways to improve performance, that is, the applied research. The other was the use of excessively simple laboratory tasks, which decreased the ecological validity of the studies. That is, studies were performed with artificially elaborated laboratory tasks that often did not reflect what was happening in reality. The motor tasks used were designed to meet the study's convenience; in other words, to facilitate the testing of its hypotheses, so that they had no ecological meaning in themselves. The third cause was the fact that ML studies were done mainly with adult participants who, in most cases, already knew how to meet the requirements of the experimental situations, and learning was limited to a more refined control of the task. Bluntly, "learning" involved little learning, so the amount of practice was limited to a number of attempts well below what is normally required in acquiring motor skills in a real situation.

From a methodological point of view, these causes had, in essence, a common ground: the adoption of the reductionist paradigm. This is based on analytical procedures that imply the simplification of the object of study. To ensure the reliability of the results, the investigations rigorously controlled the variables – which in itself is not a problem. However, this led to a lack of correspondence between the results obtained and the real situation, compromising the ecological validity of the results.

Based on these thoughts, some suggestions for future studies were presented. First, to review the search for the simple linear cause-effect relationship of variables, to investigate the pattern of interaction of independent variables and their effects on dependent variables using valid and diversified performance measures in which the principle of complementarity could be observed. Second, clearly distinguish the characteristics, strengths, and limitations of basic and applied research. The basic research that is undertaken to explain how motor learning takes place involves clarifying the underlying mechanisms and processes and the factors that affect them. In turn, when studying how these mechanisms and processes can be worked on to achieve more efficient learning, applied research should be conducted aiming at solving practical problems in professional intervention. Finally, it was suggested to extend the research to a new field of investigation, called Teaching-Learning of Motor Skills. Simply, to perform studies integrating and synthesizing knowledge in which the central concern is the experimental verification of the applicability of principles and hypotheses derived from basic research in ML in a real teaching-learning situation.

In the second study entitled "Motor learning in the context of physical education and sports science: dilemmas, conflicts and challenges", published in 2001 (almost 10 years after the first article), an attempt was made to address ML properly inserted in the context of a specific area of knowledge called PE discussing their contributions and challenges faced for their development. It started from the premise that the possible contributions and challenges of ML depended on the identity attributed to PE as an area of knowledge. If PE was understood as an area of knowledge of an academic nature, contributions and challenges of ML would only be about the academic-scientific merit of its productions. On the other hand, if PE was understood as an area of knowledge of professional nature, the reflection on the contribution of ML would involve an analysis of its implications for an effective improvement in the professional practice of PE. It is worth noting that in this line of thought if PE was replaced by any other area of knowledge (e.g., Physiotherapy or Occupational Therapy), the same conclusions would be valid.

It is clear that the possible relations between ML and PE brought the researchers in front of an important decision-making process regarding the type of research to be carried out and the issues to be pursued. Given this scenario, some actions were suggested to face the challenges. The first consisted of a deep consideration on the academic identity of PE that all researchers should do, to enable the proper contextualization of ML as one of its sub-areas of studies such as, for example, Exercise Physiology, Biomechanics, and Sport Psychology. The second was to reiterate the need and relevance of conducting research in Teaching-Learning of Motor Skills. The third was, if the understanding was that PE is an area of knowledge of a professional nature, to promote and encourage research involving integrated participation of academics (researchers) and professionals (teachers), aiming to synthesize academic and practical knowledge in conducting applied research, bringing theory and practice, academy and professional intervention, or the university and the society together. Finally, the fourth suggestion concerned intensifying the interaction with the

Pedagogy of Movement research field; performing research that, based on basic knowledge about motor learning, seeks to develop more efficient methods of teaching motor skills.

Then, in 2006, I published in the BJMB the third article, entitled "Motor behavior and its relationship with physical education" – which resulted in the invitation for this article. There, I sought, based on the content discussed in the two previous articles, to continue the discussions and reflections on the relationship between MB and PE. More precisely the problems, challenges, and research perspectives faced when the referred field of investigation is properly inserted in the context of an area of knowledge called PE.

The feasibility of reflecting on the relation between MB and PE is based on the existence of a clearly defined academic identity for both. Certainly, at the time, MB's area had its identity, but PE was still looking for a better definition.[9-14] Thus, a description of the characteristics of the MB as a field of investigation was initially presented and then a brief incursion into the epistemological foundations of PE was made. As PE hardly discussed its academic identity, expecting it to first define that identity so that MB researchers could outline their research concerns was not a productive strategy. Even so, the relation between MB and PE was analyzed taking into account the two possibilities of the identity of PE – as an area of knowledge of academic and professional nature. The reflection was concluded with an important call for MB researchers to effectively participate in the better definition of PE's academic identity, in order to better contextualize their research.

RESULTS OF THIS REFLECTION

Evidently, care must be taken in generalizing the results presented below. It may be that BJMB is not an appropriate journal to reflect on the relationship between MB and PE, precisely because it has a multidisciplinary nature. In other words, the results and inferences would be more pertinent if publications in other PE-specific journals were analyzed. However, BJMB is the journal in focus, so the reflections need to be linked to the studies published in it. Another caution refers to the depth of analysis. In essay articles, a detailed analysis of the data is usually not carried out, observing strict methodological criteria and specific statistical treatments, but rather a more descriptive analysis aiming only at pointing out trends.

In these 15 years of existence, BJMB has published 22 issues with various articles and 17 issues with content referring to events (annals). In the 22 issues, 90 articles were published. Of these, considering titles and abstracts, only 3 (3.4%) focused on discussions about MB as a field of investigation. Not coincidentally, the three articles were published in their first issue. Four review articles and 11 articles were found focusing on the discussion of a specific topic related to MB, which can be considered as opinion articles (16.6%). The remaining 72 articles can be considered as being original, dealing with different themes of MB (80%).

Regarding the motor tasks analyzed in the 72 articles, 28 studies were performed with laboratory tasks, even considering the proximity to the real world and degrees of freedom involved (38.8%). In other 25 studies, the tasks used can be classified as from the "real world" but analyzed in the laboratory (34.7%). In 11 studies, the tasks used can be considered from the "real world", and analyzed using specific tests such as the Test of Gross Motor Development - second edition (TGMD - 2) and other test batteries in specific populations (15.2%). Finally, in only 8 articles, the tasks used were actually from the "real world", and analyzed and investigated in real contexts (11.1%). In general, the use of motor

tasks elaborated in the laboratory and with the performance of few attempts is still accentuated, compared to the number of attempts required in the learning of motor skills in the "real world". Perhaps this prevails based on two assumptions: the learning principles are the same for both simple and complex tasks and the learning principles are the same for the various levels of practice.[1,7] But these assumptions still await further studies to reach more consistent conclusions.

With regard to basic and applied research, whose analysis was made difficult by reading only the titles and abstracts, there was a slight increase in applied research compared to the existing panorama in MB in the 1980s and 1990s in different journals, a result shown in the first discussed article on the subject1. However, basic research continues to be the majority in scientific production, and a more intentional and effective incursion in the realization of applied research is not perceived.

A result that stands out is that few MB researchers have been interested, at least concerning publications, in the epistemological reflections between MB and its areas of knowledge. As the three articles were present in the inaugural issue of the journal, it remains as a hope that the present volume will have some articles aimed at this discussion. If not, it will reinforce the perception that MB researchers are definitely not interested in this discussion. I recognize that my perspectives are not optimistic at all and this has to do with some facts and trends that I am going to report.

In fact, this phenomenon of disinterest in broader themes of its fields of investigation, its area of knowledge, or even science as a whole is generically observed in PE.[4,11,15-17] As mentioned, the existence of a clear identity of the area of knowledge to which it belongs is an essential condition to better contextualize the research carried out in MB. Therefore, the lack of interest in this subject reveals a worrying fact, namely, that researchers are concerned only with the tree of their investigative interests and not with the forest in which this tree is inserted. This disinterest perpetuates the existing ambiguity regarding PE's academic and professional identity. Furthermore, as many of the authors of articles published by the BJMB are advisors in graduate programs, their lack of interest ends up constituting an element that leads their mentees to follow the same path. Thus, when these mentees complete their doctorate and become advisors in graduate programs, they end up becoming multipliers of this ambiguity.

One of the reasons why researchers only focus on their research projects, perhaps a line of research, is related to the productivism installed in contemporary science.[17-19] It is necessary to publish many and very quickly in increasingly reputable journals, and this leads researchers to focus only on research that results in publications, regardless of whether the journals belong to their area of knowledge or even if the investigated topic is related to the specificity of the area of knowledge to which they belong. Naturally, if this is the criterion, one will research with more chances of achieving this objective, which results in basic, experimental, and quantitative research using consolidated methodologies from the natural sciences with a focus on the reliability of results (strict control of variables), without concern for its ecological validity. Applied research, as it is widely known, is guided by another logic.

For these researchers, what matters is the academic-scientific status. Because they know that according to the state of the art, it is this status that opens the doors of research agencies to obtain scholarships, research funding to participate in scientific events, and exchange programs. It is also what the university values, leading them to engage with more interest and dedication to research over and above other functions such as teaching,

extension, and administration. In reality, there is nothing bad in the pursuit of academic-scientific status, especially in areas of knowledge in search of consolidation such as PE. On the contrary, it is a necessity.[11,20,21] The problem is with the purpose this search is made, as the status must be related to the identity of the area where the researcher belongs. In other words, consolidation must be sought to build a body of knowledge that gives it academic-scientific legitimacy.

When this type of productivist thinking prevails among researchers working in Graduate Studies, there is a tendency to transform the training of new researchers into a process aimed at preparing research technicians. These are very competent in the preparation of articles, but unprepared to pursuit academic carrier, meeting demands that are multifactorial and multifaceted.[17]

This productivism has bonuses and burdens. In general, it can be said that MB researchers experience euphoria or anguish as their academic careers unfold. Euphoria is experienced by those who have successfully embarked on the productivist movement. Evidently, as the day has only 24 hours, it is not possible to be productive in all four main functions of the university: teaching, research, extension, and administration. This requires the establishment of priorities for involvement, which should happen without failing to deliver in other functions the minimum that the job requires (justifying the salary). Unfortunately, this is often questionable in the current context of the university where research productivity is in fact the only one to be recognized and valued. In any case, the bonuses resulting from this prioritization in research are enormous because they generate rewards that make researchers even more productive so that the distance in relation to those who set other priorities increases more and more.

For different reasons, the anguish is felt by researchers who have not joined this productivist research movement, e.g., for having established priorities in other domains, by vocation, choice, difficulty, or strength of circumstances. The price (burden) that is paid for this is also enormous, especially concerning the pressure exerted by the necessary scientific productivity to maintain, in a postgraduate program, the status of an accredited advisor. The more prestigious the program, the higher the productivity bar. I think the situation is becoming unsustainable, with inevitable dropouts of researchers. This situation of disadvantage in relation to dedication in areas other than research will only be corrected, in my view, when the university values effectively other activities with the same dimension and magnitude. For example, implementing productivity grants, incentives, and concrete rewards for teaching, extension, and administration activities.[17]

SOCIBRACOM needs to be tuned in to follow the developments in the careers of its members and to take a stand if eventually there is a significant increase in researchers negatively affected by this productivist culture. And BJMB is an appropriate vehicle for this positioning. Two basic functions have been commonly attributed to scientific journals. The first is to enable communication between peers in a scientific community. That is, to bring together researchers who study and investigate certain objects, phenomena, events, and themes. The second is to disseminate the knowledge produced by this community.[18] Therefore, it is in society's greatest interest for the number of researchers to grow more and more and for the journal to be a driver of this increase. In this context, BJMB is faced with a key question regarding the establishment of its editorial policy: should its goal be to contribute to the advancement of science, to the academic-scientific consolidation of the areas to which its researchers belong, or to the improvement of professional intervention in

these areas? As the main "voice" for its community, the Journal is an important instrument for institutionalizing the knowledge produced and establishing quality criteria for conducting studies and research;[18,21,22] the key question, then, must be deeply considered.

CONCLUSION

Fifteen years ago, I presented challenges and suggestions that resulted directly from the issues that emerge from the relation between PE and MB. Such considerations led the editors to invite me to revisit the topic. Unfortunately, the analyses performed based on data extracted from publications over the 15 years of existence of BJMB allow me to conclude that the scenario has not had significant changes. It is clear that the scientific production of Brazilian researchers who have published in the Journal has properly connected to the theoretical advances that the MB has been showing throughout this period. In this context, many have followed the dynamic systems approach, concerned with and involved in unraveling mechanisms and processes underlying non-linear phenomena. This in itself guides research towards the study of more complex multifactorial relationships with the use of multilevel designs and analyses. Furthermore, the concern to study, for example, the perception-action coupling in ecologically valid tasks has led to the use of daily motor tasks in their investigations in different populations. However, the fact that research is being strongly influenced by productivism has led researchers to perform studies without worrying about its practical consequences both for the academic-scientific consolidation of the area as well as for the improvement of professional intervention. This is a worrisome fact. It allows us all to deduce a lack of interest in more macroscopic issues of the area, and an egocentric/selfish search for individual academic-scientific status.

The effort to define the identity of an area of knowledge as basic or applied in nature – establishing its epistemological basis and status – cannot be confused with an attempt to make a radical separation between these types of researches (considering, also, technological development). I am not disregarding the profound interaction of these three types of research that characterize contemporary science. I say interaction and not an integration of areas as many researchers hastily assert, as this still remains an enormous challenge fraught with conceptual and operational difficulties.[23,24]

As it was argued, if PE was understood as an area of knowledge of an academic nature, no conflict of an epistemological order would exist in the fact that MB is a sub-area of investigation and continues to develop its basic research without any concern with its practical application in the solution of "real-world" problems. However, if PE was understood as an area of knowledge of a professional nature, MB should carry out applied research committed to solving problems that arise in professional intervention. But in this case, a question arises: can MB be a sub-area of investigation of PE in this perspective?[2,3]

The reflections carried out in this essay do not mean that basic research on mechanisms and processes underlying motor behavior in its dimensions of learning, control, and development should be stopped or reduced due to the relative scarcity of applied research. On the contrary, they must continue and be encouraged. What it is suggested is that applied research should also be stimulated, streamlined, and valued. How BJMB will act so that this is put into practice deserves a careful analysis by its editorial board.

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Citation: Tani G. (2021). Contributions of Motor Behavior to Physical Education: what has changed in the last 15 years?. *Brazilian Journal of Motor Behavior*, 15(5):289-300.
Editors: Dr Fabio Augusto Barbieri - São Paulo State University (UNESP), Bauru, SP, Brazil; Dr José Angelo Barela - São Paulo State University (UNESP), Rio Claro, SP, Brazil; Dr Natalia Madalena Rinaldi - Federal University of Espírito Santo (UFES), Vitória, ES, Brazil.

Funding: There was no funding for this study.
Competing interests: The authors have declared that no competing interests exist.
DOI: https://doi.org/10.20338/bjmb.v15i5.256