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Antonio José Müller

Graduate School of Education,

Universidade Regional de

Blumenau, Blumenau, Brazil.

Technologies Applied in School Physical Education

Antonio José Müller

Abstract

In the current Physical Education, there is a certain discouragement from young people to take classes. This discouragement may be associated with a lack of attraction for traditional practice. On the other hand, students show great interest in technology, especially in the use of smartphones. The purpose of this article is to associate the use of this technology as a stimulus to practice during School Physical Education classes. Therefore, this article brings a discussion about technology in education and physical education, with the suggestion of some examples of applications to be used in the school context. The text presents possibilities for using technology, more specifically smartphone applications, to encourage young people to do physical exercises, and thus transform Physical Education into something more interesting and seek to achieve the general objectives of School Physical Education itself.

Keywords: Information and Communication Technology; Technologies in Education; Technologies in Physical Education.

1. Introduction

Technology is an essential part of our lives today; it adds value to society and simplifies human life. With the help of the internet, for example, we have the possibility to travel without leaving home, keep in touch with friends on the other side of the planet, cure many diseases and much more. This means more freedom, comfort, and better choices for us, but technology also promotes social imbalance.

Information (IT) and communication (CT) technologies gained enormous growth after the invention of the internet. The internet has changed the way we communicate and interact. According to Pezzotti¹, there are currently 3.9 billion people in the world (the equivalent of 51% of the world population) connected to the network. The number of internet users has more than doubled in just eight years. However, again we have about 65 million people without access and who do not enjoy some benefits and facilities of digital inclusion.

As it could not be otherwise, technology, albeit timidly, is also present in education. With rare exceptions, technology in education today is essentially related to the use of computer labs, multimedia projectors, digital whiteboards, and still little related to materials or software. Few schools and teachers make use of technological resources, such as the use of computers or materials in the classroom, in a didactic way.

In Physical Education (PE), this relationship seems even less used, since it is perceived that the essence of PE is in the traditional practice of games, sports or other activities that are not concerned with being of a technological or scientific nature. Also, during PE, some students do not participate in the practice and work on their smartphones, which contributes to the disadvantages of technology not aligned with PE.

Another crucial point of discussion of PE practice, related to technology, is the increase in obesity in the population, especially in children, due to the lack of exercise resulting from excessive hours spent in passive activities, such as watching television, playing video games, or browsing on the Internet.

With the advent of technology and the lack of security, children and young people play less with "street" games. Playing a ball or riding a bike seem a thing of the past and these physical activities have been replaced by passive hobbies like surfing the internet or playing video games. Due to this and other factors, we understand that PE is becoming less relevant

Correspondence:

Antonio José Müller

Graduate School of Education,

Universidade Regional de

Blumenau, Blumenau, Brazil.

to children and adolescents and that we must reverse this reality. One possibility would be to use technologies, which students use frequently, in PE classes and make the practice interesting again.

Therefore, the objective of this article is to associate the use of this technology as a stimulus to practice during School Physical Education classes, with examples of cellphone applications to be used in the school context.

2. Methodology

This study is classified as bibliographic, regarding the procedures, as it is developed based on already prepared material, consisting mainly of books and scientific articles. Regarding nature, it is a qualitative study since the natural environment is the direct source for data collection and the researcher is the key instrument².

The intention of the study is to present some technological possibilities for didactic variation and experimentation in Physical Education classes. Smartphones can perform the same type of task as a desktop computer, because on it we can edit documents, browse the internet, share information with friends through social networks, send photos and videos, play games, and many other possibilities.

Unlike other types of equipment, smartphones can be used during exercise, sport and in the PE, thanks to their maneuverability and lightness. Therefore, there are several supports on the market that we can place the cell phone on so that it does not interfere with the movements performed during the practice of physical activity, such as arm and waist supports, supports for bicycles or for diving.

State-of-the-art smartphones are expensive, but there are options for various purposes and prices, and they perform practically all the tasks that the more expensive ones perform, especially intermediate cell phones, called feature phones. According to Demartini³, there is currently one cell phone per inhabitant in Brazil and this shows that, probably, our students, even in a more difficult economic situation, have a cell phone and that this device can be used in our practice, as it would match the practicality and individuality of uses.

The great advantage of smartphones, however, is the fact that several applications (App) can run on these devices, which facilitates, guides, streamlines and encourages exercise. Some tools, such as the stopwatch or calendar, are available on the devices, and thousands more can be downloaded for free.

Although we are often vying for the attention of our students with the time spent with cell phones or the inactivity caused by this device, we can improve our use of these devices in our usual practice. Today's cell phones have several features applicable in the context of school and PE. Cell phones, due to their versatility, are ideal for controlling exercise in relation to heart rate, trajectory, via GPS, stride control, distance covered, among others, without the need for a chest strap, and you can even leave it all on file.

Applications are perhaps the most useful and possible tools to be used in practices, since they are available for smartphones, that is, devices that are easy to handle and transport. Another important advantage is the fact that there is a great variability of applications available on the market and practically every day there are many more. We can also consider the availability of most free mode, at least in demo or simple mode, or with negligible values.

The App stores for IOS (Apple Store) and Android (Google Play) offer a huge variety of options that grow every day, ranging from fitness, sport, and health Apps. Among them we find applications for anatomy; kinesiology; biomechanics; physiology – body composition control, glucose controllers, heart rate and pressure meters –; for vision and hearing tests; for health – control of medical appointments and vaccination schedules –; or fitness – control of walking, running, cycling, swimming, for spot exercises, or circuits –; in sport – those who measure scores and present news about sport, or who test their precision skills, such as archery and shooting, among others. Thus, the chart (Chart 1) presents some applications selected for the purpose of evaluation for this study and future use in PE.

Chart 1. Some smartphone apps aimed at physical education classes, available on Google Play*, in 2021.

Walk, Running, Cycling	Exercises	Diagnosis, Physical tests and Health	Sport
Pacer Podometer Coach	Freeletics Bodyweight	Saúde e Fitness – SI	Spike Masters Volleyball
The Walk	Nike Training Club	Instant Heart Rate	Stickman Basketball
Zombies, Run!		OptimizeMe	Nike Football
Geocaching			Switch Skate Guide
Google Fit			Waves
Strava			
Sports Tracker			
Runkeeper			
Nike+Run Club			
Runtastic			

3. Results and Discussions

From the evaluation of the applications, the appropriate categories and practical application were determined, which are:

3.1 Walking, cycling, or running Apps

In this category, we can include running, walking, or cycling apps, which can encourage students to do aerobic

exercise, inside and outside of school. Some of these Apps use the device's GPS to automatically record the user's activities, measuring speed, time, and distance along the route, which can be a stimulus for the beginning of the practice of exercises or a competition between students during the class. In addition, you can use the cell phone's music player, making exercise more attractive. There are also some Apps that track the user's race, making it

possible to share the races on social networks and see what other students are commenting on their routes. Some Apps suggestions:

- **Hiking**
- **Pacer Pedometer and Coach:**
- **The Walk or Zombies, Run!**
- **Geocaching**
- **Google Fit**
- **Strava**
- **Sports Tracker**
- **Runkeeper**
- **Nike+Run Club**
- **Runtastic**

3.2 Exercise apps

In this category there are Apps directed to localized exercises, resistance, or strength. These are usually available in a circuit format with suggestions for execution for different purposes, in which drawings, photos or videos of the exercise to be performed are presented. Some are specific to a particular method, such as yoga or weight training. For our purpose, we are going to present some Apps that are perfectly possible to be used in school PE with the proper applications, adjustments, and considerations in relation to the intensity load. Some Apps suggestions:

- **Freeletics Bodyweight**
- **The Nike Training Club**

3.3 Diagnostics, Testing and Health Apps

There are many Apps available to assess the health of our students. With these applications it is possible to check the BMI; set up a calendar and control the diet; measure heart rate and pressure; and much more. All this with a simple interface, which can encourage students to practice and deepen knowledge related to physiology or basic concepts of cardiac and respiratory anatomy. Some applications are only informative and should not be considered in relation to the accuracy of the results, but they have a great contribution in the development of essential concepts for the control and monitoring of bodily functions during exercise or not. Some Apps suggestions:

- **Health and Fitness – SI**
- **Instant Heart Rate**
- **OptimizeMe**

3.4 Applications for sports

They are very interesting Apps for students to better understand sports training principles, techniques, tactics, trivia, and sports characteristics. Some Apps suggestions:

- **Spike Masters Volleyball**
- **Stickman Basketball**
- **Nike Football**

It's also interesting to look for adventure sports apps, such as for Skateboarding (such as **Switch Skate Guide**) or surfing (such as **Waves**), or for other little-known sports, such as golf, winter sports, on the water, among many others, so that students can have knowledge and experience.

There are also many other applications that can be used not only to be used in physical practice, but in a theoretical way for students to better understand issues related to the functioning of the body in relation to nutrition, such as Diet

and Health – in which you can control the types of foods and calories consumed; to sleep, such as **Sleep Better** – which manages sleep levels and hours slept; for hydration, such as **Hydro** – which determines the ideal daily amount of liquids that we should ingest, including an alarm when we should rehydrate; to monitor menstruation, such as the **Clue** or **Period Tracker** – which can be used for students to observe the menstrual calendar; between others.

Remembering that it is a natural characteristic of the child to play or play without the need for technology. After all, a material without advanced technology, for example, a simple ball, awakens the intrinsic desire, child, or youth, to play and play. The ball was and is the joy of children around the world, not to mention rag dolls, puppets, dollies, tricycles, bicycles, and many others.

Currently, children's toys draw attention due to the variety of possibilities that make children and teenagers delirious with the intention of owning something that is a technological novelty in games or other gadgets. Perhaps games are replacing the ball or the bicycle, this may be current, but the desire to play, inherent in younger people, remains unchanged. After all, the dopamine that is produced when we do something pleasurable, like playing ball, is also produced when we play video games.

In other words, it's not that today's children play less, they simply play with different things. The problem is that current games, such as games, are passive, do not encourage movement, are reserved, normally played "against" the machine, and are addictive, which contributes to the excesses of hours surfing the internet into the detriment of other academic, physical, or social activities. The old games, on the other hand, were healthier, developed physical and motor skills, in addition to promoting a character of socialization.

The diversification of practice is common at PE, but we understand that some teachers are repetitive in their choices, which reduces the interest of students. With this, it is practically impossible to compete with monotonous activities, against the power of seduction and attraction of smartphones. What is noticeable is that for some time now, all students did the practice in the PE class, later, some students usually stopped doing it because they didn't like any proposed activity, or because they were repeated. Today, most students, especially high school students, prefer to browse the internet. In this sense, the student makes use of technology, which impairs the teaching practice and the practice of physical activity by students. Thus, with the reduction in the practice of physical activity, there is a risk of contributing to the formation of a generation of sedentary people and, as a result, to childhood obesity.

From the analysis of the research context, we can consider the main benefits and limitations of the applications when used as alternatives for school PE, they are:

Chart 2. Benefits and limitations of the applications for school PE.

Benefits	Limitations
Improve goal setting	Costs
Some are free	Decrease in practice
More accurate monitoring of progress	Requires knowledge about the use of computers
o Increased student interest	Requires a quality Wi-Fi network
More dynamic classes	

When technology is implemented in Physical Education classes, there is a change in the forms of instruction. The use of technological resources creates a more student-centered environment, promoting independent learning. What was observed in the study is that there are some positive topics related to technology in PE classes.

a. Benefits of incorporating technology into physical education classes

One of the benefits of incorporating technology into physical education classes is that learning can be enhanced beyond strategies, skills, and rules between individual and team sports. It becomes possible to align physical education with other areas, such as math or geography, and physical activities can be individualized to create challenges for students, such as goals or internships to be overcome, in addition to being able to keep track of the results obtained and compare with own and group performance.

b. Recent technical advances

More and more Physical Education teachers today depend more and more on new technologies to apply in their classes. Teachers are finding that new technologies are enabling better teaching and improving student interest in ways that were not possible. With the arrival of smart phones, most of us have a mobile computing platform that is as powerful as a supercomputer. When put to good use and within a suitable application (or application), various types of use can be useful and extremely pedagogical.

c. How teachers and students can benefit

Teachers and students, as well as parents, can benefit from technology in PE using collected data that used to be unavailable. For example, student heart rate during exercise, footage of student progression of a specific exercise or activity over time, step/kilometer indicator, metric data records when students reach certain goals. Using this data, the student and parents will have a better idea of the student's aptitude level and give them immediate feedback. It also helps the teacher to know what skill level the student is currently at and whether they need more encouragement or individual attention.

4. Conclusions

It is observed that in current Physical Education there is a certain lack of interest among young people in participating in practical classes. Some issues are related to this practice, such as lack of attraction for it, lack of adequate equipment or places, or even the lack of preparation of the teacher. What is observed during PE classes is that students who do not practice are using their cell phones at the mercy of practice.

Most kids like technology-related things. Not all children love Physical Education or exercise. However, by joining the two together and using technology in PE, some students may be attracted and begin to enjoy PE in general. This can have immediate effect for students and for the future, making physical activity a lifelong choice.

We must agree that current habits have great power of seduction and have changed the levels of interest of students in PE, but teachers must also rethink teaching practices, to seek the use of new practices, more interesting to students, with the subsidy of technology and thus we can achieve a greater appreciation of physical activity, exercise, and PE itself.

Another perception we have is that the technology currently used at PE translates into the use of equipment, such as projectors for occasional theoretical classes, as in the "classroom" subjects. However, as PE is an essentially practical discipline, the use of technology requires a different and probably more complex approach to its real possibilities of use.

The introduction or emergence of digital technologies in Physical Education does not seek to replace physical activity, but rather aims to help better explore physical activity.

Thus, this article suggests legitimate possibilities on how to use technologies in the school reality of our teachers and students, with the aim of technology being able to assist in creative teaching practice and encourage young people, who are so lacking in this condition nowadays, to practice exercises.

The use of technology to improve communication, instruction and assessment is also a trend in education and PE. Technology can improve the condition of everyone involved in Physical Education programs, as it helps by providing data for fairer evaluation and classification, improves our teaching condition, improves communication with students, parents and management about performance and achievement students and thus increasing student motivation.

References

1. Pezzotti, R. Com 3,9 bilhões de usuários no mundo, o que acontece na web em um minuto. UOL Economia. 01/04/2019. Disponível em <https://economia.uol.com.br/noticias/redacao/2019/04/01/com-39-bilhoes-de-usuarios-no-mundo-o-que-acontece-na-web-em-um-minuto.htm>. Acesso em 22 Abr 2020.
2. Gil, A. C. Como elaborar projetos de pesquisa. São Paulo: Editora Atlas. 1999.
3. Demartini, M. Brasil terá um smartphone por habitante até outubro, diz FGV. Revista Exame Online, 2017. Disponível em <https://exame.abril.com.br/tecnologia/brasil-tera-um-smartphone-por-habitante-ate-outubro-diz-fgv/> Acesso em 26 set 2019.
4. Google Play. Google Play Aplicativos. 2021. Disponível em <https://play.google.com/store> Acesso em 5 dez 2021.