# 121 - THE DIGITAL LITERACY AS EDUCATIONAL TOOL FOR DEVELOPMENT OF FITNESS CARDIORESPIRATORY

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doi:10.16887/86.a1.121

**Introduction**

Nieman (1999) the states that health can be understood as a set of factors involving: the physical well-being, psychological, social and not as the absence of disease. According to Nahas (1995), the main causes of mortality in the last 50 years were contagious infectious diseases, but with the advancement of technology and science have been replaced by chronic diseases such as heart disease, diabetes, cancer and others.

Collaborating with Nahas, Barbanti (1986), states that "habit of exercise helps both in the mental capacities, such as metabolic and harmonious", according to the author, the growing complacency related to technology makes use less and less our physical abilities to the mobility despising muscles and bones weaken and leave more conducive diseases.

Silva (2000) states that the sedentary lifestyle is not seen only in adults, covers children and adolescents who perform fewer physical activities in their daily lives.

The school physical education has been in recent years a key contact of the child with physical activity and second Mattos; Neira (2000, p. 42) "physical activity can be understood as any bodily movement produced by skeletal muscles which results in energy consumption". The body was made to move is like a machine that rust is not used and to work requires fuel as oxygen and nutrients that are distributed throughout the body by the cardiorespiratory system.

Cardiorespiratory fitness can be developed in various sports and also to exercise, subgroup of physical activity, which Nahas (2010, p. 46) defines as "a form of physical activity planned, structured, repetitive, aimed at the development (or maintenance) of physical fitness, motor skills or the organic and functional rehabilitation".

This study aims at improving cardiorespiratory fitness by running regular exercise at the beginning of each physical education class using as a tool facilitating the digital literacy which according Carmo (2003) is the ability to construct meaning from text that mixes words, pictorial and sound elements and also locate, filter and critically evaluate information available electronically.

Thus began the development of this project: The digital literacy as a pedagogical tool for the development of cardiorespiratory fitness. For clarity on the subject in focus will be displayed following a brief literature review on digital literacy, school physical education and health and cardiorespiratory fitness and health.

**Digital Literacy**

To Marcuschi; Xavier (2004), increasing the use of new technological tools (computer, internet, magnetic card, ATM, etc.) in society has demanded of citizens learning of specific behaviors and reasoning. For this reason, some scholars begin to talk in the emergence of a new kind, or paradigm literacy mode, to which they are called digital literacy.

According to Carmo (2003), it is the ability to construct meaning from text that mixes words, pictorial and sound elements and also locate, filter and critically evaluate information provided electronically, contemporary. Carmo e Buzato (2003) will define digital literacy (LD) as "the body of knowledge that enables people to participate in literacy practices mediated by computers and other electronic devices in the contemporary world". In a world where technology develops so quickly is essential to use digital equipment that become educational facilitators for being in student daily.

The digital literacy involves performing different reading and writing practices of traditional forms of literacy and literacy. Being digitally literate assumes assume changes in ways of reading and writing codes and verbal and non-verbal, such as images and drawings, if we compare the forms of reading and writing made in the book, because the support on which are the digital texts the screen is also digital. From texts, videos and sounds the student concentrate and evaluate the information provided more easily.

**School Physical Education and Health**

The school physical education has been in recent years a key contact between children and physical activity, as population growth means that there is a high incidence of people living in condominiums and apartments not providing adequate conditions for children to develop their physical, through sports, games and activities.

Another major determining factor for the large increase in sedentary children is the technology that leads children to stay sitting hours and often in the wrong position. This act alienated to poor nutrition and sedentary adults had created a large part of those with chronic degenerative diseases.

About 40% of Brazilian adults, the equivalent of 57.4 million people has at least one chronic non-communicable disease (NCD), according to the National Health Survey (PNS). These diseases mainly affect females (44.5%) - are 34.4 million women and 23 million men (33.4%) patients with chronic diseases, regular physical activity is a key factor in preventing (NCDs ), chronic non-communicable diseases account for over 72% of the causes of deaths in Brazil.

On the understanding Nahas et al. (1995), Physical Education, especially in schools, offers a relevant and unique educational contribution to all individuals, such as motor development and physical fitness. Thus, people related to the area of Physical Education, should develop methods in their classes so that students get a good participation and so consequently, help in maintaining your health according to the "World Health Organization" (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of infections and illnesses".

Conducting appropriate physical efforts in childhood and adolescence promotes immediate benefits, and positive experiences associated with physical activity are characterized as important attributes in the development of skills, attitudes and habits that can help in the future to adopt an active lifestyle physically in adulthood (Guedes; Guedes, 1997).

Physical education in school is directly linked to national curriculum guidelines (NCP's, 1998), which are references to the elementary and secondary education in the country. Its main objective is to ensure for all children, youth, adults, regardless of local, social class, gender, the right to enjoy the body of knowledge necessary for the exercise of citizenship, therefore, is known

to be adapted to local peculiarities of institution.

Within the school environment, physical education selected two major themes for your application according to the Curricular Proposal of Santa Catarina (1998, p. 219),

> Facing the school reality, selected corporeality and human movement for its broad nature and integral to the themes of Physical Education, and these require a better discussion among teachers in the field, in the various teaching units. It should be noted that physical education, to work with human movement within the various ways in which features should be guided by the possibility of a movement that exceeds the prevailing conditions biologizing and eminent awareness of performance, whether at the individual or the collective , and design for a more participatory and cooperative consciousness, so citizens.

For authors Vieira, Priore and Fisberg (2002) physical activity in adolescence can stimulate physical growth, improve self-esteem, relaxation, energy expenditure, perception of the body, contribute to the social development, as well as providing a number of benefits health and well-being.

In this context, one of the important challenges of physical education is to create self-conditions and development of students in the fields motor, cognitive, affective and social, thus building an active, healthy and productive lives, integrating properly and harmoniously the body, mind and spirit through the different experiences of physical activity in school and beyond (Alves, 2003).

**Materials and Methods**

To meet the objectives proposed in this study, we used two types of research: literature and quantitative field. Data collection took place with 41 students aged between 11 13 years, enrolled in the 6th year of the Municipal School Morning Mr Deputy Lauro Carneiro de Loyola in Cubatao, thus allowing the approach to the reality of the facts and still digital literacy videotaping the race for later in room with digital media correct possible mistakes and motivate.

As a research tool, we used the 1000 meters test (Klissouras 1973): X = 652.17 - Y / 6,762 (where X = VO2max expressed in mL.kg.min-1; Y = running time in seconds the other numbers are contained in the formula) modified by Matsudo, which allows to evaluate the individual through a simple test that measures the time that the individual takes to travel the distance of 1000 meters thus determining the level of aerobic capacity which was divided into grid -test and post-test and analyzing the evolution of the students.

The pre- and post-test were performed in the sports court school where a track with cones so that there was slowdown in curves was adapted, students had to complete 15 laps and 20 total meters to 1000 meters determined by the test. Students were separated into pairs where one would write down another time with a stopwatch and an entry form for which there was no lap count errors, the sound of the whistle students should run 1000 meters in the shortest possible time, not being allowed floor. This procedure was also performed in the pre-test and post-test.

The materials used for the application of the tests were: whistle, stopwatch, race course in adapted sports field school, clipboard, pen, form data collection. The pre-test was held on 13/05 and post-test performed on 23/09 completing and finalizing the implementation schedule of activities on 24/09. Prior to the pre-test, we started with a lecture on digital media about the project and how it would unfold during the year, it was explained on the topic and its importance to health and how the digital literacy would fit this theme. The practical part began following, which was conducted in the period May to September 2015, twice a week, with 4 hours / lessons per week, 2 classes for each class, totaling the sum of 60 hours / class.

The classes are designed for every 4 weeks of practice 1 would be in digital media with images and videos of the students, to correct any postural mistakes and motivate the divisions, was exposed videos on how to properly run and specific stretching exercises to help race. The activity practice race began with a time of 4 minutes, where the subjects should go as much distance this time, and has been increasing gradually until the last month comes up for 8 minutes. During the activities have been implemented in biological individuality of each student, rather than obliging them to do more than they could, to obtain a better result in the survey.

**Interpretation Analysis and Discussion of Results**

After the pretest, we obtained an average of 48% of VO2max (ml / kg.min. at the end of the 15 week project was made the post-test, confirming an average of 49%. After we get the individual student data during the pretest and posttest analyzed as shown in Table 1:

Table 1. Absolute and Relative Frequency of VO2max classification of volunteers according to Matsudo (1983)

| Avaliação de Desempenho | Valores de VO2máx (ml/Kg.min)* | Frequencia Absoluta e Relativa |
|---|---|---|
| Excelente | 48,9 | 17 (80,95%) |
| Bom | 47,94 – 38 | 4 (19,04%) |
| Médio | 37,88 – 30,5 | 0 (0%) |
| Regular | 29,9 – 23,1 | 0 (0%) |
| Fraco | < 22,95 | 0 (0%) |

*Padronizado de acordo com Matsudo (1983)

Thus, by the table 2 Matsudo protocol, the analysis can be done in aerobics class of students.

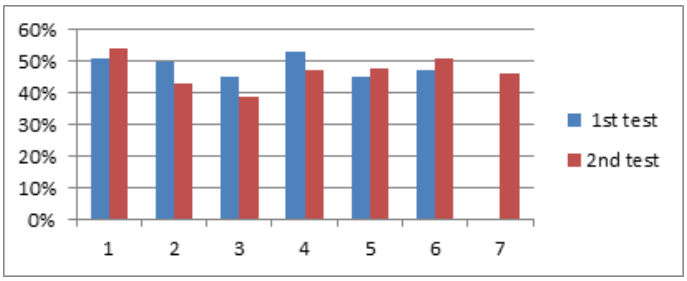
Table 2. Pre and Post Test Results

| Classificação Aeróbica Pré-Teste e Pós-Teste | | |
|---|---|---|
| **Categoria** | **Pré-Teste** | **Pós-Teste** |
| | **N° AMOSTRA** | **N° AMOSTRA** |
| **FRACO** | **3** | **2** |
| **REGULAR** | **0** | **0** |
| **MÉDIO** | **1** | **2** |
| **BOM** | **11** | **15** |
| **EXCELENTE** | **26** | **22** |

Fonte primária (2015)

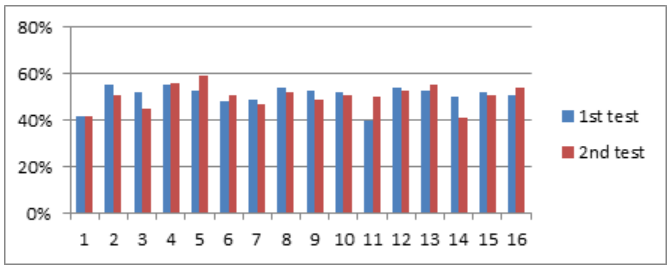
Can be analyzed by Table 1, the number of students and the aerobics category in which they were during the pre- and post-test. After the pre termination and post-test, it can be observed that from the aerobic classification of Matsudo protocol, which of 26 in excellent rating in the pretest, 22 maintained the same ranking in the post-test and 4 had a setback for good classification, the 11 classified as good in the pre-test 2 fell back to average, the only classified as medium in the pretest evolved into good, and for the third classified as weak none of these managed to complete the first test, as in 2 seconds and managed to complete one of these evolved into the good classification and another until completed the test but remained weak in classification, we had only one participant who did not complete the pre-test and post-test.

Chart 1 - Comparative data between the pre-test and post-test 6th grade A (female)




Source: Primary (2015)

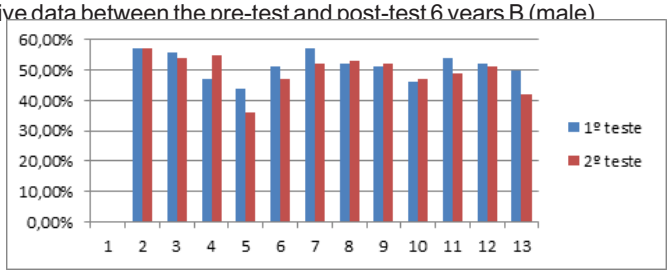
Graph 2 Comparative data between the pre-test and post-test 6th grade A (male)




Source: Primary (2015)

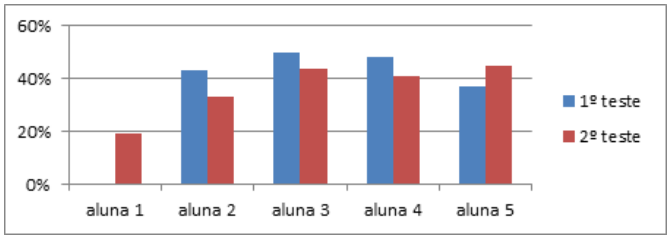
In the chart 1, we can see the change of individual students during testing. The values shown in Figures 1 and 2 refer to the 6th grade A and graphs 3 and 4 to 6 years B and VO2max level of each student. All results have not had a worsening and not a relatively large improvement, unless the student 7 represented in Figure 1 and the pupil 1 of the Chart 4 that had not completed the test in the pre-test and succeeded in posttest evolve significantly, the student first graph 3 did not complete the pre-test and post-test.

Graph 3 comparative data between the pre-test and post-test 6 years B (male)




Source: primary (2015)

Graph 4 comparative data between the pre-test and post-test 6 years B (female)




Source: primary (2015)

After all the tabular data, significance analysis was performed using the Student t test for paired samples and through analysis, it is concluded that the intervention was a significant improvement, as was p ($p < 0.05$) was higher 0.05.

Studies such as Pires and Filho (1983) and Vasconcelos et al. (2011) reported the importance of the study of aerobic capacity, demonstrated in other ways to be worked in Physical Education, focused on exercise in the form of walking and running in class, and each aerobic work, their maintenance and contribution the health of pupils who reached the expected goals.

**Conclusion**

Based on the results it can be concluded that exercise races at the beginning of physical education classes can be significant for improving cardiorespiratory fitness, depending on the school can be used other spaces to motivate more students, another option is to create murals and expose evolution also to serve as motivation.

The present study showed a significant improvement as the statistical analyzes presented after the development of the test 1000m Matsudo, as the purpose of the study can be seen that the racing classes helped in aerobic performance of students as much as in some with a greater influence than in others.

Thus, it is open to new studies related to this subject, who can be made new methods to be worked with students, new approaches in physical education classes and never forgetting that, although it is analyzing a specific capacity as a way to study, the development of the student in the class should be performed as a whole.

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**THE DIGITAL LITERACY AS EDUCATIONAL TOOL FOR DEVELOPMENT OF FITNESS CARDIORESPIRATORY**

**ABSTRACT**

This study aims to identify the improvement of cardiorespiratory fitness and the benefits of fitness for practicing using as a pedagogical tool for this made the digital literacy. The research is bibliographical and quantitative field. Study participants were 41 schoolchildren of both sexes enrolled in the 6th year of elementary school of Mr. Deputy Lauro Carneiro de Loyola in Joinville/SC, for the study were used lesson plans with stretching exercises and running with gradual increase every month and often two to three times a week, digital camera to photograph and film classes and evaluation sheets. The pre- and post-test were developed according to the Klissouras protocol (modified by Matsudo). The children were assessed and reassessed within 5 months. The results showed the difference between the pre- and post-test, where after the exposure period, some obtained an evolution and other involution. Through statistical analysis according to the Student t test, the intervention achieve significant improvements because ($p < 0.05$) was greater than 0.05. We conclude that the intervention was satisfactory as the goal of the study.

**KEYWORDS:** Digital Literacy, Physical Education and Health, Cardiorespiratory Fitness

**L'OUTIL ÉDUCATIF CULTURE NUMÉRIQUE QUE POUR LE DÉVELOPPEMENT LA CONDITION CARDIORESPIRATOIRE**

**RÉSUMÉ**

Cette étude vise à identifier l'amélioration de la condition cardiorespiratoire et les avantages de la remise en forme pour la pratique en utilisant comme un outil pédagogique, à cet effet, l'alphabétisation numérique. La recherche est le champ bibliographique et quantitative. Les participants à l'étude étaient 41 élèves des deux sexes inscrits dans la 6e année du primaire de l'école adjoint Lauro Carneiro de Loyola, leçon Joinville SC, pour l'étude ont été utilisées plans avec des exercices d'étirement

et de courir avec augmentation progressive de chaque mois et souvent deux à trois fois par semaine, un appareil photo numérique pour photographier et les classes de films et puces évaluation. Le pré et post-test ont été élaborées selon le protocole Klissouras (modifié par Matsudo). Les enfants ont été évalués au cours de la période évaluée de 5 mois. Les résultats ont montré la différence entre le pré- et post-test, où, après la période d'exposition, certains ont obtenu une évolution et involution autre. Grâce à l'analyse statistique selon le test t de Student, l'intervention réaliser des améliorations significatives en raison (p <0,05) était supérieure à 0,05. Nous concluons que l'intervention était satisfaisante comme l'objectif de l'étude.

**MOTS-CLÉS:** Alphabétisation Numérique, Physique Educación y Salud, il Cardiorrespiratoria Aptitud.

**EL ALFABETIZACIÓN DIGITAL COMO HERRAMIENTA EDUCATIVA PARA EL DESARROLLO DE APTITUD CARDIORRESPIRATORIA**

**RESUMEN**

Este estudio tiene como objetivo identificar la mejora de la capacidad cardiorrespiratoria y los beneficios de la aptitud para la práctica utilizando como herramienta pedagógica, en esto sentido, la alfabetización digital. La investigación es de campo bibliográfico y cuantitativo. Lección participantes del estudio fueron 41 escolares de ambos sexos matriculados en el sexto año de primaria de la escuela Diputado Don Lauro Carneiro de Loyola in Joinville/SC, fueron utilizados para el estudio planea con ejercicios de estiramiento y funcionando con aumento gradual cada mes y con frecuencia de dos a tres veces a la semana, cámara digital para fotografiar y filmar las clases y hojas de evaluación. El antes y después de la prueba se desarrollaron según el protocolo Klissouras (modificado por Matsudo). Los niños fueron evaluados en el período de 5 meses (antes e después). Los resultados mostraron la diferencia entre el pre y post-test, donde después del período de exposición, algunos obtiene una evolución y otra involución. A través de análisis estadístico según la prueba t de Student, la intervención lograr mejoras significativas debido a que (p <0,05) fue mayor que 0,05. Llegamos a la conclusión de que la intervención fue satisfactoria ya que el objetivo del estudio.

**PALABRAS CLAVE:** Alfabetización Digital, Educación Física y Salud, la Aptitud Cardiorrespiratoria.

**O LETRAMENTO DIGITAL COMO FERRAMENTA PEDAGÓGICA PARA O DESENVOLVIMENTO DA APTIDÃO CARDIORRESPIRATÓRIA**

**RESUMO**

Este estudo tem por objetivo identificar a melhora da aptidão cardiorrespiratória e os benefícios desta aptidão ao praticante usando como ferramenta pedagógica, para este feito, o letramento digital. A pesquisa é do tipo bibliográfica e de campo quantitativa. Participaram do estudo 41 escolares de ambos os sexos matriculados no 6º ano do ensino fundamental da escola Deputado Lauro Carneiro de Loyola, Joinville SC, para o estudo foram utilizados planos de aulas com exercícios de alongamento e corrida com aumento gradativo a cada mês e com frequência de duas a três vezes na semana, câmera digital para fotografar e filmar as aulas e fichas de avaliação. O pré e pós-Teste foram desenvolvidos de acordo com o protocolo de Klissouras (modificado por Matsudo). Os escolares foram avaliados e reavaliados no período de 5 meses. Os resultados mostraram a diferença entre o pré e o pós-teste, onde após o período de aplicação, alguns obtiveram uma evolução e outros uma involução. Através da análise estatística conforme o teste t de student, a intervenção obteve melhoras significativas, pois (p < 0,05) foi maior que 0,05. Conclui-se que a intervenção foi satisfatória conforme o objetivo do estudo.

**PALAVRAS-CHAVE:** Alfabetização Digital, Educação Física e Saúde, Aptidão Cardiorrespiratória