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Self-Reported Barriers to Quality Physical Education by Physical Education Specialists in the Island of Puerto Rico

Enid Rodriguez-Ayala

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**SELF-REPORTED BARRIERS TO QUALITY PHYSICAL EDUCATION
BY PHYSICAL EDUCATION SPECIALISTS IN THE ISLAND OF
PUERTO RICO**

By

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DISSERTATION

Submitted in Partial Fulfillment of the
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ABSTRACT

The purpose of this study was to determine which barriers physical education teachers in the Island of Puerto Rico perceive to influence their teaching of the established physical education curriculum.

The instrument Perceived Barriers to Teach Survey, a modification of the Opportunities to Learn instrument (2010) from NASPE was used to collect data from a stratified sample of 600 physical education teachers from all the school levels in Puerto Rico. Five-point Likert-type scales and open-ended questions were used to measure respondents' perceptions regarding barriers to teach the established curriculum.

The results of the study were as follows. First, teachers working at different schools levels did not perceived barriers differently. Second, teachers with fifteen to twenty years of teaching experience did not find the physical education Marco Curricular to be a valuable tool. Third, teachers with fifteen to twenty years of teaching experience did not use the Marco Curricular to plan their daily lessons. Fourth, lack of appropriate facilities, lack of equipment and materials and principal support were identified as barriers by teachers. Fifth, significant differences were found between teachers from the school districts of Ponce and Mayaguez in terms of time to teach. Significant differences were found between teachers working at a "Segunda Unidad" school setting and the rest of the school levels with regards to time to teach, principal support and number of students. Seventh, three main categories were formed after open – ended questions were analyzed: lack of adequate facilities, lack of equipment and materials.

The findings suggest that teachers attempted to adopt and implement the Marco Curricular of the PR Department of Education, but barriers were present. School administrators and policy experts have a major responsibility to assist teachers minimizing the barriers that hinder the implementation of the established curriculum.

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Dedication

This dissertation is dedicated to my mother, Angelina, Roger and my son Marcel. Without their support and encouragement through all these years, I don't think that I could have culminated this journey. I also want to thank my friend Ivy, who motivated me to pursue this dream. Thank you all.

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Chapter I

Introduction

For the last 100 years Puerto Rico has shared a political relationship with the United States. In many instances, the government has copied the educational models of the Mainland establishing programs that do not fit the Puerto Rican cultural idiosyncrasy. The new Marco Curricular for Puerto Rico (Departamento Educación de PR, Marco Curricular Educación Física, 2003) focuses on developing individuals committed to being productive citizens who will protect their cultural pride. The Department of Education's Marco Curricular promotes the development of Puerto Rican national heritage in the following aspects: consciousness, conscience, historical and cultural integrity. This instrument contains the mission and goals, and the basic curriculum content for each subject taught in the Puerto Rico school system.

The Department of Education in Puerto Rico has the responsibility to provide quality education for all, emphasizing the development of the student's mental, social, physical, emotional and moral characteristics. Physical education in Puerto Rico is not an isolated subject; it shares a formative responsibility with the entire academic curricula by developing well rounded and healthy individuals. Students are expected to develop tools to improve their quality of life and become better problem solvers. The goals of physical education programs on the Island are to maintain the identity and heritage of students, as well as assist in the development of individuals who are also connected to the larger Puerto Rican society.

Physical education, as a subject taught in all academic levels in the Puerto Rico educational system, is given special attention because it plays an important role in

students' physical development through the years. Students benefit from this subject by acquiring health related qualities such as: cardiovascular endurance, muscular strength, muscular endurance, flexibility and body composition which result in better functioning of the body. Health-related fitness may also favorably influence academic learning and motor skills development. Furthermore, physical education motivates students to participate in lifetime activities, stimulates thinking, and helps to develop an autonomous human being capable of guiding his or her own learning (Departamento Educación de PR Marco Curricular de Educación Física, 2003).

Physical education has existed in the Puerto Rico public education system as a content area since 1898. In recent years, this content area has been under close scrutiny on the Island due to the high incidence of obesity rates among children in the public education system. Physical education programs in schools have the potential to promote healthy, active lifestyles by providing children with some of their recommended physical activity, increasing their physical fitness levels, and teaching them generalizable movement and behavioral skills. More recently, however, the focus has shifted to the development of the total person, including health, fitness, and wellness (Trudeau & Shephard, 2005).

Overweight and Obesity Issues in Puerto Rico

Data from the Puerto Rico Health Department (2006) and Gonzales de Pijem (2009) suggest that 40% of the adult population on the Island is overweight and 26% of children between the ages of six and twelve are obese. Also, 16% of children are at risk of becoming overweight, and the number of overweight students has increased significantly in the last decade from 8.1% in 1993 to 31.9% (Center for Disease Control

and Prevention, 2009). The 2004 US Census Bureau Population Estimates indicated that Puerto Rico has 570,363 habitants that were obese. The numbers were only estimates, but gave an alert to the Government of the problem of obesity the Island was experiencing. In 2008, former governor Anibal Acevedo Vila implemented the program “Puerto Rico in Shape”, where personal trainers and nutritionists were hired for each town on the Island to increase the physical fitness levels of their habitants and decrease the incidence and prevalence of the overweight population in PR. In recent years, the government has focused its efforts on reducing the number of obese children on the Island. The Health, Human Services and Education Departments are working in tandem to eradicate this problem by teaching children healthy eating habits and increasing the amount of physical education students receive weekly.

Obesity in children is a major antecedent of adult obesity. According to the Center for Disease Control (2000), inactivity in children and adults has contributed to the 100% increase in the incidence of childhood obesity in the United States since 1980. Many studies have focused on this problem and findings are alarming (Boreham & Riddoch, 2001; Freedman et al., 2001; Garza, et al., 2011; Hardy, 2004; Laitinen, 2001; Mo Suwan, 2000; Reilly et al., 2003; Serdula, et al., 1993; Troiano & Flegal, 1998). Further, obesity in childhood has serious, adverse consequences for health in adulthood. Hardy (2004) demonstrated the persistence of childhood obesity into adulthood. Thus, as obesity is the most important risk factor for hypertension and other diseases, the consequences of obesity extend beyond its health effects, affecting many aspects of the person’s life.

Puerto Rico (PR hereafter) Department of Education

The Puerto Rico Department of Education is the governmental entity responsible for providing primary and secondary public education in Puerto Rico. In the 2011- 2012 school year, the PR Department of Education had a clientele of approximately 471,677 students. These public school students account for approximately 57% of the island’s total population of students in grades PK-12 while 43% of Puerto Rico’s students attend private school (Departamento Educación de PR, 2012). The PR Department of Education oversees one island-wide education system comprising of 1,457 public schools, seven regions and 28 school districts. Table 1 presents the number of schools per level and the grades they serve. This unitary system employs 31,136 teachers for all school levels, including adult education. Of these teachers, 78% have a bachelor’s degree, 21% have obtained a master’s degree and less than 1% has a doctoral degree (Departamento Educación de Puerto Rico, 2012)

Table 1

Schools per Level and Grades

<u>School</u>	<u>Grades</u>	<u>Number of Schools</u>
Elementary	PK- 6	851
Middle School	7 – 9	209
High School	10 – 12	163
“Segunda Unidad”	K – 9	170
Secondary	7 – 12	40
All Levels	K – 12	24

In Puerto Rico, students spend thirteen years immersed in the school culture. The power of social formation and transformation that schools in the Island have is

incalculable. The school is the mean by which changes take place, before they occur in society. The PR Department of Education has a major role in the formation and transformation of Puerto Rican society. This system is student-centered. The student is the principal axis, the teacher is an investigator and the classroom becomes an area where students experiment and integrate the knowledge they have acquired. The student is the center of all pedagogical practices. The educational process responds to the needs of developing students who can become free individuals that practice critical thinking skills and use their intellectual, physical, ethical and aesthetics capacities. Education, as a life experience, views the student as the center of the educational process (Departamento Educación de Puerto Rico, Carta Circular #1- 2011-12). The student is the starting point, from the planning to the evaluation phase.

The fundamental role of the teacher within this framework is to guide students through an independent or self-learning process, in order to deepen their knowledge and to help them make connections between learning and daily life. Teachers, also prepare the learning environment and involve students in the investigation process of knowledge acquisition. Teachers see the classroom as an experimental laboratory where new strategies, teaching methods and resources are used. They design the curriculum, choose the topics of study and utilize teaching strategies to meet the interests and needs of the students. Classrooms are the context wherein students can investigate, experiment and share ideas. In this system, decisions are taken in the classroom, and students assume a reflective role emphasizing what is necessary for their learning (Estado Libre Asociado de Puerto Rico Departamento Educación de PR, 2003). Of the

total number of teachers in the Puerto Rico school system, 2,243 specialize in the teaching of physical education.

The Physical Education Program in Puerto Rico

The physical education program is an essential component of the Islands' core curriculum. In the year 2000, physical education was made compulsory for all students after former governor Rafael Hernandez Colón restructured the public education system. Law # 146 states that the educational system is not complete if physical education is not included as an essential component of the student's formation (Departamento Educación de PR, Carta Curricular #18-2002-2003, p.2).

Students complete one credit in physical education to graduate from middle and high school and receive a minimum of three hours of physical education weekly in every school level taught by a certified teacher. Physical fitness levels of students are recorded in fitness profiles beginning in the 4th grade and extended into their senior year of high school when graduation occurs. The fitness profile is not taken into consideration for the student accumulative general point average (hereafter GPA). The teacher takes into account other aspects of daily instruction, such as written tests, demonstration of skills and portfolios among other forms of assessment to give students a letter grade beginning in the 4th grade.

Students from K to 3rd grade receive instruction that emphasizes body control, the relationship between the physical and social environment, and the development of fundamental and manipulative skills necessary to obtain proficiency in motor movement. The emphasis of the 4th to 6th grades program is to develop in students more complex motor skills where students adapt the skills learned to the environment and

nature of different activities. Children will show a level of maturity in the use of fundamental motor skills. Movement activities provide students opportunities to develop physical fitness competencies. In middle and high school, students receive instruction that exposes them to novel movement experiences and educates students to incorporate these novel movement experiences into their lives after graduation from high school.

The extended curriculum provided in intramurals focuses on organizing and implementing a variety of movement activities where students can practice and apply the skills learned in the physical education class. Ample opportunities are offered for students to increase their physical fitness levels. The planning of these activities takes into consideration the students' interests and needs and provides opportunities to improve leadership skills and teamwork (Departamento Educación de PR, Carta Circular # 18-2002-2003).

Interscholastic athletics includes movement activities with emphasis on competition, where two or more schools participate. These activities may be organized within the school district, region or national level. The goals of the physical education programs are to be taken into consideration by personnel working within the interscholastic program (Departamento Educación de PR, Carta Circular #18-2002-2003). The academic instructional program, as well as the extended curriculum of intramural and interscholastic activities are to be integrated with each other using human movement, as the learning instrument to develop the student's overall total growth (Departamento Educación de PR Marco Curricular Educación Física, 2003).

In July 2011, the Department of Education published Carta Circular #1-2011-2012. This letter dictated the new public policies regarding the organization of the physical education program for elementary and secondary education in the Island. It was made available to teachers, students, parents and other member of the community interested in this topic.

In July 2013, the Department of Education published a revised version of the public policies related to the Physical Education program in Carta Circular #13-2013-2014. With this new Carta Circular the Department of Education established one more time its commitment to provide public education students a quality physical education program. This letter again asserted that the subject of physical education is one that is vital for the whole formation of the student and is the new guide for teachers to follow.

Standards for Excellence

The physical education curriculum suffered many transformations and changes since the program was established in the public education system a century ago. In the year 2000, the physical education standards for excellence were written giving physical education teachers a valuable resource to write their curricula. In 2006, learning outcomes for each grade level were formulated. The latest version of these standards became available in 2007, after a group of physical education teachers had the task of ratifying and adapting these standards to the circumstances and goals of the physical education program in the Island (Departamento Educación de PR, Estándares Programa de Educación Física, 2007). A revised edition outlined new requirements geared towards the Island's standardized testing protocol and added assessment instruments that teachers could use in their programs.

Although the standards are available to guide curriculum development for individual schools, Puerto Rico does not have a fully implemented national physical education curriculum. It does have a curricular guide where the teacher selects, assesses and/or designs their own curriculum, and contextualizes the learning process to the learning reality of their students. A curricular guide provides the teacher with modular concepts of physical education, strategies for teaching and assessment to assist teachers (Departamento Educación de PR, Marco Curricular Educación Física, 2003). With the implementation of these standards, the government seeks to establish excellence in the physical education program around the Island and focus on teacher accountability. It also seeks to obtain uniformity in the implementation of the program by suggesting to teachers themes, units, lessons and assessments which can be used to establish excellence. Disparities in content knowledge provided to students want to be avoided.

In the 21st century, the physical education program has the responsibility to prepare students to become active adults who possess the skills, knowledge and dispositions to move in a variety of ways, in harmony with their surroundings (Departamento Educación de PR, Marco Curricular Educación Física, 2007). These students will select movement activities of their personal choice and make them part of their daily lives. Physical education is the means through which students will be in charge of their own learning and work cooperatively with others. The physical education program develops individuals who have knowledge in physical activity and uses this knowledge to become active adults (Departamento Educación de Puerto Rico, Marco Curricular Educación Física, 2007). Physical education permits the development of recreational and competitive abilities in children and adolescents in a way that they have

the mechanisms to keep active during their lives. The effects and longtime benefits of physical activity provide strong arguments to keep and maintain an organized and well established physical education program in schools around the Island. Nevertheless, data indicates that there is a high percentage of Puerto Rico's population that is overweight and obese.

Success of Physical Education

The success of physical education requires effective teaching. The responsibility of the physical education teacher is to create an environment that allows for a successful physical education program and to attempt to match the learner's needs and desires with those of the teacher (Weiller & Richardson, 1993). Physical education teachers play a vital role in helping children develop the behaviors, attitudes, skills, and knowledge they need to be physically active for a lifetime (Martin & Kulinna, 2003). There is evidence that for a growing number of children, school provides the main opportunity for regular, structured physical activity as a combination of economic pressures and parental concerns for safety means that fewer children are able to play games in non-school settings (Bailey, 2006; Goran, Reynolds, & Lindquist, 1999). There is also a large body of literature showing that inactivity is one of the most significant causes of death, disability, and reduced quality of life across the developed world (Macera, Hootman, & Sniezek, 2003; Michaud, Murray, & Bloom, 2001; Penedo, & Dahn, 2005). Evidence suggest a favorable relationship between physical activity and a host of factors affecting children's physical health, including diabetes, blood pressure, bone health, and obesity (Bailey, 2006; Sabo, Miller, Melnick, & Heywood, 2004).

High quality physical education can encourage young people to develop knowledge, understanding and skills across a range of physical education, sport and health, and can develop in students the desire and commitment to continue to enjoy, improve and achieve a variety of capacities throughout their lifetime (www.hmie.gov.uk). Physical education in schools should have: (a) qualified and properly trained teachers who are certified by the state to teach physical education, (b) thoughtful teachers who regularly participate in professional development to effectively deliver the program, (c) a standardized quality curriculum is in place, and (d) adequate facilities and equipment are available.

Gabbard, LeBlanc and Lowy (1994) stress that the curriculum of physical education has emerged from the initial period of supervised recess into a sophisticated curriculum subject that requires specialist teachers. Teacher expertise is needed as a precursor to quality physical education (Sallis, McKenzie, Kolody, & Curtis, 1996) as physical education teachers can (a) implement and self-manage curricula effectively (Sallis, McKenzie, Kolody, Lewis, Marshall, & Rosengard, 1999), (b) provide developmentally appropriate, safe, and effective instruction in the physical, effective, and cognitive domains (DeCorby, Halas, Dixon, Wintrup, & Janzen, 2005), and (c) incorporate a diverse set of pedagogical practices designed to improve the delivery of physical education. The physical education teacher focuses on the objectives of the subject and knows how to motivate children, has a passion for sports and can relay it to the students. He or she can make the content stimulating and enjoyable and provide sound education to students (DeCorby, Halas, Dixon, Wintrup, & Janzen, 2005).

However, well-intentioned physical education teachers may be plagued by impediments that make it difficult to utilize best practices in the day to day work situation.

There is a serious gap in the research, which describes teachers' perceptions on barriers to the implementation of new curricula, particularly in the subject area of physical education. Policy makers, school administrators, and teachers have searched for appropriate strategies to manage barriers to effectively implement changes that can lead to curricular innovation (Conroy & Walker, 1998). Unless the need for change can be clearly justified and specific problems can be recognized, implementation of the curriculum will be delayed. However, the curriculum implementation process can be made to work more effectively when individual characteristics of teachers, teachers' value system, and their awareness of the process are considered (Conroy & Walker, 1998). Also, teachers' attitudes, characteristics, and their knowledge about the topic they teach are important factors in the adoption of new curricula.

The identification of barriers that contribute to teachers' resistance to adoption and implementation of the currently revised Puerto Rico's Department of Education Marco Curricular (2007) is imperative because serious problems can arise if barriers are not removed. Teachers may adopt a curriculum in spite of the presence of serious obstacles, such as lack of materials and facilities, cost, and overwhelming time constricts (Conroy & Walker, 1998). Teachers may face implacable limits on what can be accomplished in their classrooms hindering successful adoption and implementation of curricular innovations. Helping teachers identify program needs, and thoughtfully pursue the means to meet those needs would be a significant step in moving physical education programs into the next century.

Physical education teachers need to collaborate with their peers to find solutions to common barriers because it is the teachers' duty to create a learning environment in which they can help students build their own understanding of the subject matter, organize their own ideas, and reason with their own cognitive models (Smilkstein, 2003). Teachers should work diligently to meet the needs of learners and improve their levels of achievement so that they are able to meet the challenges of a global society.

Statement of the Problem

Numerous barriers, including limited allocated curriculum time, low subject status, and inadequate resources may hinder physical education from playing a major role in the school curriculum and allowing teachers to promote physical activity. A broad and balanced physical education program aimed at maximizing the potential of all children is essential to their growth and development, and yet barriers may detain the progress of teachers to create such programs.

Continuing concerns embrace: insufficient curriculum time allocation, perceived inferior subject status, insufficient competent qualified and/or inadequately trained teachers (particularly in primary schools), inadequate provision of facilities and equipment and teaching materials frequently associated with under-funding, large class sizes and funding cuts and, in some countries, inadequate provision or awareness of pathway links to wider community programs and facilities outside of schools. More generally, there is disquiet over the falling fitness standards of young people, rising levels of obesity amongst children of school age and high youth dropout rates from physical/sporting activity engagement (Hardman 2008, p. 5).

Which barriers do physical education teachers in PR perceive influence the delivery of the physical education curriculum established in the Island? By attempting to determine such barriers, important insights can be gained into day to day aspects of the teaching environment for Puerto Rican teachers, as well as gaining a better understanding of the barriers that obstruct the delivery of the established curriculum. When physical education teachers identify the barriers that influence and limit their teaching, efforts can be made to improve the working and teaching environment.

Purpose of the Study

The purpose of this study was to determine which barriers physical education teachers in the Island of Puerto Rico perceive to influence their teaching of the established physical education curriculum. Understanding the perceived barriers among these professionals could contribute to faculty retention, commitment and effectiveness. The information could contribute to developing high-quality physical education programs that meet with the requirements of society. Little empirical data on perceived teaching barriers among physical education teachers, teachers in general in Puerto Rico, and the world have been reported that could provide a better understanding of these teachers' needs. A review of the literature revealed minimal information pertaining perceived barriers in the physical education field. Only four studies examined the topic of perceived barriers in an indirect manner (Barroso, McCullum-Gomez, Hoelscher, Kelder & Murray, 2005; Chan, Sum & On Lau, 2006; Jenkinson & Benson, 2010; Morgan & Hansen, 2008). It is important to establish what are considered the major barriers, as a prelude, to examining the feasibility of change for improvement (Morgan & Hansen, 2008).

A survey questionnaire was developed to investigate these questions. Emphasis will be placed on the following components of teaching barriers: curriculum, school facilities and equipment, time allocation, factors and teacher effectiveness as it relates to teaching physical education. Analysis of the questionnaire will be through descriptive and inferential statistics. The descriptive statistics will include measures of means, standard deviations, and percentiles. Inferential statistics include single sample independent and paired t-tests. All inferential statistical analyses will be set at a significance level of $p < .05$.

Research Questions

1. What were the teacher's perceptions of how their daily teaching aligns with the established curriculum?
2. What perceived challenges, if removed, helped teachers implement the established physical education curriculum?
3. What were the perceived teaching barriers by which physical education teachers fail to implement the established physical education curriculum?
4. What factors were associated with the implementation of the established physical education curriculum in the Island of Puerto Rico?

Significance of the Study

In the past the topic of perceived teaching barriers among physical educators has not received a great deal of attention. Recently, researchers have begun to investigate the topic of perceived barriers on other subjects, for example, technology implementation and environmental education. But unfortunately, there are only a few completed studies of perceived barriers in physical education teachers. Understanding what affects the

quality of teaching and the delivery of a sound physical education curriculum is of great importance. This study hopefully motivated others to investigate and publish on this important school subject and promote conversation among physical education professionals.

Assumptions

The following assumptions were made:

1. The participants of the study responded honestly and accurately to the Barriers to Teaching Physical Education instrument.
2. The Barriers to Teaching Physical Education was a valid tool to measure the variables in the study.
3. All participants of this study understood, read and wrote English.
4. The participants were able to comprehend the survey instrument.
5. Teachers answering the survey were certified physical education teachers only working for the PR Department of Education.
6. All teachers were able to access the survey online.

Delimitations

1. Participants were physical education teachers working at all educational levels in the public education system in the Island of Puerto Rico.
2. Data were collected only once during the Fall semester 2013.
3. Voluntary participants were chosen by stratified sampling from a list of e-mail addresses provided by the Puerto Rico Department of Education.
4. The researcher ran a pilot study to identify weaknesses in the questionnaire developed specifically for this study.

Limitations

1. This study was limited to a purposeful selection of physical education teachers working within the public education system elementary, middle and high schools in the Island of Puerto Rico. Any generalization to the broader population should be drawn carefully.
2. Only 600 teachers were selected to participate in this study. Results from the self-administered questionnaire only reflected the opinions of those questioned.
3. Results were not generalized to the general population or those working in the private school sector.
4. Questionnaires were delivered by e-mail to participants using the computer program Survey Monkey and therefore the sample is limited to teachers who have access to an email account.

Definition of Terms

1. Perceived barriers: Refers to the factors contributing to teachers' decisions not to carry out physical education. Items on perceived barriers were derived from Ham and Sewing's study (Ham and Sewing, 1987), which were broadly divided into logistical and personal barriers. Barriers were defined as any condition that makes it difficult to make progress or to achieve an objective (Sherman, Tran, & Alves, 2010). Perceived barrier was also defined by Glasgow (2008) as a person's estimation of the level of challenge of social, personal, environmental, and economic obstacles to a specified behavior or their desired goal status on that behavior.

2. First-order barriers: Those obstacles are extrinsic to teachers. These barriers are described in terms of the type of resources. Examples of these barriers are: equipment, time, training and support (Eartmer, 1999).
3. Second-order barriers: These barriers interfere with or impede fundamental change. These are typically rooted in teachers' underlying beliefs about teaching and learning and may not be apparent to teachers or others (Eartmer, 1999).
4. PR Department of Education: The department of Puerto Rico's government which manages state-operated schools in the United States commonwealth. The department is the equivalent of a state department of education and is composed of a single school district. In addition there is a private education system. It is the largest state-level department of education in the nation, with a \$3 billion annual budget, over 75,000 staff, including 40,000 teachers, and about half a million students.
5. PR AAHPERD: a member of the American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD). This professional organization brings together teachers, students, administrators, and practitioners in a variety of fields. The association in PR has more than 1,200 active members.
6. Curriculum: An actual sequence of instructional blocks operating in a school. The sequence may cover all grades and subjects and be intended for all students

Chapter II

Review of Related Literature Research

The purpose of this study was to describe the barriers that exist in the quality physical education curriculum as reported by physical education teachers working at all levels of the public education system in the Island of Puerto Rico. This chapter summarizes the relevant literature to the topic of perceived barriers to quality physical education in the schools. The areas included are: theoretical frameworks, historic framework of physical education teaching in Puerto Rico, student motivations, curriculum, instructional climate, administration and facilities.

Reasoned Action and Planned Behavior Theories

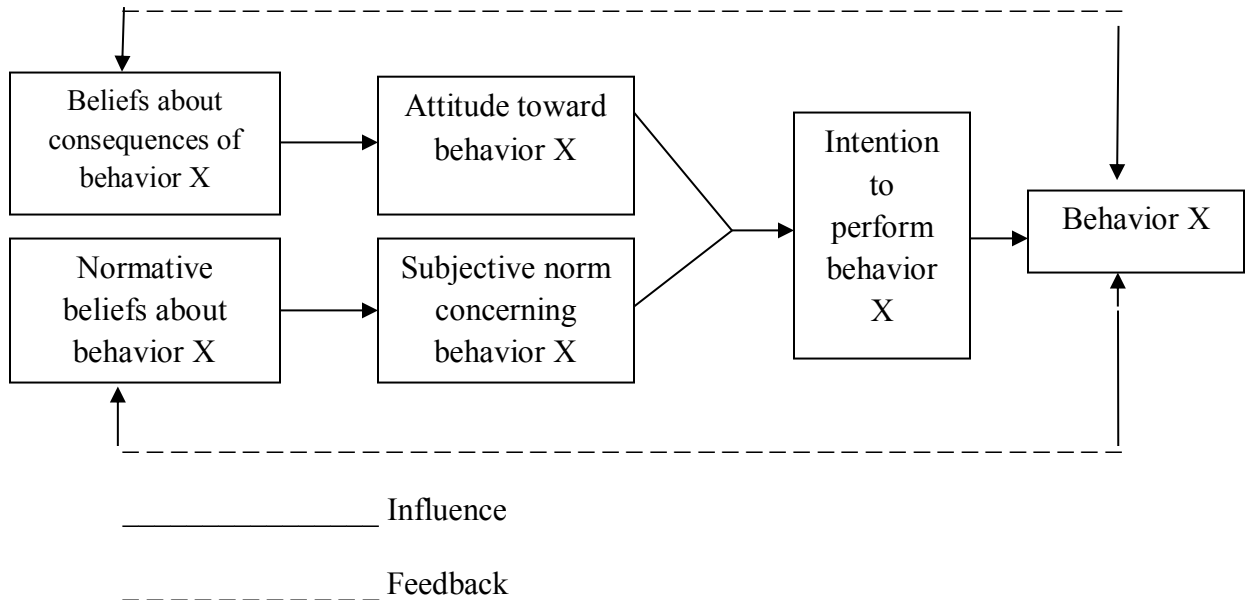
The theories of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975, Ajzen, 1991) and planned behavior (Ajzen, 2002) were developed to integrate models of behavior including additional determinants of behavior such as social norms or intentions (Armitage & Conner, 2001). The theory of planned behavior is essentially an extension of the theory of reasoned action, which includes measures of control belief and perceived behavioral control (Stewart Stanec, 2009). The theory postulates that four factors influence behaviors: (a) intention, (b) beliefs about the likely consequences of the behavior (attitudes), (c) beliefs about the expectation of others (subjective norm), and (d) beliefs about internal and external barriers that may hinder the behavior to be performed (perceived behavioral control) (Ajzen, 1985, 1991). The inclusion of this last construct, perceived behavioral control, sets the theory of planned behavior apart from the theory of reasoned action. This theory, of reasoned action, was extended by Ajzen in 1991 to include a measure of perceived behavioral control, a

variable that had received a great deal of attention in social cognition models, and was designed to predict health behaviors (Armitage & Conner, 2001).

According to reasoned action theory, human action is guided by three types of considerations: (a) beliefs about the likely consequences of the behavior (behavioral beliefs), (b) beliefs about the normative expectations of others (normative beliefs), and (c) beliefs about the presence of factors that may further or hinder performance of the behavior (control beliefs) (Vellerand, Pelletier, Deshaies, Currier, & Mongeau, 1992). According to Fishbein and Ajzen (1975), behavioral beliefs produce favorable or unfavorable attitudes towards the behavior, normative beliefs result in perceived social pressure or subjective norms, and control beliefs rise to perceived behavioral control, the perceived ease or difficulty of performing the behavior. All these components lead to the formation of a behavioral intention. The more favorable the attitude and subjective norm and the greater perceived control, the stronger should be the person's intention to perform the behavior in question. Depending on the person's control level, people are expected to perform or abandon the intention of performing the behavior. Table 2 illustrates the schematic presentation of the conceptual framework for the prediction of specific intentions and behaviors based on Fishbein and Ajzen (1975) theory of reasoned action.

Table 2

Factors Influencing Intentions and Behaviors



Note: Reprinted with the consent of Ajzen (1975). See Appendix 3 for more information.

These theories are the foundation for understanding how physical education teachers in the Island of Puerto Rico adopted and implemented the established physical education curriculum. Physical education teachers may have the intentions to adopt and implement the established curriculum, but barriers they encounter during this process could result in the formation of negative attitudes, behaviors and beliefs about the implementation and adoption of the established curriculum.

The intention construct is central to both theories: planned behavior and reasoned action. Intentions are assumed to capture the motivational factors that influence a behavior and indicate how hard people are willing to try or how much effort they will exert to perform the behavior in question (Armitage & Conner, 2001).

A behavioral intention measure will predict the performance of any voluntary act, unless intent changes prior to performance or the intention measure does not correspond to the behavioral criterion in terms of action, target, context, time-frame and/or specificity. They suggest that in practice, the latter two constraints can be minimized by paying careful attention to the correspondence between the performance criterion and the wordings of the attitude, subjective norm, intention questions, and by administering the measures of attitudes, subjective norms, and intentions as close as possible to the performance time. The model was developed to deal with behaviors (e.g., taking a diet pill, applying for a consumer loan, or shopping for a new car) and not outcomes or events that result from behaviors (e.g., losing ten pounds, obtaining a consumer loan, or owning a new car).

This model deals with only those behaviors that are under a person's volitional control. Therefore, actions that are at least in part determined by factors beyond an individual's voluntary control, fall outside the boundary conditions established for the model (Vellerand, Pelletier, Deshaies, Currier, & Mongeau, 1992). Whenever the performance of some action requires knowledge, skills, resources, or the cooperation of others, or necessitates overcoming environmental obstacles, the conditions of the model cannot be met. In such cases, the person may not be able to perform the action, even if the intention to do so is strong. However, because many behaviors pose difficulties of execution that may limit volitional control, it is useful to consider perceived behavioral control in addition to intention. People are realistic in their judgments of a behavior's difficulty; a measure of perceived behavioral control can serve as a proxy for actual

control and can contribute to the prediction of the behavior in question (Bamberg, Ajzen, & Schmidt, 2003).

Clearly, according to the theory of planned behavior, human social behavior is reasonable. Although people's beliefs may be unfounded or biased, their attitudes, subjective norms, and perceptions of behavioral control are assumed to follow reasonably from their beliefs to produce a corresponding behavioral intention, and ultimately to result in behavior that is consistent with the overall tenor of the beliefs (Bamberg, Ajzen, & Schmidt, 2003). Based on the usefulness of the framework in other disciplines, researchers have adopted the theory to investigate issues in education and specifically, general physical education and adapted physical education (Stewart Stanec, 2009).

The theory of reasoned action, however, is extremely parsimonious. There are clear conceptual and operational definitions of its variables and the relationships among them. The theory has been thoroughly tested over the past two decades, in both static and dynamic validation studies and in a wide variety of behavioral domains (Thornburg & Pryor, 1998). For example, the intentions of professionals to apply newly gained knowledge could be studied to determine what beliefs made positive and negative contributions to intentions to apply the knowledge.

The first determinant of intention is the attitude towards behavior (Vives-Rodríguez, 2005). Fishbein and Ajzen (1975) defined attitudes as learned predispositions to respond in a consistently favorable or unfavorable manner with respect to a given object. A person's attitude is assumed to be related to the total affect associated with his or her beliefs, intentions, and behaviors. Physical education teachers' beliefs may influence the teachers' attitudes toward students' behaviors. Teachers' behavioral

intentions are viewed as a function that considers two factors: their attitude towards the new curriculum and its subjective norm. That is their intention to deliver the current curriculum even when barriers are present.

Diffusion of Innovation Theory

Diffusion of innovation theory developed by Everett Rogers (1995) is defined as the diffusion of innovation “by which an innovation is communicated through certain channels over time among the members of a social system” (p. 4). This theory has sought to explain individual adoption decisions or intentions to adopt a new idea, product, or practices, whether practices will be adopted by members of a given culture. These decisions concern well defined innovations and the adoption population is relatively homogeneous and has well defined boundaries (Lyytinen & Damsgaard, 2001).

Rogers’ (1995) definition contains four elements that are present in the diffusion of innovation process. The four main elements are: (a) innovation – ideas, practices, or objects that are perceived as known by an individual or other unit of adoption, (b) communication channels – the means by which messages get from one individual to another, (c) time – time factors include: innovation-decision process, relative time with which an innovation is adopted by an individual or group and innovation's rate of adoption, and (d) social system – a set of interrelated units that are engaged in joint problem solving to accomplish a common goal.

These theories will help to answer the research questions of this study by providing supportive information in the aspects of adoption and teachers’ willingness to implement the new curriculum. Furthermore, this theory will help in searching for differences between teachers in terms of adoption and implementation process of the new

curriculum. Sparkes (1991) noted that when innovations are introduced and imposed on teachers by outside agencies, teachers implement the changes in order to survive in the system, to comply with an imposition and not because they have changed their beliefs of the value of the activity they are implementing. Lack of involvement in the change process alienates them and prevents real change from occurring.

The new physical education curriculum in the Island is one with many innovative concepts, focusing fundamentally on the current obesity epidemic. The new curriculum could be viewed by many teachers as one that is very difficult to implement because many constraints are present. Proper training on how to implement the curriculum was not provided, and many teachers did not receive curricular guides creating resistance among them. Furthermore, teachers may feel that they do not have the expertise that even medical experts fail to find. A change to curriculum planning and practices is a very difficult task if teachers do not have the knowledge to do it.

Doutis and Ward (1999), Jones, Higgs, De Angelis, and Prideaux (2001), Kirk and MacDonald (2001) and Macdonald (1991) identified many constraints to curriculum implementation. They found constraints such as time for planning and reflection, lack of support, release time, and assistance to sustain the pedagogical changes as key factors to adoption and implementation of new curriculums.

In physical education, Sparkes (1990) addressed the critical meaning of change and noted that change can occur at many levels:

Within any level, there can be changes that occur at the surface (e.g., new or revised materials such as curriculum materials or technologies); changes that involve the use of new teaching approaches (i.e., new teaching strategies or

activities); and the alteration of beliefs (changes in deep structures that affect the beliefs and understanding of individuals engaged in change). These three dimensions form the basis of educational change in that they are all necessary to achieve a particular educational goal.

Changes to the physical education curriculum already took place in the Island in 2007 when the new Marco Curricular was written. Now, it is imperative that physical education teachers implement such changes utilizing all resources given to them for that specific purpose. Understanding which barriers impede the diffusion, adoption, and implementation of the new physical education curriculum in the Island is indispensable.

Historic Framework of Physical Education Teaching in Puerto Rico

Bird (1999) states that physical education existed to serve different human purposes and played an important role in human life. Throughout the history of the Island, formal and informal physical activities were present.

In the 17th Century, Taínos and other aborigines in the Caribbean region used swimming skills and canoes as a mode of transportation. The Taínos developed and played games similar to what we know as baseball and soccer. In their activities they also played a similar game to volleyball called the “batu”, a game with religious implications. Taínos aborigines practiced agriculture, hunting and fishing (Sambolín Alsina, 1979). Black people enslaved in Puerto Rico by the Spaniards to work in the sugar cane fields and mines brought their music and their rhythms, which continue to be used in physical education classes around the Island.

Physical education and sports were not part of the formal school program during the Spaniard colonization period, thus other activities were implemented. Between

1868 and 1898 the private education system established small gymnasiums to practice gymnastics, stretching, and fencing during students' free time (Sambolín Alsina, 1979). In July 1898, the public education system was established in the Island and physical education was introduced. By 1909, stretching exercises were required as part of the daily school schedule (Sambolín Alsina, 1979), and teachers were required to offer them. At this time the physical education program emphasized organized sports and athletics.

The first half of the twentieth century brought a transformation in the area of education not only in Puerto Rico but in Spanish America. Two features deserve special attention: (a) many more children attended schools, and (b) a greater proportion of the population became literate (Newland, 1994). In the year 1950, over 16% of the population in Puerto Rico was enrolled in basic education. All Spanish America countries adopted similar educational structures, but during the US occupation of Cuba and Puerto Rico at the beginning of the century, the USA government established in both islands educational organizations similar to the Mainland (Newland, 1994). The curricular content included various subjects and physical education.

The next decade brought many changes to the physical education program. From 1932 to 1965 efforts were geared towards motivating teachers to include physical education into their classes (Sambolin Alsina, 1979). In 1986 a new director took over the direction of the program and programmatic changes incorporated the integration of critical thinking and knowledge and moral values.

On August 28th, 1990 the former governor of the Island, Rafael Hernandez Colón signed the Education Reform Law # 68 (Departamento Educación de Puerto Rico Ley

Orgánica), which made physical education compulsory for the first time in the history of the educational system in the Island. All school grades were required to receive at least fifty minutes of physical education as part of their school day or 250 minutes weekly (Departamento Educación, Carta Circular #8-2007-2008). In 1999 the establishment of Law # 149 left the subject of physical education out of the school system, but after a year, in the year 2000, a new revised law incorporated physical education into the public educational system one more time (Tribunal Supremo de Puerto Rico, CC-2005-0777).

In recent years, the school subject area of physical education made news due to the obesity epidemic on the Island. Presently, physical education is the only content area responsible for the physical and motor development of the student. Physical education incorporates human movement as a valuable tool for learning (Departamento Educación de PR, Estándares de Excelencia Programa Educación Física, 2007). The current physical education program is responsible for contributing to the student's personality influencing its social, ethical, spiritual, cognitive and affective formation. Physical education is essential for the development of individuals that acquire and maintain a healthy and active lifestyle (Chen & Shen, 2004). The main goal of this program is to transform students into happy, active and healthy women and men (Departamento Educación de PR, Marco Curricular de Educación Física, 2003).

Obesity in the 21st Century

The problem of childhood obesity has captured public attention in the last decade. Obesity could be considered the epidemic of the 21st century. Approximately 22 million children under five years of age are overweight across the world (Deckelbaum &

Williams, 2001). In the United States, the number of overweight children and adolescents has doubled in the last two to three decades, and similar doubling rates are being observed worldwide (Deckelbaum & Williams, 2001). In the United States, data from the National Health and Nutritional Examination Survey (Center for Disease Control and Prevention, 2007) show sharp rises in the percentages of children and adolescents who were overweight/obese between 1976-1980 and 1988-1994, and again between 1988-1994 and 1999-2002. Approximately 19% of children ages 6 to 11 and 17% of adolescents ages 12-19 were overweight in 2000. An additional 15% of children and adolescents were at risk for overweight based on BMI (body mass index) measurement (www.overweightteen.com). The U.S. Surgeon General has identified the obesity epidemic as one of the greatest health problems facing the nation today (US Department of Health and Human Services, 2001).

Children in United States and Puerto Rico are becoming heavier and heavier. This trend has negative consequences on the physical health and self – esteem of our nation's young people, as well as the financial burden that the obesity epidemic is placing on the medical care system (Wechsler, McKenna, Lee, & Dietz, 2004). Childhood overweight and obesity have also been linked with psychosocial ramifications such as poor self-image, eating disorders and poor quality of life (Strauss, 2000).

Childhood obesity leads to a variety of clinical health problems (Janssen, Craig, Boyce, & Pickett, 2004). Excess body weight in children is associated with a plethora of type 2 diabetes and cardiovascular disease risk factors. Overweight and obese youth are more likely to become obese adults and obese adolescents have an increased risk of morbidity and mortality in adulthood. Of equal importance are the negative social and

psychological ramifications of childhood obesity including being liked to a lesser extent by peers, being rejected by peers and being the victims of various forms of peer aggression such as bullying.

Must, Jacques, Dallal, Bajema and Dietz (1992) presented data relating to the outcomes of overweight adolescents who were followed for up to 50 years. Both men and women who were overweight at adolescence had increased age-specific morbidity and mortality relating to cardiovascular and other chronic diseases. Increased risk was also present even if adolescents who were obese had lost the excess weight during adult years, suggesting that obesity during adolescence may set triggers that are associated with adverse risk in the adult. If one of the parents is overweight, the child will have a 50% chance of becoming overweight. If the child has both parents with the condition, the child will have 80% chances of suffering the illness.

Reasons for the increment in overweight/obesity problems among children and adolescents are that young people are making unhealthy eating choices and are not engaged in enough physical activity. This epidemic has been attributed to various factors: a rise in television and computer game use, proliferation of fast-food restaurants, increase in sugar and fat intakes and a decline in physical education and recess (Paxson, Donahue, Orleans, & Grisso, 2006). A generation of children is growing up off the playground due to many societal problems and the use of the Nintendo or other type of videogame system (Carmona, 2003). Instead of blaming children for being obese we need to provide them with the necessary resources to help them become healthy. Increasingly policymakers are recognizing the need for action because 15% of children in the United States are suffering from this condition.

Approximately 300,000 premature deaths in adults each year are attributed to overweight issues in the United States (Sharma, 2006). In the worst case scenario, being overweight or obese can make students approach physical education with dread, alienation, and disembodiment (Sykes & McPhail, 2008). For some students who are overweight or obese, it is possible that poor physical education experiences have taught them to hate their body rather than how to be healthy.

The Puerto Rico Government in its effort to eradicate obesity among children established Law # 235 – 2008, known as “Protocol to Give Obese Children An Uniform Attention”. The purpose of Law #235-2008 is to obtain objective data regarding the physical condition of each child that enter the public school system and use the information obtained to resolve the obesity problem in the Island. It also added a new section to the Organic Act of the Department of Education, Act No. 149-1999 (Departamento Educación de Puerto Rico, 1999). Section 3.04-A, is very specific in terms of the duties, functions and responsibilities of the physical education teacher with regards to the implementation of the Childhood Obesity Prevention, Management, Eradication Program in Schools (Departamento Educación de Puerto Rico, 1999). Under this section, teachers are required to calculate students’ BMI measurements from kindergarten to twelfth grade. Teachers are also required to inform parents or guardians about the results of the test. Students found to be overweight or obese will be mandated to take four additional hours of physical education per week. Furthermore, the PR Government will work in conjunction with other public and private dependencies to transform the physical condition and quality of life of the students (Departamento Educación de Puerto Rico, Carta Circular #13, 2013-2014, pp.2)

The Role of Physical Education in Schools

Physical education is a unique opportunity for students to gain necessary skills and knowledge for lifelong participation in physical activity; however, participation in daily physical education has declined from 1991 to 2003 (Center for Disease Control, 2006). Schools can help improve the physical activity habits and health of young people by providing quality instruction, programs, and services that promote enjoyable, lifelong physical activity. Quality physical education provides the unique opportunity for students to obtain the knowledge and skills needed to establish and maintain physically active lifestyles throughout childhood, adolescence, and into adulthood. A quality physical education program meets the needs of and is an enjoyable experience for all students.

Moreover, it keeps students active throughout most of the physical education class, teaches self-management as well as movement skills, and emphasizes knowledge and skills for a lifetime of physical activity (Lee, Burgeson, Fulton, & Spain, 2006). A high quality physical education program is the cornerstone of a school's physical activity programming, and a well-written physical education curriculum is the foundation of a physical education program (Department of Health and Human Services, 2006, pp.3).

The challenge for physical educators is to offer educational experiences inclusive of the individual needs, interests and aptitudes, and to somehow strive to reduce the inequities presented by childhood overweight and obesity. Physical education teachers must reshape class environments to promote active lifestyles independent of size, shape or abilities. To pursue excellence is to reshape policies to

account for personalized learning, participation pathways, and opportunities to feel successful (activate.vic.edu.au: Retrieved on January 20, 2011).

Physical education has been under scrutiny for the last few years. The elimination of the program from the school system has been considered due to budget cuts in the Island. In early 2010, the PR Supreme Court granted peace of mind to physical education educators by ordering the Department of Education to comply with Carta Circular #8-2007-2008 (Departamento Educación de Puerto Rico) that mandated one physical education teacher per school and an additional one if the number of students surpasses 250 (CC-2005-0777, P.R. Supreme Court Document). To accomplish its goals the Puerto Rico Department of Education is looking to structure a physical education curriculum according to high quality standards of excellence.

Quality Physical Education Programs

As reported by Story, Kaphingst and French (2006) the quality of physical education is critical to improving the health status of children and adolescents. Currently, one third of adolescents are physically active in their physical education class for more than 20 minutes 3 to 5 days per week (Kulik, 2009). NASPE published the *Opportunity to Learn Guidelines for Elementary, Middle School and High School Physical Education* (2010) that identifies essential program elements that provide learning foundations to acquire the knowledge, skills and dispositions needed to become a physically educated person. These guidelines were developed to provide an integral component in evaluating physical education programs in schools or school districts (NASPE, 2010).

NASPE (2010) describes a quality physical education program as one that has the following components: a healthy and safe environment, class sizes that support high-quality instruction, credentialed physical education teachers and adequate time in instruction. NASPE (2010) also suggests the provision of a strong curriculum, adequate facilities, equipment and technology for instruction. The absence of these elements may deter the provision of quality physical education instruction. To ensure that physical education programs have the programmatic elements required for quality instruction, the *Opportunity to Learn Guidelines* (2010) offers a reflective questionnaire with multiple identifying statements to identify strengths and challenges.

Barriers to Quality Education

A perceived barrier is a judgment of the degree of difficulty of a set of diverse factors (barriers) that can interfere with accomplishment of a specific behavior (Glasgow, 2008). Quality education can promote the holistic development of students. It is the quality of the program in schools that will ensure that young people are given the opportunities to become physically educated individuals (Lee, Burgeson, Fulton & Spain, 2007). The provisions of quality physical education curriculum can be affected by many factors, some of which can assist or hinder delivery and participation (Jenkinson & Benson, 2010). Appropriate actions must be taken in four main areas to ensure a high quality physical education program: These areas are: curriculum, policies and environment, instruction, and student assessment.

Curriculum

There is no apparent agreement as to the role of physical education in today's schools (Melograno, 2011). Many factors impede excellence in physical education.

Achieving excellence in education has resulted in school accountability models that transform high standards and expectations into rigorous assessments, such as on-demand, standardized achievement testing (Melograno, 2011).

Table 3 presents the curriculum models most utilized in schools today. Models assumes is the primary purpose of physical education and the role this subject should play in preparing individuals for life and their future role in society (Kelly & Melograno, 2004).

Table 3

Curriculum Models

Name	Description
Movement education	Emphasis on exploring (guided discovery/problem solving); movement skills structured around space, body awareness, force, balance, weight transfer, time and flow.
Fitness education	Health-related and motor-related components; principles of training and conditioning; nutrition, diet, and weight control; stress management; personalized fitness program.
Developmental education	Designed around organic, neuromuscular, intellectual and social-personal-emotional developmental objectives.
Activity-based education	Categories include team sports, individual and dual activities, outdoor and recreational pursuits, rhythms and dance, and games.
Humanistic/social development	Designed around stages of social awareness and development: Irresponsibility→ Self-control→ Involvement→ Self-responsibility→ Caring
Sport education	Higher form of competitive motor play; institutionalized sport including: seasons, affiliation, formal competition, culminating events, keeping records, and festivity.
Wilderness sports and adventure education	Promote physically challenging outdoor activities (e.g., camping, backpacking, hiking, canoeing, cycling); adventure activities (e.g., wall climbing, high ropes courses).
Conceptually-based education	Based on knowledge concepts using problem solving approaches; concepts applied to movement (e.g., laws of motion, performance analysis, and game strategies).
Personally meaningful education (PPCF)	Purpose, process, curriculum framework designed around physiological efficiency, psychological equilibrium, spatial orientation, object manipulation, communication, group interaction, and cultural involvement (Jewett & Mullan, 1977).
Eclectic	Features of several models, given that each model treats selected dimensions of the cognitive, affective, and psychomotor domains of learning.
Achievement-based curriculum (ABC)	Process model where superior results for all students in the professional imperative; achievement is central regardless of underlying philosophy.

The Puerto Rico Department of Education chose the Personally Meaningful Education (PPCF) as the curriculum of choice for their public schools in all educational

levels. The search for meaning is central to the mission of education. This model responds to learner's individual and collective search for meaning (Kelly & Melograno, 2004). A variety of concepts are associated with this model: personal involvement with sports, self-directed learning, and individual human goals. Group integration and cultural involvement are key factors to the success of this model.

Policies and Environment

Policy and environmental actions that support high quality physical education require adequate instructional time (at least 150 minutes per week for elementary school students and 225 minutes per week for middle and high school students) (NASPE, 2010). All classes should be taught by a qualified physical education specialist, have reasonable class sizes, and provide proper equipment and facilities (Hardman, 2010).

Instruction

Instructional strategies that support high-quality physical education emphasize the following: the need for inclusion of all students, adaptations for students with disabilities, and opportunities to be physically active most of the class time, well-designed lessons, out-of-school assignments to support learning, and not using physical activity as punishment.

Student Assessment

Regular student assessment within a high-quality physical education program features the appropriate use of physical activity and fitness assessment tools, ongoing opportunities for students to conduct self-assessments and practice, self-monitoring of physical activity, communication with students and parents about assessment results,

and clarity concerning the elements used for determining a grading or student proficiency system.

In a high - quality physical education program assessment should be representative of each student's ability to meet the objectives of the class and to provide the student meaningful feedback that reflects the student's individual growth (Herman, Aschbacher, & Winters, 1992) and not a comparison of which student is performing the best among the class. The Marco Curricular of Education Física of the PR Department of Education (2007) provides teachers with a variety of assessment techniques they could implement in their daily teaching practice.

Barriers Identified in Education

Teachers employ a variety of instructional methods in classrooms. Many of these methods are well grounded in educational pedagogy and constitute validated classroom practices. Moreover, these teaching practices are most often applied for the intended purpose of producing the best possible results. However, classroom research indicates that within and outside classrooms, both students and teachers face a range of barriers that block access to and impede progress in the general curriculum (Jackson, Harper, & Jackson, 2002).

It has generally been accepted that public schools should be instrumental in accomplishing the goals of physical education. With the innumerable changes to the physical education curricula around the world in recent years, there is a need to identify and determine which barriers impede the implementation of these established curriculums.

Ham and Sewing (1987) suggested that barriers to implementation of an established curriculum exist in public schools and could be categorized into four groups: conceptual, logical, educational and attitudinal.

Conceptual barriers. This category refers to the lack of consensus about the scope and content of environmental education and misconceptions regarding the identity of the subject and where it should be established in the general core curriculum of schools. In school physical education, there is no empirical evidence that confirms that the pronounced goals and benefits of school physical education are really being attained (De Knop, Theeboom, Huts, Van Hoecke, & Martelaer, 2004). Physical educators have been criticized by many for not achieving a primary educational goal: preparing students to adopt a healthy and active lifestyle (De Knop, Theeboom, Huts, De Martelaer, & Cloes, 2006). With the increase in childhood obesity, there is a discrepancy between the important role attributed to physical education in schools and the low physical activity levels of children.

Logistical barriers. These are related to perceived lack of time, funding, resources, suitable class sizes, attitude of the principal, availability of outside areas and others. Time is viewed by teachers as the most common barrier because it is needed to develop a usable curriculum and to prepare materials and lesson plans (Ham & Sewing, 1987). An example of time limitation was also found to be a factor impeding the implementation of an innovative tobacco curriculum in Hawaii (Sy and Gland, 2008). Ko Chi-Chung and Chi-Kin Lee (2003) conducted a study in Hong Kong with secondary school teachers where findings demonstrated that teachers were overwhelmed with school duties and academic pressure. Fear of “not covering the

syllabus” was the major concern of many teachers. They spent most of their time on examination related activities, which may explain why they lack the time to teach environmental education.

Litva and Peters (2008) explored barriers to teaching behavioral and social sciences in medical education. They found that the second most highlighted barrier was the lack of sufficient time or space in the curriculum. The informants felt that current medical curricula were already crowded and the inclusion of behavioral and social sciences teaching was sometimes viewed as a threat to other types of curricular content.

In a Canadian study of teacher's implementations experiences, Melnychuck (2000) identified weariness, lack of time, isolation, and lack of support as significant barriers to implement the established curriculum. In England, Penney (2001) found that PE teachers experienced challenges with the subject matter; they found too much content to cover, they did not always feel adequately trained, and they often did not have the required resources and facilities. In addition, they expressed uncertainty about new evaluation procedures. Faucette, Nugent, Sallis and McKenzie (2002) reported time and equipment as major barriers for the implementation of Project SPARK, a physical education program by classroom teachers resisting to teach physical education.

Curricular time has also been an issue for many years. Physical education, along with other foundation subjects has suffered in the hands of national math and literacy drives. This is more evident in elementary schools where time allocation for physical education has been dramatically reduced in comparison to middle and secondary schools.

Educational barriers. The third category of educational barriers includes the misgivings of teachers about their own competence to successfully deliver education programs. This also refers to teachers who lack personal interest or commitment to provide adequate instruction in a subject area.

In 2001, the British Columbia Minister of Education released results on a survey conducted with physical education teachers on the implementation of the established physical education curriculum in that province. Findings indicated that reasons for failure to teach the established curriculum were lack of facilities and equipment and insufficient time allotted to achieve physical education outcomes. Teachers often did not implement the gymnastics and dance movement components of the curriculum because they lacked expertise, worried about safety, and found difficulties dealing with the social awkwardness of students. Teachers rarely implemented the alternative movement category (outdoor activities) because of insufficient funds. The report also suggested that without a provincial measurement tool to assess achievement, little encouragement for implementation occurred.

All teachers discussed differences among their peers in terms of the physical education training they received, the value they provided to physical education and their philosophies on the role of physical education in the schools. Most indicated that many or all of their peers were not trained adequately to teach physical education effectively. Responses included were that, "I really wanted more people to get the training and for one reason or another that just didn't happen. "Four teachers reported a lack of seriousness in regards to physical education (Hartman, 2006). A study conducted in Nova Scotia, Canada regarding implementation of the recently approved physical

education curriculum showed that teachers did not feel confident about teaching the curriculum because they did not feel properly prepared or trained (Fraser-Thomas & Beaudoin, 2002).

Attitudinal barriers. The fourth and last category is attitudinal barriers in which teachers' attitudes towards the subject are reviewed. If teachers do not have a positive attitude regarding the subject matter, then little instruction will occur in the classroom. Table 4 presents a compendium of barriers to the delivery of physical education and physical activity in primary and secondary school students compiled by Jenkinson and Benson (2010).

Lounsbery et al. (2011) studied the facilitators and barriers to adopting evidence – based physical education in elementary schools. They identified ten specific characteristics as being barriers to quality physical education programs. Factors identified most frequently as tremendous barriers were the number of physical education specialties, financial resources, and time in the school years. The lack of indoor and outdoor school facilities were also mentioned as tremendous barriers. The lack of equipment and supplies were also mentioned.

Table 4

Barriers to the Delivery of Physical Education (PE) and Physical Activity (PA) Programs to Primary and Secondary School Students

Barrier	Primary Schools	Secondary Schools
Institutional	Access to and lack of facilities 1, 7 Lack of time 1, 7 Crowded curriculum 7 Funding 1, 7 Access to and lack of equipment 1 Support from other staff 1 Support from administration 1, 7 Access to professional development 7 PE/Sport not priorities in school 1, 5 Large class sizes 1, 7 Budget constraints 7 Insufficient infrastructure 5 Other teaching priorities 1, 5 Quality of facilities 1 Level of professional development 7 School executive attitudes toward PE 1 Insufficient number of PE staff 1, 5 Lack of performance measures for PE 5	Access to and lack of facilities 6 Lack of time 2 Restricted curriculum 2 Funding 6 Ethos of PA for life within the school 2 Socioeconomic status of school 3 Timetabling
Teacher related	Lack of training and knowledge 4 Difficulty of providing safely planned and structured lessons 4 Gender stereotyping of activities 4 Poor planning 4 Perceptions of the value of PE 4 High level of accountability for other subjects 5 Confidence in teaching PE 7, 8, 12 Interest in/enthusiasm for PE 7 Personal school experiences in PE 7, 8 Attitudes toward PE 5	Colleagues undervaluing activities 2 Ethos of performance/élitism of PE department or school as a whole 2
Student related	Expertise/qualifications 7, 8, 12 Lack of student engagement 9 Expressed dislike for activity 9 Lack of intrinsic and extrinsic motivation 9 Intrapersonal barriers 11	Student engagement 6 Lure of sedentary behaviour 2 Low fitness levels therefore potentially lower ability 2 Socioeconomic status of student 3 Levels of encouragement and motivation 3 Peer support 3,10 Peer pressure 10 Intrapersonal barriers 11 Lack of motivation/laziness 11

Note: PA = physical activity; PE = physical education; Sport = sport education.

1 Barroso, McCullum-Gomez, Hoelscher, Kelder, & Murray, 2005; 2 Boyle, Jones, & Walters, 2008; 3Dagkas & Stathi,2007; 4 DeCorby, Halas, Dixon, Wintrup, & Janzen, 2005; 5Dwyer et al., 2003; 6Dwyer et al., 2006; 7Morgan &Hansen, 2008; 8Morgan & Bourke, 2005; 9Mowling, Brock, Eiler & Rudisill, 2004;10Salvy et al., 2009; 11Sherar, Gyurcsik, Humbert, Dyck, Fowler-Kerry & Baxter-Jones, 2009;12Xiang, Lowry, & McBride, 2002.

Reprinted with the authorization of Kate A. Jenkinson (2010). See Appendix 3.

Environmental education barriers. Fraijo – Sing, Tapia, Corral, Valenzuela and Orduña-Cabrera (2007) found that the delivery of the established environmental education curriculum in the City of Hermosilla, Mexico was direct, significant, and also negatively influenced by perceived teaching barriers. In the same manner, a negative relationship was perceived between these barriers and the beliefs of the students.

Ko and Chi-Kin Lee (2003) and Kim and Fortner (2006) conducted studies on barriers to implementation of the curriculum in environmental education. In these studies teachers tended to believe that external and logistical barriers were greater than internal and personal barriers when teaching environmental education. Teachers' perceived internal and personal barriers and external and logistical barriers to addressing environmental issues as important factors for not teaching the environmental curriculum as established. Lack of time and pursuit of curriculum standards were major barriers to addressing environmental issues. The relevance of environmental issues in regard to what they teach and their own interests were minor barriers. The results are in line with the teachers' positive attitude toward teaching environmental issues. Among internal barriers, lack of content knowledge and lack of pedagogical knowledge were greater than other barriers (Kim & Fortner, 2006). In a more recent study, Faucette, Nugent, Sallis and McKenzie (2002) concluded that an intensive two year supportive professional development program for in service classroom teachers could substantially improve the quality of classroom teachers' physical education programs and reduce the perception of logistical barriers.

Ertmer (1999) described two types of barriers to integrate technology into classrooms. First and second order barriers will be experienced by teachers at any level.

Yet, by being aware of the various barriers they may face, teachers can begin to develop skills and strategies needed to overcome each of the different types of barriers.

First order barriers refer to those obstacles that are extrinsic to teachers. Usually, these barriers are described in terms of the types of resources (equipment, time, training, support) that are either missing or inadequately provided in teachers' implementation environments (Means & Olson, 1997). Ertmer (1999) indicates that these types of barriers are easy to measure and eliminate when monetary resources become available. Dealing with many of these barriers could frustrate teachers because they may feel that they have to overcome every single barrier before they can implement the established curriculum.

Second order barriers refer to those that interfere with or impede fundamental change (Ertmer, 1999). These barriers usually pertain to teachers' beliefs about teaching and learning. Teachers may experience these barriers without being aware that they are present and these could cause more difficulties than first-order barriers because they are less tangible and because they are more personal and more deeply ingrained.

Morgan and Hansen (2008) provided descriptions of key factors perceived to have impact on primary school physical education programs. The factors can be categorized into teacher or institutional related. Factors directly related to the teacher were lack of confidence, lack of knowledge and lack of interest. Institutional factors not within the teacher's control were crowded curriculum, inadequate equipment/resources and funding issues. Data collected in previous studies reported teacher-related barriers as the most substantial to overcome, while others have recognized institutional factors as the most problematic factors to overcome. Currently,

it is not known which specific barriers teachers perceive to be the greatest inhibitors in teaching physical education in primary schools (Morgan & Hansen, 2008).

Student Motivation as a Barrier

Motivation in the physical education class is a key component in helping children develop a healthful, physically active lifestyle. Physical education has been recognized as one of the most important contexts for developing physical activity habits in youth (Sallis & McKenzie, 1991). Despite holding such promises, interest and participation in physical education as well as physical activity levels, physical activity habits in youth has declined in recent years (Koka & Hagger, 2010).

The topic of motivation in physical education has been extensively investigated (Shen, Wingert, Li, Sun, & Rukavina, 2010) and the facts remain the same many students lack motivation in physical education, especially during their high school years. One of the most evident phenomena is that high school students do not have the desire to choose physical education courses after they have met the minimal physical education credit requirements for graduation (Shen, Wingert, Li, Sun, & Rukavina, 2010). Statistics from the Center for Disease Control and Prevention (2004) indicates that enrollment in physical education in high schools has decreased at an average rate of 32% yearly. It is necessary to understand the reasons why students are experiencing this phenomenon to enhance student's enrollment in physical education and prevent sedentary lifestyles toward adulthood.

A fundamental requirement for developing a successful physical education program is to interest and motivate students to learn the intended objectives. Physical educators have a duty to alter the expectations of high school students, but the best

curricula and most heroic expectations will be ineffective if negative attitudes toward the course lead students to ignore its value (Chen & Shen, 2004). Attitude, then, is the agent that can change perceptions and the catalyst that can make physical education a positive educational experience (Stelzer, Ernest, Fenster, & Langford, 2004).

According to (Wakefield, 1996) motivation is defined as "the collection of causes that engage someone in an activity" (p. 494). Alderman (2004) stated that teachers have a responsibility to help students develop motivation. Motivated students seek resources for creating their own goals. They are able to learn independently, and they persevere despite setbacks. Motivation is an essential ingredient in becoming a physically educated individual and leading a physically active lifestyle.

Corbin and Pangrazi, (2001) noted that one of the only opportunities a student may experience to learn about the comprehensive health benefits of physical activity and the necessary motor and behavior management skills to effectively participate in a variety of sports, physical activities and exercise. In many instances, this experience is not successfully completed due to school districts around the United States reducing the number of physical education credits required to graduate from high school. Decline in activity begins in late elementary school and continues throughout high school and young adulthood. Interventions that provide opportunities and motivation for young people to be active could help address this problem (Ward et al., 2006).

Mowling, Brock and Rudisill (2004) point out that the first potential barrier in motivation relates to the intrinsic motivation of students. Children's motivation to participate in physical education and sport programs actually declines over the school years, and this decline is greater in girls than boys. Developmental and gender/racial

differences should be taken into account when addressing children's motivation. First, research has shown that students are motivated to engage in activities and achieve success when they believe they can accomplish the activities (Solmon, 2006). Individual uniqueness can cause or bring some problems for physical education teachers. What motivates one student to learn may not motivate another (Rink, 2001). Therefore, involvement for some may become an unpleasant task, and any intrinsic motivation to participate is lost.

Research clearly supports the idea that individuals have different motivational orientations (Chen, 1999). They can be intrinsically motivated, when they are engaging in activities for their inherent satisfaction; extrinsically motivated, when they are engaging in activities for instrumental reasons; or unmotivated, when they prove no regulation toward an activity.

Intrinsically motivated students will undertake any activity for its enjoyment or challenge. In physical education, teachers need to think of ways to make the content more meaningful and challenging for students by providing active learning experiences and connecting these experiences to students' prior knowledge (Chen & Darst, 2001). Another approach could be the use of different teaching strategies to invoke situational interest (Solmon, 2006).

Students with high motivation are best described with higher emotional component of attitudes toward physical education. This means that highly motivated students like physical education classes and are eager to perform in related activities. Another characteristic of motivated students is that they perceive actual classroom climate as highly satisfactory (Chen & Darst, 2001). Students enjoy physical education

classes; find them amusing, relaxing and pleasurable. Higher levels of competitiveness, as a dimension of classroom climate is also a characteristic of a motivated group of students. According to their perceptions, they would prefer physical education to be of a more competitive orientation. Highly motivated students would prefer physical education classes that would encourage competitiveness between individuals and groups as well as the form of competitiveness, which affects improvement of one's competency.

Extrinsic rewards could hinder student's motivation by providing objects (pencils, stickers etc.) to reward students for something they are supposed to be doing. Students should be behaving, participating actively in class and trying. This type of reward is behavior driven, rather than oriented towards learning. Students are rewarded for expected behavior and compliance to the teacher's rules (Mowling, Brock, Eiler, & Rudisill, 2004). This type of motivation could be a barrier to the successful engagement of students in activity.

Another potential barrier to student motivation can be the practices of the teacher. The teacher has the immensely difficult task to motivate every student in the classroom. To be effective, teachers need to examine their teaching style and adapt to the constantly changing demands that are placed upon them. The teacher needs to be an instructor, a manager, a facilitator and a motivator. The attitude of the teacher could influence the attitude of the student (Mowling, Brock, Eiler, & Rudisill, 2004). Physical education teachers may create a positive learning climate and increase the motivational level of students when they: include students in decision making, provide a variety of options when presenting instruction, acknowledge students' feelings, and provide quality feedback (Koka & Hagger, 2010; Sutliff, Higginson & Alstott, 2008).

Future physical education teachers need to be aware of how students' motivation influences the day to day learning environment of the classroom. In the topic of motivation, Martin and Kulinna (2009) proposed that a psychology of physical education class should be incorporated into professional preparation programs. This class is one way that physical education teachers can develop an understanding of student motivation specific towards physical education.

Physical Education Curriculum Reform

Curriculum reform in physical education has been occurring in many geographical areas of the world including Puerto Rico. After several years of marginalization and cut backs, physical education is now being viewed by many as an essential tool to battle the national childhood health and obesity crisis (Sibley & LeMasurier, 2008). The emphasis of the "new" curriculum has been the development of a healthy, physically active lifestyle rather than the study of traditional team sports (Ennis, 2006; Weir, 2000). The curriculum must contain certain characteristics that lead to the development and maintenance of positive attitudes toward physical education and physical activity. These increasing demands compete for already limited instructional resources and valuable instructional time.

The current trends in education have direct implications for the physical education curriculum. Schools are increasingly pressured to be more accountable and productive by having students meet established national, state, and local outcomes and learning standards (Kelly & Melograno, 2004). There are many potential obstacles that may prevent schools from elevating the place of physical education in the school curriculum. These obstacles include budgetary issues, reluctance to decrease time in other academic

subjects for PE, shortage of physical education teacher positions in schools, necessary curricular revisions, and lack of compliance amongst teachers and administrators at the school level (Erickson, 2007). Even though physical education is an academic discipline, it has not been given the respect it deserves in the school setting and among the general public. The literature has alluded to the fact that physical education has been and continues to be marginalized as an academic discipline (Barney & Deutsch, 2009).

Time allocation. In recent years the amount of time dedicated to physical education classes has been reduced (Barney & Deutsch, 2009). In many states classes are being reduced in the number of days during the week in which students meet with a highly qualified physical educator. In other instances, physical education has been completely eliminated from the school curriculum. There are suggestions that physical education is often dropped to make way for other subjects or at best there is minimal provision (Hardman, 2006).

Part of the problem is The No Child Left Behind Act (2004). This act forces the educator curtail studies outside the core curriculum and favors teaching for standardized tests (LaFee, 2008). School districts around the nation are cutting hours of physical education and even recess to meet mandate testing and other requirements. In addition to fitting physical education into a busy schedule, another curricular and pedagogical challenge is to be certain that physical education is beneficial for all children and it is also of high quality (Graham, 2008).

The Puerto Rico's Department of Education has adopted a variety of philosophical approaches that are important for the learning experiences of students in the physical education class. The Department operates from a constructivism paradigm. This

philosophy promotes the active participation of the student in the learning process. The teaching is based on the results the physical education teacher wants to achieve in the classroom and the integration of technology in the development of these learning experiences. The physical education teacher in Puerto Rico will be able to plan his or her teaching strategies focusing on the physical education curriculum goals, the established standards, learning concepts and the expectations for student learning per grade. If students do not enjoy what they are doing, they simply avoid activity.

It is known that the physical education curriculum could be very repetitive, lacking variety and rarely challenging students. With the establishment of curriculum goals, standards and learning concepts, the physical education teacher has a variety of teaching tools to prepare students effectively in the affective, cognitive and psychomotor domains. The main goal of the teacher is to prepare students for the “real world”.

McCaughy, Hodges Kulinna, and Cothran, D. (2006) stated the importance of the education level of the teacher and curriculum implementation. In their study, data suggested that teachers with advanced degrees reported teaching more objectives and lessons from the curriculum. The more experienced teachers (those with a Master’s degree and higher salary) taught more objectives and lessons from the curriculum. It is possible that these experienced teachers were more reflective and carefully thought about and ‘bought into’ curriculum implementation reforms. Implementation rates may be evolutionary as curriculum implementation can take years, so one might expect that teachers’ curricular use will gradually increase with time as they learn how to integrate the district’s curriculum into their programs. The curricular use rate might also suggest that the curriculum is not a good fit for the teachers’ program goals, if they are using it

less than half of their teaching time. Future research is needed to explore these and other possible explanations for the curriculum rate use.

Workplace conditions

Rovegno and Bandhausen (1997) states:

The research on workplace conditions suggests the importance of support from administrators and colleagues. On the negative side, some teachers report a lack of equipment, poor facilities, double classes, poor scheduling, no supportive administrators and colleagues, problematic differences in philosophy and curricular approaches among colleagues, lack of participation in school decision making, and burdensome paperwork (p. 404)

Physical education teaching takes place in gyms, tracks, ball fields and school playground. The physical structures of the “classrooms” can create several problems unique to physical education. The physical education teacher depends on the availability of facilities and equipment more than other teachers, having to improvise when these are not available (Fejgin, Ephraty, & Ben-Sira, 1995). Schools, by their very construction may hinder progression within physical education. When working outdoors the teacher is subject to changing weather conditions, having to withstand extreme heat or cold, while others enjoy the classroom shelter. This issue could be a deterrent in schools where basic facilities are scarce. There may be no field on which to play games, the playground may be too small for the number of students in the school, and there may not even be a hall available where to teach physical education (Warburton, 1996).

Physical education teachers working in the open field are vulnerable to criticism by the principal, teachers, and others. When physical education teachers work outside,

the process of controlling students is more difficult because students can move freely and discipline problems can arise. If students view physical education as “fun time” and a place where they can do what they please, the student may become too active and create discipline problems. In Puerto Rico the current educational reform provides for classroom and facilities for physical education.

Teacher effectiveness is also influenced by the context in which day-to-day instruction occurs (McCaughtry, Hodges Kulinna, & Cothran, D. (2006). Difficult workplace conditions have been identified as contributing to teachers’ inability to be good teachers. The school and classroom contexts also reflect the value of physical education teachers and their programs within the school system. Teachers with adequate equipment and facilities as well as reasonable class sizes are more likely to feel valued and appreciated as teachers (McCaughtry, Martin, Kulinna, & Cothran, 2006). Also, good working conditions tend to generate greater security, better education and greater job satisfaction among teachers (Both & Vieira do Nascimento, 2009).

School leaders shall endeavor to ensure the cost efficient provision of adequate spaces, facilities, equipment, supplies, and operational budgets that are necessary to achieve the objectives of the physical education program. School authorities shall minimize the use of physical education facilities for non-instructional purposes, such as using the gymnasium for school assemblies during time scheduled for physical education classes (National Association of State Boards of Education, 2004).

Facilities and equipment have been found to create issues of effectiveness for first year teachers (Hill & Brodin, 2004). Curricular offerings can be significantly affected when space and materials for specific units are not available. These barriers affect

teacher's creativity and the students' development when teachers can provide a successful environment for all students. Lack of facilities and big class sizes were also mentioned as factors hindering the delivery of successful physical education programs at all school levels.

Teacher Attitude. The physical education teacher is an important component in the attractiveness of the course, the participation of the student and motivation, the image of physical education class, the creative solution for the lack of equipment and the creation of opportunities for cooperation with individuals and groups both within and outside the school (De Knop, Theeboom, Huts, Van Hoecke, & De Martelaer, 2004). Physical education teachers have a great influence on the physical education content and it is a major component in school physical education.

Teachers' attitudes, their enthusiasm, motivations, creativity and engagement during and after the lessons make this person a key element to the overall quality of the class. All these requirements from the teacher are needed to give the physical education class direction and make this subject a successful one in schools. The success of the physical education program depends on the right attitude of the teacher, motivation and talent. If the teacher views their position much like any other job, as a means to earn a salary, then the quality and delivery of the physical education curriculum will be in jeopardy. Lin (1993) summarizes the situation as follows:

Reform efforts have set high and diverse expectations for teachers by requiring them to learn more about their subject areas, to use texts that are becoming more and more difficult, and to use new methods in teaching. Yet, lack of motivation

and lack of help result in very little change in the classroom. Accordingly the traditional way of teaching dominates (p.53).

One important part of evaluating a curriculum is the determination of the degree of program implementation. This is because not all teachers carry out program guidelines and instructions as curriculum developers intend. Teachers who adopt innovations imposed on them by outside agencies often take this course of action in order to survive and not because of changes in their beliefs or values. Teachers who lack involvement in the changing process, alienates them and prevents real change from occurring. Imposition makes the process of implementation difficult for teacher because it takes the intrinsic motivation away from the implementation process.

Professional Development. Teaching is infinitely complex, fluid and dynamic process; a demanding profession whose integrity is founded on teachers who learn continuously throughout their careers, therefore, improving the quality of teachers' career-long professional learning is pivotal to improving the quality of physical education (Amour, 2006).

According to Keay (2006), physical educators worldwide have acknowledged the need to improve the continuing education of teachers and have called upon policy-makers to promote urgent action. Napper-Owen, Marston, Volkinburg, Afeman and Brewer (2008) also point out that teachers need to realize that professional growth and development are career long commitments, and learning does not stop on the day they are hired as practicing. Keay (2006) indicates that although the opportunities to improve professional practice go beyond policy and while many physical education teachers only recognize professional development offered through structured courses, there is a

growing recognition that collaborative learning is an effective form of professional development.

Armour (2006) expresses:

Traditional forms of professional development provision are unlikely to result in effective teacher learning. This is, perhaps, unsurprising, given that traditional professional development design (i.e. sporadic one-off, one-day, off-site courses) contradicts everything we know about the ways in which people are most likely to learn; curious indeed in a profession called education. Much of the physical education professional development lacks in coherence, relevance, challenge and progression. It is delivered out of context and cannot be transferred to their classes by physical education teachers.

Fullan and Stiegelbauer (1991) described professional development as “an activity that promise so much and has been so frustratingly wasteful as the thousands of workshops and conferences that led to the no significant change in practice when teachers returned to their classrooms” (pp. 315).

Amour and Yelling (2004) indicate that teachers want to focus closely on the specific needs of their own pupils. They value learning with and from colleagues and want more opportunities to learn in this way, and they will even tolerate ‘official’ professional development simply for the chance it offers to learn informally with professional colleagues. Moreover, research has (Armour, 2006; Guskey, 2002; Klingner, 2004; WestEd, 2000;) considered what is striking about these teachers’ views is the way in which they mirror some of the most recent research evidence on continuous effective professional development. For example, there is a measure of agreement about

the value of collaborative professional learning in communities of practice; the need for a relentless focus on the impact of continuous professional development on pupil learning; the importance of establishing supportive school structures; and the need to recognize and value a wide variety of learning activities ranging from formal to informal.

Buczynski and Hansen (2010) stated that a common misconception is that professional development is only as effective as the teacher's willingness to apply knowledge gained through the professional development. Armour and Yelling (2007) stated that teachers have the ability and knowledge to implement what they have learned in professional development, yet, many barriers may hinder the implementation of what they have learned. Sometimes, students do not have the skills or the teacher may not have all the necessary equipment or the required facilities. Teachers need to be provided with strategies to address possible obstacles they may experience during the process. It is clear, therefore, that professional development in physical education should be founded on a much better understanding of the teacher learning in order to have an impact on student learning.

Summary

Teachers are one of the most important resources present in schools (King, Shumow & Lietz, 2001). Teachers in the public education system in Puerto Rico are expected to implement the new physical education curriculum introduced and established in the Island in 2007. There is no doubt that many physical education teachers are dissatisfied, feel powerless, and are faced with overwhelming barriers and dismal conditions (Rovegno & Bandhauer, 1997) that prevent them from being the best possible physical education teacher as expected by administrators, parents, students and society.

Some barriers may be difficult for an individual teacher to change appreciably; however, interventions must necessarily take place with the teacher because (Beane, 1988), ultimately, they are the ones who must find the means to teach effectively given the surrounding circumstances they face.

Comprehensive school wide approaches require shifts in prevailing policy and new models for practice. For systematic change to occur, policy and program commitments must be demonstrated through effective allocation and redeployment of resources, including finances, personnel, time, space, equipment, and other essential resources (Adelman & Taylor, 2008).

Patton and Griffin (2008) noted that change is risk taking. To change the current physical education curriculum in Puerto Rico it will be increasingly important that teachers participate in programs with the intensity, multiple resources, and ongoing support necessary to achieve substantive changes. The present study will examine which barriers physical education teachers are encountering when administering the Puerto Rico's current physical education curriculum.

Chapter III

Methodology

The purpose of this study was to determine perceived barriers among the public school system physical education teachers to teaching the established physical education curriculum of Puerto Rico. Emphasis was placed on the following components of teaching barriers: student's motivation, curriculum, obstacles and facilitating factors, and teacher effectiveness as it relates to teaching physical education. This chapter describes the methods used by the researcher in this study and contains the following sections: study design, approval process, participants, instrumentation and analysis.

Study Design

A survey research designed method was the method of choice for analyzing the perceived barriers among the public school system physical education teachers to teaching the established physical education curriculum of Puerto Rico. Survey and questionnaires are one of the most common methods used in educational research. Bryman (2004) indicates that the use of a questionnaire to obtain data has a number of advantages over a method that involves an interviewer. Amongst these advantages are resource issues as a self- completion instrument, because they are cost effective and quicker to administer than other type of data collection methods. A foremost advantage is that it is convenient for respondents because they can complete the questionnaire at their own convenience (Bryman, 2004).

In this method, a random sample of participants completes a survey, test, or questionnaire that relates to the variables of interest. Random sampling is a vital part of ensuring the generalizability of the survey results. Generalizability refers to the ability to

apply the results of research conducted on a sample of the population to a broader population (Babbie, 2013). “Statistical generalization” refers to the ability to make statistical inferences about a “population” based on research about a small sample of the population. Generalizability is best achieved through the use of quantifiable measurement and random sampling. The population of interest must be defined and a representative sample obtained. Once the target population is defined, a random or representative sample must be chosen and will answer the questionnaire provided (Hatch, 2009).

Stratified Random Sampling

Stratified random sampling refers to a sampling method that is used when the population of interest is divided into groups called strata. The researcher will randomly select subjects from these strata to include in the sample. With this method every element of the population has a known probability of being included in the sample.

For the purpose of this study the strata were formed by dividing the population of physical education teachers working in the Puerto Rico Department of Education into twelve groups or strata. The groups were: (a) all levels physical education teachers, (b) elementary physical education teachers, (c) middle school physical education teachers, (d) high school physical education teachers, (e) secondary school physical education teachers and (f) K-8 (Segunda Unidad) rural schools physical education teachers. These groups were also divided by gender: females and males teachers. From each stratum of middle school, high school and secondary schools the researcher chose fifty subjects randomly. For the stratum of elementary school teachers the researcher chose 100 subjects randomly due to the high amount of teachers working at this level.

For all school levels schools (K – 12th grade) and “Segunda Unidad” (K – 9th grade) all teachers were selected to answer the questionnaire due to the low amount of teachers working in these school levels for a total of 600 teachers.

Dissertation Committee, IRB, PR Department of Education Approval

A dissertation committee composed of four members was selected to review, make comments and approve the dissertation proposal. The dissertation proposal hearing was held on December 2011. In order to obtain the required data for this study, the use of human subjects was necessary. This required the review and approval of the University of New Mexico (UNM) Human Subjects Institutional Review Board (IRB). The research protocol, instrument, informed consent, and departmental approval was submitted and approved by the UNM IRB.

A letter of intent to conduct a survey was taken personally to the PR Department of Education Secretary’s office. This letter served as an introduction to explain the project’s scope and to request approval to collect data using physical education teachers as subjects. The PR Department of Education established guidelines and procedures to conduct research within the Department. Before the PR Department of Education granted permission to conduct research with teachers, students or any other personnel, it required a complete application form that includes the questionnaire, consent form and dissertation proposal. Furthermore, the PR Department of Education Legal Division Office provided recommendations and grants approval to conduct the study.

The Director of the Physical Education program in the PR Department of Education received a personal visit from the researcher to explain the study, the purpose of it, benefits to the Island and to obtain a collaboration agreement from him to

participate in the study. This Director informed Physical Education District Supervisors of the study by sending an e-mail, as well as a Memo to teachers encouraging them to participate in the investigation and will provide the updated data regarding teachers. This data was limited to: the number of teachers currently working for the department, number of teachers per school district, gender, and any other information relevant to the study.

Physical Education teachers were contacted from e-mails obtained from the Department of Education Educational Research Division of the Planning and Educational Development Area and District Supervisors. Also, the researcher obtained from this office the e-mail addresses of all public schools in Puerto Rico to send principals to ask them to forward relevant details to their physical education teachers.

Power Analysis and Sample Size

An appropriate number of participants for a given study can be estimated through statistical power analyses (Brown, et al., 2009). A power analysis prior to a study yields an estimated sample size required for detecting relationships among variables. The equation for power is $1 - \beta$ (β). Beta, commonly referred to Type II error (Cohen, 1998) is the probability of failing to detect significant differences that might in fact exist. Power is expressed from .01 to .99 (Cohen). As sample size increases, the strength to detect differences also increases. The Type II error refers to incorrectly accepting a false null hypothesis. Type I error, also referred to as α , represents the significance criterion determined by the researcher. The Type I error refers to incorrectly rejecting a true null hypothesis. In this study, the significance factor, or alpha level, was set to $p=.05$, as is commonly acceptable in the social sciences. Since an estimate of the minimal sample size had to be established, the two factors to be determined by the researcher were effect

size and the alpha level. Cohen (1988) established $r=.15$ as a medium effect size. A power of .80 was confirmed to be appropriate for detecting relationships among variables. After consulting Cohen (1988), the sample size for this study was 328 subjects.

Margin error	5%
Confidence level	95%
Population size	2242
Response distribution	50%
Sample size	328

The central limit theorem states that, as long as the sample size is large, roughly 30 or more scores, the distribution of sample means will be a normal distribution even if the means come from a population that itself is not normally distributed (Harris & Boyd, 1995).

Participants for this study were 600 physical education teachers from the Island of Puerto Rico from metropolitan, rural and remote areas working for the PR Department of Education.

Demographics

The PR Department of Education (2011-2012) described the demographic characteristics of physical education teachers as follows: (a) 100% of the physical education classes are taught by specialists in the field, (b) seven teachers one female and six males teach all school levels (c) 299 females and 683 males teach elementary physical education for a total of 982 teachers, (d) 72 females and 263 males teach middle school physical education (7th to 9th grade) for a total of 335 teachers, (e) 138 females and 357

males teach high school physical education for a total of 495 teachers, (f) 138 females and 357 males teach high school physical education for a total of 495 teachers, (g) ten females and 47 males teach secondary education for a total of 57 teachers, and (h) 85 females and 282 males teach in rural areas of Puerto Rico for a total of 367 teachers. A grand total of 605 females and 1,638 males teach physical education in seven educational regions. Table 5 shows the distribution of physical education teachers working currently for the PR Department of Education.

The number of physical education teachers was reduced by 588 in the last three years. In recent years, colleges and universities in the Island have offered a degree in elementary physical education. However, it is important to note that some physical education teachers teaching elementary schools may not be certified to teach at this school level.

Table 5

Demographics of Physical Education Teachers in Puerto Rico

<u>Gender</u>	<u>Elementary School</u>	<u>Middle School</u>	<u>High School</u>	<u>Secondary School</u>	<u>Segunda Unidad</u>	<u>All Levels</u>
Female	299	72	138	10	85	1
Males	683	263	357	47	282	6
Totals	982	335	495	57	367	7

Figure 1 presents the map of Puerto Rico divided by the seven educational regions in the Island.

Figure 1

Map of Educational Regions in Puerto Rico



Source of map: edfacts.dde.pr

Table 6 presents the distribution of physical education teachers working for the PR Department of Education by school regions and levels.

Table 6

Physical Education Teachers by School Regions and Levels

Educational Region	All Levels	High F	School M	Middle F	School M	Elementary F	School M	Secundary F	dary M	Segunda F	Unidad M	Totals
Arecibo	0	9	30	11	30	42	108	0	2	19	48	F=81 M=218
Bayamón	0	13	22	8	35	62	87	0	2	11	37	F=94 M=183
Caguas	1M	13	32	7	35	51	116	1	16	9	46	F=81 M=246
Humacao	2M	12	41	7	40	40	116	0	1	11	47	F=70 M=247
Mayaguez	0	69	168	16	37	2	7	5	4	18	52	F=110 M=268
Ponce	0	11	42	9	58	44	151	0	9	14	41	F=78 M=301
San Juan	3 M 1 F	11	22	14	28	58	98	4	13	3	11	F=91 M=175
Totals	6 M 1 F	138	357	72	263	299	683	10	47	85	282	F = 605 M =1638 T = 2243

Settings

The questionnaire was delivered to teachers in seven schools regions around Puerto Rico chosen randomly via electronic mail by utilizing the program Survey Monkey (www.surveymonkey.com). Participants had the opportunity to complete the online questionnaire in the workplace or at home. This was a self-administered questionnaire, as the researcher was not able to administer the test. As a reminder, subjects were contacted by researcher two weeks after sending the questionnaire to request them to complete it.

Procedures

To obtain quantitative data, a questionnaire will be designed utilizing the National Association for Sports and Physical Education (NASPE) 2010 Opportunity to Learn Guidelines for Elementary, Middle and High School for such purpose. The questionnaire was designed to measure barriers to effectively teach the established physical education curriculum in Puerto Rico. The questionnaire was developed first by defining the purpose of the study and determining which purposes to examine. After extensive research, a questionnaire that could gather data in this topic was not available; the majority of the studies conducted previously on this topic used qualitative methods for data collection. Therefore, the questionnaires used in previous studies proved not applicable to the purpose and nature of this study. It was imperative to develop an instrument that could be applied to the specific purpose of this research.

The questionnaire was developed utilizing the recently revised *Opportunity to Learn Guidelines for Elementary, Middle and High School* established by The National Association for Sport and Physical Education (NASPE, 2010). During the Summer of 2010, authorization was requested to NASPE to use the Opportunity to Learn guidelines to develop a questionnaire that could be used to conduct my research study. Authorization was granted and an instrument was developed.

Independent and Dependent Variables

In order to explore perceived teaching barriers in physical education teachers in Puerto Rico, the following independent variables were identified as worthy of investigation: school location, grade level taught, school level taught, years of teaching experience and gender. Each variable was selected based on the information most

readily available to professional educators. The independent variables identified in this study as worthy of exploration include two categories teachers and school characteristics. Teachers at different school levels may perceive teaching barriers differently; for example, elementary physical education teachers' could perceive teaching barriers differently as those teachers in middle and high school.

The dependent variable in this study was the perceived barriers to teach the established physical education curriculum. The National Association for Sport and Physical Education 2010 *Opportunity to Learn Guidelines for Elementary, Middle and High School* (NASPE, 2010) identified six areas of program support for quality physical education programs. These areas were physical education teacher characteristics, physical education curriculum, school facilities, class size, materials and equipment and time allocation.

Measurement Instrument

The questionnaire was developed in the summer of 2010. Several sources were used to gather items for the questionnaire, but the main source will be the National Association for Sport and Physical Education 2010 *Opportunity to Learn Guidelines for Elementary, Middle and High School*. These guidelines were created for the purpose to assess the physical education program to ensure that it provides the elements surrounding and supporting quality instruction. This assessment provided the data needed to establish realistic goals and objectives for the program (Opportunity to Learn Guidelines for Elementary School Physical Education, p.5). By using this assessment rubric, school personnel can establish realistic, incremental goals for preparing physically, intellectually and socially educated students. They can ensure that students will have sufficient

opportunities to acquire the knowledge, skills and dispositions needed to become a physically educated person. As such, these *Opportunity to Learn Guidelines* should become an integral component in evaluating physical education programs in the school and/or district (Opportunity to Learn Guidelines for Elementary School Physical Education, p. 4).

The instrument is divided into the following sections:

Part 1: Introduction. This section included the purpose of the study and an introduction from the researcher to the participants. Also, an informed consent page was included for participants to keep for their records. This page counted as evidence of subject's agreement to participate in the study.

Part 2: Demographics. Thirteen demographic questions concerning years of teaching experience, gender, age among others were asked. Respondents had the opportunity to select the best response from a variety of provided options or write their answers in the space provided. A copy of the instrument is available in Appendix 1.

Part 3: Open-ended questions. The subjects had the opportunity to answer four open-ended questions regarding barriers to teach physical education. This section was provided to give teachers the opportunity to express their feelings and concerns about the topic of interest.

Part 4: The Marco Curricular of physical education in the Island of Puerto Rico. In this section participants provided responses on the quality of the physical education curriculum taught in the Island. Participants answered twenty-three questions concerning curriculum integration, effectiveness, variety and opportunities for students to develop a variety of physical, mental and emotional abilities. Based on personal opinion,

the participants were asked to rate twenty three items on a five-point Likert scale ranging from Strongly Disagree (1) to Completely Agree (5).

Part 5: School facilities and equipment. Participants answered sixteen questions regarding their school facilities and equipment they have available to teach physical education. A five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5) was used in this section to collect the necessary data.

Part 6: Class size. Participants answered five questions regarding their class size and number of students they teach. Base on personal opinion, the participants were asked to rate five items on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).

Part 7: Time allocation for physical education instruction. Participants answered five questions on their perspective on the time available to teach physical education. Base on personal opinion, participants were asked to rate on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).

Part 8: Factors influencing the teaching of physical education. Participants answered eleven questions on their perspective of the barriers that hinder the delivery of their physical education programs. Base on personal opinion, participants were asked to rate on a four-point Likert scale ranging from Is Not a Barrier (1) to It is Definitely a Barrier (4).

Instrument Validity

Content validity is the degree to which elements of an assessment instrument are relevant to and representative of the targeted construct for a particular assessment purpose (Haynes, Richard, & Kubany, p. 238, 1995). Validity is the most important

component of any research instrument. An instrument is said to be valid if it accurately measures the attributes that it is designed to measure. This is not only established by correlating the scores with a similar instrument, but also by expert review.

Content and construct validity for this study's questionnaire was established by using a panel of physical education teaching professional experts. The panel of experts was asked to examine the questionnaire items to judge clarity and appropriate wording of questions. Six experts determined if the questionnaire measured what was supposed to measure in terms of content. A list of experts asked to participate in the process of validating the questionnaire may be found in Appendix 2. These experts were expected to know the purpose, objective and goals of the study.

The researcher established verbal communication with the experts. Experts received a copy of the instrument via e-mail, or a copy was delivered to them personally by the researcher. Each expert examined the questionnaire and provided feedback on whether the instrument has the desired data, whether it has accurate and appropriate questions and whether the questions have the correct format.

Recommendations were used to modify the instrument and produce a second draft. The same panel of experts received a copy of the second draft and made comments until no further corrections or comments are necessary. This procedure ensured that the instrument has the reasonable level of content validity.

Cross Cultural Validity

Translations of instruments are often necessary tool to conduct cross-cultural studies. However, literal translation does not ensure that the translated instrument measures the same constructs as in the original instrument. The reason is that there may

exist lingual or cultural or both differences across samples (Lin, Chen, & Chiu, 2005). Translation produced in different locations may differ considerably not only because there is usually more than one way to translate a question, but because of regional differences in language, social reality and culture (Guidelines for Best Practices in Cross-Cultural Surveys, 2010).

The researcher opted to translate the questionnaire to Spanish due to the lack of proficiency in the English language that some teachers indicated they had. Furthermore, some teachers indicated that they will not answer a questionnaire in other language that is not Spanish. The questionnaire was translated to the Spanish language by three bilingual university professors. The questionnaire was administered to 30 physical education students in their last year of college to judge clarity and appropriate wording of questions in the Spanish language to minimized construct and item bias. After receiving feedback from the students the questionnaire was re-written and was administered again to 21 physical education students from another university in Puerto Rico.

Instrument Reliability

Reliability was established using inter-rater reliability. The internal consistency was measured in this instrument using the Cronbach's alpha method. This was determined during the administration of the questionnaire to be used in the study. Reliability is the degree to which a test consistently measures whatever it measures (Gay, Mills, & Airasian, 2009). To ensure survey reliability Cronbach's alpha was used to estimate internal consistency on how many items on the survey relate to all other items and to the total test (Gay, Mills & Airasian, 2009).

Data Analyses

Data were captured in a format that permitted analysis and interpretation.

Descriptive statistics were utilized to analyze the gathered data from the questionnaires. Descriptive statistics served to describe and summarize observations (Van Rensburg, Landman & Bodenstein, 1994). Frequency tables, histograms and polygons were useful in forming impressions about the distribution of data.

Descriptive statistics were calculated to establish the nature of the distribution. Mean sub-scale scores, standard deviations, skewnesses and kurtosis were also examined. This analysis allowed the researcher to answer the proposed research questions.

Pearson correlation coefficient analysis was calculated to determine the strength of the linear relationship between the assigned grade level of the physical educator and their perceptions about barriers related to curriculum, school facilities and materials, time allocation, class size, and administrative support. Specific correlation coefficients was calculated to established the relationship between physical educators' grade level taught in elementary, middle and high school and combination of elementary and high school, and participants' perception of barriers to teach the established physical education curriculum.

Also, also point biserial correlation analyses were calculated to determine the strength of the linear relationship between the gender of the physical educator and years of teaching experience and their perception about barriers related to curriculum, school facilities and materials, time allocation, class size, and administrative support.

Open – Ended Questions Analysis

Open – ended questions were used in interviews as well as in postal questionnaires to collect exploratory research data. With this type of questions, the researcher was seeking to obtain data that was descriptive such as people’s own spoken or written words or reported behavior.

The best way to analyze open – ended questions was to code the information in terms of ideas and themes. The purpose of coding such questions was to reduce the large number of responses into a few categories of answers (Naoum, S., 2006). After establishing general categories for all the answers, these categories were divided into sub – categories, and a code was assigned. For this study, the open – ended question categories were post-coded, meaning that the categories were assigned after the data had been collected. The categories were assigned according to the researcher’s judgment.

To analyzed open – ended questions the software KH Coder was used. This software for quantitative content analysis or text mining was used to find word frequencies from the statements offered by teachers in the four open – ended questions concerning barriers. All answers were entered in to the program and it indicated how many times a word appeared. This offered a co-occurrence network of high frequency words in the text. Major themes of the text were formed in groups of words. Based on the findings categories were formed.

Chapter IV

Data Analysis and Findings

In this chapter results of the data analyses are presented. The data were collected and then processed in response to the problems posed in Chapter I of this dissertation. Two fundamental goals drove the collection of the data and the subsequent data analyses. Those goals were: (a) to obtain data to determine perceived barriers to teach the established physical education curriculum and (b) to determine factors associated with the implementation of the established physical education curriculum in Puerto Rico. The objectives were accomplished. Data collection occurred between May and October 2013 employing quantitative methods as noted, Likert-type scale survey instrument with open-ended questions was used.

Response Rate to the Survey Research

Six hundred questionnaires were sent via e-mail utilizing the computer program SurveyMonkey to physical education teachers currently working for the PR Department of Education. The teachers' e-mail addresses were obtained after the investigator met with Physical Education District Coordinators from all school regions and districts that form the Island's Department of Education. Three hundred and two teachers appropriately completed the questionnaire.

Data Analysis Procedures

The researcher utilized data collected from June to October 2013. The instrument was Internet based and each teacher received an address to access the questionnaire. Strict measures to maintain confidentiality were taken. The instrument assessed perception of barriers to the established physical education curriculum in the Island of

Puerto Rico of 73 items categorized under eight classifications. This questionnaire was found to be highly reliable (47 items; $\alpha = .89$).

The sample of this study was composed of 600 physical educators certified by the PR Department of Education. These educators worked in all the school levels, regions and districts in the Island. Data were collected from 302 subjects and then analyzed using SPSS (Statistical Package for Social Sciences), Version 20.0 for Windows software.

The research questions were examined using descriptive statistics including means and standard deviations. The mean provided the central tendency for each area studied, while the standard deviation offered an available definition to explain potential variations for each distribution. The data were also analyzed using chi-square tests of independence, independent sample t-tests, one-way between groups Analysis of Variance test (ANOVA) and one-way between groups Multivariate Analysis of Variance test (MANOVA). Statistically significant relationships were determined based on an alpha level of $p < .05$ or less. One-way between groups Analysis of Variance (ANOVA) requires that the researcher follow the assumption of independence, normal distribution, and homogeneity of variance. The independence assumption is based on the way data are collected. The normality assumption concerns the sampling distribution of means. The equal variance assumption addresses variance in the population (Pallant, 2005).

Demographic Information

The Perceived Barriers instrument contained questions intended to produce specific demographic data about the physical education teachers working for the PR Department of Education. This instrument included questions about gender, race, education level, years of teaching experience overall, years teaching experience in

physical education, school region where the teacher worked, grade level currently teaching, class periods per day, number of students and any other relevant information the researcher estimated necessary. Tables 7 through Table 13 show results of the analyses performed in terms of frequencies and percentages of those questions.

More than half of the physical education teachers participating in the study were males. Two physical education teachers did not report their gender (see Table 7).

Table 7

Demographic Information

Variable	Frequency	Percent
<i>Gender</i>		
Female	131	43.5%
Male	169	56.1%
Other	2	.3%
<i>Race</i>		
Hispanic	298	99.7%
Other	1	.3%
<i>Education Level</i>		
Bachelor	82	27.2%
Bachelor + 15	59	19.5%
Master	125	41.4%
Master + 15	10	3.3%
Master + 45	10	3.3%
Ph.D.	5	1.7%
Other Responses	11	3.6%

Note. N=302

The third questions asked the participants about their education level. One hundred twenty-five subjects indicated that they had a Master degree, representing 41.4% of the responding educators. Ten subjects indicated that they hold a Master +45 credits, representing 3.3% of the responding educators. Five subjects indicated that they had a Ph.D., representing 1.7% of the responding educators. Any university in Puerto Rico

offers a Ph.D. degree in physical education or related areas; these participants may have a degree in another subject or their degree was obtained in a university in the United States or Spain (Table 7).

The next question inquired about the total years of teaching experience that the physical education teacher had. One hundred and ninety - five teachers representing 63.6% of the sample population have between eleven and twenty five years of teaching experience. Table 8 shows Means and Std. Deviation for total years of teaching experience and years of teaching experience teaching physical education.

Table 8

Participants' Years in Education and Years Teaching Physical Education

	<u>Mean</u>	<u>Std. Deviation</u>
Total years in teaching	4.33	1.57
Years teaching Physical Education	4.24	1.56

Note. N=302 * $p < .05$

The next demographic question asked teachers to identify the school region where they worked (Table 9).

Table 9

School Region Teaching Physical Education

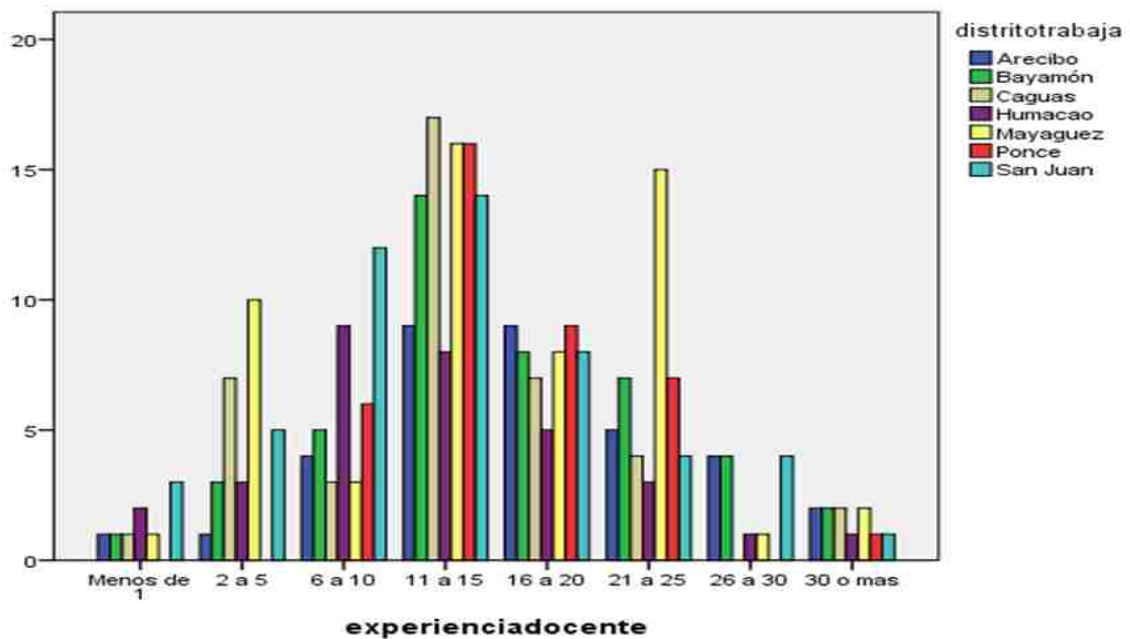
<u>School Region</u>	<u>Frequency</u>	<u>Percent</u>
Arecibo	35	11.7%
Bayamón	44	14.8%
Caguas	41	13.8%
Humacao	32	10.7%
Mayaguez	56	18.8%
Ponce	39	13.1%
San Juan	51	17.1%
Missing Cases	4	1.3%

Note. N=302

Figure 2 presents information regarding the years of teaching experience and the school region where the teachers' works.

Figure 2

Years of Teaching Experience and School Region



The next question inquired about the grade level taught by the physical education teacher. One hundred seventy-seven responding educators indicated that they worked in the elementary school level, representing 59.0% of the teachers (Table 10).

Table 10

Grade Level Taught by Teacher

<u>Grade level taught</u>	<u>Frequency</u>	<u>Percent</u>
Elementary school	175	59.0%
Middle school	49	16.3%
High school	38	17.7%
Segunda Unidad	16	5.3%
All levels	20	6.7%
Missing Cases	2	.3%

Note. N=302

Respondents were asked to mention how many periods they taught daily. Two hundred and nine physical educators mentioned teaching five classes per day, representing 70.1% of the teachers. Carta Circular #13-2013-2014 regarding the physical education program in Puerto Rico establishes the teaching of five class periods of 50 minutes each, except those teachers that have intramural periods. These teachers are only required to teach four periods per day. Some schools in special programs may hold a different school schedule allowing teachers working at these schools a more flexible schedule (Table 11).

Table 11

Number of Daily Class Periods

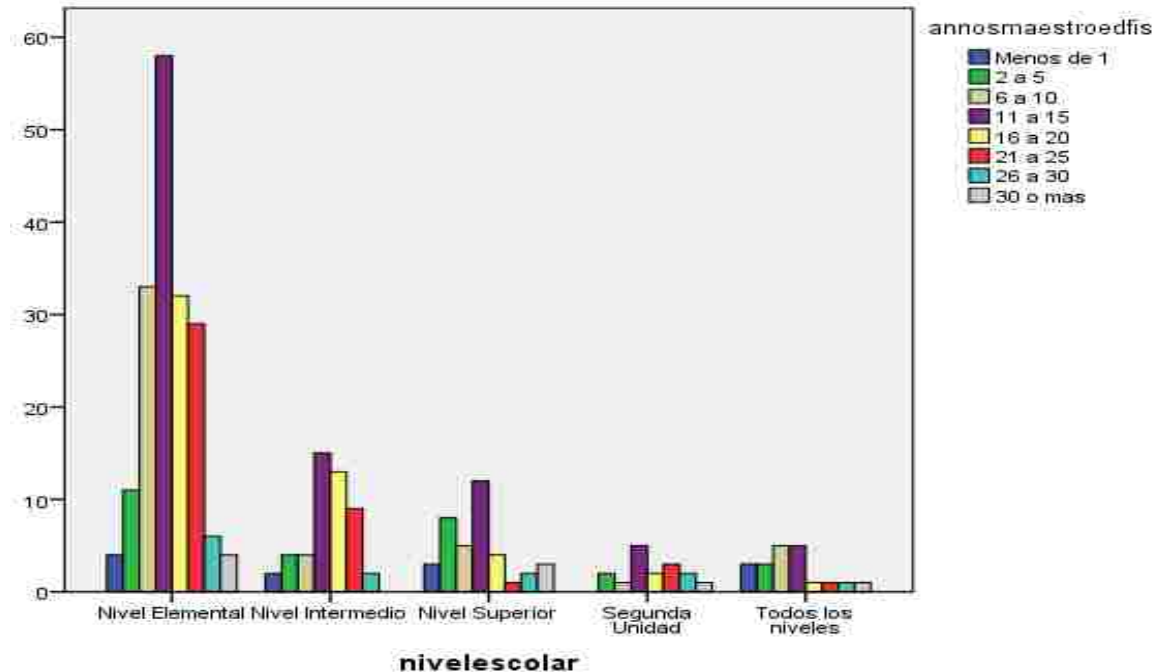
<u>Class Periods</u>	<u>Frequency</u>	<u>Percent</u>
One period	1	.3%
Two periods	7	2.3%
Three periods	11	3.7%
Four periods	41	13.8%
Five periods	209	70.1%
Six periods	6	9.7%
Missing Cases	4	1.3%

Note. N=302

Figure 3 presents the years of teaching experience per school level where the teacher works.

Figure 3

Years of Teaching Experience and School Level



Instrument Reliability Analysis

This subsection contains summaries to demonstrate reliability of the data collected from the Perceived Barriers to Teach Physical Education Survey. During the testing of the survey, students in the final stage of a degree in teaching physical education and a panel of experts participated in two studies that resulted in the final 73 questions survey. As explained in Chapter 3, reliability was measured using Cronbach's alpha, a measure of the internal consistency of an instrument to determine if all areas within the subscales will correlate with each other. The alpha coefficient ranged from 0 to 1. The closer a scale coefficient is to 1, the greater the reliability of the instrument. This questionnaire was found to be highly reliable (47 items; $\alpha = .89$) (Table 12).

Table 12

Overall Instrument Reliability

<u>α</u>	<u>N/items</u>	<u>N/cases</u>
.89	47	302

The reliability of the questionnaire was then tested to determine the manner in which each subscale effectively grouped together. Alpha coefficients ranged from .517 to .90, which signifies that there is good to strong reliability within the instrument (Table 13).

Table 13

Overall Subscale Reliability

	α
The DE Curriculum Framework for Physical Education	.90
Facilities and Equipment	.84
Students per teacher	.62
Time to teach	.52
Factors	.86

Research Question 1

The first research question asked physical educator about their perception regarding how their daily teaching aligned with the established curriculum. To answer this question quantitative and qualitative data were collected.

A chi-square test of independence was performed to examine gender and use of the established physical education Marco Curricular. There was not a statistically significant association between gender and use of the established physical education Marco Curricular. $\chi^2(1) = 1.92, p = .98$. The proportion of teachers utilizing the established Marco Curricular did not differ by gender.

A chi-square test of independence was performed to examine how teachers in different school levels use the established curriculum. There was not a statistically significant association between school level and the use of the established physical education Marco Curricular. $\chi^2(1) = 11.160, p = .79$. The percentage of teachers utilizing the established curriculum did not differ by school level.

The survey questioned the use and implementation of the established physical education framework to plan their daily lessons. Respondents answered questions on a Likert-type scale using a 5-point scale: 1= strongly disagree, 2= disagree, 3= neither agree nor disagree, 4= agree, and 5= strongly agree. A chi-square test of independence was performed to examine the implementation of the Marco Curricular by teachers in different school regions. There was not significant association between these variables. $\chi^2(1) = 1.92, p = .98$. The percentage of teachers utilizing the established curriculum did not differ by school regions.

Educators were asked whether they used and implemented the established physical education framework to plan their daily lessons. Respondents answered questions on a Likert-type scale using a 5-point scale: 1= strongly disagree, 2= disagree, 3= neither agree nor disagree, 4= agree, and 5= strongly agree. A chi-square test of independence was performed to examine the implementation of the Marco Curricular by teachers in different school regions. There was not a significant association between these variables. $\chi^2(1) = 16.41, p = .88$. The percentage of teachers utilizing the established curriculum to plan their daily lessons did not differ by school level.

Educators were asked whether the physical education Marco Curricular was a great tool to use in their daily practice. Respondents answered questions on a Likert – type scale using a 5-point scale: 1= strongly disagree, 2= disagree, 3= neither agree nor disagree, 4= agree, and 5= strongly agree. A chi-square test of independence was performed to examine the use of the Marco Curricular by educators with a variety of teaching experience. There was a statistically significant association between these variables. $\chi^2(1) = 45.32, p = .02$. The percentage of teachers considering the Marco

Curricular as a valuable tool to use in their daily planning differ by the years of experience the teacher has. We can see a trend with teachers that have between sixteen and twenty years of teaching experience.

Participants were asked to tell if the physical education Marco Curricular was a useful tool for lesson planning. There was a statistically significant association between these variables. $\chi^2 (1) = 41.03, p = .05$. The percentage of teachers considering the Marco Curricular a usable tool differed by the years of teaching experience. We can see a trend with teachers that have between sixteen and twenty years of teaching experience.

Research Question 2

Research question 2 asked the responding teachers to indicate what perceived challenges, if removed, would help teachers implement the established physical education curriculum. Teachers offered answers to this in an open – ended question, which gave a wealth of information to the researcher. The responding physical education teachers had the opportunity to properly answer the question because the list of options does not include the issue(s) that are most important to the respondent.

To identify topics the full text of all written inputs from teachers in an open – ended question was analyzed using the KH Coder, free software for the quantitative text analysis. It provides basic information on text data such as the occurrence rate of certain words. Using the 4,500 words regarding challenges given by the responding teachers, key words were identified and a cluster analysis was performed to identify the main categories of challenges teachers feel impede the delivery of the physical education curriculum. As a result, five high-frequency key words were identified: installations, materials, facilities, equipment and principal support. After this process was completed,

three main categories were formed: lack of adequate facilities, lack of equipment and instructional materials and lack of principal's support. A term frequency distribution table (Table 14) and figure (Figure 4) shows the results obtained after data analysis was performed.

Table 14

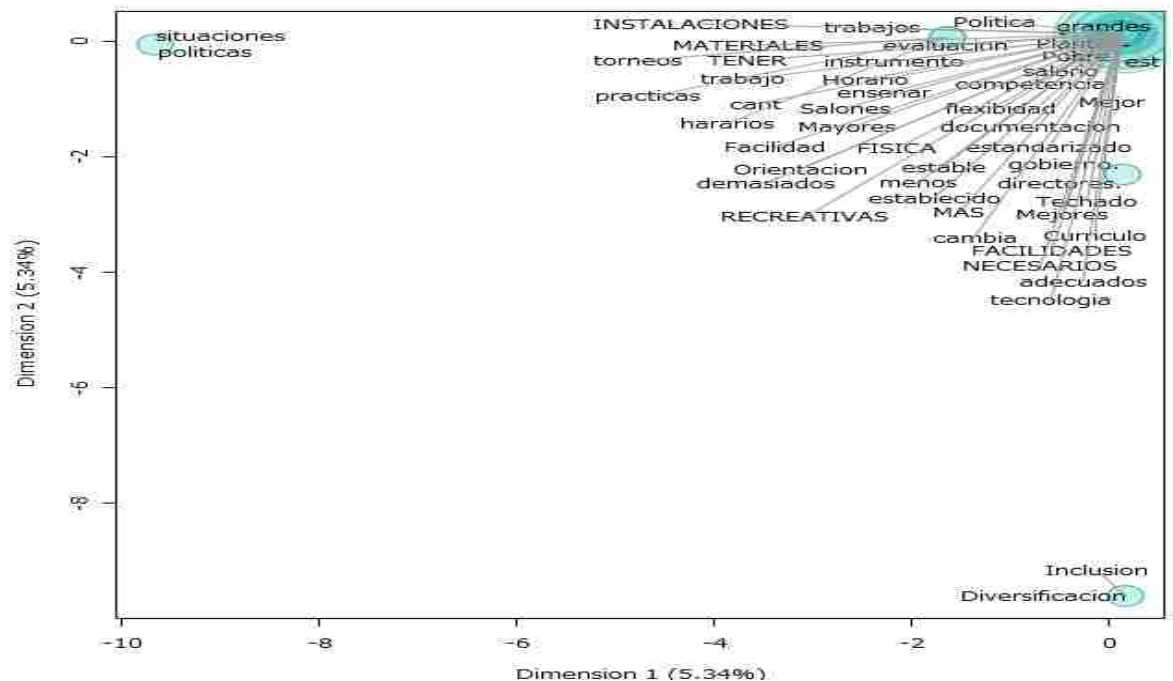
Term Frequency Distribution

<u>Word</u>	<u>Frequency</u>	<u>Percent</u>
Lack of Adequate facilities	382	71.94
Lack of equipment	68	12.81
Lack of materials	25	4.71
Principal support	25	4.71

N=302

Figure 4

Text Analysis Results for Barriers to Teach Open – Ended Questions



Physical education teachers indicated that lack of adequate facilities, lack of equipment, lack of materials and principal support were barriers to implementation of the physical education curriculum. Participants' responses to the open-ended questions about lack of adequate facilities were:

- “Most of the schools if they have a court is without a roof in a country that is so hot. If it rains we cannot give the class outside. The development of students is not uniform under these conditions. We should only teach from 9:00 a.m. to 12:30p.m.” (Participant # 2720464597)
- “Inappropriate facilities used for teaching. We live on a tropical island and it rains often and there are many schools where the courts are in the open air and we have problems moving around, this happens in the middle school where I work.” (Participant # 2731660366)
- “We do not have facilities in schools that are mostly aimed at students to have their area to switch from sports apparel to school uniform.” (Participant # 2672489503)
- “I do not have a place where effective physical education classes can take place.” (Participant # 2687801300)
- “Poor facilities and dangerous in some cases.” (Participant # 2726823956)

Participants' responses to the open-ended questions about lack of adequate equipment were:

- “Assign the teacher money for the purchase of materials appropriate to the school level.” (Participant # 2674428070)

- “The high cost of materials and the few funds allocated to buy them.” (Participant # 2720480579)
- “Better materials and facilities in order to develop a more effective class.” (Participant # 2686675525)

Participants’ responses to the open-ended questions about lack of materials were:

- “Lack of suitable materials.” (Participant # 2735118399)
- “To have enough materials to improve the quality of teaching.” (Participant # 2666975141)
- “Educational materials and equipment for all students.” (Participant # 2634384210)
- “Buy appropriate materials for all school levels.” “A ball for each student and not a ball for 20 students.” (Participant # 2640765363).

Participants’ responses regarding the lack of principal support were:

- “The war of the school principal with the teachers when they are cited to sporting events.” (Participant # 2731254815)
- “The little information that school principals receive about the physical education program.” (Participant # 2723074575)
- “Lack of commitment of the school principal to the physical education class.” (Participant # 2667932673)
- “The no value to physical education by school principals.” (Participant # 2747885812)
- “School principal should supervise, but not impede.” (Participant # 2735023966)

Research Question 3

The third research question of this investigation asked physical education teachers about the perceived teaching barriers that were present in their daily practice that impeded the implementation of the established physical education curriculum. The results of these questions are presented by gender, school district, years of teaching experience and school level.

Gender

An independent – sample t – test was conducted to compare class size as a barrier in scores for females and males. There was no a significant difference in the scores for females ($M=2.11$, $SD= 1.04$) and males ($M=2.19$, $SD=1.08$) groups; $t(298)=-.66$, $p =.508$.

An independent – sample t – test was conducted to compare opportunities for professional development as a barrier in scores for females and males. There was no a significant difference in the scores for females ($M=2.06$, $SD=1.02$) and males ($M=2.09$, $SD=1.03$) groups; $t(298)=-.28$, $p =.779$.

An independent – sample t – test was conducted to compare time to teach the established curriculum as a barrier in scores for females and males. There was no a significant difference in the scores for females ($M=1.72$, $SD=.897$) and males ($M=1.75$, $SD=.893$) groups; $t(298)=-.269$, $p =.788$.

An independent – sample t – test was conducted to compare principal support as a barrier in scores for females and males. There was no a significant difference in the

scores for females ($M=2.08$, $SD=1.09$) and males ($M=2.07$, $SD=1.158$) groups; $t(298)=.098$, $p=.092$

An independent – sample t – test was conducted to compare support of others as a barrier in scores for females and males. There was no a significant difference in the scores for females ($M=2.03$, $SD=1.03$) and males ($M=2.13$, $SD=1.015$) groups; $t(298)=-.835$, $p=.404$.

An independent – sample t – test was conducted to compare a lack of a covered facility as a barrier in scores for females and males. There was no a significant difference in the scores for females ($M=2.49$, $SD=1.30$) and males ($M=2.57$, $SD=1.34$) groups; $t(298)=-.515$, $p=.607$.

An independent – sample t – test was conducted to compare the available equipment the teacher has as a barrier in scores for females and males. There was no a significant difference in the scores for females ($M=2.75$, $SD=1.08$) and males ($M=2.94$, $SD=1.12$) groups; $t(298)=-1.50$, $p=.135$.

An independent – sample t – test was conducted to compare the available sports facilities the teacher has as a barrier in scores for females and males. There was no a significant difference in the scores for females ($M=2.88$, $SD=1.12$) and males ($M=2.75$, $SD=1.27$) groups; $t(298)=.939$, $p=.35$.

An independent – sample t – test was conducted to compare the students' attitudes as a barrier in scores for females and males. There was no a significant difference in the scores for females ($M=1.98$, $SD=1.02$) and males ($M=2.17$, $SD=1.13$) groups; $t(298)=-$

1.48, $p = .140$

An independent – sample t – test was conducted to compare the teacher lack of motivation as a barrier in scores for females and males. There was no a significant difference in the scores for females ($M=1.56$, $SD=.92$) and males ($M=1.63$, $SD=1.02$) groups; $t(298)=-.62$, $p = .538$.

An independent – sample t – test was conducted to compare the school uniform as a barrier in scores for females and males. There was no a significant difference in the scores for females ($M=1.73$, $SD=1.02$) and males ($M=1.86$, $SD=1.04$) groups; $t(298)=-1.14$, $p = .257$.

School regions

A one-way between groups Analysis of Variance test (ANOVA) was conducted to compare the effect of the school regions where the teacher works on perceived teaching barriers. Subjects were divided into seven groups regarding the school region where the teacher works (Group 1: Arecibo, Group 2: Bayamón, Group 3: Caguas, Group 4: Humacao, Group 5: Mayaguez, Group 6: Ponce, Group 7: San Juan). There was a statistically significant difference at the $p < .05$ in scores for the groups [$F(6, 291)=2.27$, $p=.03$ on the variable regarding time to teach. The effect size, calculated using eta squared, was small, .045. Post-hoc comparisons using the Tukey HSD test indicated that the mean scores for Group 7 ($M=2.00$, $SD=1.04$) were significantly different from Group 6 ($M=1.36$, $SD=.628$) regarding time to teach their class. The one-way between groups Analysis of Variance test (ANOVA) showed a non - significant relationship between the

school region where the teacher works and the rest of the variables under study.

Years of teaching experience

A one way between subjects (ANOVA) was conducted to explore the impact of years of teaching experience on perceived teaching barriers. Subjects were divided into eight groups regarding teaching experience (Group 1: less than 1 year, Group 2: 2 to 5 years, Group 3: 6 to 10, Group 4: 11 to 15, Group 5: 16 to 20, Group 6: 21 to 25, Group 7: 26 to 30, Group 8: 30 or more years). There was no a statistically significant difference at the $p < .05$ in scores for the groups and the variables under study.

School level

A one way between subjects Analysis of Variance test (ANOVA) was conducted to explore the impact of teacher's school level on perceived teaching barriers. Subjects were divided in five groups based on the school level where they worked (Group 1: Elementary School, Group 2: Middle School, Group 3: High School, Group 4: Segunda Unidad, Group 5: All levels). There was a statistically significant difference at the $p < .05$ level in scores for class size [$F(4, 295)=4.7, p=.001$]. There was a statistically significant differences at the $p < .05$ level in scores for principal support [$F(4, 295)=3.52, p=.008$]. There was a statistically significant difference at the $p < .05$ in scores for time to teach [$F(4, 295)=3.77, p=.005$]. Despite reaching statistical significance, the actual difference in mean scores between the groups was small. The effect sizes, calculated using eta squared, were .06, 0.46, and .049 respectively, Post-hoc comparisons using the Tukey HSD test indicated that the mean scores for Group 4 ($M=3.13, SD=1.147$) was

significantly different from Group 1 ($M=2.01$, $SD=.971$), Group 2 ($M=2.04$, $SD=1.08$), Group 3 ($M=2.03$, $SD=1.05$) and Group 5 ($M=1.95$, $SD=.826$) in terms of class size. The rest of the groups did not differ significantly from each other. Tukey HSD test indicated that the mean scores for Group 4 ($M=2.31$, $SD=1.078$) was significantly different from Group 2 ($M=1.51$, $SD=.767$) regarding time to teach. The rest of the groups did not differ significantly from each other. Tukey HSD test indicated that the mean scores for Group 4 ($M=2.94$, $SD=1.237$) were significantly different from Group 1 ($M=1.94$, $SD=1.067$) regarding principal support. The rest of the groups did not differ significantly from each other.

Research Question 4

Research question 4 asked participants what factors were associated with the implementation of the established physical education curriculum in the Island of Puerto Rico. Respondents answered questions on a Likert – type scale using a 4-point scale: 1= is not a barrier, 2= it could be a barrier, 3= is a barrier and 4= it is definitely a barrier. The questions addressed issues regarding facilities and equipment, materials, time to teach, professional development and the Marco Curricular of Physical Education as a useful tool to plan their daily lessons. A one way between – groups’ multivariate analysis of variance (MANOVA), was performed to investigate gender, region where the teacher works, school level and years of teaching experience regarding barriers in the implementation of the established physical education curriculum in the Island of Puerto Rico. Eight dependent variables were used: covered facilities, equipment to teach

classes, the school facilities, implementation of Marco Curricular, use of Marco Curricular, I am aware of the Marco Curricular, professional development.

Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variances – covariance matrices, and multicollinearity, with no serious violations noted. There was a not statistically significant difference on the combined variables between gender, district, school level and years of teaching experience on perceived barriers to teach the established curriculum.

Table 15 shows the barriers that physical education teachers indicated they had to teach the established program. Results indicated that lack of motivation of their part ($M = 1.60$, $SD = .98$) was not a barrier to teach the physical education program. Teachers identified lack of equipment ($M = 2.85$, $SD = 1.10$), sports facilities ($M = 2.80$, $SD = 1.21$), covered facilities ($M = 2.53$, $SD = 1.32$) and professional development ($M = 2.15$, $SD = 1.06$) as the most important barriers to teach their programs.

Table 15

Physical Education Barriers to Teach Indicated by Physical Education Teachers

	<u>Mean</u>	<u>Std. Deviation</u>
Lack of equipment	2.85	1.10
Sports facilities	2.80	1.21
Covered facility	2.53	1.32
Professional development	2.15	1.06
Students' attitudes	2.09	1.09
Support of others	2.08	1.02
Class size	2.08	1.02
Support of school principal	2.07	1.13
School uniform	1.81	1.06
Time to teach	1.73	.89
Lack of motivation	1.60	.98

Note. N=302 * $p < .05$

Summary

The main focus of the study was to determine perceived barriers to teach the mandatory physical education curriculum in the Island of Puerto Rico. Data analysis was performed using SPSS 20.0. Teachers did not perceive barriers differently based on years of teaching experience. However, teachers with sixteen to twenty years of teaching experience did not perceive the physical education Marco Curricular as a valuable tool and they indicated that they did not use the instrument to plan their daily lessons. Significant statistical differences were found between teachers from the school districts of Ponce and Mayagüez in terms of time to teach. Significant differences were also found between teachers working at a "Segunda Unidad" school setting and the rest of the

school levels with regard to time to teach, principal support and number of students. Independent sample T- tests were conducted to compare scores for female and male groups with regards to opportunities for professional development, time, principal support and sports facilities and equipment and no statistical significant differences were found between the groups. Also, no statistical significance was found between the school region where the teacher works and the rest of the variables under study. Statistical significant differences were found in scores for principal support and school level where the physical education teacher works. Three main categories were formed after open – ended questions were analyzed: lack of adequate facilities, lack of equipment and materials.

Cronbach's alpha for the Barriers to Teach Physical Education Questionnaire reported a high level (.89) of internal consistency.

The insights gained by this research study will contribute to the lack of quantitative data in existence regarding barriers to teach physical education. This will assist educational leaders, at the state level, and district levels, in making decisions regarding district change and reforms. Chapter V will provide interpretation of the data and conclusions. Findings will be presented in a manner that extends the knowledge base contained within the accompanying literature review. In addition, suggestions for policy, practice, and further research will be discussed

Chapter V

Discussion and Recommendations

There are a plethora of factors that impact the implementation of an established curriculum. Critical steps must be taken to ensure that physical education programs are effective in developing physically educated individuals, who will choose to participate in physical activity throughout their lifetime (CDC, 2006). This study had the intentions of analyzing the relationship between perceived teaching barriers and the implementation of the established physical education curriculum in the Island of Puerto Rico. Even though this particular study did not find many significant correlations between variables, this study adds to the existing body of literature and knowledge regarding barriers and implementation and it is a step forward in the process of analyzing this relationship. Understanding the perceived barriers among these professionals could contribute to faculty retention, commitment and effectiveness.

Discussion

Research Question 1: Teacher's perceptions of how their daily teaching aligns with the established curriculum

Physical education is an essential component of the Islands' core curriculum. I believe that is important that teachers at all levels implement the physical education Marco Curricular as established by the PR Department of Education in 2007. The Islands' physical education teachers must be prepared to meet the rigors, expectations, and responsibilities associated with delivering the established curriculum. The

percentage of teachers considering the Marco Curricular as a valuable tool to use in their daily planning differed by the years of teaching experience the teacher had. Those teachers with sixteen to twenty years of teaching experience significantly differed from other groups of teachers regarding the use of the Marco Curricular. This group of teachers also differed from others groups in terms of the value they see in this instrument.

One might expect that teachers' curricular use would gradually increase with time and expertise. These teachers have gained and crafted extensive knowledge and skills that are amassed over years of experience (Chorney, 2009). Researchers who have examined how experience influences teacher development over time agree that experience has the potential to enhance teaching quality (Chorney, 2009). Furthermore, experienced teachers made more instructional decisions in planning lessons, focused on individual student performance, and possessed knowledge structures that were rich in strategies (Chorney, 2009). Results from this research study may contradict what the literature states. This group of teachers may implement the content of the Marco Curricular by recalling information due to the years of experience they have. It is also possible that they have taught the subject for so long that many examples can be thought of instantly and the use of the Marco Curricular to planning is not considered necessary. Furthermore, they might chose activities based on their personal preferences, thus obviating the content. Some of these teachers may be suffering from burnout and have lost their passion for the teaching profession or at the present moment lack flexibility in their approach to teaching. Additionally, these teachers may implement the curriculum in a mechanistic manner where all the elements of the curriculum might be present with minimal student engagement, cooperative learning activities, proper feedback and limited

questioning. At this present time, the Physical Education Marco Curricular might not be an instrument that could add any value to the repertoire of knowledge and skills these teachers have. The sole decision to implement or not implement the Marco Curricular belongs to the individual teacher. They are the crucial factor affecting implementation (Cheung & Man Wong, 2011).

Research Question 2: Perceived Challenges

Findings from the current study evoked further valuable data from open-ended questions confirming three main categories of challenges identified by teachers: lack of adequate facilities, lack of instructional equipment and materials and principal support.

No meaningful teaching and learning takes place without adequate resources and materials. In the absence of teaching and learning materials, the teaching and learning processes will be hampered (Omar, 2014). The availability and quality of resources and materials and the availability of appropriate facilities have a great influence in curriculum implementation, especially when the Marco Curricular establishes the need for a variety of facilities for a successful implementation process. Safe and adequate school facilities are an essential part of an effective education program because there is a link between the quality of school buildings and student learning (Malhoit, 2005). Poor conditions make it more difficult for teachers to deliver an adequate education to their students, adversely affect teachers' health, and increase the likelihood that teachers leave their school (Schneider, 2003). It is very difficult for teachers to teach and for students to learn in places that do not have optimum conditions. Teachers clearly indicated that without proper facilities and equipment the implementation of the Marco Curricular at all school

levels was difficult. Puerto Rico is an Island that receives over 100 inches of rain yearly. Without covered facilities and proper spaces it will be unbearable to implement the Marco Curricular and teach the required content. Findings in this study could be used to support the notion that lack of adequate facilities and equipment is a major barrier to teaching physical education.

Teachers also indicated that lack of school principal support was a barrier to the implementation of the Marco Curricular. The importance of developing support from school administrators, especially from principals, is consistent with findings of other studies that have found the principal to be instrumental in implementation efforts (Forman, Olin, Hoagwood, Crowe & Saka, 2008). Good general management skills on the part of the principal are crucial to implementation process.

Research Question 3: Perceived Teaching Barriers

Studies on barriers on implementing physical education curriculums (Dwyer et. al. (2003), Jenkinson & Benson (2010), Morgan & Hansen (2008) and Nhamo (2012) have identified several barriers related to implementation: lack of adequate facilities, lack of equipment and materials and absence of principal support among others. Results from the current study are congruent with the existent literature. Teachers in the Island indicated that lack of appropriate facilities, equipment and materials, and lack of principal support were major barriers to teaching the established physical education curriculum. Results of independent t-test analyses suggested that class size, opportunity for professional development, the motivation of the teacher and the student attitude were not considered barriers for female and male teachers to implement the curriculum.

In addition, teachers working at a “Segunda Unidad” school setting identified class size, principal support as barriers to implementing the physical education curriculum. These schools are located in rural communities around the Island and serve a more diverse group of students regarding age. This broadens the type and amount of preparation required from the teachers. The school is the most important public institution in a rural community (Malhoit, 2005) and the implementation of quality curricula is a must to keep students motivated.

Research Question 4: Factors associated with the implementation of the established curriculum

Results from the current study compare with results obtained from Dorovolomo and Hammond (2005) in a study that took place in the Island of Fiji. Teachers from this Island also indicated that lack of instructional equipment, lack of appropriate facilities, improper attire and big classes were the top barriers that impede them to teach the implemented curriculum. Findings from Morgan and Hansen (2008) also indicated that not having educational materials was a factor for not implementing the physical education curriculum in Australia. Also, results from the current study are in concordance with Bevan, Fitzpatrick, Sanchez, Riley, and Forrester (2010) and Young, et al. (2007) indicating that lacking adequate equipment and facilities were associated with decreased student activity levels, thus becoming a barrier for curriculum implementation.

This study also identified professional development as a barrier for teaching. Principals have the role to manage the pace and path of school change, and they are usually the person that chooses the professional development topics for their teachers

based on the “Plan Comprensivo Escolar” (School Comprehensive Plan). All schools in Puerto Rico are required to have this plan written by the month of April of each school year. The School Comprehensive Plan includes all the aspects needed to successfully run the school in the following year. This plan is written by a committee of teachers and the school principal, and in many instances does not include the physical education teacher.

Yearly, the Puerto Rico AAHPERD Association offers a local convention. This convention may become the only opportunity that physical education teachers have to obtain professional development geared towards their particular needs. These teachers need professional development that is interactive with their teaching practice allowing transferability of the knowledge obtained to their daily classroom practices. Furthermore, professional development in physical education should be high quality, innovative and aligned with topics that teachers are required to teach.

Implications for Practice

A curriculum is a sequential system for delivering learning experiences to students, and it is also the framework that provides guidance for teaching skills and providing physical activity instruction (PECAT, 2006). Learning will be enhanced if teachers adhere to a curriculum that promotes continuity and cumulative acquisition of skills and knowledge from grade to grade and from school to school. An awareness of the barriers that teachers encounter in their day to day teaching and the impact of these barriers is essential for both practicing teachers and pre-service teachers (Jenkinson & Benson, 2010). The delivery of a quality physical education programs is contingent on the absence of teaching barriers.

The use of the physical education Marco Curricular and other documents provided to physical education teachers by the PR Department of Education should offer standardization to the educational process. The majority of the teachers who answered the questionnaire indicated that these documents are of great value and they adhered to using them, with the exception of those teachers who have between sixteen and twenty years of teaching experience. Significant differences were found between these groups of teachers with regard to finding the Marco Curricular a useful tool to plan their daily lessons.

Some teachers' responses about the use of the Marco Curricular were:

- "I use it on a limited basis." (Participant #2730334517)
- "I hardly use it." (Participant #2667161630)
- "It is not clear what is trying to establish." (Participant #2667846065)
- "I don't use it. It is worth less." (Participant #2735614971)
- "It limits my teaching." (Participant #2731407710)
- "If I had more support and materials, maybe I could use it." (Participant #2727475137)
- "Each teacher uses the Marco Curricular the way they want, not in the way the PR Department of Education wants." (Participant #2720619460).

The physical education Marco Curricular was last revised and published seven years ago in 2007. One might expect that teachers' curricular use would gradually increase with time as they learned how to integrate it into their programs. This may not be the case with this particular group of teachers. Older teachers do not always continue

to grow and learn, and grow tired in their jobs (Darling – Hammond, 1999), or may possess low levels of confidence or interest in teaching physical education (Nhamo, 2012). Many teachers leave the profession at this stage as their level of frustration with the educational system reaches its peak. Every time a school district loses an experienced teacher with two or more years of experience and is forced to hire a novice teacher, students assigned to those teachers lose in student achievement (Staiger & Rockoff, 2010).

Teachers may not reach their maximum potential in environments that do not provide them with the necessary support and sufficient rewards. The PR Department of Education must evaluate the needs of these groups of teachers and provide all the required tools to teach their classes. These tools may include successful professional development opportunities where teachers have time to reflect on their own practice, coaching and mentoring, and the creation of teachers' networks.

The role of the school administration is crucial to the success of the physical education program. Setting and clearly articulating high expectations for instruction by all teachers and learning by every student is the foundation of a successful program (California Department of Education, 2009). Teachers from various school levels and regions indicated that principal support was a barrier to implementation of the physical education curriculum. This study suggests that the school principal has the major responsibility for ensuring that a quality physical education program is provided in the school. Principals need to understand the content knowledge addressed in the physical education Marco Curricular, and it is a must that they help implement Carta Curricular

#13 -2013-2014 that guides the physical education program in the Island. School principals should be provided with ongoing professional development on the topic of physical education and how to monitor instruction to ensure teachers are utilizing the best practices for student learning.

There was a great range in the amount of time teachers stated they had to teach their physical education classes. It seems that time constraints continues to be an issue that impedes teachers' progress towards fully implementing the Marco Curricular. The PR Department of Education Carta Circular #13-2013-2014 establishes a minimum of 50 minutes of daily instructional time at all school levels. This amount of time may not be enough to teach all the content the Marco Curricular specifies and requires. It may be necessary to increase the instructional time to 60 minutes daily. It is difficult to hold teachers accountable for more than minimum expectations for learning when teachers do not have the time needed to teach (Rink, 2013).

The PR Department of Education consists of 1,457 schools which 170 are considered "Segunda Unidad". A "Segunda Unidad" is a school that serves students from kindergartner to nine grades where students are mixed in different grades and levels. These schools were built in the 1940's in areas of cultural and economic disadvantages, and they still in use in the current year. Teachers working at these schools indicated that class size, principal support and time to teach were barriers to implementing the established curriculum. Based on the nature of these schools, changes in the implementation of Carta Circular #13 - 2013-2014 in this particular setting may be necessary. Carta Circular #13-2013-2014 establishes that one physical education teacher

is required per 250 students, but it is not specific in terms of the type of specialist hired. The PR Department of Education demands that recent graduates obtain a certification in K to 3rd grade to teach these levels. These schools may well require more than three physical education specialists: one teacher to instruct the K-3rd grade groups, one teacher to instruct the 4th – 6th grade groups and one teacher to instruct the 7th to 9th grade groups. Teachers at these school settings may feel overwhelmed by the amount of time they have to invest for planning and organizing activities for various groups and ages of students. Furthermore, with such variability in ages and grades, teachers may consume part of their daily schedule organizing and managing classrooms, decreasing precious time for academic learning time (ALT-PE). Turning a blind eye to the unique challenges facing rural schools will almost certainly thwart states' efforts to meet higher educational standards (Malhoit, 2005).

Implementing effective curriculum in physical education can transform practices that support student learning provided the teacher implements the curriculum appropriately (Madden, 2010). Teachers need support, guidance, knowledge and encouragement to implement a curriculum effectively (Fullan, 2001). Furthermore, they need to adopt and adapt the initiative to meet the needs of their students (Fullan, 2001; McLaughlin & Zarrow, 2001). Physical education teachers attempting change require the previously mentioned tools to be effective, but are often inhibited by barriers and obstacles (Faucette, 1987; Sparkes, 1991). The support of the district administration has also been identified as crucial to the success of implementation within the educational research (Campbell, Fullan & Glaze 2006). Implementation is very complicated and

requires the alignment of multiples factors for success (Fullan, 2001).

Fullan (2001) in his model for *Change Process of Curriculum Reform* indicates that for a curriculum to obtain the desired outcomes or results, it needs to follow three important steps: initiation, implementation and continuation. Figure 5 presents Fullans' (2001) model.

Figure 5

Change Process of Curriculum Reform



Initiation refers to the new innovation and the process that leads up to and includes the decision to proceed with change. This stage takes place when an individual or group for whatever reason, begins or promotes a certain program or direction of change (Fullan, 2007). In the year 2000, former Governor Rafael Hernández Colón transformed the entire public education system in Puerto Rico initiating curriculum reforms in the island. The physical education program also suffered a transformation and a Marco Curricular of Physical Education was written and established in the year 2003 (Departamento Educación de PR, Marco Curricular Educación Física, 2003). The high numbers of obese children in the island also contributed to the establishment of this curriculum. The government wanted children to receive a quality physical education program.

Implementation is the process of the initial use or first attempt to put an idea, program or set of activities and structures into practice (Fullan, 2007). When the implementation phase fails or succeeds is determined by factors influencing the dynamic nature of the process (Madden, 2010). The first attempt by the PR Department of Education to implement a physical education Marco Curricular occurred in the year 2003. After further revisions, in 2007 the instrument was implemented in all public schools in Puerto Rico. Seven years have passed since the instrument was applied. Teachers indicated that the implementation process of the Marco Curricular was hindered by barriers they have encountered during the process. These barriers are due primarily to logistical barriers (Ham & Sewing, 1987). NASPE (2010) in the *Opportunity to Learn Guidelines for Elementary, Middle and High School Physical Education* indicated that the availability of facilities, materials and equipment, time allocation and class size are essential components for the successful implementation of a quality physical education program. Based on the results of this study many of these components are absent. Data is not available to determine if the goals and objectives for the implementation of the Marco Curricular have been achieved.

Results from this study indicate that the majority of teachers have attempted to adopt and implement the curriculum, but barriers are present. To assure the use of the Marco Curricular, direct supervision by District's "Facilitadores Docentes" (District Academic Facilitators) could facilitate the appropriate delivery of the physical education program as proposed by the PR Department of Education. Furthermore, the school regions, districts and school administrators have a responsibility to assist teachers by

ensuring that school facilities, equipment and supplies, and resources are available, helping to minimize the barriers that could be hindering the delivery of the established Marco Curricular.

Recommendations for Future Research

The following recommendations for further research can be made based on the findings from this study:

1. This survey was limited to 600 educators who had an email address and could answer an online questionnaire. Perhaps increasing the sample size by sending the questionnaire to all the schools could provide for a significant collection of information across the entire spectrum of physical education teachers.
2. Public schools have increasingly become the focus of reform on the national and state levels.
3. It could be interesting to compare barriers to teach physical education between public schools versus other school choices.
4. While the instrument was only administered to physical education teachers currently working for the PR Department of Education system, it would be of great interest to administer the questionnaire to pre – service teachers in their last year of practicum to collect data on this population.
5. Principal support was one of the variables identified by teachers as a barrier to teach the established curriculum. Further research will be necessary to identify the school

principal knowledge of the physical education program in the Island and their perceptions about the program.

6. The majority of the studies conducted on the topic of perceived barriers focus on the teachers' perceptions. Further studies with students in the program could give a meaningful insight into the perceived barriers of the physical education programs from their point of view.

7. The Physical Education Marco Curricular suggest the use of specific assessment instruments to evaluate student learning. Further research will be necessary to ascertain if teachers are using the assessment strategies and techniques the instruments proposed.

8. This study did not take into consideration the differences in employment status of the teacher (transitory, "Carrera Magisterial" or permanent). How these teachers perceive barriers could impact the delivery of the established curriculum.

9. Successful curriculum change is more likely to occur when the curricular reform goals relating to teachers' practice take account of teachers' beliefs (Handal & Herrington, 2003). Further research in the topic of teachers' beliefs and how their beliefs can play either a facilitating or an inhibiting role is necessary to understand curriculum implementation.

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Appendix A
Questionnaires

Dear Physical Education Teacher:

Dear Physical Education Teacher,

My name is Enid Rodriguez Ayala. I am a doctoral student in the Physical Education, Sports and Exercise Science Department at the University of New Mexico. I am conducting a survey to better understand which barriers affect the implementation of the established physical education curriculum in the Island of Puerto Rico.

This questionnaire was designed from NASPES' Opportunity to Learn Guidelines for Physical Education in the year 2010. The purpose of these guidelines are to identify essential program elements that provide learning foundations for students in elementary, middle and high school (Naspe, 2010). Furthermore, these guidelines will provide teachers the opportunity to assess their programs as they strive to provide quality physical education and promote a physically active lifestyles for students.

Participation in the study is strictly voluntary. If you decide to be part of this study, you may change your mind at any time and stop answering the survey without any penalty.

Please read the consent form and proceed to answer the online questionnaire that is included with this e-mail.

Please be sure to answer all the questions to the best of your knowledge. In the end, please click the send button to return the questionnaire to the author.

The researcher will collect the returned data, and any information which is obtained in connection with this study and that can be used to identify you will be kept confidential and will be disclosed only with your permission. As a participant in this study there is minimal risk of harm to your physical or mental being. Furthermore, I do not promise or guarantee that you will receive physical or mental benefits after completing the questionnaire.

If you have any questions, please do not hesitate to contact me at (939)389-6000 or call Dr. Gloria Napper-Owen, Dissertation Chair at (505) 277-5151.

If you decide to participate, please proceed to the next page and complete the questionnaire. After completion please send the questionnaire back to the author by pressing the send button.

Thank you for your participation.

Informed Consent

1. Description

You have been invited to participate in an investigation regarding barriers to teach the established physical education curriculum in Puerto Rico. This research is conducted by Enid Rodriguez Ayala, doctoral student in the Physical Education, Sports and Exercise Science Department at the University of New Mexico. The purpose of this investigation is to know your opinion regarding barriers to teach the established physical education curriculum.

You have been invited to be part of this study because you are a physical education teacher working for the Puerto Rico Department of Education, you have access to the internet and you have an e-mail address. Approximately 500 teachers will be part of this study as volunteers. If you accept to be part of this investigation you will be asked to complete a questionnaire composed of six sections and seventy (70) questions. Answering the questionnaire will take approximately 20 minutes.

Risks and Benefits

The risks associated with this study are minimal. These could be: (1) you could feel emotional distress giving your responses and (2) you could feel frustration handling the computer program or the internet. To minimize your risks, I want to remind you that (a) you could withdraw from the study at any time, without any penalty and (b) you can choose not to answer the questions that cause you distress.

Participation in this study will not cause direct benefits to you. Furthermore, your participation will contribute to the investigation of this problematic that could be affecting you.

Confidentiality

It is imperative that you know and understand that your identity is strictly confidential. Only the researcher will have access to the information you provided. Your identity is going to be protected, your name is not going to be written anywhere. The questionnaires will not have marks or any other identification that could related the answers to you.

Your Rights

If you have read this document and you have decided to participate, please understand that your participation is strictly voluntary and you have the right to quit at any time, without any penalty. If you have any question regarding this study you can call or e-mail Dr. Gloria Napper-Owen, dissertation chair. Her e-mail and phone number was provided in the previous page.

When you press the "Accept" button you certified that you agree with what was previously presented to you. This will count as your agreement to participate in the study.

- Accept
 Don't accept

2. The purpose of this investigation is to collect data regarding barriers to teach the established physical education curriculum in the island of Puerto Rico

- True
 False

3. I understand that my participation in this study is voluntary and I can withdraw from the study at any moment or not answer certain questions

- True
 False

Demographics

Please select an answer for each question to the best of your knowledge.

4. Please indicate your gender

- Female Male Prefer not to answer

5. Please indicate your ethnicity

- Caucasian African American American Indian Hispanic or Latino Asian

Other (please specify)

6. Please indicate your level of education:

- Associates Degree Bachelors Bachelors +15 credits Masters Degree Masters +15 credits Masters +45 credits Ph.D.

7. Overall, the number of years of teaching experience?

- Less than a year 1 to 5 years 6 to 10 years 11 to 15 years 16 to 20 years 21 to 25 years 25 years or more

Other (please specify)

8. The number of years you have been teaching physical education.

- Less than 1 year 2 to 5 years 6 to 10 years 11 to 15 years 16 to 20 years 21 to 25 years more than 25 years

Other (please specify)

9. The school district where you work.

- Arecibo Bayamón Caguas Humacao Mayaguez Ponce San Juan

10. Which school level do you teach?

- Elementary School Middle School High School Secondary School Segunda Unidad All Levels

11. What is your primary position at your school?

- Physical Education teacher Physical Education and another subject teacher Coach

12. How many students at your school?

13. Students come to physical education as:

- single class double classes multiple classes an entire grade level

14. How long is each physical education class period?

How many minutes?

15. How many physical education periods do you teach in a day?

- 1 2 3 4 5 6 7

16. How many Physical Education Specialists at your school specialized in elementary physical education?

- 0 1 2 3 4 5

17. How many Physical Education Specialists are employed at your school?

- 1 2 3 4 5

Open - ended Questions

In this section you will have the opportunity to answer a variety of questions regarding the topic of interest. Please be very specific with your answers.

18. What are three of your greatest satisfactions about what you do?

19. What are three challenges that you face on a daily basis teaching physical education at your school?

20. What perceived challenges, if removed, would help teachers implement the established physical education curriculum?

21. Tell me about the role the established curriculum plays in your classroom?

The Marco Curricular of Physical Education in the Island of Puerto Rico

Please answer the following questions thinking about the Physical Education Marco Curricular from the Department of Education. The responses to the following questions are given in a Lickert Scale ranging from (1) Strongly Disagree to (5) Strongly Agree. Please choose one of the options provided.

22. The school or district has a written, planned and sequential curriculum based on Puerto Rico's National Standards for Physical Education (2007).

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

23. The school has implemented a curriculum based on Puerto Rico's Marco Curricular for physical education.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

24. The physical education Marco Curricular is a valuable for teachers.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

25. The curriculum has grade by grade performance indicators?

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

26. Curriculum is aligned with NASPE's content standards.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

27. The Department of Education Marco Curricular is based on NASPE's National Standards for Physical Education (2004).

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5. Strongly Agree

28. The school or district provides professional development for physical education teachers.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

29. Professional development for physical education teachers equals to that of teachers in other disciplines.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

30. The school or district supports annual professional development opportunities for physical education teachers.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

31. I am aware of the Physical Education Marco Curricular from the Department of Education of Puerto Rico.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

32. I use the Physical Education Marco Curricular to prepare my classes.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

33. The Department of Education Marco Curricular is a tool I use to prepare my daily lessons.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

34. Respect for diversity is taught and practice.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

35. The curriculum allows opportunities for students to develop:

- Skills in games
- Skills in sports
- Skills in dance
- Rhythms
- Cooperative games
- Fitness Components
- Gymnastics
- Lifetime physical activities
- Responsible behavior
- Values

Other (please specify)

36. The curriculum facilitates development of efficient and effective movement skills.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

37. Classroom content is integrated into movement activities.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

38. The curriculum provides for a variety of fitness activities that introduce all children to the components of health related fitness.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

39. The curriculum provides for acquiring fundamental movement patterns.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

40. The curriculum provides for acquiring specific moment skills.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

41. The curriculum gives students opportunities to develop critical thinking skills.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

42. The curriculum recommends opportunities for students to enjoy movement.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

43. The curriculum helps students recognize the benefits of regular physical activity.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

School Facilities and Equipment

Think about your school's facilities and equipment available to teach physical education when answering the following questions. Five options are available from (1) Strongly Disagree to (5) Strongly Agree. Please select one.

44. Outdoor facilities are clean, safe and free of hazards.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

45. Indoor facilities are clean, safe and free of hazards.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

46. Written emergency plans outline the protocol for emergency responses to injuries and other health related incidents.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

47. The school has a cover space where I can teach my classes.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

48. The physical education teaching space is respected and available at all times to teach physical education.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

49. I have a space assigned to teach my classes.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

50. The space for physical activity is large enough to accommodate all students of a class moving at the same time.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

51. The school has a classroom for physical education instruction.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

52. Facilities are maintained adequately to ensure students' safety and learning.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

53. I have materials for all students.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

54. Adequate space is available for storing equipment properly and safely.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

55. The space I use for my classes is free from distractions of people passing and other classes.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

56. School grounds are designed and managed to promote physical education, physical activity and creative play.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

57. I have office space adequate for planning and consulting with students and staff.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

58. Students have ready access to running water for re-hydration after physical activity.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

59. Lavatories are located near the physical education classroom or gym.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

Class Size

Think about your physical education class size when answering the following questions. Five options are provided from (1) Strongly Disagree to (5) Strongly Agree. Please select one.

60. The physical education class size is consistent with that of other subject areas.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

61. The teacher/student ratio in physical education is no greater than 1:25.

- Strongly Disagree Disagree Nor Agree or Disagree Agree Strongly Agree

62. Maximum teaching loads do not exceed local guidelines.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

63. The number of students I have in each section does not impede the delivery of my daily lessons.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

64. Too many students per section.

- Strongly Disagree Disagree Neither Agree Nor Disagree Agree Strongly Agree

Time Allocation for Physical Education Instruction

Please think about your physical education class and the number of students you have in each section. Five choices are available for you to choose from (1) Strongly Disagree to (5) Strongly Agree. Please select one.

65. Students participate in regular, formal physical education instruction .

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

66. Students participate in an instructional physical education program for a minimum of 180 minutes weekly across the school year.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

67. Children are provided equal opportunity for physical education, regardless of gender, ability or special needs.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

68. Students with special needs are integrated into the regular physical education program whenever possible.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

69. The daily schedule was designed with input from the physical education specialist.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

70. I don't have time to implement the physical education Marco Curricular.

- 1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

Questionnaire

Spanish Version

Carta de Presentación

Estimados maestros de educación física de Puerto Rico:

Mi nombre es Enid Rodríguez Ayala, estudiante doctoral en el Departamento de Salud, Ejercicios y Ciencias del Deporte de la Universidad de Nuevo México localizada en la ciudad de Albuquerque. Estoy llevando a cabo una investigación para entender mejor cuáles barreras afectan la implementación del currículo de educación física establecido por el Departamento de Educación en las escuelas de la isla de Puerto Rico.

Este cuestionario fue diseñado utilizando las guías de Oportunidades para Aprender de NASPE (National Association for Sports and Physical Education) del año 2010. El propósito de estas guías son el identificar cuáles elementos son esenciales para un programa de educación física. Además, sirven para identificar que aspectos son necesarios para el aprendizaje de los estudiantes de todos los niveles educativos (NASPE, 2010). Estas guías proveen a los maestros de educación física la oportunidad de evaluar sus programas, hacer modificaciones y de esta forma ofrecer a sus estudiantes un curso de educación física de calidad donde se puedan promover estilos de vida activos y saludables. El cuestionario consta de 75 preguntas y le tomará a usted un tiempo aproximado de 20 minutos para contestarlo.

Su participación en esta investigación de índole educativa es estrictamente voluntaria. Si usted decide ser parte del mismo, usted puede cambiar de opinión en cualquier momento y parar de contestar el cuestionario sin ninguna penalidad. Favor conteste la información requerida en los espacios provistos y mantenga una copia de esta información en sus archivos personales.

Se releva al Departamento de Educación de Puerto Rico de toda responsabilidad por cualquier reclamación que pueda surgir como consecuencia de las actividades del estudio y de la información que se solicite y provea a través de éste. El Departamento de Educación de Puerto Rico no se hace responsable de cualquier daño y perjuicio o reclamación producto del proceso de realización, o del resultado de la investigación, relevando así de cualquier obligación y responsabilidad al Departamento de Educación de Puerto Rico, sus empleados y funcionarios en cualquier reclamación, pleito o demanda que se presente relacionada, directa o indirectamente a esta investigación. La misma es una independiente no auspiciada por el Departamento de Educación de Puerto Rico. El Departamento de Educación de Puerto Rico no se solidariza necesariamente con los resultados de la investigación.

1.

Nombre:

Fecha:

Correo Electrónico:

Distrito Escolar:

Nivel Educativo

2. Favor de indicar si acepta o no acepta a participar de esta investigación educativa.

ACEPTO

NO ACEPTO

Hoja de Consentimiento Informado

En esta página usted encontrara información relevante sobre este estudio de carácter educativo. Favor de leer la Hoja de Consentimiento Informado en su totalidad y proceda a contestar las preguntas que usted encontrará a continuación.

Descripción

Usted ha sido invitado a colaborar voluntariamente en la investigación con fines educativos, titulada "Perceived Barriers to Teaching the Established Physical Education Curriculum in Puerto Rico Public School System". Esta investigación es realizada por Enid Rodríguez Ayala, quien es estudiante doctoral del Programa de Educación Física en Currículo e Instrucción de la Universidad de Nuevo México en Albuquerque. El propósito de la investigación es conocer identificar las barreras que enfrentan los maestros de educación física de Puerto Rico que trabajan para el Departamento de Educación con el fin de impartir sus clases según lo establecido en el Marco Curricular que exige el Sistema educativo publico de Puerto Rico.

Riesgos y Beneficios

Los riesgos asociados a este estudio son mínimos. Entre los riesgos figuran el cansancio de llenar el documento, el stress que pueda generar el desconocimiento del uso de la tecnología, además de sentirse incomodo al tener que contestar alguna pregunta del cuestionario. Este investigación no conlleva beneficios directos para los/as participantes. Sin embargo, un posible beneficio surge de la reflexión sobre su práctica diaria en la profesión de maestro. Se espera que los resultados de esta investigación sean de beneficio para el sistema educativo del país ya que se podrían descubrir posibles barreras que los maestros experimentan en su práctica diaria. Además, los hallazgos de la investigación podrían dar paso al sistema público de educación para coordinar prácticas con el objetivo de eliminar las barreras y mejorar la satisfacción laboral del maestro y la calidad de la enseñanza a base de los establecidos en la Carta Curricular del programa.

Confidencialidad

Toda la información o datos que puedan identificar a el/la participante serán manejados confidencialmente. En el cuestionario no hay preguntas que al ser contestadas pudieran identificar a la persona que las ofreció. En el caso de publicación o presentación de datos obtenidos en esta investigación educativa no se divulgará ningún tipo de información personal del participante. Además, los correos electrónicos de los participantes serán mantenidos bajo estricta confidencialidad y el programa de computadoras SurveyMonkey.com no identificará la dirección (dirección IP) desde donde el maestro contesta el cuestionario a través de su computadora.

Se tomarán las siguientes medidas para proteger la identidad del participante: solo la investigadora y los miembros de su comité, la doctora Gloria Napper-Owen, el doctor Glenn Hushman, el doctor Alfredo Martínez y la doctora Jan Armstrong tendrán acceso a los datos crudos que puedan identificar directa o indirectamente a un/a participante. Los datos se mantendrán bajo llave que solo la investigadora tendrá en una caja de metal por un periodo de tres años una vez concluya este estudio. Al cabo de este periodo de tiempo se destruirá cualquier documento en poder de la investigadora principal. Los archivos en la computadora serán mantenidos con una contraseña que solo la investigadora principal conocerá. La confidencialidad se mantendrá al grado que la tecnología utilizada lo permita.

También se entregará copia de la carta de consentimiento con relevo de responsabilidad a la oficina del Director Regional o dependencia del Departamento de Educación donde se lleve a cabo el estudio para ser archivadas según lo establece la Carta Circular 5-2001-2002. Además, oficiales de la Universidad de Nuevo México o de agencias federales responsables de velar por la integridad en la investigación podrían requerirle a la investigadora los datos crudos obtenidos en este estudio, incluyendo estos documentos.

Incentivos

El/la participante no recibirá ningún incentivo por sus participación en esta investigación.

Derechos

Si el/la participante leyó la hoja de consentimiento informado y decidió participar del estudio y responder a las preguntas del cuestionario, éste entiende que su participación es completamente voluntaria y que tiene derecho a abstenerse de participar o retirarse del estudio en cualquier momento, sin ninguna penalidad. También, tiene el derecho a no contestar alguna pregunta en particular. Si tiene alguna duda o pregunta sobre esta investigación, por favor comuníquese con Enid Rodríguez al número (939)-389-6000 o al correo electrónico vivapr1@unm.edu o con la doctora Gloria Napper-Owen a el correo electrónico napperow@unm.edu o su teléfono (505)-277-5151.

Relevo de Responsabilidad

Se releva al Departamento de Educación de Puerto Rico de toda responsabilidad por cualquier reclamación que pueda surgir como consecuencia de las actividades del estudio y de la información que se solicite y provea a través de éste. El Departamento de Educación de Puerto Rico no se hace responsable de cualquier daño y perjuicio o reclamación producto del proceso de realización, o del resultado de la investigación, relevando así de cualquier obligación y responsabilidad al Departamento de Educación de Puerto Rico, sus empleados y funcionarios en cualquier reclamación, pleito o demanda que se presente relacionada, directa o indirectamente a esta investigación. La misma es una independiente no auspiciada por el Departamento de Educación de Puerto Rico. El Departamento de Educación de Puerto Rico no se solidariza necesariamente con los resultados de la investigación.

Si usted esta de acuerdo con las condiciones aquí presentadas favor de completar las tres preguntas que se presentan a continuación. Si usted decide no contestarlas, el cuestionario finalizará automáticamente.

Muchas gracias por su participación.

Preguntas relacionadas a la hoja de consentimiento

Favor conteste las siguientes preguntas. Si usted decide no contestar alguna de las preguntas aquí presentadas, entonces usted no podrá participar de esta investigación.

3. Al presionar el botón de "Acepto" usted certifica que está de acuerdo con lo presentado en la Hoja de Consentimiento Informado. Esto se considera como su consentimiento para participar en esta investigación.

- Acepto
- No Acepto

4. El propósito de esta investigación es identificar cuáles son las barreras que enfrentan los maestros de educación física del Puerto Rico que trabajan para el Departamento de Educación para impartir sus clases a base de lo establecido en la Carta Curricular y Marco Curricular que exige el Departamento de Educación.

Cierto

Falso

5. Usted entiende que su participación es estrictamente voluntaria y que tiene derecho a abstenerse a participar o retirarse del mismo en cualquier momento sin penalidad alguna.

Cierto

Falso

Preguntas Demográficas

Por favor seleccione o escriba la respuesta que mejor le aplique a usted.

6. Indique su genero:

- Femenino Masculino Prefiero no indicarlo

7. Indique su raza:

- Caucásico/a Africano Americano Indio Americano Hispano o Latino Asiático

Other (please specify)

8. Indique que grado universitario usted posee:

- Grado Asociado Bachillerato Bachillerato + 15 créditos Maestría Maestría + 15 créditos Maestría + 30 créditos ABD Ph.D o Ed.D

9. ¿Cuántos años de experiencia docente usted posee?

- Menos de un año 2 a 5 años 6 a 10 años 11 a 15 años 16 a 20 años 21 a 25 años 26 a 30 años Más de 30 años

10. Cuántos años de experiencia cómo maestro de educación física posee usted?

- Menos de un año 2 a 5 años 6 a 10 años 11 a 15 años 16 a 20 años 21 a 25 años 26 a 30 años Más de 30 años

11. En cuál distrito escolar trabaja usted?

- Arecibo Bayamón Caguas Humacao Mayaguez Ponce San Juan

12. Cuál nivel escolar enseña usted?

- Nivel elemental Nivel intermedio Nivel Superior Segunda Unidad Todos los niveles

13. ¿Cuál es la función principal en la escuela donde trabaja?

- Maestro/a de educación física Maestro/a de otra materia mas la educación física Entrenador

14. Cuántos estudiantes están matriculados actualmente en su escuela ?

15. Enseña usted mas de dos grupos de estudiantes al mismo tiempo?

- Nunca Casi nunca Varias veces a la semana Frecuentemente

16. De cuantos minutos es su periodo de clase?

17. ¿Cuántos periodos de clase imparte usted al día?

- 1 2 3 4 5 6

18. ¿Cuántos maestros de educación física, incluyéndose, trabajan en su escuela?

- 1 2 3 4 5

19. Cuántos maestros en su escuela se especializan en la enseñanza de la educación física a nivel elemental?

- 0 1 2 3

Preguntas Abiertas

Por favor conteste las siguientes preguntas escribiendo su respuesta en el espacio provisto. Sea lo mas específico posible con sus respuestas.

20. Cuáles son las tres satisfacciones mas importantes que usted recibe de su trabajo?

1	<input type="text"/>
2	<input type="text"/>
3	<input type="text"/>

21. Mencione tres retos con los cuales usted se enfrenta diariamente en su trabajo como maestro de educación física

1	<input type="text"/>
2	<input type="text"/>
3	<input type="text"/>

22. Cuáles barreras, si fuesen removidas, podrían ayudar a los maestros de educación física en la Isla de Puerto Rico a implementar el currículo establecido?

1	<input type="text"/>
2	<input type="text"/>
3	<input type="text"/>
4	<input type="text"/>

23. Comente acerca del rol que juega el Marco Curricular de educación física en su salón de clases.

El Marco Curricular de Educación Física en la Isla de Puerto Rico

Las siguientes preguntas se refieren al Marco Curricular de Educación Física del Departamento de Educación. Responda a las preguntas utilizando la siguiente escala Lickert:

- (1) Completamente en Desacuerdo
- (2) En Desacuerdo
- (3) Ni de Acuerdo ni en Desacuerdo
- (4) De Acuerdo
- (5) Completamente de Acuerdo

Por favor elija solo una opción a menos que se le indique lo contrario.

24. La escuela cuenta con un currículo escrito, planificado y secuencial basado en los estándares de educación física de Puerto Rico (2007).

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

25. La escuela ha implementado un currículo basado en los estándares de educación física de Puerto Rico (2007)

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

26. El Marco Curricular de educación física del Departamento de Educación de PR es una herramienta valiosa para el maestro.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

27. El currículo tiene indicadores por grado.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

28. El currículo está alineado con los estándares de contenido establecidos por NASPE (2010).

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

29. El Marco Curricular de Educación Física de Puerto Rico esta basado en los estándares de NASPE (2010)

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

30. El distrito escolar provee oportunidades de adecuación profesional para los maestros de educación física.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

31. El ofrecimiento de adecuación profesional para maestros de educación física es similar a la de los maestros de otras materias.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

32. El director/a escolar apoya al maestro de educación física para que asista a oportunidades de adecuación profesional durante el año escolar.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

33. Conozco el Marco Curricular de Educación Física del Departamento de Educación de Puerto Rico.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

34. Utilizo el Marco Curricular de Educación Física del Departamento de Educación para planificar mis clases.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

35. El Marco Curricular de Educación Física es una herramienta que yo utilizo para preparar mis planes diarios.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

36. Utilizo las siguientes técnicas de avalúo en mis clases:

1.
2.
3.

37. El currículo propone el respeto hacia la diversidad.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

38. El currículo provee oportunidades para que el estudiante desarrolle: (favor seleccione todas las que aplican)

- Destrezas de juego Destrezas para participar en diferentes deportes Destrezas para el baile Ritmo Valores Actividades Cooperativas Componentes de actitud física Gimnasia

Otro (especifique)

39. El currículo promueve para el desarrollo de actividades de movimiento.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

40. El currículo promueve la integración curricular.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

41. El currículo provee oportunidades para que los estudiantes conozcan los componentes relacionados con la salud y el ejercicio.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

42. El currículo provee oportunidades para que los estudiantes adquieran patrones fundamentales de movimiento.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

43. El currículo ofrece oportunidades para que el estudiante adquiera destrezas específicas de movimiento.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

44. El currículo provee para que el estudiante desarrolle destrezas de pensamiento crítico.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

45. El currículo provee oportunidades para que el estudiante disfrute de actividades de movimiento.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

46. El currículo ayuda al estudiante a reconocer los beneficios de realizar actividad física diariamente.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

Facilidades y Equipo Deportivo

Para contestar las siguientes preguntas piense en las facilidades y equipo deportivo que usted tiene disponible para impartir su clase de educación física.

47. Las facilidades en el exterior están limpias, son seguras y libre de peligros.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

48. La escuela tiene un plan de seguridad establecido a seguir en caso de surgir algún accidente.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

49. La escuela tiene alguna facilidad techada donde puedo impartir mis clases.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

50. Tengo un lugar en mi escuela dedicado exclusivamente para impartir mis clases.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

51. El espacio con el que cuento para impartir mis clases es lo suficientemente grande para acomodar a una clase donde los estudiantes están en movimiento.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

52. La escuela tiene un salón exclusivo para la enseñanza de la educación física.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

53. Las facilidades deportivas son mantenidas adecuadamente.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

54. El equipo deportivo se encuentra en buenas condiciones.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

55. Tengo equipo deportivo para todos los estudiantes.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

56. Hay espacio disponible para almacenar mis materiales y equipo deportivo.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

57. Cuando enseño mis clases hay distracciones en el área que puedan afectar mi plan diario.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

58. La escuela cuenta con espacios que promueven la actividad física y el juego creativo.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

59. Cuento con una oficina donde puedo planificar mis clases.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

60. Cuento con un espacio donde puedo reunirme con colegas y padres.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

61. Los estudiantes cuentan con facilidades de fuente de agua cerca del salón de educación física o cancha.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

62. Hay facilidades sanitarias cerca del área donde imparto mis clases.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

Tamaño de las clases

Cuando usted conteste las siguientes preguntas piense en sus clases y el tamaño de las mismas. Me refiero a tamaño al número de estudiantes que tiene por sección de clase.

63. El tamaño de las clases de educación física es igual al tamaño de las clases en otras materias.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

64. La proporción entre maestro/estudiante es mayor de 1:25.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

65. El número de estudiantes que tengo por sección sobrepasa el número establecido por el Departamento de Educación.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

66. El número de estudiantes que tengo por sección conflige con la enseñanza de mis clases.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

67. Tengo muchos estudiantes por sección.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

Tiempo para la Enseñanza de la Educación Física

Por favor piense en las clases de educación física que usted imparte diariamente. Seleccione la premisa que mejor le aplique a usted.

68. Los estudiantes en mi escuela reciben un mínimo de 180 minutos de educación física a la semana.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

69. En la clase de educación física se le proveen a los estudiantes oportunidades equitativas sin tener en cuenta su genero, habilidades o necesidades especiales.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

70. Tengo el conocimiento para enseñar a estudiantes con necesidades especiales.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

71. El horario escolar fue diseñado tomando en consideración la opinión del maestro de educación física.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

72. Dispongo del tiempo para implementar el Marco Curricular.

- (1) Completamente en Desacuerdo (2) En Desacuerdo (3) Ni de Acuerdo ni en Desacuerdo (4) De Acuerdo (5) Completamente de Acuerdo

Factores que tienen influencia sobre la enseñanza de la educación...

Por favor indique en que grado las siguientes premisas son una barrera para que usted pueda enseñar su clase. Utilice la siguiente escala Lickert para contestar las preguntas.

- (1) No es una barrera
- (2) Puede ser una barrera
- (3) Es una barrera
- (4) Definitivamente es una barrera

73. Indique cuál de las siguientes premisas considera usted una barrera para impartir sus clases de educación física. Seleccione todas las que aplican.

	(1) No es una barrera	(2) Puede ser una barrera	(3) Es una barrera	(4) Definitivamente es una gran barrera
Oportunidades de adecuación profesional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
El tamaño de mis clases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
El tiempo que dispongo para enseñar mis clases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
El apoyo del director escolar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
El apoyo de mis compañeros de trabajo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
La disponibilidad de una facilidad techada	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
El equipo deportivo con el que cuento	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Las facilidades deportivas con las que cuenta la escuela	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
La actitud de los estudiantes hacia la educación física.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Falta de motivación de mi parte	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
El uniforme escolar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Consideraciones Finales

Antes de devolver este cuestionario al investigador principal por favor conteste las siguientes preguntas.

74. Entiendo que mi participación en este estudio fue voluntaria y que no tengo que enviar el cuestionario al investigador principal aunque haya sido completado.

- Si
 NO

75. Por favor presione el botón "De Acuerdo" si usted esta de acuerdo con todas las condiciones presentadas por el investigador principal para participar de esta investigación. Provea sus iniciales en el espacio provisto.

Si usted está "En Desacuerdo" con las condiciones presentadas por el investigador principal, la pagina se cerrará y usted no podrá enviar el cuestionario completado al investigador principal.

Muchas gracias por su tiempo. Su cooperación con esta investigación es muy apreciada.

- De Acuerdo
 En Desacuerdo

Appendix B
List of Experts

1. Physical Education Professor with 25 years of teaching experience holding a Curriculum and Instruction Ph.D. She teaches physical education methodology courses at the University of Puerto Rico, Rio Piedras Campus.
2. Physical Education Professor with 15 years of teaching experience holding a Special Education Ph.D. This professor teaches elementary physical education at a school in Puerto Rico.
3. Physical Education Professor and Dean of Students Affairs with 20 years of teaching experience holding a Curriculum and Instruction Ph.D. He teaches physical education and statistics courses in a private institution of higher education.
4. Physical Education Professor with 10 years of teaching experience holding a Master Degree in Physical Education.
5. Music Professor with 25 years of teaching experience holding a Ph.D. in Music methodology. He teaches methodology courses at the University of Puerto Rico, Rio Piedras Campus.
6. Statistics Professor with 30 years of teaching experience with a Master Degree in Quantitative research. He teaches all statistics courses at a private institution of higher education in Puerto Rico.

Appendix C

Letters and Collaboration Agreements

Dear Enid Rodriguez-Ayala,

You can have my permission to reproduce the figure, with proper attribution, for the purpose described in your email. However, I am not the sole copyright holder. You will also have to get permission from Prof. Fishbein's widow who has joint copyright for our book. To avoid this complication, I suggest that you prepare your own drawing instead. If you do, you will not have to get permission from anybody.

Best regards,

Icek Ajzen,

Professor and Head

Division of Social Psychology

University of Massachusetts

Amherst, MA 01003

<http://www.people.umass.edu/ajzen>

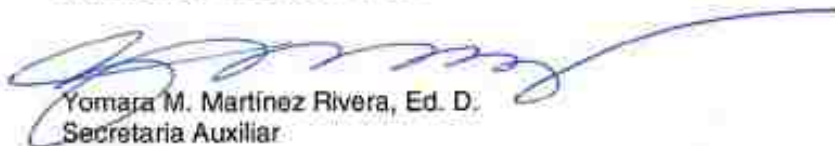


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DEPARTAMENTO DE EDUCACIÓN
Secretaría Auxiliar de Planificación y Desarrollo Educativo

OFICINA DE LA SECRETARÍA AUXILIAR

6 de mayo de 2013

Directores Regionales, Superintendentes, Directores de Escuelas Participantes, Director del Programa de Educación Física, Facilitadores del Programa de Educación Física y Maestros de Educación Física



Yomara M. Martínez Rivera, Ed. D.
Secretaría Auxiliar

AUTORIZACIÓN PARA LLEVAR A CABO INVESTIGACIÓN EN ESCUELAS DEL DEPARTAMENTO DE EDUCACIÓN

La Sra. Erid Rodríguez Ayala, estudiante del Programa de Educación Física en Currículo e Instrucción de la Universidad de Nuevo México en Albuquerque, llevará a cabo la investigación titulada: ***"Perceived Barriers to Teaching the Established Physical Education Curriculum in Puerto Rico Public School System"***.

Se autoriza a la señora Rodríguez Ayala coordinar con el Director del Programa de Educación Física y los Facilitadores de Educación Física la divulgación del cuestionario a ser contestado por los maestros de este Programa a través del programa SurveyMonkey.com.

El Director del Programa de Educación Física como los Facilitadores del programa firmarán un acuerdo de colaboración voluntaria con la estudiante investigadora. La participación del Director del Programa de Educación Física como los Facilitadores consistirá en contactar a los maestros de educación física de su región educativa o distrito escolar y divulgar el propósito del estudio, además de la información de contacto de la investigadora (números de teléfonos y correos electrónicos) para que los maestros interesados en participar en el estudio se comuniquen con la investigadora. **Los maestros que acepten participar voluntariamente en la investigación se le solicitarán completar una Hoja de Consentimiento Informado y un cuestionario de forma electrónica.** Este cuestionario será contestado en el tiempo disponible del maestro, no afectando así el tiempo lectivo. Si el participante no está de acuerdo con lo establecido por la investigadora para completar el cuestionario, éste automáticamente se cerrará y la persona no podrá participar. El programa SurveyMonkey.com no guarda información de las direcciones IP de los participantes.

P.O. BOX 100759, SAN JUAN, PUERTO RICO 00910-0759 * TEL. (787) 773-4000 * FAX (787) 751-2874

El Departamento de Educación no discrimina por razón de raza, color, sexo, nacimiento, origen nacional, condición social, ideas políticas o religiosas, edad o impedimento en sus actividades, servicios educativos y oportunidades de empleo.

La investigadora entregará al Director del Programa de Educación Física copia de la carta de consentimiento de los maestros que aceptaron participar del estudio para ser archivadas, según lo establece la Carta Circular 5-2001-2002.

Las entrevistas y conversaciones no podrán ser grabadas a través de método alguno de audio o vídeo. La colaboración del personal concernido es de suma importancia para que la administración de los instrumentos resulte adecuada.

Según se establece en el inciso 10 de la Carta Circular 5-2001-2002 del 5 de septiembre de 2001, durante el inicio y final del semestre académico, períodos de informes y pruebas sistémicas, no se autorizarán visitas a las escuelas con el propósito de entrevistar o encuestar estudiantes, maestros y directores de escuelas.

Se releva al Departamento de Educación de Puerto Rico de toda responsabilidad por cualquier reclamación que pueda surgir como consecuencia de las actividades del estudio y de la información que se solicite y provea a través de éste. El Departamento de Educación de Puerto Rico no se hace responsable de cualquier daño y perjuicio o reclamación producto del proceso de realización, o del resultado de la investigación, relevando así de cualquier obligación y responsabilidad al Departamento de Educación de Puerto Rico, sus empleados y funcionarios en cualquier reclamación, pleito o demanda que se presente relacionada, directa o indirectamente a esta investigación. La misma es una independiente no auspiciada por el Departamento de Educación de Puerto Rico. El Departamento de Educación de Puerto Rico no se solidariza necesariamente con los resultados de la investigación.

Esta autorización tiene vigencia de un (1) año a partir de la fecha de expedición. Una vez la investigadora finalice el estudio, deberá traer copia del informe final a la Secretaría de Planificación y Desarrollo Educativo (SAPDE).

Collaboration Agreement

"Perceived Barriers to Teaching the Physical Education Curriculum Established in Puerto Rico Public School System."

Description

You have been invited to voluntarily collaborate in an educational research investigation, entitled "Perceived Barriers to Teaching the Physical Education Curriculum Established in Puerto Rico Public School System." This research is conducted by Enid Rodriguez Ayala, who is a doctoral student in the Department of Health, Exercise & Sports Sciences seeking a doctor of philosophy degree in the Curriculum and Instruction (C&I) concentration at the University of New Mexico in Albuquerque. The purpose of the research is to better understand which barriers affect the implementation of the established physical education curriculum in the Island of Puerto Rico by the teachers working for the Puerto Rico Department of Education.

You are being contacted because you are the director of the Physical Education Program of the Department of Education of Puerto Rico. If you agree to collaborate with this educational research, your participation in this investigation will consist of the following:

1. Send a memo to the physical education teachers' emails addresses which invites them to participate in the study.
2. Provide the researcher the e-mail addresses of the physical education teachers currently working for the Puerto Rico Department of Education to send a link to complete an online questionnaire that they will find through the website SurveyMonkey.com. The researcher will select randomly 50 participants per school level and gender in the seven educational regions of the island. It is expected that this research will involve about 600 teachers.
3. To provide updated data of the teachers currently working for the system. This data is limited to the number of teachers by educational region, gender and grade level. If teachers voluntarily agree to participate in this research they will be required to complete an informed consent form and an online questionnaire that teachers will complete in his/her spare time. Their participation in this study will not interrupt instructional time. If the participant does not agree with the guidelines established by the researcher for completing the online questionnaire, the questionnaire will automatically close, and the teacher will not be able to participate. The website SurveyMonkey.com does not save the IP addresses of the participants providing the participants an extra guarantee of anonymity.
4. Provide the e-mails addresses of all schools in Puerto Rico.

Risks and Benefits

The risks associated with this study are minimal. Participants are not required to

provide personal information. However, the teacher may become tired answering the questionnaire; they teacher may become frustrated when working on the computer program or the internet, and the teacher may perceive a feeling of emotion when answering a question on the survey.

This study involves no direct benefits to participants. However, an indirect benefit to participants may come from their reflection on their practice in the teaching profession. It is expected that the results of this research will be of benefit to the island's educational system as professionals and policy – makers would know the barriers that teachers experience in their daily practice. The public education system could coordinate practices to eliminate these barriers and improved teacher job satisfaction thereby increasing the quality of education based on the Marco Curriculum of the physical education program.

Confidentiality

The identity of the participant will be protected because they do not have to write their name on the questionnaire and the informed consent letter. In addition, participants' email addresses will be kept strictly confidential. The website SurveyMonkey.com does not identify the IP address from where the teacher is answering the questionnaire through their home, work or another computer. All information or data that could identify the participant will be handled with extreme confidentiality. For this we take the following measures: only the researcher and her committee members, Dr. Gloria Napper-Owen, Dr. Glenn Hushman, Dr. Alfredo Martinez and Dr. Jan Armstrong will have access to the raw data that can identify directly or indirectly a participant. The data will remain locked for a period of three years after completion of this study. After this period of time, the principal investigator will destroy any document in her possession.

Also, the principal investigator will deliver personally a copy of the consent form with release of liability to the office of the Regional Director, or dependence on the Department of Education which conducted the study to be filed as provided in the Circular Letter 5-2001-2002. In addition, officials at the University of New Mexico or federal agencies responsible for ensuring the integrity of the investigation may require the investigating raw data obtained in this study, including this document.

Incentives

The participant will not receive any incentive for their participation in this research.

Rights

If the participants read the letter of informed consent and decide to participate in the study by answering the online questionnaire, they understand that their participation is completely voluntary. Also, they have the right to abstain from participation or withdraw at any time without penalty. Also, they have the right not to answer a particular question. If you have any questions about this research, please contact Enid Rodriguez Ayala at number

(939)-389-6000 or email vivapr1@unm.edu or Dr. Gloria Napper-Owen at the email napperow@unm.edu or phone number (505)-277-5151.

Liability Waiver

The principal investigator relieves the Department of Education from any liability for any claims that may arise out of the activities of the study and the information requested and provided through it. The Department of Education is not responsible for any damage or claim product realization process or outcome of the investigation. This study is an independent research investigation that is not sponsored by the Department. The Department of Education may not necessarily agree to the research findings of the study.

After reading the information provided and knowing the extent of your collaboration with the doctoral student Enid Rodríguez Ayala, Wally Isaac Salín agrees to sign this collaboration agreement document.

Wally Isaac Salín
Director
Physical Education Program
Puerto Rico Department of Education

Date

Enid Rodríguez Ayala
Principal Investigator
Department of Health, Exercise & Sports Sciences
The University of New Mexico
Albuquerque, NM

Date

ACUERDO DE COLABORACION

Perceived Barriers to Teaching the Established Physical Education Curriculum in Puerto Rico Public School System

Descripción

Usted ha sido invitado a colaborar voluntariamente en la investigación con fines educativos, titulada “*Perceived Barriers to Teaching the Established Physical Education Curriculum in Puerto Rico Public School System*”. Esta investigación es realizada por Enid Rodríguez Ayala, quien es estudiante doctoral del Programa de Currículo e Instrucción (C&I) del Departamento de Salud, Ejercicios y Ciencias del Deporte de la Universidad de Nuevo México en Albuquerque. El propósito de la investigación es conocer mejor cuáles son las barreras que afectan a los maestros de educación física de Puerto Rico trabajando para el Departamento de Educación para poder impartir sus clases a base de lo establecido en la Carta Curricular del Programa y el Marco Curricular que exige el Departamento de Educación de Puerto Rico.

Usted es contactado por ser el director del Programa de Educación Física del Departamento de Educación de Puerto Rico. Si acepta colaborar, su participación en esta investigación consistirá en enviar un memo a los correos electrónicos de los maestros con un enlace para que estos contesten el cuestionario que se encuentra en línea a través del programa SurveyMonkey.com. Además, usted proporcionaría data actualizada de los maestros trabajando actualmente para el sistema. Esta data se limitaría a número de maestros por región educativa, género y nivel escolar. La investigadora seleccionará 50 participantes por nivel escolar de diferentes regiones educativas de la isla. Se espera que en esta investigación participen aproximadamente 600 personas.

Si los maestros aceptan participar voluntariamente en la investigación se le solicitará que completen una Hoja de Consentimiento Informado, y un cuestionario de forma electrónica que el maestro completara en su tiempo disponible, no afectando así de ninguna manera el tiempo lectivo. Si el participante no está de acuerdo con lo establecido por la investigadora para completar el cuestionario, este automáticamente se cierra y la persona no podrá participar. El programa SurveyMonkey.com no guarda información de las direcciones IP de los participantes.

Riesgos y Beneficios

Los riesgos asociados a este estudio son mínimos debido a que no se le solicita información de carácter personal a los participantes, Entre los riesgos figuran el cansancio de llenar el documento, el stress que pueda generar no saber cómo se utiliza la tecnología y el sentirse incomodo al tener que contestar alguna pregunta del cuestionario. Este estudio no conlleva beneficios directos para los/as participantes. Sin embargo, un posible beneficio para los participantes surge de la reflexión sobre su práctica diaria en la profesión de maestro. Se espera que los resultados de esta investigación sean de beneficio para el sistema educativo del país ya que se conocerían las barreras que los maestros experimentan diariamente en su

práctica diaria. El sistema público de educación podría coordinar prácticas para eliminar estas barreras y mejorar la satisfacción laboral del maestro y aumentar la calidad de la enseñanza a base de los establecidos en la Carta Curricular del programa.

Confidencialidad

La identidad del/la participante será protegida ya que éste/a no tendrá que escribir su nombre en el cuestionario, ni en la hoja de consentimiento informado. Además, los correos electrónicos de los participantes serán mantenidos bajo estricta confidencialidad y el programa de computadoras SurveyMonkey.com no identificará la dirección (dirección IP) desde donde el maestro contesta el cuestionario a través de su computadora. Toda la información o datos que puedan identificar a el/la participante serán manejados confidencialmente. Para esto se tomarán las siguientes medidas: solo la investigadora y los miembros de su comité, la doctora Gloria Napper-Owen, el doctor Glenn Hushman, el doctor Alfredo Martínez y la doctora Jan Armstrong tendrán acceso a los datos crudos que puedan identificar directa o indirectamente a un/a participante. Los datos se mantendrán bajo llave que solo la investigadora tendrá en una caja de metal por un periodo de tres años una vez concluya este estudio. Al cabo de este periodo de tiempo se destruirá cualquier documento en poder de la investigadora principal.

También se entregará copia de la carta de consentimiento con relevo de responsabilidad a la oficina del Director Regional o dependencia del Departamento de Educación donde se lleve a cabo el estudio para ser archivadas según lo establece la Carta Circular 5-2001-2002. Además, oficiales de la Universidad de Nuevo México o de agencias federales responsables de velar por la integridad en la investigación podrían requerirle a la investigadora los datos crudos obtenidos en este estudio, incluyendo estos documentos.

Incentivos

El/la participante no recibirá ningún incentivo por sus participación en esta investigación.

Derechos

Si el/la participante leyó la hoja de consentimiento informado y decidió participar del estudio y responder a las preguntas del cuestionario, éste entonces entiende que su participación es completamente voluntaria y que tiene derecho a abstenerse de participar o retirarse del estudio en cualquier momento, sin ninguna penalidad. También, tiene el derecho a no contestar alguna pregunta en particular. Si tiene alguna duda o pregunta sobre esta investigación, por favor comuníquese con Enid Rodríguez al número (939)-389-6000 o al correo electrónico vivapr1@unm.edu o con la doctora Gloria Napper-Owen a el correo electrónico napperow@unm.edu o su teléfono (505)-277-5151.

Relevo de Responsabilidad

Se releva al Departamento de Educación de toda responsabilidad por cualquier reclamación que pueda surgir como consecuencia de las actividades del estudio y de la información que se solicite y provea a través de éste.

El Departamento de Educación no se hace responsable de cualquier daño o reclamación producto del proceso de realización o del resultado del investigación y la misma es una independiente no auspiciada por el Departamento. El Departamento de Educación no necesariamente se solidariza con los resultados de la investigación.

Su firma en este documento significa que ha decidido colaborar con la investigadora, la estudiante doctoral Enid Rodríguez Ayala después de haber leído la información presentada y conocer cuál será su participación en esta hoja de colaboración.

Wally Isaac Salín
Director
Programa de Educación Física
Departamento de Educación Puerto Rico

Fecha

Enid Rodríguez Ayala
Investigadora

Fecha

Appendix D
IRB Non Review Certification



Institutional Review Board

Human Research Protections Office

April 4, 2013

Gloria Napper-Owen (Faculty)
Enid Rodriguez Ayala (Student Investigator)

Dear Dr. Napper-Owen/ Ms. Ayala :

On 4/4/2013, the IRB reviewed the following submission: Initial Study
Type of Review:
Title of Study: Perceived Barriers to Teaching the Established Physical
Education Curriculum in Puerto Rico Public School
System
Investigator: Gloria Napper-Owen (faculty)
Enid Rodriguez Ayala (Student Investigator)
Study ID: 13-172
Funding: None
Grant ID: None
IND, IDE, or HDE: None
Documents Reviewed: Study application submitted 03/01/13
Survey (including consent cover letter) version 040413
Study protocol version 12/03/12

The IRB approved the study from 4/4/2013. Category: EXEMPTION: Categories (1) Educational settings(2)
Tests, surveys, interviews, or observation
Determinations/Waivers: Waiver/alteration of the consent process
Because it has been granted exemption, this research project is not subject to continuing review. It is the
responsibility of the Principal Investigator to inform the IRB of any changes to the approved documents
associated with this research. A change in the research may disqualify this project from exempt status.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Scott Tonigan".

J. Scott Tonigan, PhD
IRB Chair

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