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Swimming in New Waters: Profiling K-12 Aquatic Physical Activity in Florida as a Viable Lifesaving Force in Physical Education

Angela Beale and Susan Lynn

The purpose of this study was to conduct an online survey to answer the key question, "What is the current status of aquatic physical activity (APA) in physical education programs in Florida's public schools?" The results showed that though APA use within physical education was minimal, physical education professionals who responded in this study used and valued the use of APA in their physical education programs. Moreover, physical education professionals find the use of APA beneficial for all students in K-12 physical education. Though the current study did not address the reasons that teachers did not have APA as a part of their physical education curriculum, a core finding of lack of school aquatic facilities could serve as a major catalyst for lack of use. Comments from the physical education professionals and the review of literature provided some possible explanations about why APA was or were not used in K-12 physical education programs. The findings from this study could serve as a potential tool for promoting APA in K-12 nationally.

In an age where the need for more physical activity is consistently advocated at national, state, and local levels, it is imperative that people are encouraged to be physically active through a variety of physical activities. Aquatic physical activity (APA) can be one of the most important options for lifelong physical activity, health, and wellness (Ambrosini, Brentano, Coertjens, & Krueel, 2010; Intveld, Cooper, & Kessel, 2010; Oliveira et al., 2010). APA includes a wide variety of activities in an aquatic medium, including snorkeling or diving, water walking, competitive and instructional swimming, aquatic fitness, aquatic sports, water aerobics, and small craft aquatic activity. For a large segment of the population, APA comprises one of the top recreational priorities (Avramidis, Butterly, Llewellyn, 2007; Cardon, Verstraete, Dirk, & Bourdeaudhuij, 2004). The American Association for Active Lifestyles and Fitness, Council of Aquatic Professionals (AAALF; 2004a, 2004b, 2004c) affirmed that the application of aquatic knowledge and skills not only improves an individual's physical fitness, but also establishes a framework for a lifetime of physical activity and wellness. In addition, AAALF and the Centers

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for Disease Control and Prevention (CDC) recommend that individuals of all ages, both with and without physical, sensory, or mental disabilities, participate in aquatic instruction and activity because it enables them to develop skills for a lifetime (AAALF, 2004b; CDC, 1997a).

Physical education can be a vehicle for assisting students to develop skillfulness in and an awareness of physical activities and a resource for acquiring skills which they will be able to use throughout their lives. By exposing students to a variety of physical activities within physical education classes, they can begin to build a repertoire of skillfulness in lifelong physical activities. This repertoire includes APA. In many physical education textbooks, aquatic programs are viewed as an invaluable method to produce physiological, psychological, and social benefits for students (AAALF, 2004a; Conaster, Block, & Lepore, 2000; Fromel, Vasendova, Stratton, & Pangrazi, 2002).

Historically, aquatic physical education programs have served large numbers of individuals including those with disabilities who particularly benefit from the unique physical properties that water has. Research by Fromel et al. (2002) has affirmed that among high school girls' activities, swimming was identified as one of the most popular types of physical activity, both in and out of school curricula. Ironically, despite the popularity of APA, many schools do not offer APA as an activity for fostering overall physical activity. This is difficult to understand, especially in a nation where APA makes up one of the most popular types of lifelong physical activity, sport, and family recreation. One would expect that APA would be especially prominent in physical education in water based states including such locations as California, Florida, Hawaii, and New York (Long Island). Teaching young people water safety skills and providing instructional swimming and a skill in other aquatic activities seem to be a natural fit for physical education and contribute valuably to the health and wellness of the population of any state.

Drowning deaths are the third leading cause of unintentional injury deaths worldwide after motor vehicle collisions and falls (World Health Organization, 2008). In 2007 in the United States, there were 3,443 unintentional fatal drowning deaths, averaging approximately ten deaths per day not including the additional 496 drowning fatalities due to boating-related incidents (CDC, 2009). The CDC (2009) reported that in 2007, males were 3.7 times more likely than females to die of drowning in the United States.

Findings revealed that between 2000 and 2007, the overall drowning rate of African Americans was 1.2 times higher than that of Euro-Americans, with African American children, ages 5–14, drowning at 3.1 times the rate of Euro-American children. Additional reports also revealed that the fatal unintentional drowning rate overall for Native Americans including aboriginal Alaskans was 2.2 times that of Euro-Americans with similar dramatic disparities among age groups (children ages 5–14 had a drowning rate 2.6 times higher than that of Euro-Americans; CDC, 2009). Consistent with literature on physical activity patterns (Bgeginski, Finkelstein, Alberton, Tartaruga, & Krueel, 2009; Krueel, Peyer-Tartaruga, Alberton, Muller, & Petkowicz, 2009; Peyre-Tartaruga, Tartaruga, Coertjens, Black, Oliveira & Krueel, 2009), aquatics and minority populations (Applebee, 1991; Avramidis et al., 2009a; Banks & Banks, 1989; Beale et al., 2002; Eisenhart & Cutts-Dougherty, 1991; Irwin, Irwin, Ryan, & Drayer, 2009; Jackson, 1991; Moran, 2009; Pendelton, 1975; Waller & Norwood, 2009; Wieser, 1995), physical environment (e.g., access to swimming pools), and a combination of social-cultural issues (e.g., valuing

swimming skills and choosing water-related activities when making recreational choices) may be the primary factors contributing to the heritage and ethnic differences in drowning rates due to the lack of exposure to APA. (Avramidis et al., 2007, 2009a, 2009b, 2009c; Martin & Witman, 2010; Moran, 2009).

Nationally, there is a critical need to reduce the number of drowning deaths that occur in the United States. More than 50% of drowning deaths occurred in residential pools, with a minority occurring in public pools and other natural bodies of water. In addition, findings revealed the highest rates of drowning deaths occurred among school-aged children (American Academy of Pediatrics, 2003; CDC, 2009; Dworkin, 2002). Between 2000–2005, Florida was ranked as one of the top six states within the United States, following California and leading Texas, New York, Ohio, and Georgia, having the highest numbers of drowning deaths (Florida Department of Health, 2010a; CDC, 2008; National Center for Health Statistics, NCHS, 2000). Though some counties in Florida had minimal drowning deaths, research has shown there is a need to create programs or opportunities to battle the statewide problem with drowning (Florida Department of Health, 2010b; Lo, Hall, VanderWerf-Hourigan, Vincent, & Pryor, 2010). With state authorities and researchers identifying drowning as a significant health problem in Florida (Florida Department of Health, 2010a, 2010b; Lo et al., 2010), and its large number of aquatic environments (e.g., natural water resources, public and residential pools), a viable solution for the state of Florida would be to incorporate aquatic activity in K-12 physical education programs to serve as one way for decreasing the number of unintentional injury deaths attributed to drowning. The inclusion of swimming lessons and other aquatic activities in physical education seems important for safety reasons because swimming is a common leisure activity as well as an ideal activity which can be taught in schools (AAALF, 2004c; Avramidis et al., 2009c; Cardon et al., 2004; Fromel et al., 2002, Moran, 2009).

Despite plentiful research on the benefits of APA, there is a scarcity of information regarding the implementation of aquatics in K-12 public school physical education programs. Hence, the goal of this study was to provide baseline data on one state that appears to have pressing reasons for addressing both increased competence in APA to decrease drowning deaths and to educate people to support its various aquatic opportunities. Therefore, investigating APA in Florida's K-12 physical education programs may provide insight into questions concerning APA in physical education programs generally. The purposes of this study were to describe the current status of APA for students in K-12 public school physical education programs in the state of Florida and identify the attitudes of public school physical educators toward APA based on grade level and geographic location in the state. Seven research questions guided this study:

1. What are the frequency and extent of aquatic programs in physical education programs in Florida's public school systems?
2. What are the types of physical education aquatic programs that students are participating in within Florida's public school systems?
3. What are the perceptions, attitudes, and feelings of physical education professionals relative to using APA as a part of physical education programs in Florida's public school systems?
4. How accessible are pool facilities (i.e., school, recreational, and private) for aquatic participation in Florida's public school systems?

5. What are the professional qualifications, experience, and training background of physical education professionals relative to teaching APA in Florida's public school system?
6. Are there differences in the attitudes among physical education professionals based on school level and the use of APA?
7. Are there differences among the attitudes of physical education professionals based on location of school in state and the use of APA?

APA in PE: The Case of Florida

Supporting the value and benefits of APA within public school physical education programs appears to be an ideal and valuable option for promoting lifelong fitness and safety. According to the Florida Department of Education (FLDOE, 2005b), APA in the public schools is offered in the following areas: (a) adaptive aquatics, (b) beginning swimming, (c) intermediate swimming, and (d) water safety. In Florida, as in other states, APA is only offered at the high school level and then as an elective and not as a requirement. Even though the majority of unintentional drowning deaths occur among children ages 1–4 (Florida Department of Health, 2010a) who would not be old enough to be in school and consequently would not benefit from APA instruction (American Academy of Pediatrics, AAP, 2003) the AAP (2003) does advocate swimming lessons for children ages 5 and older, and definitely by age 8 (Safe Kids USA; Cody, Quraishi, Dastur, & Mickalide, 2004). In addition, based on a January 2004 online survey of parents of children ages 5–14, it was found that 37% of these children had never taken swimming lessons. The National SAFE KIDS Campaign concluded that “more children should be enrolled in swimming lessons taught by a certified swimming instructor” (Cody et al., 2004).

After a careful search of the state information and research on APA in physical education, it appears that there is too little information with regard to the use of aquatics in K-12 public school physical education programs. If steps are ever to be taken to promote APA effectively in public schools, we ought to first assess the current standing of such programs. In this study, the researcher investigated the status and popularity of APA in physical education programs in Florida's public schools. Understanding Florida's programs can assist policy makers in that state to identify additional strategies to reduce drowning deaths and to implement APA as physical activity generally. A second purpose was to contribute descriptive research to an under-explored area of APA in K-12 programs.

Need for Descriptive Studies on APA in Physical Education

How do physical education professionals view APA? Some physical educators may view APA as a wonderful activity to help students increase their levels of physical activity and health-related physical fitness. Others may only see APA as a hindrance and a lawsuit waiting to happen. Therefore, the researcher decided it was necessary to obtain information regarding the current status of APA through the eyes of the “gatekeepers,” physical education professionals currently in the field. Research questions aimed toward aquatic curricula in physical education would not only contribute to the body of literature in the field of physical education, but

also might affect policy change, which ultimately might contribute to a reduction in drowning deaths in Florida and elsewhere.

Fishbein's (1967) "theory of reasoned action" suggested that it is possible to gain some understanding of a person's intentions by measuring his/her attitudes toward performing a behavior. In the case of the current study, physical education professionals were asked to identify their attitudes toward the use of APA in an effort to gain insight. If an aquatic program is an intended goal within a school physical education program, it becomes imperative that the program be well planned and executed by physical educators. Based in the theory of reasoned action, attitudes toward APA have been associated with the degree to which persons actually will use an activity (Fishbein, 1967).

Method

Participants

The principal technique in this study was a descriptive cross-sectional design using an online survey. Permission to proceed with this descriptive study was requested and granted by the Chair of the Human Subjects Committee, Institutional Review Board through the Vice President for the Office of Research at Florida State University. For purposes of this research a survey/questionnaire instrument was electronically mailed (i.e., e-mailed) to approximately 90% ($n = 4,800$) of physical education professionals in Florida K-12 public schools during the 2004–2005 school year. Participants were provided an established online link to the survey instrument.

Though organizations such as the Florida DOE, the professional state association, and district physical education coordinators assisted in the creation of physical education professionals' information, at the time of the study there was no comprehensive e-mail listing of physical education professionals available in the state.

The sample was obtained from the current listing of physical education professionals as reported by the Florida Department of Education (2005a) and was considered homogeneous based on the fact that throughout the state, the curriculum is state-directed, duties and tasks of the physical education professionals at each level are considered to be comparable and that all public schools in the state of Florida are directed to conduct teacher evaluations in the same way.

At the time of the study, the state employed 5,385 physical education professionals. Of that number, 2,114 were employed in elementary schools; 1,618 in middle/junior high schools; and 1,626 in high schools. Others were employed in adapted and special education (Florida Department of Education, 2005a).

Instrumentation and Data Collection

An APA in K-12 Public Schools (APAPS) survey questionnaire designed by the researcher to gather descriptive information through the use of the self-administered electronic mail survey technique served as the study instrument. A 48-item Likert-type rating scale, separated into seven categories—APA (APA) in physical education (PE) programs, Types of APA in PE programs, Use of APA in PE, Aquatic Facility Accessibility, Experiences with APA, Participation in APA, and Demographic Information, was designed to gather baseline data which could be used to deter-

mine the status of APA in physical education programs and the reasons why APA were or were not used. To establish content validity and reliability, a pilot study of the instrument was conducted in two trials. The value of the pilot test for the researcher was that it provided insights regarding the effectiveness and the purpose of the survey and its content. The survey for this study underwent revisions based on feedback from selected experts and physical education teachers to improve its content validity. The language used in the survey was written and designed with the intent to be short, simple, clear, and concise for native English speakers/writers.

Limitations for this study were similar to other online questionnaire studies. Standard limitations included the following:

1. Return rates from self-administered mailed or electronically mailed questionnaires are typically low. In a brief investigation of response rates across various online survey approaches, Bourque and Fielder (2003) found lows of around 5% percent to highs of 70% with the higher ranges being achieved in professional membership organizations where respondents would be expected to be highly motivated to participate. Though Bourque and Fielder's investigations were not exhaustive they felt that response rates common for online surveys currently range from 10% to 20%.
2. Subjects may misinterpret questions, leave out items, or send in irrelevant information which challenges the validity and reliability of results.
3. The questions must be simple and the questionnaire must be brief in an effort to attain high rates of return (Bourque & Fielder 2003; Fink, 2003; Litwin, 2003; Thomas and Nelson, 2001).

Results

Return Rate

The number of returned questionnaires (671) yielded a return rate of 14%, consistent with the range for other on-line research (Bourque & Fielder, 2003). The findings were valuable despite the relatively low return rate because so little information on this topic had been collected before this study. Proposed follow-up research to strengthen the validity of these findings is discussed in a subsequent section. Findings are reported below for each of the research questions.

Research Question 1: What Are the Frequency and Extent of Aquatic Programs in Physical Education in Florida's Public Schools?

In the current study when participants were asked to identify whether APA was an elective or required component of their school's physical education curriculum, only 9.8% of respondents identified APA as such. For purposes of the research, branching and skip techniques were used. Participants with a response of "yes" were directed to questions 2 through 48 of the survey. A response of "no" allowed participants to skip to questions 8, page 3 of the survey, through to question 48 in an effort to maintain participant involvement and attain additional relevant information. Though prior data suggested that the majority (90.2%) of the respondents did

not use APA as an elective or required component within their physical education programs, the participants with the response of “yes” identified that APA had been used within their programs for durations of 15 years or more (see Table 1).

With the Florida Department of Education already having APA programmatically assigned in statewide curricula to grades 9–12 within the state, responses from the current study merely verified the lack of APA in K-12 physical education. Though aquatic literature in physical education supports the utilization of APA at every level (AAALF, 2004d; Cardon et al., 2004) for individuals of all ages, both with and without various physical, sensory, or mental disabilities, some participants within the current study agreed with the statewide mandate of APA for high school levels only. One participant remarked, “I work at an elementary school. I do feel an aquatic program is important at higher grade levels. Your survey does not apply to me.” Other participants at the elementary level seemed to disagree with this statement echoing the sentiments of the literature stating, “As a P.E. teacher, I think that APA activities are a must for every child entering into the elementary setting.”

These statements are important when one considers the statistics set forth concerning the level of unintentional drowning deaths occurring among children ages 5–18, with Florida among the top three states having the highest rates of drowning deaths (Florida Department of Health 2010a, 2010b).

Research Question 2: What Are the Types of Physical Education Aquatic Programs Students Are Participating in Within Florida’s Public School System?

The current study revealed students were provided with and participated in a variety of APA (instructional swimming, aquatic fitness, aquatic sports, scuba, and small craft activity) within their physical education classes, with instructional swimming identified by 93.6% of respondents as the APA most often used within physical education programs (see Table 2). The identification of instructional swimming by participants in this study not only agrees with the researcher’s opinion concerning the value of APA, but also speaks strongly for physical education programs and professionals who desire to create opportunities for students to attain survival and physical skills that will keep them healthy and safe for a lifetime. Information shared by some respondents provided a perspective relevant to achieving this purpose:

Table 1 Years APA Has Been Included in APAPS Survey Participants’ Physical Education Programs

Years	<i>n</i>	%
1–4 years	16	25.4
5–9 years	14	22.2
10–14 years	12	19.1
15+ years	21	33.3
Total	63	100

Miami-Dade County public schools offer a program entitled “Learn to Swim.” This program was developed to teach basic swimming and water safety skills to approximately ten thousand students annually. Approximately, ten certified teachers that are also water safety instructors and lifeguards rotate 7–8 schools every ten weeks. Students who participate in this portable pool program and qualify are also tested in a “deep water” pool to demonstrate and receive evaluation on learned skills. All exceptionalities can benefit from water activity, either to learn aquatic skills or for therapeutic purposes. It is our desire that the Learn to Swim program will allow students to enjoy swimming for a lifetime.

Research Question 3: What Are the Perceptions, Attitudes, and Feelings of Physical Education Professionals Relative to Using APA as a Part of Physical Education Programs in Florida’s Public School Systems?

Consistent with the literature on aquatics, most of the participants in this study had positive attitudes with regard to the benefits of APA and its use in physical education (see Table 3). Participants’ positive attitudes were consistent with the goals of physical education to provide students with a vehicle for developing an awareness of physical activities and resources for acquiring skills throughout their lives. Results clearly revealed that physical educators’ attitudes regarding the barriers attributed to the lack of APA in physical education programs were also consistent with the literature including issues such as scheduling conflict, lack of certification, and training, lack of facilities (refer to Table 4). Moreover, literature suggested that culture plays a role in one’s use of and participation in APA, thus limiting exposure to APA through the allocation of resources and decision-making when it comes to participation in aquatic venues (Avramidis, Butterly, Llewellyn, 2007, 2009a, 2009b, 2009c; Martin & Witman, 2010).

Cardon, Verstraete, Dirk, and Bourdeaudhuij (2004) compared the physical activity levels of 8–12- year-old students during swimming and nonswimming elementary physical education classes. Using the System for Observing Fitness Instruction Time (SOFIT), results revealed that students participated in more mod-

Table 2 Types of APAs Offered in APAPS Survey Participant’s Physical Education Programs

Type of APA	<i>n</i>	%
Instructional Swimming	59	93.6
Aquatic Fitness	16	25.4
Aquatic Sports	12	19
Scuba	4	6.3
Small Craft	4	6.3

Note. The numbers of survey participants who responded to this item on the APAPS questionnaire was 63. Because survey participants may report offering multiple types of APAs, responses do not total 63, and percentages do not total 100%.

Table 3 Attitudes of APAPS Survey Participants Regarding Goals of APA Curricula

	<i>n</i>	Strongly Agree (%)	Agree (%)	Disagree (%)	Strongly Disagree (%)	Undecided (%)
To teach water safety skills	622	44.7	44.9	3.5	1.1	5.8
To teach swimming skills	622	38.4	53.5	3.4	0.5	4.2
To increase students' level of daily functioning (e.g., health and fitness)	622	39.7	51.8	2.9	0.3	5.3
To develop students' recreational activity (e.g., fun and socialization)	622	32.8	55.0	5.8	0.3	6.1
To promote drowning prevention	621	50.9	41.2	3.5	0.5	3.9

Table 4 Reasons Identified by APAPS Survey Participants Why APA is Not Included in Physical Education

	<i>n</i>	Strongly Agree (%)	Agree (%)	Disagree (%)	Strongly Disagree (%)	Undecided (%)
APAs are considered difficult for the students' skill level	619	0.5	4.0	48.5	35.0	12.0
Lack of trained personnel	620	14.8	44.4	22.1	11.0	7.7
Budget limitation	621	65.4	22.5	3.9	2.6	3.9
Lack of interest in APA as a part of physical education among students	620	2.4	11.0	51.6	25.5	9.5
Lack of interest in APA as asset for physical education PE professionals	620	3.7	16.1	49.5	20.3	10.3
Not considered a physical education priority choice for students	620	6.9	32.1	36.8	12.9	11.3
Lack of aquatic facilities	620	80.0	10.5	4.0	3.2	2.3
Scheduling conflicts	620	28.2	26.8	25.3	8.7	11.0
Legal/Safety	620	39.4	35.0	14.8	5.0	5.8
Other	613	7.5	14.0	7.7	2.0	68.8

erate to vigorous physical activity (MVPA) levels during swimming classes than during their nonswimming classes which clearly supported the use of APA in K-12 physical education. Healthy People 2010 (U.S. Department of Health and Human Services, 1996) objective 22-10 states that in an effort to increase physical activity levels, children should participate in MVPA during at least 50% of a physical education class. Cardon et al.'s results revealed that 41% of the swimming lessons and 77% of the nonswimming physical education lessons did not reach the 50% MVPA threshold. Hence, overall, based on Fishbein's theory of reasoned action, the current study and Cardon et al. (2004) suggest that since physical educators believe that participation in APA could lead to beneficial outcomes, their overall attitude toward using APA will be very positive, allowing APA to be seen as a form of physical activity that contributes to the total welfare of students involved.

Research Question 4: How Accessible Are Pool Facilities (i.e., School, Recreational, and Private) for Aquatic Participation in Florida's Public School Systems?

Results regarding this question were also addressed among the attitudinal responses of participants in this study. Overall results revealed that 90.5% of physical education professionals in this study did not have access to an aquatic facility (see Table 4). Participants shared their feelings of why they felt APA was not included in physical education:

Aquatic programs are very limited in public school settings due to many factors: (1) instructional time, (2) access to aquatic facilities, (3) liability, (4) trained personnel. . . . Miami-Dade County has a great program K-5. We, Seminole County Public Schools, only teach swimming at the high school level in those schools that have pools on their campuses (3 of our 8 high schools). . . . At K-5 level, there is so much academic instruction that it is mandated and required that unless an aquatic facility is nearby, aquatics is not feasible, even then it becomes a scheduling issue. Other issues involve dressing and the teacher/pupil ratio for safety.

Other participants felt that some of these barriers, though apparent, were not necessarily insurmountable. One participant shared the following:

As a practitioner, I tried to develop a community partnership with the city recreation facility adjacent to my school. We had planned to teach water safety, water fitness activities, and water polo in our sport education curriculum. I had secured the partnership of the Red Cross and planned to implement their Junior Guard Start Program. Here are some of the deterrents I ran into:

1. Scheduling: 50-min classes which had to include a 15-min each way walk, plus dress out time. I could not get the faculty to agree to block schedules.
2. Liability and risk management concerns from the district office: Neither myself nor my teaching partner had a current WSI certification. Since we do not teach it in our district both of us let the certification expire since our undergrad days.

3. Difficulties with the facility: Maintenance of the pool and scheduling of the appropriate number of lifeguards during the school day.
4. Parents were supportive, but not able to volunteer to assist, so we would have an appropriate ratio of adults to student in the water.

To reflect upon the earlier discussions relevant to this study, the factors related to aquatic curricula that are important to the development of successful APA programs are the design and usage of facilities, equipment, program purposefulness, knowledge, safety, and activities (AAALF, 2004d; Hooker et al., 2010; Moran, 2009). The aquatic facility should be safe, clear of debris, and have proper lighting, heat, ventilation, circulation, and acoustics.

As has been noted in the current study, safety is an extremely important issue in the implementation of APA programs. Once safety guidelines have been met and can be maintained, other issues related to participants' attitudes can be taken into account to create a program to successfully meet the objectives of physical education successfully (see Table 5).

Research Question 5: What Are the Professional Qualifications, Experience, and Training Background of Physical Education Professionals Relative to Teaching Aquatics for Students in Florida's Public School Systems?

The American Alliance for Health, Physical Education, Recreation and Dance, Aquatic Council (AAALF, 2004c) stated that physical educators or instructors should possess current certifications in cardiopulmonary resuscitation (CPR), first

Table 5 APAPS Survey Participants' Feelings About APA

	<i>n</i>	Strongly Agree (%)	Agree (%)	Disagree (%)	Strongly Disagree (%)	Undecided (%)
Public schools should be responsible for providing APA	579	30.1	47.9	11.4	2.8	7.8
APA is not feasible for students	578	12.1	31.1	33.7	15.1	8.0
Coursework/in-service training is needed to teach APA	578	46.7	47.4	3.5	0.9	1.6
APA should be offered in K-12 physical education whenever possible	578	44.8	46.5	3.8	0.5	4.3
Drowning prevention should be a part of physical education programs	578	46.2	36.2	9.7	1.4	6.6

aid, or be a trained lifeguard. Moreover, physical education professionals should have the know-how to conduct aquatic programs safely and maintain certification by a nationally recognized professional organization, (e.g., having an American Red Cross Water Safety Instructor, WSI, certification).

Results of the current study revealed that most physical education educators were professionally qualified in the recommended areas as suggested by AAHPERD, Aquatic Council, and met FLDOE requirements for the use of APA (see Table 6). However, participants once again shared the downside of trying to maintain their professional certifications. As one respondent explained, “Since I do not have aquatic facilities at my school for aquatic activity, I no longer keep my WSI current, although I have been certified in the past.” Another educator expressed a similar situation:

I held a WSI and lifeguard certification the first several years of teaching physical education at another school in Ohio. We did have a 4th grade swimming program for years but because of financial issues they were omitted from the physical education curriculum.

These findings were consistent with the results which showed that 84.7% of physical education professionals in this study had never attended an APA workshop or training. Since physical education professionals in this study who had attended a workshop (15.3%) identified they found the APA workshop beneficial for their goals in physical education, the need to provide more physical education professionals with opportunities to attend APA workshops to train them to provide physical education with aquatic instruction was apparent. Moreover, participants did reveal their willingness to attend an APA workshop and learn (see Table 7). This study reveals the possibility that training could effect change in the implementation of APA within physical education, as well as in forging the opportunity of building cooperative relationships among school districts, curriculum specialists, community facilities, national aquatic agencies, and education professionals, possibly minimizing the issue of lack of facilities within under-resourced communities and programs.

Physical education professionals need to feel competent in their ability to teach physical education to all students if there is an aquatic facility available. It was evident in the current study that 58% of participants who responded felt capable of teaching an aquatic unit in their physical education programs (see Table 7).

Table 6 Certifications Held by APAPS Survey Participants

Certification	N	%
Water Safety Instructor	140	24.3
School Board Standard Program	167	28.9
YMCA Aquatic Program	27	4.6
Other	469	81.4
None at All	86	14.9

Note. The number of survey participants who responded to this item on the APAPS questionnaire was 576. Because survey participants may report holding multiple certifications, responses do not total 576, and percentages do not total 100%.

Table 7 Factors Affecting Use of APA by APAPS Survey Participants

Factor	<i>n</i>	Yes (%)	No (%)
Have access to on-site aquatic facilities	671	11.1	88.9
Have attended an APA workshop	574	15.3	84.7
Willing to attend an APA workshop offered by the state or district	479	78.9	21.1
Feel capable to teach APA as a unit in physical education	576	58.0	42.0

Coincidentally, the most common APA used by students within physical education programs (instructional swimming) was also the APA that participants felt most comfortable teaching (67.9%; see Table 8). However, there were participants who were comfortable teaching other areas of APA. For example, one respondent wrote, "I have also taught water aerobics for years at the YMCA. Water exercise is one of the most comprehensive aerobic and strengthening exercises there is. Our swim team consists of the healthiest, strongest athletes we have."

Another participant described a program which used other kinds of aquatic skills: "I currently have 5 classes in which I spend two months canoeing and fishing. The class is called Outdoor Education and we have to turn away students as I can handle only 32 to 35 students per class."

There is a need for the development of comprehensive aquatic programs that meet a wide variety of interests for potential participants (Cody et al., 2004). Creating such an environment where students can enjoy water safely and learn to participate within an aquatic medium is necessary (Moran, 2009). APA programs should not only meet the needs of a community, but should also incorporate educational approaches that will attract both educators and participants toward participation. However, to design such programs, physical educators need to be trained and feel competent in the area of aquatics.

The findings of the current study suggested that the use of training workshops focused on aquatic instruction, risk management, and aquatic certifications (WSI, CPR, first aid, and/or life guarding) would help physical education professionals in the current study be more prepared to incorporate an APA unit within their physical education programs.

Research Question 6: Is There a Difference in the Attitudes of Physical Education Professionals Based on School Level and the Use of APA?

Table 8 APA(s) that APAPS Survey Participants Felt Capable of Teaching

APA	<i>n</i>	%
Aquatic Sports	44	69.8
Scuba	11	17.5
Aquatic Fitness	4	6.3
Instructional Swimming	15	23.8
Small Craft Aquatic Activity	5	7.9

Note. The number of survey participants who responded to this item on the APAPS questionnaire was 63. Because survey participants may report using multiple aquatic systems, responses do not total 63, and percentages do not total 100%.

Research Question 7: Is There a Difference in the Attitudes of Physical Education Professionals Based on Location of School in State, and Use APA?

In the current study, significant differences in attitudes among physical education professionals were identified based on school level and location of school in the state. Significant differences between elementary and high school level physical education professionals remained consistent with APA in the state of Florida being programmatically assigned only to grades 9–12. The researcher surmised that the disparity between groups could be directly attributed to the preestablished curricula design.

Concerning locations of schools in the state (see Table 9), the researcher felt that physical education professionals' greater exposure to and training in APA in the southern region of the state, and the greater availability of aquatic facilities in the southern region of the state, contributed to the overall differences observed in this study among attitudes of physical education professionals regarding physical education-based APA in other regions of the state.

Table 9 A Regional Attitudes of APAPS Survey Participants Regarding the Offering K-12 APA Curricula

Regions	<i>Mean</i>	<i>SD</i>
Panhandle	4.1507	0.72017
Crown	4.3256	0.64442
East Central	4.3046	0.79994
West Central	4.2576	0.82537
South	4.4847	0.67910

Note. Mean response differences for attitudinal statements on APA (1 = Strongly Disagree; 5 = Strongly Agree; * Significance = $p < .05$; $F = 2.9$; $df = 3, 556$; $p = 0.034$).

Discussion

This study was conducted so that the data collected from this survey would provide a starting point for the investigation of the implications and use of APA in K-12 physical education programs in the state of Florida and elsewhere. There are many factors and barriers to be considered. The descriptive data obtained in this study represent a minimal amount of information from which conclusions and recommendations can be drawn. While there is an increased interest in the beneficial uses of APA at the K-12 level in physical education, we contend that more research is needed in the area of K-12 physical education and the use of APA.

1. Further investigation into the functioning of physical education programs that have preexisting APA units as a part of their physical education curriculum is a possible area of study. By investigating physical education programs that have successfully implemented APA within their curriculum, models could be developed to serve as a "How-to Guide for Implementing APA within a Physical Education Program."
2. Due to the lack of reported aquatic training by physical educators across the state, additional investigations of the effect of aquatic training workshops on the attitudes of physical education are needed.
3. Professionals at the various school levels is another possible area of study. Further investigation into the how preexisting physical education programs that have APA units as a part of their physical education curriculum overcome the numerous barriers as identified in the current study. This information could assist physical educators with tactics and strategies to overcome such barriers. Due to the lack of a preexisting e-mail listing, the replication of the current study using athletic directors, principals, superintendents, or heads of departments might possibly encourage a greater response.
4. In areas where APA has been implemented in K-12 physical education, investigating the drowning rates of school-aged children in those areas compared with areas where APA has not been implemented.
5. In areas lacking on-site aquatic facilities investigating informational trainings could effect change in the implementation of APA within physical education, as well as in forging the opportunity of building cooperative relationships among school districts, curriculum specialists, community facilities, national aquatic agencies, and education professionals.

In terms of improving the status of APA in K-12 physical education programs in Florida's public school systems this study supports the following recommendations:

1. An increase in funding physical education programs would enable school districts to acquire aquatic facilities, equipment, and to update the certifications of staff.
2. Aquatic programs or units should be expanded into the K-12 curricula of all school districts, not just at the high school level.
3. APA training and certification in-service workshops should be held in districts and at state conventions to enhance professional development.

4. A need for methodological improvement in school districts and teacher preparatory programs with emphasis on aquatic training and the implementation of aquatic units.
5. Development of collaborative relationships between parents, community based organizations, school districts, physical education/athletic departments, and national aquatic organizations should be established to develop and maintain the use of APA programs within K-12 physical education.
6. Issues of lack of school aquatic facilities and lack of trained physical education professionals can be addressed through collaborative relationships among school districts, universities, and community based organizations.

Conclusion

The information and conclusions gathered from a descriptive study can provide a scientific basis for decision making and give direction to future action for the planning and development of new programs or the modification for existing ones. In addition, the significance of results from a descriptive study may enable physical education teacher education faculty to educate future instructors, practitioners, policy makers, and researchers by equipping them with more empirical knowledge and thinking in relation to the risks, safety, benefits, and concerns of using APA within a physical education curriculum. Furthermore, the current status of facilities and personnel qualifications of physical education professionals in Florida need to be documented.

The purposes of this study were to describe the state of aquatic physical activity programs within public school physical education curricula in the State of Florida and to identify the perceptions and attitudes of the public school physical educators toward aquatic physical activities within physical education. The results from the current study showed that APA inclusion within physical education was minimal (< 10% of all programs). Physical education professionals who responded to the survey do value the inclusion of APA in their physical education programs even though most programs do not contain such a unit. Moreover, physical education professionals find the use of APA beneficial for all students in K-12 physical education. Comments from the physical education professionals and the review of literature provided some possible explanations as to why APA was or was not used in K-12 physical education programs and if it was used how those physical education professionals and programs made the effort to include APA in their programs. Effective APA programs are possible. Participants in this study have expressed their desires for assistance and guidance; thus, it is imperative that school districts, administrators, curriculum planning committees, district coordinators, curriculum specialists, parents, aquatic organizations, and physical educators begin to create collaborative relationships in an effort to foster the use of APA within K-12 physical education programs.

Physical education programs in K-12 have been plagued by program reductions, reorganization, and even elimination, often because they are viewed by policy makers as nonessential to the health and educational goals of the state. Thus, as K-12 physical education changes to meet the needs and new challenges of students and the field, more empirically-based information about whether and how to add

APA to physical education programs should be examined as they attempt to meet the changing needs of students and communities.

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