

OPTIMAL AQUATIC READINESS: A PRIVATE VS
COMMUNITY AQUATIC PROGRAMMING
COMPARISON

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Abstract: The purpose of this study was to investigate if instructors in a private aquatic training program score students' optimal readiness differently than those in a community non-profit aquatic training program based on the instructors scoring. In this study, the Aquatic Readiness Assessment was utilized for determining optimal readiness for advancement in aquatic education which potentially may lead to a safer aquatic experience. This comparison was to determine if instructors from a private aquatic training program with the Water Safety Instructor training can advance students to the point of optimal readiness to achieve aquatic skills more quickly than instructors from a community non-profit aquatic training program. This study was guided by the following research question: do aquatic instructors employed at a private aquatic facility score learner readiness differently than instructors employed at a community non-profit facility over a 3-week swim class? There were one hundred twenty students ($n=120$) scored by the ten instructors, five at each facility, using the ARA. The students were divided into two groups, according to the aquatic training center they attend for lessons (private vs. community). Sixty students from each aquatic training center were assessed using the ARA. Instructors scored the first sixty students in each facility which were tested and scored below twenty-seven on the ARA, which assigned them to the stage one aquatic training program. This assured that all students began at the same aquatic skill level. A pretest and posttest, three weeks between tests, was scored by five instructors on each of the sixty students within their facility. A cross-tabulation and chi-square statistic was utilized to examine and compare the advancing number of students between the private and community non-profit aquatic training program. The private advanced thirty-eight students, while the community non-profit advanced forty-seven. The chi-square analysis indicated there was not a significant difference in the pass rate between the private facility vs. community non-profit facility at $p \leq .05$ with a result of $p = .071$. A Mann-Whitney U non-parametric analysis was utilized to determine the mean score change between the facilities. The analysis showed the instructors in the private facility scored a change of 6.82. A Wilcoxon T non-parametric analysis was utilized to determine the difference between the instructors within each facility. The analysis showed the instructor change in the community non-profit to be 7.13. The results did not show a significant difference in scores among advancing students to level two aquatic training. However, the results did demonstrate an improvement among the students at both facilities and showed the value of aquatic training.

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CHAPTER I

INTRODUCTION

Introduction and Theoretical Frame

Children have long been measured by their ability to achieve certain physical milestones based on a developed maturation level. When examining physical ability, Gallahue stated that a child's biological age provides a rough guide of developmental level (Brady, 2004). In contrast, Magill's (1988) Optimal Readiness Theory states that a child is ready to learn a skill when maturation, prior experiences and motivation coincide (Smoll, Magill & Ash, 1988). Therefore, a four-year old child may be able to jump on one foot, but actually may have reached the physical milestone earlier but was not given the opportunity to indicate the skill at a younger age (Scurati, Michielon, Longo, and Invernizzi, 2010). There is very little evidence to suggest that the readiness to learn specific motor skills can be identified through biological maturation (Scurati, 2010; Smoll, 1988). While some children will be able to achieve milestones early, some will not. Applied to this study, the Optimal Readiness Theory will consider the instructor's view of the optimal readiness period for children in a private swimming program versus a community non-profit swimming program to indicate their aquatic readiness to move from one level of an aquatic training program to the next level of training (Blanksby, Parker, Bradley, and Ong, 1995). Thus, the Optimal Readiness Theory provides the theoretical base for this study.

Blanksby (1995) determined that successful achievement of skills is not dependent on the earliness of instruction but on the timeliness of that instruction. Specific indicators such as water orientation, water entry, and/or breath control can be examined to determine a child's readiness to achieve aquatic skills. An instructor must be able to utilize an instrument to identify those indicators that determine a child's aquatic optimal readiness.

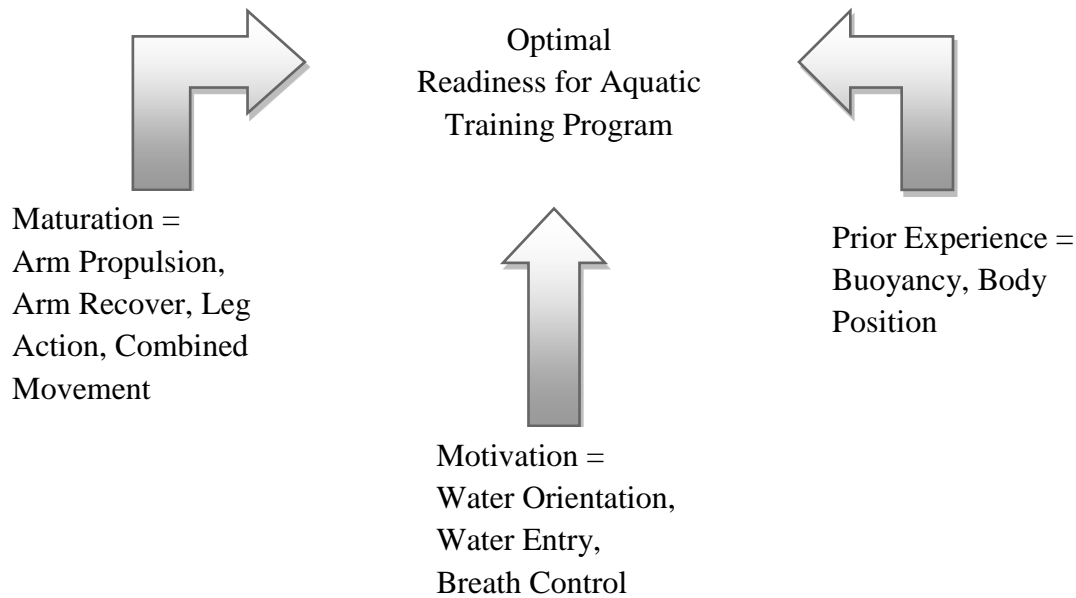
Optimal readiness is the time in life when a child or adult is most favorably ready to learn a given skill (Blanksby, 1995). Magill and Anderson (1996) proposed a multidimensional view of development encompassing maturation, prerequisite skills, and motivation to determine optimal readiness (Brady, 2004). Research has suggested that implicit in the concept of readiness is that learning is more rapid and more enjoyable when readiness exists (Aicinena, 1992).

Armenakis' Readiness Theory has been used to identify the optimal time to address behaviors in subjects. The Readiness Theory has been used to assess corporate structure and the willingness of a group to move toward change. In addition, studies have supported the use of this theory to eliminate negative behaviors in willing adults, including smoking cessation, eating disorders, and anger management (Courneya, 1995; Prochaska, 2006). Armenakis' Readiness Theory contributes directly to determining optimal readiness.

Melles (2008) described Pragmatism as utilizing individual action and experience in the world as the most realistic basis for decision-making. Pragmatism relating to learning includes learn through play and interest-oriented experience or learning. Combining pragmatism with Armenakis' Readiness Theory allows the researcher to study the point of optimal readiness as it coincides with learning through play, or pragmatism.

In this study, the Aquatic Readiness Assessment (ARA) method was utilized for determining optimal readiness based on instructors' scores of the students in a private versus community non-profit swim programs. The ARA contains nine components: (1) Water orientation and adjustment; (2) Water entry; (3) Breath control; (4) Buoyancy/flotation; (5) Body position; (6) Arm Propulsion; (7) Arm Recovery; (8) Leg action; and (9) Combined movement. These correspond to Magill's (1988) explanation of optimal readiness as shown below. In Costa et al. (2012), instructors scored the instrument based upon their observation of the student's ability to complete the required aquatic skills to indicate that student's optimal readiness to advance from one aquatic skill level to another.

The ARA components relate to Magill's Optimal Readiness Theory in the following: ARA water orientation (see Table 1), water entry (see Table 2) and breath control (see Table 3) components consider a student's motivation to approach the water, enter/exit the pool voluntarily, and ability to control their breathing. These correspond to Magill's (1988) definition of motivation which includes the confidence level of the student. The ARA components of buoyancy/flotation (see Table 4) and body position (see Table 5) in a water environment relates to Magill's category of prior experience (see Figure 1). Finally, Magill's (1988) category of maturation umbrellas the final four components of the ARA's physical categories of arm propulsion, arm recovery, leg action, and combined movement. Magill's Optimal Readiness Theory states that maturation, prior experience, and motivation must all be present and are co-dependent upon one another to predict readiness in a student (Anderson, 1996; Scurati, Michielon, Longo, and Invernizzi, 2010; Smoll, Magill, and Ash, 1988). Figure 1 shows the relationship of the three categories and their influence on optimal readiness.



**Figure 1. The Relationship of Optimal Readiness Theory (Smoll, Magill and Ash, 1988)
= Aquatic Readiness Assessment (Costa et al., 2012; Langendorfer and Bruya, 1995).**

Purpose of study

The purpose of this study was to investigate if instructors in a private aquatic training program score students' optimal readiness differently than those in a community non-profit aquatic training program based on the instructors scoring. In this study, the ARA was utilized for determining an optimal readiness which potentially may lead to a safer aquatic experience for both groups. This comparison was to determine if instructors from a private aquatic training program with the Water Safety Instructor training (WSI) can advance students to the point of optimal readiness to achieve aquatic skills more quickly than instructors from a community non-profit aquatic training program.

Statement of Problem

According to Magill (1988), the key to success in aquatic skill acquisition does not depend on how early an individual student learns the skill, but rather on the student becoming involved when he or she indicates an optimal readiness to learn. Few studies have attempted to provide the link between biological maturation and optimal readiness to learn aquatic skills (Blanksby, 1995; Scurati, 2010).

Both private and community non-profit aquatic training programs focus on aquatic skill improvement, yet there are discrepancies in costs to students, class size, and availability of classes. Private aquatic training programs are typically higher in cost to students than the community non-profit aquatic training programs. Private programs can charge a membership fee and monthly or annual fee to participate (Miller Swim School, 2014). Many of the community non-profit programs are based on student's household income level (YMCA, 2014).

Class size can be a factor as well. Private programs will limit class size to small groups, less than four students or provide individual instruction (Miller Swim School, 2014). Community non-profit programs rarely have groups with less than ten students, and almost no individual training opportunities (YMCA, 2014). Private aquatic training programs offer classes year round (Miller Swim School, 2014), while community non-profit programs are typically seasonal (YMCA, 2014).

Knowing the optimal readiness indicators for a student's readiness to learn is valuable to parents who enroll their children into swimming programs. While parents may be eager for their children to learn aquatic skills, children may be most successful when they indicate optimal readiness to gain those skills (Scurati, 2010; Smoll, 1988).

Research Question and Hypothesis

This study was guided by the following research question: do aquatic instructors employed at a private aquatic facility score learner readiness differently than instructors employed at a community non-profit facility over a 3-week swim class? Utilizing a convenience sample pre-posttest between/within design, this study identified and compared the instructor's score of optimal readiness of the students to learn aquatic skills between private and community non-profit aquatic training programs. To determine the effectiveness of a private aquatic training program vs. a community non-profit aquatic training program, the researcher used the ARA component checklist. There will be a three-week lapse between the pre and post testing.

Null Hypothesis: There is no difference in the instructor's scores of student readiness in a private aquatic training program versus a community non-profit aquatic training program over a three-week swim class.

Alternative Hypothesis: There is a difference in the instructor's scores of student readiness in a private aquatic training program versus a community non-profit aquatic training program over a three-week swim class.

Significance of Study

Students' optimal readiness to learn has been employed by children and youth sports organizations to determine their potential ability to succeed (Brady, 2004). A student is optimally ready to learn a skill only when the student's maturation level, past experiences, and motivation to learn coincide.

The significance of this study lies in its determination of whether similarly trained, but differently employed, aquatic instructors score optimal readiness among their students in the same manner and whether those students are equivalently prepared for aquatic experiences when examining a private aquatic training program vs. a community non-profit aquatic training program. Both the community non-profit and private aquatic training programs hire American Red Cross certified Water Safety Instructors (WSI) to instruct and score their aquatic training programs. The private aquatic program instructs each WSI a specific way to score each aquatic movement or skill. Each instructor scores each student in the same manner and same way. The community non-profit aquatic program does not typically do the additional training. The WSI is given the curriculum and assigned a group. Each instructor scores each student the aquatic movement or skill in a way that may not be consistent from student to student, or aquatic movement or skill to aquatic movement or skill.

Definition of Terms

Magill's Optimal Readiness Theory – a theory asserting there is the time in life when one is most favorable ready to learn a given skill (Smoll, Magill, and Ash, 1988).

Aquatic Readiness – the time in life when one is most favorably ready to approach and engage in the aquatic environment (Humphries, 2009).

ARA – An instrument for measuring aquatic readiness. The Aquatic Readiness Assessment Checklist consists of nine components: water orientation and adjustment, water entry, breath control, buoyancy, body position, arm propulsion, arm recovery, leg action, and combined movement (Langendorfer, 1995). These components are identified as follows (Langendorfer, 1995).

1. Water orientation and adjustment – a student’s reaction to initial entry into the water.
A student’s orientation and adjustment to the water can change in a regular ordered sequence from strong debilitating fear to no reluctance or fear.
2. Introduction to the water environment – a phase that ensures the student is able to be comfortable in the water and perform actions that will cause water to be on their face and around their mouth in a safe manner.
3. Water entry – a student’s willingness to voluntarily enter the water without assistance. The prerequisite is the ability to stand independently. Water entry patterns change in a regular ordered sequence from no entry without assistance to entry with sustained flight.
4. Breath control – breath control is a reflexive action of the automatic closing of a person’s epiglottis. Breath control patterns change in a regular ordered sequence from reflexive breath holding to repeated rhythmic breaths during stroking.
5. Buoyancy – a student’s support of his or her own body. Buoyancy patterns change in a regular ordered sequence from supported buoyancy to sustained relaxed float with no movement in prone or supine position.
6. Body position – the position of a student’s body in the water. Body position patterns change in a regular ordered sequence from vertical (90° to 45° from horizontal) to horizontal in both prone and supine positions (0° to 10° from horizontal).
7. Arm actions (including arm propulsion and arm recovery) – a student’s aquatic arm propulsion; may, at first, be reflexive arm movement. Arm action patterns change in two regular ordered sequences: the first focuses on the change in propulsion patterns from no action to using the arms like paddles to using the arms to produce lift like a

- propeller or airfoil. The second sequence focuses on the shifts in recovery patterns from no action to underwater recovery to straight- and bent-elbow overarm recovery patterns.
8. Leg actions – a student’s aquatic leg movement. Leg action patterns change in a regular ordered sequence from reflexive “cigarette lighter” movements to advanced formal stroke leg actions such as straight-leg flutter kick, whip kick, scissors kick, or dolphin kick.
 9. Combined movement – the combined interactive effect of body position, arm actions, leg action, and breath control. Combined swimming movement patterns change in a regular ordered sequence from rudimentary dog paddle to advanced formal strokes.

Assumptions

1. It is assumed that students grouped homogeneously based on results of a pre-test using the ARA and facility they are attending was accurately executed.
2. It is assumed that each instructor volunteered to participate in the study and accepted the contractual terms without coercion.
3. It is assumed that the same instructors provided feedback on the pre- and three-week post-test ARA for the same students without bias.

Limitations

The following limitations have been identified as restrictions to the study narrowing the generalizations made as a result of data collected.

1. The study did not control the differences in instruction scoring methods in the private or community non-profit aquatic facilities.

2. This study was limited to two aquatic training facilities and only represents one hundred twenty students in Tulsa, OK
3. This study was limited to a three week assessment period for the instructors limiting the learning time for the aquatic participants.
4. Variables that were not included in this study may be responsible for student growth noted on the ARA.
5. The private aquatic training center limits four students per training group; the community non-profit had as many as ten students in a group.
6. This study did not control the level of experience of instructors within the aquatic training program setting.

Summary

Students have typically been categorized as “ready” or “not ready” to achieve specific milestones based upon their biological age rather than their willingness to participate in or gain knowledge of a new skill. This assumption has continued to permeate the area of aquatic training. However, a more effective indicator of aquatic readiness can be determined by examining the maturation, motivation, and prior experience of a student. Utilizing the Optimal Readiness Theory and the ARA instrument, this study will examine whether aquatic instructors employed at a private aquatic facility scored readiness differently than instructors employed at a community non-profit facility over a 3-week swim class. This study specifically examined a private aquatic training program in Tulsa, Oklahoma and compared it to a community non-profit aquatic training program in the same city.

This study is significant because Oklahoma has the third highest drowning rate nationwide. Research has indicated that participation in an aquatic training program can affect the drowning rate among students. This study provided information as to which aquatic training program – private or community non-profit – better equips students to develop aquatic skills. In addition, this study linked the ARA method of scoring optimal readiness with Magill's (1988) Optimal Readiness Theory.

As a result, this study should enable the researcher to make recommendations to specific (private or community non-profit) aquatic training programs in order to affect the consistency of the scoring by instructors with regard to optimal readiness. More research in the area of aquatic training and skill development should be conducted to further determine the importance of optimal readiness in the area of aquatic training and the effectiveness of this model on aquatic skill acquisition.

CHAPTER II

REVIEW OF LITERATURE

Pragmatism

Pragmatism is a philosophy supported by John Dewey and William James. Melles (2008) described pragmatism as utilizing individual action and experience in the world as the most realistic basis for decision-making. Pragmatism relating to learning includes learn through play and interest-oriented experience or learning. Brady (2004) studied the high drop-out rate in youth sports and stated that participants in his study unanimously identified intrinsic motives of having fun, learning skills, testing one's abilities and experiencing personal accomplishments.

Purcell (2005) stated that participation in a sport such as swimming, should be aimed at the developmental level of the participants so that they enjoy being physically active. However, determining that necessary developmental level is more challenging than simply accepting the given age range of suggested participation during childhood. Smoll, Magill and Ash (1988) further stated that motivation and prior experiences are added to physical ability to form a threefold test of a child's readiness to acquire new skills.

Readiness

Current research about readiness theories has examined adult behavior and has been generally limited to the elimination of unwanted behaviors in willing adults, including smoking cessation, eating disorders, and anger management.

Courneya (1995) utilized the Transtheoretical Model to observe health behaviors in individuals and its subsequent effectiveness. The researcher utilized a self-evaluation to determine readiness. The researcher determined that individuals typically fall into one of five categories of readiness when applied to modification of a behavior which one was ready to end. The study indicated that intention, perceived behavioral control, and attitude all had direct relationships with stage of readiness.

Geller and Brown (2008) examined adolescents with eating disorders and their readiness to modify behavior. The researchers concluded that adolescents feel more pressure to change certain behaviors before they are ready, which contributes to high recidivism and dropout. In addition, with this and many similar behaviors, subjects rarely present voluntarily for treatment or desire cessation as a result of internal motivation which limits the effectiveness of self-evaluation.

Armenakis' Readiness Theory has been used to address organizational readiness for change. Primarily, the Readiness Theory has been used to assess corporate structure and the willingness of a group to move toward change. In addition, studies have supported the use of this theory to eliminate negative behaviors in willing adults, including smoking cessation, eating disorders, and anger management (Courneya, 1995; Prochaska, 2006).

By contrast, studies regarding motivation in children are largely focused on learning and motivation to acquire new skills. Chen (2012) declared that children who believe they are capable of participating in a new activity will more likely choose to participate in that activity during leisure times. In contrast, if children doubt their ability, their self-motivation may decrease; yet that motivation can be significantly affected by a parent, teacher or coach. Corpus, McClintic-Gilbert, and Hayenga (2009) claimed that a child's intrinsic motivation decreases as the biological age increases. In addition, the researchers found that children who are intrinsically motivated tend to engage the material, enjoy the process of discovery, and utilize deep learning strategies which result in learning and achievement. Additionally, Hayenga and Corpus (2010) concluded that extrinsic motivation has been negatively associated with acquiring new skills.

Optimal Readiness

The Optimal Readiness Model states that the key to success in development does not lie in how early a participant gets involved in a particular activity, but rather the correct timing that focuses on the period of optimal readiness. What some swimming instructors may interpret as poor skill or lack of future potential may actually be a lack of optimal readiness (Smoll, 1988).

Optimal readiness is heavily dependent upon motivation as a factor. Magill (1988) defines motivation as a state of being energized to engage in an activity. Ausubel (1968) proposed that simply introducing the participant to an activity may increase the motivation to learn the new skill and foster the interest necessary to produce the intrinsic value that promotes motivation. However, Aicinena (1992) indicated that a participant should express a desire to participate in an activity and that expression should be

independent of external influence. Pierce, Cameron, Banko, and So (2003) concluded that once participation in an activity is initiated, rewarding students for meeting a graded level of performance will increase their intrinsic motivation. Abuhamdeh and Csikszentmihalyi (2012) agreed that a participant will be intrinsically motivated by a balance of challenges and skills. Aicinena (1992) further proposed that family, particularly siblings, and peers had a great effect on an individual's motivation to participate. A participant with a sibling or friend who participates in the activity will demonstrate a higher level of motivation to attempt the activity.

Maturation, also referred to as developmental age, is another important factor in determining readiness in a participant. While developmental age or maturation is significant, it often does not correspond with chronological age. Purcell (2005) discussed that sport readiness involves the evaluation of the participant's cognitive, social and motor development to determine ability and maturation. In addition, Malina (1988) discussed the connection of maturation and motivation. Malina (1988) stated that "both biological and social factors contribute to the development of athletes beginning very early in life" (Smoll, 1988). Also, Malina (1988) determined that while "training" for a sport can affect bone, tissue and fat content; there is no influence on stature, skeletal or sexual maturity in a child's development. Therefore, he concludes that participation shouldn't be determined by biological age rather by maturation displayed. Langendorfer (1995) agreed that age is a very poor predictor of when a child can learn to swim or perform any motor skill and maturation should therefore drive the decision regarding a child's participation in an activity. Rogers, Morris, and Moore (2008) concluded that better learning with less training will result when the child's maturation level is adequate

for the skill to be learned. Choi, Seongkwan and Jinyoung (2013) confirmed this conclusion and stated that evidence indicates that the key to success in sport lies in the child getting involved when he or she is optimally ready to get involved.

The third element of Magill's Optimal Readiness Model is prior experiences. Magill (1988) states that evidence exists that early exposure versus early deprivation contributes to differences in skills as varied as violin training and infant swim programs. Although neither program encouraged the instruction of either violin or swimming, the research encouraged the introduction of violin music and water play. Equally as important as maturation or motivation, prior experiences may be the easiest element to manipulate. Without engaging in formal education, a child should be exposed to environments or experiences that will foster the knowledge of the desired skill acquisition. Stodden, Langendorfer and Gao (2013) found some indication that a child's knowledge of a sport may have an effect upon their ability to learn motor skills related to those sports. Additionally, Smith, Smoll and Cumming (2007) determined that the knowledge base of children may be an important factor in the execution of motor skills.

Skill acquisition

Thomas, French, Thomas and Gallagher (1988) indicate that an obstacle to skill acquisition is sport-specific knowledge. A participant must understand the goals and sub goals of the game or activity to make appropriate decisions concerning what action to perform. In acquiring skills, Matveyev (1994) stated that the optimal combination of both general skills, also known as indirect factors which help promote progress, and specific skills, or sport-specific factors, work in tandem to promote skill acquisition in sports such as track and field, weightlifting and swimming. The instructor must provide the

opportunity to experience both general and specific exercises to grow the participant's skill set.

Seefeldt (1982) states that skills must be acquired in an orderly sequence to equip participants to move to the next stage of development (Smoll, 1988). Seefeldt (1982) further stated that the responsibility for the provision of prior experiences lies with the teacher. While the variable of instructor influence may be difficult to measure, the conclusion is that the ability to learn motor skills is no longer solely attributable to the maturational level that the participant brings to the task. In order to perform at a skillful level, a participant must have the necessary link between the cognitive and motor skills. Consequently, classification by age has little utility for instructors of movement. What must be assessed is the participant's optimal readiness to acquire sport-specific skills (Smoll, 1988).

Aquatic readiness

Langendorfer (1995) emphasized the importance of aquatic readiness which is the concept of "optimal readiness" applied to aquatic skills. He advocated that a participant should be taught skills when the participant's behavior indicates that he or she is ready to learn them. According to Langendorfer (1995) aquatic readiness includes foundational skills, attitudes, and understandings that precede the acquisition of more advanced aquatic skills such as swimming strokes and water safety. He calls this process of addressing prerequisite needs as "aquatic readiness". Langendorfer (1995) identifies basic attitudes as lack of fear, respect for rules, eagerness to participate and listening to instruction. To indicate aquatic readiness, a participant must also understand class procedures, pool rules, language of instruction and rules of the games and activities.

Lastly, Langendorfer (1995) identified fundamental motor skills that indicate aquatic readiness, including: water entry, water buoyancy, breath control, water balance, leg and arm movements.

Aquatic skill acquisition

There are many factors parents must consider when deciding when their child is ready to participate in swimming lessons. Children must indicate they possess certain qualities. Children must be mentally ready, physically able and emotionally willing to successfully participate in swimming lessons. Other factors parents may consider before starting swimming lessons for younger children include frequency of exposure to water, emotional maturity, physical limitations, and health concerns related to swimming pools (i.e., swallowing water, infections, pool chemicals) (Swimming Pool Safety, 2012). The child motor development literature demonstrates that changes in motor skills are not age-determined, but only age-related. In addition, the National Association for the Education of Young Children distinguishes between “age-appropriate” and “individual appropriate” participation practices in order to reinforce the wide range of individual differences that exist among young children (Swimming Program for Infants and Toddlers, 2002). The YMCA of the USA states that the rate of optimum age of skill acquisition is not and should not be the primary concern (Swimming Program for Infants and Toddlers, 2002). The American Academy of Pediatrics (2010) recommends that parents consider factors such as frequency of exposure to water, potential health concerns, emotional maturity and physical limitations when deciding at what age their child should commence water survival skills or swimming lessons (Blitvich, Moran, Petrass, McElroy and Stanley, 2012).

Stephen J. Langendorfer and Lawrence D. Bruya (1995) developed the Aquatic Readiness Assessment (ARA) to fill a void they thought existed in the area of aquatic measurements. This instrument has been utilized over the years in numerous studies. For example, Kjendlie and Mendritzki (2012) used this instrument to examine movement patterns in free water play after swimming lessons with flotation aids. Costa *et al.* (2012) used this instrument to examine the deep and shallow water effects on developing aquatic skills. One specific characteristic that set apart the ARA was that it assessed water orientation and adjustment. Prior to this, researchers had acknowledged the need for water orientation and adjustment but assumed students began the aquatic training program already possessing these components (Langendorfer, 1995). The ARA added these components to the formal assessment checklist. Proper administration of the ARA included observing multiple trials and in varying conditions to achieve satisfactory results. In addition, administrators must have established an adequate level of objectivity. Objectivity meant general agreement both with other instructors and within the single instructors on different occasions. Agreement of a score of twenty-seven or higher on the ARA is required for a student to be considered successful on the ARA. The ARA required no additional equipment outside of a body of water, instructor and student. In addition, Langendorfer encouraged video documentation of students who are assessed to further validate objectivity and reliability of the instrument.

The instrument was not intended to have age norms. Norms often have been misused to compare students with other students of a same chronological age (Langendorfer, 1995). The ARA is meant to be used not to compare students with other students but to assess an individual student's progress.

As described earlier, the ARA has nine components that have scores ranging from one to three, one to four and one to five. With the different scores for each component, the sum of twenty-seven was calculated to determine the minimum score required to advance to stage two of aquatic skill training. Each component was tested individually to determine validity and reliability, significance was based on $p < .05$ (Costa et al., 2012).

The components of the ARA include:

A. Water Orientation and Adjustment

A student's orientation and adjustment to the water can change in a regular ordered sequence from strong debilitating fear to no reluctance or fear. Students will be observed to assess their reaction to initial entry into the water. A student who is reluctant to enter the water is categorized as level one. A student who lacks reluctance receives the advanced level three rating (refer to Table 1).

Table 1

Water Orientation and Adjustment Component of the Aquatic Readiness Assessment

Level Name	Decision rule
1. No voluntary entry; demonstrates fear of the water	Obvious expressions of fear including crying or refusal to enter water.
2. Voluntary entry with hesitancy but minimum fear of the water	Expressions of reluctance to enter water but can be coaxed; interferes with movement, entry, and submersion activities.
3. Voluntary entry with no fear of the water	No overt expressions of fear or reluctance and no interference with performance of any aquatic skills.

Note. Adapted from Costa et al. (2012) and Langendorfer and Bruya (1995).

B. Water Entry

Water entry patterns change in a regular ordered sequence from no entry without assistance to entry with sustained flight. Initially, student will not enter the water voluntarily indicating level one. Students will then progress to assisted feet-first then unassisted feet-first. Finally, students will demonstrate assisted headfirst then unassisted headfirst or level five. (refer to Table 2)

Table 2

Water Entry Component of the Aquatic Readiness Assessment

Level Name	Decision rule
1. No voluntary entry	Participant either refuses to enter or cannot enter the water without assistance.
2. Assisted feet-first entry	Participant enters water using support of another person to climb, slide, or jump into water, with feet the first body part that enters the water.
3. Unassisted feet-first entry	Participant enters water with feet contacting first with no visible physical support by adult.
4. Assisted head-first entry	Participant enters water touching hand, arms, head, or chest to water first, while an adult maintains physical support or contact.
5. Unassisted head-first enter	Participant enters water without support and makes initial water contact with hands, arms, head, or chest.

Note. Adapted from Costa et al. (2012) and Langendorfer and Bruya (1995).

C. Breath Control

Breath control patterns change in a regular ordered sequence from reflexive breath holding to repeated rhythmic breaths during stroking. Level one is achieved when a student's epiglottis automatically closes when the face is submerged. A student who displays extended breath holding and/or rhythmic breathing with stroke receives the advanced rating of level five (refer to Table 3).

Table 3

Breath Control Component of the Aquatic Readiness Assessment

Level Name	Decision rule
1. Reflexive breath holding	Participant holds breath “automatically” when face is covered by water.
2. Spitting or sipping	Participant voluntarily takes water into mouth and can expel it.
3. Voluntary face submersion	Participant permits part of face to get wet by either splashing or partial submersion and holds breath briefly (1-4 seconds).
4. Repeated breath holding	Participant can repeat submersion and breath holding while in water.
5. Extended breath holding and/or rhythmic breathing with stroke	Participant can submerge and hold breath for 5 or more seconds <i>or</i> child combines breathing with stroking in a rhythmical manner for 5 or more seconds.

Note. Adapted from Costa et al. (2012) and Langendorfer and Bruya (1995).

D. Buoyancy

Buoyancy patterns change in a regular ordered sequence from supported buoyancy to sustained relaxed float with no movement in prone or supine position. A student who does not allow the water to buoy their body is rated as level one. Levels two and three include various degrees of adult support and a student who achieves floatation with water support only receives the highest rating of level four (refer to Table 4).

Table 4

Buoyancy/Floatation Checklist

Level Name	Decision rule
1. No floatation	Participant does not permit water to buoy body up; shows fear.
2. Floatation with assistance	Participant will maneuver in water with direct support of adult or facility.
3. Floatation with support	Participant floats in water while supported by floatation device or minimal adult assistance.
4. Unsupported floatation	Participant maintains floatation using water support only.

Note. Adapted from Costa et al. (2012) and Langendorfer and Bruya (1995).

E. Body Position

Body position patterns change in a regular ordered sequence from vertical (90° to 45° from horizontal) to horizontal in both prone and supine positions (0° to 10° from horizontal). Levels one to four include a graduation from vertical, level one, to horizontal, level four (refer to Table 5).

Table 5

Body Position Checklist

Level Name	Decision rule
1. Vertical	Trunk 90° to 45° from horizontal surface
2. Inclined	Trunk 44° to 20° from horizontal
3. Level	Trunk 19° to 10° from horizontal
4. Horizontal	Trunk maintained less than 10° from horizontal

Note. Adapted from Langendorfer et al. (1987) and Wielki and Houben (1983).

F. Arm Actions

Arm action patterns change in two regular ordered sequences: The first focuses on the change in propulsion patterns from no action to using the arms like paddles to using the arms to produce lift like a propeller or airfoil. The second sequence focuses on the shifts in recovery patterns from no action to underwater recovery to straight- and bent-elbow overarm recovery patterns. The two sequences are observed and rated separately. For Arm Propulsion, four levels exist, from level one with no arm action to level four where lift propulsion should be evident. The second sequence, Arm Recovery, contains

five levels. Level one students, again, show no arm action. Students rated at level five demonstrate bent-elbow overarm recovery action (refer to Table 6 and Table 7).

Table 6

Arm Propulsion Action Checklist

Level Name	Decision rule
1. No arm action	Arms not used in propulsive action they either hand at the side or extend forward.
2. Short downward push	Arm pushes downward rapidly with virtually no backward pulling action; action is short and rapid with little propulsive action.
3. Long push-pull paddle	Arm action initially is downward push, followed by backward pull with are extension.
4. Lift Propulsion	Arm enters water by driving forward, catching and pulling backward with and “S” pull action, “high” elbow, and rapid backward acceleration; main propulsion is life rather than paddle action.

Note. Adapted from Costa et al. (2012) and Langendorfer and Bruya (1995).

Table 7

Arm Recovery Action Checklist

Level Name	Decision rule
1. No arm action	Arms show no recovery motions during swimming.
2. No overwater recovery	Arms make all recovery actions under the surface of the water; may be either alternate or bilateral actions between arms. Arms come above the water surface either only briefly or part way through the recovery.
3. Rudimentary overarm	Arms are fully or mostly extended at the elbow throughout the overwater recovery beyond 150°. Palm of hand strikes water first.
4. Straight overarm	Elbow recovers out of water first and is highest arm point throughout much of recovery with flexion ranging from 90° to 130°. Thumb side of hand and fingers enter water first.
5. Bent-elbow overarm	

Note. Adapted from Costa et al. (2012) and Langendorfer and Bruya (1995).

G. Leg Actions

Leg action patterns change in a regular ordered sequence from reflexive “cigarette lighter” movements to advanced formal stroke leg actions such as straight-leg flutter kick, whip kick, scissors kick, or dolphin kick. Student who demonstrate no leg action are rated at a level one. Scores vary upward to a final level five which is indicated by a straight-leg flutter action (refer to Table 8).

Table 8**Leg Action Checklist**

Level Name	Decision rule
1. No leg action	No leg motion is apparent.
2. Plantar-push “bicycling”	Alternation flexion-extension of hips and knees with flexed ankles – sole of foot is propulsive surface against water.
3. Rudimentary flutter	Alternating flexion-extension at knee with toes pointed and some hip flexion. Knee flexion exceeds 90° maximum flexion.
4. Bent-knee flutter	Alternating flexion-extension of legs with knee flexion less than 90°.
5. Straight-leg flutter	Alternating flexion-extension of legs with knee flexion less than 30°.

Note. Adapted from Costa et al. (2012) and Langendorfer and Bruya (1995).

H. Combined Movement

Combined swimming movement patterns change in a regular ordered sequence from rudimentary dog paddle to advanced formal strokes. This final component contains indicators from each of the prior components with five levels of rating. Level one student indicates no independent locomotive movement. Beginners who show a front stroke with lower level leg and arm action are rated at a level three. The advanced level of five is given to participants who indicate an advanced formal stroke with horizontal body position and defined leg, arm and breath patterns (refer to Table 9).

Table 9**Combined Movement Checklist**

Level Name	Decision rule
1. No locomotor behavior	Participant is unable to locomote independently in water.
2. Dog paddle	Front stroke is characterized by plantar push or rudimentary flutter kick, circle downward arms, and vertical or inclined body position.
3. Beginner or human stroke	Front stroke is characterized by bent-knee flutter kick, pull-push arms, and inclined body position. Rotary breathing optional.
4. Rudimentary crawl	Front stroke is characterized by rudimentary alternating arms with flutter kicking. Breathing pattern may vary.
5. Advanced crawl or other advanced formal stroke	Front stroke with defined arm, leg, and breathing patterns, usually with horizontal body position.

Note. Adapted from Costa et al. (2012) and Langendorfer and Bruya (1995).

Community Non-Profit Aquatic Training Programs

According to Kjendlie and Mendritzki (2012) aquatic skill acquisition is crucial for water safety. While other prevention strategies can be employed, Kjendlie and Mendritzki (2012) stated that learning a variety of aquatic skills will reduce the risks associated with drowning. The American Red Cross (ARC) has a very popular program for swim lessons that has been widely accessible since 1914 (Vontroba, 2011). The Young Men's Christian Association (YMCA) (2014) also offers a highly utilized

program of swim instruction with numerous facilities available nationwide. In addition, some communities have addressed the need for aquatic skill acquisition by offering free lessons. Programs like the ARC and the YMCA focus on teaching swimming readiness skills whereas other community non-profit programs limit instruction to water survival skills. In addition, most community programs include a component that addresses character development of citizenship skills.

Private Aquatic Training Programs

Private facilities that offer aquatic skill acquisition are less numerous than community non-profit facilities. Swim America (Swim America, 2014) operates learn-to-swim programs globally. While Swim America does offer learn-to-swim instruction, the program additionally trains coaches to look for stroke mechanics and identify participants who indicate a propensity for talent and might benefit from inclusion on swim teams and competition. Infant Swimming Resource (2014) focuses on teaching infants to roll onto their backs and scream for help. This program requires intense training for instructors and boasts a hefty cost thereby limiting students (Vontroba, 2011). In the researcher's home state, there are only four private facilities available allowing for limited access (United States Swim School Association, 2014).

Community Non-Profit vs. Private Aquatic Training Programs

Both community non-profit and private aquatic programs seek to increase aquatic skill acquisition; however, there are distinct differences in cost of participation, class size, and the availability of classes.

Community non-profit programs typically have minimal cost to participate often based on income. New York City Parks offers free lessons, but selection is based upon a lottery system and courses are offered only sporadically throughout the year (NYC Parks, 2014). The YMCA pricing is based upon membership. Membership fees are determined by income level and membership includes swim lessons along with other amenities (YMCA of greater Tulsa, 2014). As a result, there is difficulty in determining cost equivalency to private instruction. Classes are a ten to one ratio, focusing on group-, rather than individual-instruction. The ARC (Eastern Oklahoma Red Cross, 2014) offers a similar program to the YMCA, but additionally offers certification courses for lifeguards and swim instructors. The YMCA focuses on learn-to-swim courses while the ARC has increased the higher level skill acquisition courses leading to certification of the student. Within the class curriculum, both the YMCA and the ARC include aspects of character development which is another component unique to public aquatic programs. Community non-profit programs often face the challenge of facility availability. Most community non-profit pools are outside thereby limiting access to the warmer months. If a facility has an indoor pool, it is often shared with open-swim times and classes often share the pool with other classes. Class times are pre-determined and flexibility for an individual within the schedule is lacking. The YMCA (2014) offers classes based upon five skill levels, moving participants through with no minimum number of hours suggested, but a minimum age range. ARC (2014) indicates six levels of aquatics ranging from introduction to the aquatic setting to swimming and skill proficiency. ARC also suggests a minimum age range, but also provides parent and child aquatics for participants under the minimum age range (American Red Cross, 2014).

By contrast, private programs are contained within their own facility so more control is available. Private facilities boast smaller class ratio. Miller Swim School in Tulsa, OK offers a four to one ratio (Miller Swim School, 2014). Infant Swim Resource offers one-on-one instruction in the setting of the student's choice (Infant Swimming Resource, 2014). Swim America (2014) offers both lessons at their facility and lessons at the facility of the student's choice: private pool, neighborhood pool, or other facility (TeamUnify, 2014). The student is also allowed to choose the size of the class, from individual to group settings. In addition, each of these private facilities is self-contained and indoor, so classes are available year round at a variety of times throughout the week. Public access is restricted which can be appealing to more reluctant students. Robertson (2010) found that fifty-nine percent of learn-to-swim programs utilize their own facility, but did not delineate between dedicated (private) and shared (community non-profit) facilities. While the YMCA (2014) utilizes their own facility, they share the pool among activities and offerings. Miller Swim School (2014) grades students into eight levels with actual swim strokes not being introduced until level three. The cost includes a \$25 enrollment fee; then \$60 for four lessons. The goal of Swim America (2014) is to move students through their program in anticipation of developing competitive swimmers. They offer learn-to-swim lessons, but focus more on the higher level students. The competitive costs for participation vary from \$465/year for novice students and a one year contract to \$810/year for older, more experienced swimmers and a one year contract. The most cost-prohibitive are private one-on-one instruction.

Water Safety Instructor

Water Safety Instructor is a certification provided by the American Red Cross. The requirements for certification include: Candidates must be 16 years of age or older before the completion of the class. Candidates must possess a current Fundamentals of Instructor Training (FIT) certificate which is often included in WSI training. Candidates must be of mature and dependable character. Successfully demonstrate swimming the following strokes: Front Crawl - 25 yards, Backstroke - 25 yards, Breaststroke - 25 yards, Sidestroke - 25 yards, Butterfly - 15 yards. Water Safety Instructor candidates must attend every session at the times listed by the facility. Attendance in the course does not guarantee Water Safety Instructor certification. Candidates must pass written and practical exams (www.redcross.org).

The curriculum used by the American Red Cross is presented in the Water Safety Instructor's Manual. The manual is divided into five separate parts, A-E. The five parts comprise the following content:

A. Administration – incorporates the duties of the WSI in developing and managing the courses and certifying the students.

B. Learning Theory – discusses various types of learning and teaching principles to utilize during the instruction portion of the course.

C. Course Planning – provides details regarding planning lessons and managing the curriculum including daily, weekly and course-long lesson samples. This section also discusses water safety and different learning styles of participants along with focusing on individuals with disabilities.

D. The Courses – this section contains the specifics of the requirements of instruction and the skill requirements for students to obtain the various levels of achievement. The manual includes parent-child classes, preschool aquatics, and learn-to-swim techniques. The skill level varies from beginner parent-child courses through skilled diving and fitness swimming.

E. Teaching Water Safety – this section outlines the courses that deal specifically with water safety including all types of water environments including home pools and ocean experience.

CHAPTER III

METHODOLOGY

Selection of Participants

A convenience sample of students was utilized from a private aquatic program as well as a community non-profit aquatic program. As mentioned before the research question asks: if a student in a private aquatic training program may reach optimal readiness more quickly, when compared to that of a community non-profit aquatic training program. Therefore the null hypothesis would suggest there is no difference in the instructors' scores of students' optimal readiness to learn aquatic skills between students from a private aquatic training program and a community non-profit aquatic training program. The alternative hypothesis suggests there is a difference in the instructor's scores of student's optimal readiness to learn aquatic skills between students from a private aquatic training program and a community non-profit aquatic training program. The data was collected over a three week period, during the month of June, 2014, in two separate facilities: a private aquatic center and a community non-profit aquatic center, both the same southwestern city. Facilities were selected because each had the largest number of students attending their aquatic training programs in Tulsa, which made it easy for the researcher to gather data and each facility's willingness to participate in the study.

There were ten instructors responsible for scoring the ARA, five at the private aquatic center and five at the community non-profit centers. All instructors were WSI certified and were above the age of eighteen years old. The instructors and the facility type (private or community non-profit) were used as a convenience sample, according to the facility in which they worked. The instructors were divided into two groups, based on the aquatic training center at which they taught lessons.

For this study, there were one hundred twenty students ($n=120$) scored by the ten instructors using the ARA. The students were divided into two groups, according to the aquatic training center they attend for lessons (private vs. community). Sixty students from each aquatic training center, private or community non-profit were assessed using the ARA. Instructors scored the first sixty students in each facility which were tested and scored below twenty-seven on the ARA, which assigned them to the stage one aquatic training program. This assured that all students began at the same aquatic skill level.

The progress of each student for both facilities was scored by the ARA checklist (refer to Appendix A) (Costa et al., 2012; Langendorfer and Bruya, 1995). Murcia and Perez's (2008) research demonstrated that male and female motor and cognitive development are similar; they will be combined in the study. The facilities and instructors will be asked to sign a consent form (refer to Appendix B) to participate in this study. The research design, methodology employed, and the contact with the sample were subject to approval by the Oklahoma State University Institutional Review Board for protection of human subjects.

Research Design and Variables

A convenience sample pre-posttest between/within students design was utilized for this study. Instructors who met the study criteria and agreed to participate in the study did so by signing a consent form (refer to Appendix B). Instructors were provided the ARA instrument to collect data from the students. A script (refer to Appendix C) was provided to the aquatic center directors to discuss and describe the nature of the study as well as what would be required from the instructors' ARA optimal readiness scores (dependent variable) and facility (independent variable), with instructors (intermediate variable) .

Instrument

The students in this study were scored using the ARA checklist (see Appendix A), based on the original model from Langendorfer et al. (1987) and modified by Costa et al. (2012). Langendorfer and Bruya (1995) proposed to divide each aquatic skill into levels ranging from one-three, one-four and one-five to signify the increasing complexity of each accomplishment (Costa et al., 2012). On the ARA, if a student can perform a skill at level one, then the student is deemed unable to accomplish the aquatic skill. Level two or three signifies the student can accomplish rudimentary movements of the aquatic skill, and at level three or four or five the student demonstrates the fundamental movements required to advance to the next stage of aquatic skill training. Instructors totaled the scores by adding levels achieved in the nine aquatic readiness assessment categories. Langendorfer and Bruya (2012) suggest that eighty percent or four out of five instructors in the facility, private or community non-profit, must score the student twenty-seven or

above, on the ARA, to advance the student to stage two of aquatic skill training. Students who score below twenty-seven on the ARA, by two or more instructors, will not advance to stage two. The students were allowed three attempts at each aquatic skill during the pre-test and post-test scoring.

The aquatic skills scored by instructors were the following:

- Water orientation and adjustment component (refer to Table 1) level one – unable, level two – rudimentary, level three – fundamental
- Water entry component (refer to Table 2) level one – unable, levels two & three – rudimentary, levels four & five – fundamental
- Breath control component (refer to Table 3) level one – unable, levels two & three – rudimentary, levels four & five – fundamental
- Buoyancy/floatation checklist (refer to Table 4) level one – unable, levels two & three – rudimentary, level 4 – fundamental
- Body position checklist (refer to Table 5) level one – unable, levels two & three – rudimentary, level four –fundamental
- Arm propulsion action checklist (refer to Table 6) level one – unable, levels two & three – rudimentary, level four – fundamental
- Arm recovery action checklist (refer to Table 7) level one – unable, levels two & three – rudimentary, levels four & five – fundamental
- Leg action checklist (refer to Table 8) level one – unable, levels two & three – rudimentary, levels four & five – fundamental

- Combined movement checklist (refer to Table 9) level one – unable, levels two & three rudimentary and levels four & five - fundamental.

Water Orientation and Adjustment

A student's orientation and adjustment to the water can change in a regular ordered sequence from strong debilitating fear to no reluctance or fear. Students were observed to score their reaction to initial entry into the water. A student who was reluctant to enter the water was categorized as level one. A student who lacked reluctance or was openly willing to enter the water received the advanced level three rating (refer to Table 1).

Water Entry

Water entry patterns change in a regular ordered sequence from no entry without assistance to entry with sustained flight. Initially, students will not enter the water voluntarily indicating level one. Students will then progress to assisted feet-first then unassisted feet-first. Finally, students will demonstrate assisted headfirst then unassisted headfirst or level five (refer to Table 2). These criteria were used to score students' behavior in the study.

Breath Control

Breath control patterns change in a regular ordered sequence from reflexive breath holding to repeated rhythmic breaths during stroking. Level one is achieved when a student's epiglottis automatically closes when the face is submerged. A student who displays extended breath holding and/or rhythmic breathing with stroke receives the advanced rating of level five (refer to Table 3). These criteria were used to score students' behavior in this study.

Buoyancy/Floatation

Buoyancy patterns change in a regular ordered sequence from supported buoyancy to sustained relaxed float with no movement in prone or supine position. A student who does not allow the water to buoy their body is rated as level one. Levels two and three include various degrees of instructor support and a student who achieves floatation with water support only receives the highest rating of level four (refer to Table 4). These criteria were used to score students' behavior in this study.

Body Position

Body position patterns change in a regular ordered sequence from vertical (90° to 45° from horizontal) to horizontal in both prone and supine positions (0° to 10° from horizontal). Levels one-four include a graduation from vertical, level one, to horizontal, level four (refer to Table 5).

Arm Action

Arm action patterns change in two regular ordered sequences: The first focuses on the change in propulsion patterns from no action to using the arms like paddles to using the arms to produce lift like a propeller or airfoil. The second sequence focuses on the shifts in recovery patterns from no action to underwater recovery to straight- and bent-elbow overarm recovery patterns. The two sequences were observed and rated separately in this study, as is typical for use, the ARA instrument. For Arm Propulsion, four levels exist, from level one with no arm action to level four where lift propulsion should be evident. The second sequence, Arm Recovery, contains five levels. Level one participant, again, show no arm action. Students rated at level five demonstrate bent-elbow overarm recovery action (refer to Table 6 and Table 7).

Leg Action

Leg action patterns change in a regular ordered sequence from reflexive “cigarette lighter” movements to advanced formal stroke leg actions such as straight-leg flutter kick, whip kick, scissors kick, or dolphin kick. In this study, as is typical in using the ARA, students who demonstrated no leg action were rated at a level one. Scores varied upward to a final level five which was indicated by a straight-leg flutter action (refer to Table 8).

Combined Movement

Combined swimming movement patterns change in a regular ordered sequence from rudimentary dog paddle to advanced formal strokes. This final component contains indicators from each of the prior components with five levels of rating. In this study, level one student indicated no independent locomotive movement. Students who showed a front stroke with lower level leg and arm action were rated at a level three. The advanced level of five was given to students who indicated an advanced formal stroke with horizontal body position and defined leg, arm and breath patterns (refer to Table 9).

Data Collection

A questionnaire was used by the instructors to score each student’s aquatic skill level to determine when he/she was ready to advance to stage two of aquatic skill training. The questionnaire was tested prior to the study and was proved to be valid and reliable (Costa et al., 2012; Murcia and Perez, 2008).

All aquatic training sessions were forty minutes in duration, twice a week over a three week period. Students were assessed at the beginning, using the ARA, to determine the stage of aquatic skill training at which they started. The first sixty students at each

aquatic training facility, private vs. community non-profit, that test for stage one were scored by five instructors using the ARA. At the end of the three weeks, student was rescored using the ARA. Those who achieved a score of twenty-seven or higher from the nine categories on the ARA checklist moved to stage two of aquatic skill training, those who do not remained in stage one.

Handling of Data

Every effort was made to assure the confidentiality of the students in the study. The raw data collected by the instructors was assigned identification numbers selected from a table of random numbers. The number assigned was used on both the pre-test and post-test. The data was stored in a locked in a filing cabinet in the researcher's office. Once the study was completed the data was destroyed, ensuring confidentiality.

Analysis of Data

This study used a non-parametric statistical analysis conducted utilizing the SPSS statistical package, with pre-determined alpha set at $p < .05$. A convenience sample pretest between/within participants design was utilized for this study. The specific data analysis techniques was a Mann-Whitney U for the repeated measures between groups, because it is equivalent to the t -test for two independent samples parametric procedure for utilizing rank order data (Gravetter and Wallnau, 2013) or ordered ratings, and Wilcoxon T for the repeated measure within because it also uses rank order data (Gravetter and Wallnau, 2013). This allowed the data analysis to be consistent. A chi-square analysis was used to see if there was a difference in individual scores over the three weeks.

CHAPTER IV

FINDINGS

Summary of the Study

The purpose of this study was to determine whether students in a private aquatic training program may reach optimal readiness more quickly, when compared to students participating in a community non-profit aquatic training program. The null hypothesis of this study proposed no difference in the instructors' scores of the students' optimal readiness to learn aquatic skills between students from a private aquatic training program and a community non-profit aquatic training program. The alternative hypothesis stated, there is a difference in the instructors' scores of students' optimal readiness to learn aquatic skill between students from a private aquatic training program and a community non-profit aquatic training program.

Instructors who met the study's criteria were chosen by the directors of each facility (private or community non-profit) to participate in this study; chosen instructors were grouped by the facility in which they instructed aquatic training programs. A total of ten instructors, five at the private agency and five at the community non-profit agency, were utilized to score students' level of aquatic readiness. The Aquatic Readiness Assessment (ARA) allowed instructors to score students to adequately determine their level of aquatic readiness.

Instructors scored each student in a pretest format to determine the student's aquatic readiness level. Students who scored below twenty-seven as evaluated by two or more of the instructors were placed in level one aquatic training. The first sixty students who scored at level one on the ARA became the group of students at each facility, private or community non-profit. Each student attended six aquatic training lessons over a three week period. Each aquatic training lesson lasted forty minutes in duration.

Students were again scored on the ARA during a posttest at the end of three week period. Students who scored twenty-seven or above by at least 80% of the instructors, or four out of five instructors, advanced to level two aquatic training. Students who still scored below twenty-seven remained in level one aquatic training.

Facility Comparison

One hundred twenty students, sixty at the private agency and sixty at the community non-profit agency, completed the six lessons in a three week aquatic training program. Each student was scored by five instructors using the ARA. Each student was required to score twenty-seven or above on the ARA by at least 80%, or four out of five instructors, to advance to level two aquatic training.

The research question examined was as follows: Do students in a private aquatic training program reach optimal aquatic readiness more quickly, when compared to those in a community non-profit aquatic training program? The null hypothesis of no difference in the instructors' scores of the students' optimal readiness to learn aquatic skills between students from a private aquatic training program and a community non-profit aquatic training program was tested using non-parametric statistics conducted with the SPSS statistical program.

A cross-tabulation and chi-square statistic was utilized to examine and compare the advancing number of students between the private and community non-profit aquatic training program (refer to Table 10).

The private aquatic training program showed thirty-eight students who scored twenty-seven or above on four of the five of the instructors score using the ARA, which advanced the students to level two aquatic training. The twenty-two students who did not obtain at least four instructors' scores of twenty-seven or higher did not advance to level two aquatic training, but were allowed to continue with lessons in the level one aquatic training.

The community non-profit aquatic training program saw forty-seven students score twenty-seven or above on four of the five of the instructors score using the ARA, which advanced the students to level two aquatic training. The thirteen students who did not have at least four instructors' scores of twenty-seven or higher were allowed to continue with lessons in the level one aquatic training (refer to Table 10).

Table 10

Comparison of Student Pass Rates Per Facility

		Advance To Level Two Aquatic Training		Total
		No	Yes	
Facility	Private	22	38	60
	Community	13	47	60
Total		35	85	120

The chi-square was used to test the difference in the pass rate between the private and community non-profit facilities. The analysis indicated there was not a significant

difference in the pass rate between the private facility vs. community non-profit facility at $p \leq .05$ with a result of $p = .071$ (refer to Table 11).

Table 11

Chi-Square Test for Pass Rate per Facility

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.267 ^a	1	.071

The Mann-Whitney U analysis was used to test the change in instructors' scores from pretest to posttest. The analysis indicated a significant difference in the change in instructor's scores at the private facility vs. community non-profit facility at $p \leq .05$ with a result of $p = .046$. There was also a significant difference in the change in instructor's scores within the facility at $p \leq .05$ with a result of $p = .012$ (refer to Table 12).

Table 12

Tests of Change from Pre-test to Post-test per Facility and Instructor

Dependent Variable: Change

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Facility	14.415	1	14.415	4.000	.046
Instructor	46.450	4	11.613	3.223	.012

a. R Squared = .040 (Adjusted R Squared = .025)

Comparison of Instructor's Scores

Statistical analysis indicated there was a significant difference between instructors' scores at the two facilities. The Mann-Whitney U test was used to analyze between groups, private vs. community non-profit facilities, because it uses ordered ratings. The descriptive statistics showed the total mean change from pretest to posttest for all five instructors' scores within the private facility was 6.82 compared to the total

mean change from pretest to posttest for all five instructor's scores within the community non-profit 7.13 overall (refer to Table 13). This considers scoring of all five instructors within each facility and calculates the mean change as a group to show the significant difference in instructors' scores change between pretest and posttest.

To examine the descriptive statistics further, the Wilcoxon test was used to analyze within groups, private vs. community non-profit facilities instructors' scores. Instructor one and two in the community non-profit facility had change scores significantly different from the other eight instructors: three within the community non-profit and five in the private facility. Change in the community non-profit facility of instructor one's score was 8.08 and instructor two's score was 7.10 (refer to Table 13).

Table 13

Change in Scores from Pre-test to Post-test

Dependent Variable: Change

Facility	Instructor	Mean	Std. Deviation	N
Private	1	6.97	1.262	60
	2	6.73	1.351	60
	3	6.82	1.501	60
	4	6.83	1.607	60
	5	6.75	1.410	60
	Total	6.82	1.424	300
Community	1	8.08	1.862	60
	2	7.10	1.848	60
	3	6.77	2.094	60
	4	6.80	2.392	60
	5	6.90	2.967	60
	Total	7.13	2.309	300

The Kruskal-Wallis test was used to conduct deeper analysis within the groups, and calculate the chi-square. The private facility instructor score mean rating range was 143.78 for instructor two to 160.26 for instructor one (refer to table 14). The chi-square indicated this was not significant $p \leq .05$ with a result of $p = .836$ (refer to Table 15), indicating that the instructors in the private facility scored the ARA more consistently as a group.

Table 14

Change in Instructor Score Ratings Within Private Facility

	Instructor	N	Mean Rating
Change	1	60	160.29
	2	60	143.78
	3	60	149.03
	4	60	153.48
	5	60	145.91
	Total	300	

Table 15

Test of Change in Instructor Score Ratings Within Private Facility

	Change
Chi-Square	1.450
Df	4
Asymp. Sig.	.836

When running the same test on the community non-profit facility, the community non-profit facility instructor score mean rating range was 135.36 for instructor three to 180.54 for instructor one (refer to table 16). The chi-square indicated this was a significant difference $p \leq .05$ with a result of $p = .029$ (refer to Table 17), indicating that the

instructors in the community non-profit facility did not score the ARA consistently as a group.

Table 16

<i>Change in Instructor Score Ratings Within Community Non-Profit Facility</i>			
	Instructor	N	Mean Rating
Change	1	60	180.54
	2	60	146.18
	3	60	135.36
	4	60	138.40
	5	60	152.02
	Total	300	

Table 17

<i>Test of Change in Instructor Score Ratings Within Community Non-Profit Facility</i>	
	Change
Chi-Square	10.801
Df	4
Asymp. Sig.	.029

Table 18 indicates the mean change in student ratings for the private facility was 6.82 and the mean change for the community non-profit was 7.13, which is consistent with Table 13 results. Table 10 indicated that thirty-eight of the sixty students in the private aquatic training facility advanced to level two training after the three weeks of lessons, while forty-seven of the sixty students in the community non-profit aquatic training facility advanced to level two after the same amount of training.

Table 18

Instructors' Mean Score for Students at Both Facilities

Dependent Variable: Change

Facility	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Private	6.82	.110	6.61	7.04
Community	7.13	.110	6.92	7.35

Conclusion

These results led the researcher to fail to reject the null hypothesis of this study that there is no difference in the instructors' scores of the students' optimal readiness to learn aquatic skills between students from a private aquatic training program and a community non-profit aquatic training program.

This led the researcher to reject the alternative hypothesis that there is a difference in the instructors' scores of students' optimal readiness to learn aquatic skill between students from a private aquatic training program and a community non-profit aquatic training program.

Ultimately, the statistical findings of this study led the researcher to answer the research question that the private aquatic training program and community non-profit aquatic training program train and advance students at the same rate.

CHAPTER V

DISCUSSION

Introduction

The focus of this study was to determine whether students in a private aquatic training program may reach optimal readiness for advancement to higher aquatic training more quickly, when compared to that of students participating in a community non-profit aquatic training program. The null hypothesis of this study stated, “There is no difference in the instructors’ scores of the students’ optimal readiness to learn aquatic skills between students from a private aquatic training program and a community non-profit aquatic training program.” The alternative hypothesis stated, “There is a difference in the instructor’s scores of student’s optimal readiness to learn aquatic skill between students from a private aquatic training program and a community non-profit aquatic training program.”

Summary of Study

This study involved a private aquatic training facility and a community non-profit aquatic training facility. Instructors who met the study’s criteria were chosen by the directors of each facility (private or community non-profit) and were grouped by the facility in which they instructed aquatic training programs. A total of ten instructors, five at the private and five at the community non-profit were used to score students’ level of

aquatic readiness level. The Aquatic Readiness Assessment (ARA) was used to score students to determine their level of aquatic readiness.

Instructors scored each student in a pretest format to determine the students' aquatic readiness level. Students who scored below twenty-seven on the ARA by two or more of the instructors were placed in level one aquatic training. The first sixty students who scored at level one created the group at each facility, private or community non-profit. Each student attended six aquatic training lessons over a three week period. Each aquatic training lesson lasted forty minutes in duration.

Students were scored during a posttest at the end of the three week study. Students who scored twenty-seven or above by at least 80% of the instructors, or four out of five instructors, advanced to level two aquatic training. Students who still scored below twenty-seven remained in level one aquatic training.

This study employed a non-parametric statistical analysis conducted utilizing the SPSS statistical package version 21 with pre-determined alpha set at $p < .05$. A convenience sample pre-posttest between/within participants design was appropriate for this study. The specific data analysis technique was a Mann-Whitney U for the repeated measures between, because it is equivalent to the t -test for two independent samples parametric procedure for utilizing rank order data (Gravetter and Wallnau, 2013), and Wilcoxon T for the repeated measure within because it also utilizes rating order data (Gravetter and Wallnau, 2013). This allowed the data analysis to be consistent. A chi-square between analyses determined the differences in individual scores of the three weeks.

Discussion of Findings

The question this study posed was: Do students in a private aquatic training program reach optimal readiness more quickly, when compared to students participating in a community non-profit aquatic training program? Visual inspection of the cross-tabulation statistic which was utilized to calculate the advancing number of students between the private and community non-profit aquatic training program (refer to Table 10) shows the private aquatic training program advanced fewer students, thirty-eight out of sixty, than the community non-profit aquatic training program, forty-seven out of sixty. However, the chi-square analysis indicated there was not a significant difference in the pass rate between the private facility vs. community non-profit facility at $p \leq .05$ with a result of $p = .071$ (refer to Table 11). This indicated the private aquatic training program and the community non-profit aquatic training program train and advance students at the same rate.

Statistical analysis indicated there is a significant difference between instructor's scores at the respective facilities. The Mann-Whitney U test was used to analyze between groups, private vs. community non-profit facilities, because it uses ordered ratings. The descriptive statistics showed the total mean change from pretest to posttest for all five instructor's scores within the private facility was 6.82 compared to the total mean change from pretest to posttest for all five instructor's scores within the community non-profit 7.13 overall (refer to Table 13). The Mann-Whitney U analyzes scoring of all five instructors within each facility, and calculates the mean change as a group to show the significant difference in instructor's scores change between pretest and posttest.

This finding indicates the students in the private aquatic training program scored on average 6.82 (refer to Table 13) points higher on the posttest than pretest. In comparison, the students in the community non-profit aquatic training program scored on average 7.13 (refer to Table 13) points higher on their posttest than pretest. This finding is consistent with the earlier finding indicating the community non-profit aquatic training program advanced more students from level one aquatic training to level two within the three week pretest/posttest assessment timeframe. This caused the researcher to consider if the instructors' scores within each facility were significantly different between the instructors.

Examination of the descriptive statistics, the Wilcoxon test was used to analyze within groups, private vs. community non-profit facilities instructor's scores, because it uses ordered ratings. Instructor one and two in the community non-profit facility produced change scores that are significantly different from the other eight instructors, three within the community non-profit and five in the private facility. Change in the community non-profit facility of instructor one's score was 8.08 and instructor two's score was 7.10 (refer to Table 13). These outliers could have skewed the mean to reflect the significant difference between the two groups because the change in instructor three's score was 6.77, instructor four's score was 6.80 and instructor five's was 6.90 (refer to Table 13). These change scores reflect a similar range as those instructor's scores within the private facility: which are instructor two's scores at 6.73 to instructor one's scores at 6.97 (refer to Table 13).

The findings show the instructors in the private aquatic training program scored their students consistently as a group. The mean range of 6.73 to 6.97 (refer to Table 13)

shows the change in scores from pretest to posttest for the five instructors are within a narrow range. The contrast, the community non-profit aquatic training program's mean range of instructor's change scores is 6.77 to 8.08 (refer to Table 13), which show a larger range between instructors' score from pretest to posttest.

This could indicate that instructors one and two in the community non-profit aquatic training program possessed a better understanding of the assessment process during the posttest. This would explain the outliers, instructor one at 8.08 and instructor two at 7.10 (refer to Table 13), in their mean change scoring between pretest and posttest.

The Kruskal-Wallis test was used to analyze more deeply within the groups, and calculate the chi-square statistic. The private facility instructor score mean rating range was 143.78 for instructor two to 160.26 for instructor one (refer to table 14). The chi-square indicated this was not significant at $p \leq .05$ with a result of $p = .836$ (refer to Table 15), indicating that the instructors in the private facility scored the ARA more consistently as a group.

However, when running the same test on the community non-profit facility, the community non-profit facility instructor score mean rating range was 135.36 for instructor three to 180.54 for instructor one (refer to table 16). The chi-square indicated this was a significant difference $p \leq .05$ with a result of $p = .029$ (refer to Table 17), indicating that the instructors in the community non-profit facility did not score the ARA consistently as a group. Therefore it is concluded that the significant difference within the community non-profit aquatic training facility is most likely caused by instructors' one and two mean change scores from pretest to posttest.

Conclusions

In conclusion, the results of the study did not show a significant difference in scores among advancing students to level two aquatic training. The cross-tabulation chi-square analysis indicated there was not a significant difference in the pass rate between the private facility vs. community non-profit facility at $p \leq .05$ with a result of $p = .071$ (refer to Table 11). In this study the private aquatic training programs advance students, thirty-eight out of sixty (refer to Table 10), at the same rate as the community non-profit aquatic training program, forty-seven out of sixty (refer to Table 10). The change in instructor's score from pretest to posttest indicated an improvement by the students in both the private, 6.82 (refer to Table 13), and community non-profit, 7.13 (refer to Table 13), aquatic training programs. These results showed positive results and should encourage students to attend some type of aquatic training program, private or community non-profit.

This result does not demonstrate conclusively that the private aquatic training program and community non-profit aquatic training program advances students to level two training at the same rate. As stated earlier, eight of the ten instructors in this study were within the mean range of 6.73 to 6.97 (refer to Table 13). The two instructors in the community non-profit that may have skewed the findings had mean change scores of 8.08, instructor one, and 7.10, instructor two, (refer to Table 13). This probably can be explained by the fact the two instructors with the outlying scores had a better understanding of the assessment process during the posttest than they did during the pretest. According to Kjendlie and Mendritzki (2012) aquatic skill acquisition is crucial for water safety. While other prevention strategies can be employed, Kjendlie and

Mendritzki (2012) stated that learning a variety of aquatic skills will reduce the risks associated with drowning.

The results between the private aquatic training facility and the community non-profit aquatic training facility was not what the researcher expected at the beginning of the study. The alternative hypothesis stated that there is a difference in the instructor's scores of student's optimal readiness to learn aquatic skill between students from a private aquatic training program and a community non-profit aquatic training program. The researcher expected the private aquatic training program would advance students at a higher rate. The results indicate no significant difference in the advancement of students to level two aquatic training between the two programs, private vs. community non-profit. The community non-profit aquatic training program advanced, forty-seven of the sixty students as compared to thirty-eight of sixty in the private aquatic training program. The cross-tabulation chi-square analysis indicated there was not a significant difference in the pass rate between the private facility vs. community non-profit facility at $p \leq .05$ with a result of $p = .071$ (refer to Table 11).

Looking into the results within the two facilities at instructor's scores, the researcher noticed the range of the instructor's scores in the private aquatic training program were 6.73 to 6.97 (refer to Table 13) compared to the range of scores of 6.77 to 8.08 (refer to Table 13) in the community non-profit aquatic training program. Change in the community non-profit facility of instructor one's score was 8.08 and instructor two's score was 7.10 (refer to Table 13) were significantly different than the eight remaining instructors.

The private and community non-profit facilities, the instructors, and the students expressed appreciation for the opportunity to participate in the study. The facilities discovered a method to determine instructors who may need additional training in the evaluation process of student's aquatic skill levels. Instructors indicated they gained a better understanding in scoring students using the Aquatic Readiness Assessment (ARA). Students commented that they now understood the importance of each skill instructors were teaching in the aquatic training lessons.

Recommendations for Further Research

The two community non-profit instructors mean change scores that were 8.08 and 7.10 (refer to Table 13) should be examined closer. What caused such a significant change in pretest and posttest scores when compared to the range of the eight other instructors scores, 6.73 to 6.97 (refer to Table 13)? Was their initial understanding or knowledge of the Aquatic Readiness Assessment (ARA) scoring of students aquatic skills not at the same level of the other eight instructors?

As with all research, questions are answered, but additional questions are raised. Several suggestions are possible for further research based upon the findings in this study. These suggestions are specifically related to design of future studies with the intent of answering questions raised in this project.

First, having one or more control group of instructors would strengthen the design for future studies. This is particularly true to ascertain any possible influence of training programs provided within the aquatic programs.

Second, further research may include specific training on the use of the ARA evaluation. This could be provided to one or more treatment groups, while control groups would be assessed without the benefit of such training.

Third, this study was designed to assess differences, if any, between a private and a non-profit aquatic training program. Many communities offer swimming programs through governmental (e.g. city, county, or school districts) agencies. Further research is warranted to include these public agencies due to their service to a different population.

Fourth, the differences in demographics among participants between various agencies may influence aquatic readiness. While it would require a higher level of approval through an Institutional Review Board, further study could include gathering of data on participants such as prior familiarity with water, family experience with water-based recreation, economic status, rural versus urban residence, and other demographic characteristics. These demographic characteristics may influence aquatic readiness.

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APPENDICES

Appendix A

Aquatic Readiness Assessment Checklist

I. Water orientation and adjustment component (Place check or date of accomplishment)

	Level	Level Name
_____	1.	No voluntary entry, demonstrates fear of the water
_____	2.	Voluntary entry with hesitancy but minimum fear
_____	3.	Voluntary entry with no fear of the water

II. Water entry component (Please check or date of accomplishment)

	Level	Level Name
_____	1.	No voluntary entry
_____	2.	Assisted feet-first entry
_____	3.	Unassisted feet-first entry
_____	4.	Assisted head-first entry
_____	5.	Unassisted head-first entry

III. Breath control component (Please check or date of accomplishment)

	Level	Level Name
_____	1.	Reflexive breath holding
_____	2.	Spitting or shipping
_____	3.	Voluntary face submersion
_____	4.	Repeated breath holding
_____	5a.	Extended breath holding
		<i>and/or</i>
_____	5b.	Rhythmic breath with stroke

IV. Buoyancy/floatation checklist (Please check or date of accomplishment)

	Level	Level Name
_____	1.	No floatation
_____	2.	Floatation with assistance
_____	3.	Floatation with support
_____	4.	Unsupported floatation

V. Body position checklist (Please check or date of accomplishment)

	Level	Level Name
_____	1.	Vertical (90° to 45°)
_____	2.	Inclined (44° to 20°)
_____	3.	Level (19° to 10°)

_____ 4. Horizontal (less than 10°)

VI. Arm propulsion action checklist (Please check or date of accomplishment)

	Level	Level Name
_____	1.	No arm action
_____	2.	Short downward push
_____	3.	Long push-pull
_____	4.	Lift propulsion

VII. Arm recovery action checklist (Please check or date of accomplishment)

	Level	Level Name
_____	1.	No arm action
_____	2.	No overwater recovery
_____	3.	Rudimentary overarm
_____	4.	Straight overarm
_____	5.	Bent-elbow overarm

VIII. Leg action checklist (Please check or date of accomplishment)

	Level	Level Name
_____	1.	No leg action
_____	2.	Plantar push “bicycling”
_____	3.	Rudimentary flutter

- | | | |
|-------|----|----------------------|
| _____ | 4. | Bent knee flutter |
| _____ | 5. | Straight leg flutter |

IX. Combined movement checklist (Please check or date of accomplishment)

	Level	Level Name
_____	1.	No locomotor behavior
_____	2.	Dog paddle
_____	3.	Beginner or human stroke
_____	4.	Rudimentary crawl
_____	5.	Advanced crawl or other advanced formal stroke

Note. Adapted from Langendorfer and Bruya (1995) and Costa (2012).

Appendix B
Informed Consent

Project Title:

Optimal Aquatic Readiness: A Private vs Community Aquatic
Programming Comparison

Investigators:

Terry Shannon M.Ed. and Dr. Tyler Tapps

Purpose:

The purpose of this study is to investigate if a participant in a private aquatic training program may reach optimal readiness more quickly, when compared to that of a community aquatic training program based on the instructors scoring. You are being asked to participate in this study because you meet the requirements set forth by the researcher. The type of information this study wishes to collect include your age, gender, WSI certification, facility which you instruct aquatic skill training – (private or community), total score on the Aquatic Readiness Assessment questionnaire. The ARA will be assessed twice on each participant, a pre- and posttest which will be assessed three weeks apart.

Procedures:

You will be asked to complete the ARA pretest at the time of admission to the study and the ARA posttest three weeks later on each participant. Each participant will be assessed individually and you will assess only the participants in your facility – (private or community).

Participants will be assessed twice, by five instructors at your facility. The same five instructors will assess each participant in the pretest/posttest format. The ARA has nine components: water orientation and adjustment, water entry, breath control, buoyancy, body position, arm propulsion, arm recovery, leg action, and combined movement. Each component has a score ranging from one-five and a total score of 27 or higher must be attained through the assessment by 80% or four out of five instructors for the participant to move forward to level two in the aquatic training program.

Risk of Participation:

There are no known risks associated with participating in the study which are great than those encountered on a daily basis in an aquatic facility. The participants that are being assessed will require the usual supervision expected by the facility and participant when you are instructing normal aquatic skill instruction.

Benefit:

A potential benefit from this study may include identifying potential aquatic skill training methods that could enhance the instruction of aquatic skill training in private and/or community facilities.

Confidentiality:

The record of the study will be kept private. Any written results will discuss private and/or community facility findings and will not include information that will identify you. Research records will be stored securely and only researchers and individuals responsible for research oversight will have access to the records. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and wellbeing of the people who participate in the study.

The investigators will attend to ensuring the Confidentiality of the participants of this study by assigning a random number representing each participant and removing individual names and other identifiable information from the ARA by the Aquatic Skill Instructor at the two facilities – (private and/or community) and after the study is completed by the Principal investigator (PI) Terry Shannon M.Ed. The records with the associated random numbers of the participants will be kept in a locked file cabinet by the PI of this study at Oklahoma State University in the dissertation advisor's office (Dr. Tyler Tapps). The Aquatic Skill Instructor currently instructs aquatic skill training as the fundamental purpose of his or her position at their facility of employment. The data will be transported from the facility – (private and/or community), by the PI in secure box, which will be locked in the presence of the instructor. Upon arriving on campus the PI will perform all coding and entry of data in the Dissertation Advisor's office. The PI and research staff will be the only

individuals with access to the locked filing cabinet containing the documents. After the coding of the research documents only the random number will appear on the reports and publications regarding the facility or program; no reference will be made to the names of the participants, after the completion of the data analysis the original research documents will be shredded. It is expected the documents will be maintained approximately two years from the initiation of the study.

Compensation:

I understand that no funds have been set aside by Oklahoma State University to compensate me in the event of illness or injury resulting from this study. If you decide to not participate in this study, another instructor will be asked to replace you for data collection purposes.

Contact:

If you have questions about the research you may contact Terry Shannon M. Ed., Principal investigator at 7777 South Lewis Avenue, Tulsa, OK 74171, 918-495-6787. Or Dr. Tyler Tapps, dissertation advisor at 183 Colvin Recreation Center, Stillwater, OK 74078, 405-744-5499.

Or

If you have any questions about your rights as a research volunteer, Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 47078, 405-744-1676 or irb@okstate.edu.

Participants Rights:

Participation is voluntary and you may discontinue the research activity at any time without reprisal or penalty. Your participation in the research activity may at any time be terminated if you fail to complete the ARA assessment.

Signatures:

I have read and fully understand the consent form. I sign freely and voluntarily. A cop of this form has been given to me.

Signature of Participant

Date

I certify that I have personally explained this document before requesting that the participant sign it.

Signature of Participant

Date

Appendix C

Aquatic Programmer's Script

The Aquatic Training Facility Director (private or community) will ask participants who qualify for the study at the Aquatic Training Facility (private or community) to do the following:

Aquatic Training Facility Director: Mr./Ms./Mrs. Insert Participant's Name we are currently conducting a research study in conjunction with Oklahoma State University addressing optimal aquatic readiness. You have met the criteria provided by the researcher to be considered for this study. Would you be interested in participating? There will be no negative consequences for deciding to not participate. If you wish to participate in the study there is a consent form you will need to read and sign. You will use the Aquatic Readiness Assessment Checklist to evaluate participants in level one aquatic training program, then again at the end of three weeks. You will continue to instruct participants in your classes in your normal manner during the three week period. The researcher will compare the two assessments on each participant and your identity will remain anonymous.

Appendix D

Parent/Guardian Permission Form

Oklahoma State University

Project Title:

Optimal Aquatic Readiness: A Private vs Community Aquatic Programming Comparison

Investigators:

Terry Shannon M.Ed. and Dr. Tyler Tapps

Purpose:

The purpose of this study is to investigate if a participant in a private aquatic training program may reach optimal readiness more quickly, when compared to that of a community aquatic training program based on the instructors scoring. Your facility is being asked to participate in this study because you meet the requirements set forth by the researcher. The type of information this study wishes to collect include age, gender, WSI certification, of your instructors, and total score on the Aquatic Readiness Assessment questionnaire. The ARA will be assessed twice on each participant, a pre-and posttest which will be assessed three weeks apart.

Procedures:

Your instructors will be asked to complete the ARA pretest at the time of admission to the study and the ARA posttest three weeks later on each participant. Each participant will be assessed individually and you will assess only the participants in your facility.

Participants will be assessed twice, by five instructors at your facility. The same five instructors will assess each participant in the pretest/posttest format. The ARA has nine components: water orientation and adjustment, water entry, breath control, buoyancy, body position, arm propulsion, arm recovery, leg action, and combined movement. Each component has a score ranging from one-five and a total score of 27 or higher must be attained through the assessment by 80% or four out of five instructors for the participant to move forward to level two in the aquatic training program.

Risk of Participation:

There are no known risks associated with participating in the study which are greater than those encountered on a daily basis in an aquatic facility. The participants that are being assessed will require the usual supervision expected by your facility and participant when you are instructing normal aquatic skill instruction.

Benefit:

A potential benefit from this study may include identifying potential aquatic skill training methods that could enhance the instruction of aquatic skill training in private and/or community facilities. If you are interested, we will send you a copy of the results of the study when finished.

Confidentiality:

The record of the study will be kept private. Any written results will discuss private and/or community facility findings and will not include information that will identify you. Research records will be stored securely and only researchers and individuals

responsible for research oversight will have access to the records. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and wellbeing of the people who participate in the study.

The investigators will attend to ensuring the Confidentiality of the participants of this study by assigning a random number representing each participant and removing individual names and other identifiable information from the ARA by the Aquatic Skill Instructor at the two facilities – (private and/or community) and after the study is completed by the Principal investigator (PI) Terry Shannon M.Ed. The records with the associated random numbers of the participants will be kept in a locked file cabinet by the PI of this study at Oklahoma State University in the dissertation advisor's office (Dr. Tyler Tapps). The Aquatic Skill Instructor currently instructs aquatic skill training as the fundamental purpose of his or her position at their facility of employment. The data will be transported from the facility – (private and/or community), by the PI in a secure box, which will be locked in the presence of the instructor. Upon arriving on campus the PI will perform all coding and entry of data in the Dissertation Advisor's office. The PI and research staff will be the only individuals with access to the locked filing cabinet containing the documents. After the coding of the research documents only the random number will appear on the reports and publications regarding the facility or program; no reference will be made to the names of the participants, after the completion of the data analysis the original research documents will be shredded. It is expected the documents will be maintained approximately three years from the initiation of the study.

Compensation:

I understand that no funds have been set aside by Oklahoma State University to compensate my facility. If you decide to not participate in this study, another facility will be asked to replace you for data collection purposes.

Contact:

If you have questions about the research you may contact Terry Shannon M. Ed., Principal investigator at 7777 South Lewis Avenue, Tulsa, OK 74171, 918-495-6787. Or Dr. Tyler Tapps, dissertation advisor at 183 Colvin Recreation Center, Stillwater, OK 74078, 405-744-5499.

Or

If you have any questions about your rights as a research volunteer, Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 47078, 405-744-1676 or irb@okstate.edu.

Participants Rights:

I understand that my child's participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my permission at any time. Even if I give permission for my child to participate I understand that he/she has the right to decline.

Consent Documentation:

I have been fully informed about the procedures listed here. I am aware of what my child and I will be asked to do and of the benefits of my participation. I also understand the following statement:

I have read and fully understand permission form. I sign freely and voluntarily. A copy of this form will be given to me. I hereby give permission for my child

_____ participation in this study.

Signature of Parent/Legal Guardian

Date

I certify that I have personally explained this document before requesting that the participant sign it.

Signature of Researcher

Date

Appendix E

Children Assent Form

Oklahoma State University

Dear Student,

We are interested in learning about the swimming lessons and how quickly you learn those particular swimming skills. In order to understand this, we would like you to fill out some forms. All you need to do is go through your normal swimming lessons. Nothing will change for you, we are just going to record your score and compare it to you score after six (6) lessons. Your parent/guardian is aware of this project.

Please understand that you do not have to do this. You do not have to answer any questions that you do not want to. You may stop at any time and go back to your parents.

Your name will not be on the forms you fill out, and you will be given a number that will be put on your answer sheet so no one will know whose scores they are. The only way anyone would know how you scored is if we are worried about you, and then we would call your parent/guardian. If you have any questions about the form or what we are doing, please ask us. Thank you for your help.

Sincerely,

Terry Shannon

Graduate Student Oklahoma State University

Dr. Tyler Tapps, Ph.D.

Assistant Professor Oklahoma State University

I have read this form and agree to help with your project.

(your name)

(your signature)

(date)

Appendix F

Adult Informed Consent – Adult Swimmer

Oklahoma State University

Project Title:

Optimal Aquatic Readiness: A Private vs Community Aquatic Programming Comparison

Investigators:

Terry Shannon M.Ed. and Dr. Tyler Tapps

Purpose:

The purpose of this study is to investigate if a participant in a private aquatic training program may reach optimal readiness more quickly, when compared to that of a community aquatic training program based on the instructors scoring. The type of information this study wishes to collect include age, gender, WSI certification, of your instructors, and total score on the Aquatic Readiness Assessment questionnaire. The ARA will be assessed twice on each participant, a pre-and posttest which will be assessed three weeks apart.

Procedures:

Your swimming instructors will be asked to complete the ARA pretest at the time of admission to the study and the ARA posttest three weeks later. You will be assessed twice, by five instructors at your facility. The ARA has nine components: water orientation and adjustment, water entry, breath control, buoyancy, body position, arm

propulsion, arm recovery, leg action, and combined movement. Each component has a score ranging from one-five and a total score of 27 or higher must be attained through the assessment by 80% or four out of five instructors for the participant to move forward to level two in the aquatic training program.

Risk of Participation:

There are no known risks associated with participating in the study which are greater than those encountered on a daily basis in an aquatic facility.

Benefit:

A potential benefit from this study may include identifying potential aquatic skill training methods that could enhance the instruction of aquatic skill training in private and/or community facilities. If you are interested, we will send you a copy of the results of the study when finished.

Confidentiality:

The record of the study will be kept private. Any written results will discuss private and/or community facility findings and will not include information that will identify you. Research records will be stored securely and only researchers and individuals responsible for research oversight will have access to the records. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and wellbeing of the people who participate in the study.

The investigators will attend to ensuring the Confidentiality of the participants of this study by assigning a random number representing each participant and removing individual names and other identifiable information from the ARA by the PI. The records with the associated random numbers of the participants will be kept in a locked file cabinet by the PI of this study at Oklahoma State University in the dissertation advisor's office (Dr. Tyler Tapps). The data will be transported from the facility – (private and/or community), by the PI in secure box, which will be locked in the presence of the instructor. Upon arriving on campus the PI will perform all coding and entry of data in the Dissertation Advisor's office. The PI and research staff will be the only individuals with access to the locked filing cabinet containing the documents. After the coding of the research documents only the random number will appear on the reports and publications regarding the facility or program; no reference will be made to your name. After the completion of the data analysis the original research documents will be shredded. It is expected the documents will be maintained approximately three years from the initiation of the study.

Compensation:

I understand that there is no compensation for participating in this research study.

Contact:

If you have questions about the research you may contact Terry Shannon M. Ed., Principal investigator at 7777 South Lewis Avenue, Tulsa, OK 74171, 918-495-6787. Or Dr. Tyler Tapps, dissertation advisor, at 183 Colvin Recreation Center, Stillwater, OK 74078, 405-744-5499.

If you have any questions about your rights as a research volunteer, Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 47078, 405-744-1676 or irb@okstate.edu.

Participants Rights:

I understand that my participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my permission at any time.

Consent Documentation:

I have been fully informed about the procedures listed here. I am aware of what I will be asked to do and of the benefits of my participation. I also understand the following statement:

I have read and fully understand permission form. I sign freely and voluntarily. A copy of this form will be given to me.

Signature of Participant

Date

I certify that I have personally explained this document before requesting that the participant sign it.

Signature of Researcher

Date

Appendix G

Oklahoma State University Institutional Review Board

Date: Wednesday, April 30, 2014

IRB Application No ED1448

Proposal Title: Optimal Aquatic Readiness: A Private vs. Community Aquatic Programming Comparison

Reviewed and
Processed as: Expedited

Status Recommended by Reviewer(s): Approved Protocol Expires: 4/29/2015

Principal
Investigator(s):

Terry Shannon	Tyler Tapps
6356 HW 77 N	180 Colvin Center
Wynnewood, OK 73098	Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms
2. Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of the research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Cordell North (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

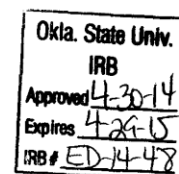

Sheila Kennison, Chair
Institutional Review Board

Aquatic Programmer's Script

The Aquatic Training Facility Director (private or community) will ask participants who qualify for the study at the Aquatic Training Facility (private or community) to do the following:

Aquatic Training Facility Director: Mr./Ms./Mrs. Insert Participants Name
we are currently conducting a research study in conjunction with Oklahoma State University addressing optimal aquatic readiness. You have met the criteria provided by the researcher to be considered for this study. Would you be interested in participating? There will be no negative consequences for deciding to not participate. If you wish to participate in the study there is a consent form you will need to read and sign. You will use the Aquatic Readiness Assessment Checklist to evaluate participants in level one aquatic training program, then again at the end of three weeks. You will continue to instruct participants in your classes in your normal manner during the three week period. The researcher will compare the two assessments on each participant and your identity will remain confidential.

d: December, 2013



Approval to Conduct Research

Project Title:

Optimal Aquatic Readiness: A Private vs Community Aquatic Programming Comparison

Investigators:

Terry Shannon M.Ed. and Dr. Tyler Tapps

Purpose:

The purpose of this study is to investigate if a participant in a private aquatic training program may reach optimal readiness more quickly, when compared to that of a community aquatic training program based on the instructors scoring. Your facility is being asked to participate in this study because you meet the requirements set forth by the researcher. The type of information this study wishes to collect include age, gender, WSI certification, of your instructors, and total score on the Aquatic Readiness Assessment questionnaire. The ARA will be assessed twice on each participant, a pre-and posttest which will be assessed three weeks apart.

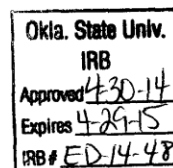
Procedures:

Your instructors will be asked to complete the ARA pretest at the time of admission to the study and the ARA posttest three weeks later on each participant. Each participant will be assessed individually and you will assess only the participants in your facility. Participants will be assessed twice, by five instructors at your facility. The same five instructors will assess each participant in the pretest/posttest format. The ARA has nine components: water orientation and adjustment, water entry, breath control, buoyancy, body position, arm propulsion, arm recovery, leg action, and combined movement. Each component has a score ranging from one-five and a total score of 27 or higher must be attained through the assessment by 80% or four out of five instructors for the participant to move forward to level two in the aquatic training program.

Risk of Participation:

There are no known risks associated with participating in the study which are greater than those encountered on a daily basis in an aquatic facility. The participants that are being assessed will require the usual supervision expected by your facility and participant when you are instructing normal aquatic skill instruction.

: December, 2013



Benefit:

A potential benefit from this study may include identifying potential aquatic skill training methods that could enhance the instruction of aquatic skill training in private and/or community facilities.

Confidentially:

The record of the study will be kept private. Any written results will discuss private and/or community facility findings and will not include information that will identify you. Research records will be stored securely and only researchers and individuals responsible for research oversight will have access to the records. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and wellbeing of the people who participate in the study.

The investigators will attend to ensuring the confidentiality of the participants of this study by assigning a random number representing each participant and removing individual names and other identifiable information from the ARA by the Aquatic Skill Instructor at the two facilities – (private and/or community) and after the study is completed by the Principle Investigator (PI) Terry Shannon M.Ed. The records with the associated random numbers of the participants will be kept in a locked file cabinet by the PI of this study at Oklahoma State University in the dissertation advisor's office (Dr. Tyler Taps). The Aquatic Skill Instructor currently instructs aquatic skill training as the fundamental purpose of his or her position at their facility of employment. The data will be transported from the facility – (private and/or community), by the PI in secure box, which will be locked in the presence of the instructor. Upon arriving on campus the PI will perform all coding and entry of data in the Dissertation Advisor's office. The PI and research staff will be the only individuals with access to the locked filing cabinet containing the documents. After the coding of the research documents only the random number will appear on the reports and publications regarding the facility or program; no reference will be made to the names of the participants, after the completion of the data analysis the original research documents will be shredded. It is expected the documents will be maintained approximately two years from the initiation of the study.

Compensation:

I understand that no funds have been set aside by Oklahoma State University to compensate my facility. If you decide to not participate in this study, another facility will be asked to replace you for data collection purposes.

December, 2013

Okla. State Univ.
IRB
Approved 4-30-14
Expires 4-29-15
IRB # ED-14-48

Contact:

If you have questions about the research you may contact Terry Shannon M. Ed., Principle Investigator at 7777 South Lewis Avenue, Tulsa, OK 74171, 918-495-6787. Or Dr. Tyler Tapps, dissertation advisor at 183 Colvin Recreation Center, Stillwater, OK 74078, 405-744-5499.

Or

If you have any questions about your rights as a research volunteer, Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 47078, 405-744-1676 or irb@okstate.edu.

Participants Rights:

Participation is voluntary and you may discontinue the research activity at any time without reprisal or penalty. Your participation in the research activity may at any time be terminated if you fail to complete the ARA assessment.

Signatures:

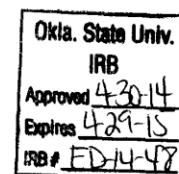
I have read and fully understand the approval to conduct research form. I sign freely and voluntarily. A copy of this form has been given to me.

Signature of Aquatic Center Director

Date

Tulsa YMCA
420 S. Main Street
Tulsa, OK 74103

December, 2013



Approval to Conduct Research

Project Title:

Optimal Aquatic Readiness: A Private vs Community Aquatic Programming Comparison

Investigators:

Terry Shannon M.Ed. and Dr. Tyler Tapps

Purpose:

The purpose of this study is to investigate if a participant in a private aquatic training program may reach optimal readiness more quickly, when compared to that of a community aquatic training program based on the instructors scoring. Your facility is being asked to participate in this study because you meet the requirements set forth by the researcher. The type of information this study wishes to collect include age, gender, WSI certification, of your instructors, and total score on the Aquatic Readiness Assessment questionnaire. The ARA will be assessed twice on each participant, a pre-and posttest which will be assessed three weeks apart.

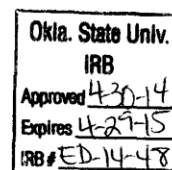
Procedures:

Your instructors will be asked to complete the ARA pretest at the time of admission to the study and the ARA posttest three weeks later on each participant. Each participant will be assessed individually and you will assess only the participants in your facility. Participants will be assessed twice, by five instructors at your facility. The same five instructors will assess each participant in the pretest/posttest format. The ARA has nine components: water orientation and adjustment, water entry, breath control, buoyancy, body position, arm propulsion, arm recovery, leg action, and combined movement. Each component has a score ranging from one-five and a total score of 27 or higher must be attained through the assessment by 80% or four out of five instructors for the participant to move forward to level two in the aquatic training program.

Risk of Participation:

There are no known risks associated with participating in the study which are greater than those encountered on a daily basis in an aquatic facility. The participants that are being assessed will require the usual supervision expected by your facility and participant when you are instructing normal aquatic skill instruction.

December, 2013



Benefit:

A potential benefit from this study may include identifying potential aquatic skill training methods that could enhance the instruction of aquatic skill training in private and/or community facilities.

Confidentially:

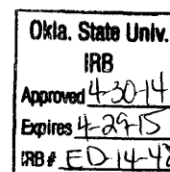
The record of the study will be kept private. Any written results will discuss private and/or community facility findings and will not include information that will identify you. Research records will be stored securely and only researchers and individuals responsible for research oversight will have access to the records. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and wellbeing of the people who participate in the study.

The investigators will attend to ensuring the confidentiality of the participants of this study by assigning a random number representing each participant and removing individual names and other identifiable information from the ARA by the Aquatic Skill Instructor at the two facilities – (private and/or community) and after the study is completed by the Principle Investigator (PI) Terry Shannon M.Ed. The records with the associated random numbers of the participants will be kept in a locked file cabinet by the PI of this study at Oklahoma State University in the dissertation advisor's office (Dr. Tyler Taps). The Aquatic Skill Instructor currently instructs aquatic skill training as the fundamental purpose of his or her position at their facility of employment. The data will be transported from the facility – (private and/or community), by the PI in secure box, which will be locked in the presence of the instructor. Upon arriving on campus the PI will perform all coding and entry of data in the Dissertation Advisor's office. The PI and research staff will be the only individuals with access to the locked filing cabinet containing the documents. After the coding of the research documents only the random number will appear on the reports and publications regarding the facility or program; no reference will be made to the names of the participants, after the completion of the data analysis the original research documents will be shredded. It is expected the documents will be maintained approximately two years from the initiation of the study.

Compensation:

I understand that no funds have been set aside by Oklahoma State University to compensate my facility. If you decide to not participate in this study, another facility will be asked to replace you for data collection purposes.

: December, 2013



Contact:

If you have questions about the research you may contact Terry Shannon M. Ed., Principle Investigator at 7777 South Lewis Avenue, Tulsa, OK 74171, 918-495-6787. Or Dr. Tyler Tapps, dissertation advisor at 183 Colvin Recreation Center, Stillwater, OK 74078, 405-744-5499.

Or

If you have any questions about your rights as a research volunteer, Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 47078, 405-744-1676 or irb@okstate.edu.

Participants Rights:

Participation is voluntary and you may discontinue the research activity at any time without reprisal or penalty. Your participation in the research activity may at any time be terminated if you fail to complete the ARA assessment.

Signatures:

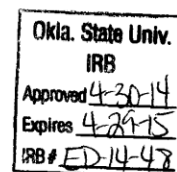
I have read and fully understand the approval to conduct research form. I sign freely and voluntarily. A copy of this form has been given to me.

Signature of Aquatic Center Director

Date

Miller Swim School
6415 S. Mingo
Tulsa, OK 74133

: December, 2013



Informed Consent

Project Title:

Optimal Aquatic Readiness: A Private vs Community Aquatic Programming Comparison

Investigators:

Terry Shannon M.Ed. and Dr. Tyler Tapps

Purpose:

The purpose of this study is to investigate if a participant in a private aquatic training program may reach optimal readiness more quickly, when compared to that of a community aquatic training program based on the instructors scoring. You are being asked to participate in this study because you meet the requirements set forth by the researcher. The type of information this study wishes to collect include your age, gender, WSI certification, facility which you instruct aquatic skill training – (private or community), total score on the Aquatic Readiness Assessment questionnaire. The ARA will be assessed twice on each participant, a pre-and posttest which will be assessed three weeks apart.

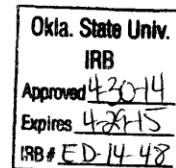
Procedures:

You will be asked to complete the ARA pretest at the time of admission to the study and the ARA posttest three weeks later on each participant. Each participant will be assessed individually and you will assess only the participants in your facility – (private or community). Participants will be assessed twice, by five instructors at your facility. The same five instructors will assess each participant in the pretest/posttest format. The ARA has nine components: water orientation and adjustment, water entry, breath control, buoyancy, body position, arm propulsion, arm recovery, leg action, and combined movement. Each component has a score ranging from one-five and a total score of 27 or higher must be attained through the assessment by 80% or four out of five instructors for the participant to move forward to level two in the aquatic training program.

Risk of Participation:

There are no known risks associated with participating in the study which are greater than those encountered on a daily basis in an aquatic facility. The participants that are being assessed will require the usual supervision expected by the facility and participant when you are instructing normal aquatic skill instruction.

1: December, 2013



Benefit:

A potential benefit from this study may include identifying potential aquatic skill training methods that could enhance the instruction of aquatic skill training in private and/or community facilities.

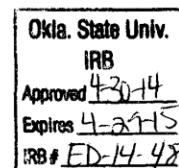
Confidentially:

The record of the study will be kept private. Any written results will discuss private and/or community facility findings and will not include information that will identify you. Research records will be stored securely and only researchers and individuals responsible for research oversight will have access to the records. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and wellbeing of the people who participate in the study.

The investigators will attend to ensuring the confidentiality of the participants of this study by assigning a random number representing each participant and removing individual names and other identifiable information from the ARA by the Aquatic Skill Instructor at the two facilities – (private and/or community) and after the study is completed by the Principle Investigator (PI) Terry Shannon M.Ed. The records with the associated random numbers of the participants will be kept in a locked file cabinet by the PI of this study at Oklahoma State University in the dissertation advisor's office (Dr. Tyler Taps). The Aquatic Skill Instructor currently instructs aquatic skill training as the fundamental purpose of his or her position at their facility of employment. The data will be transported from the facility – (private and/or community), by the PI in secure box, which will be locked in the presence of the instructor. Upon arriving on campus the PI will perform all coding and entry of data in the Dissertation Advisor's office. The PI and research staff will be the only individuals with access to the locked filing cabinet containing the documents. After the coding of the research documents only the random number will appear on the reports and publications regarding the facility or program; no reference will be made to the names of the participants, after the completion of the data analysis the original research documents will be shredded. It is expected the documents will be maintained approximately two years from the initiation of the study.

Compensation:

I understand that no funds have been set aside by Oklahoma State University to compensate me in the event of illness or injury resulting from this study. If you decide to not participate in this study, another instructor will be asked to replace you for data collection purposes.



: December, 2013

Contact:

If you have questions about the research you may contact Terry Shannon M. Ed., Principle Investigator at 7777 South Lewis Avenue, Tulsa, OK 74171, 918-495-6787. Or Dr. Tyler Tapps, dissertation advisor at 183 Colvin Recreation Center, Stillwater, OK 74078, 405-744-5499.

Or

If you have any questions about your rights as a research volunteer, Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 47078, 405-744-1676 or irb@okstate.edu.

Participants Rights:

Participation is voluntary and you may discontinue the research activity at any time without reprisal or penalty. Your participation in the research activity may at any time be terminated if you fail to complete the ARA assessment.

Signatures:

I have read and fully understand the consent form. I sign freely and voluntarily. A copy of this form has been given to me.

Signature of Participant

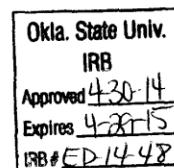
Date

I certify that I have personally explained this document before requesting that the participant sign it.

Signature of Researcher

Date

I: December, 2013



ADULT INFORMED CONSENT – ADULT SWIMMER

OKLAHOMA STATE UNIVERSITY

Project Title:

Optimal Aquatic Readiness: A Private vs Community Aquatic Programming Comparison

Investigators:

Terry Shannon M.Ed. and Dr. Tyler Tapps

Purpose:

The purpose of this study is to investigate if a participant in a private aquatic training program may reach optimal readiness more quickly, when compared to that of a community aquatic training program based on the instructors scoring. The type of information this study wishes to collect include age, gender, WSI certification, of your instructors, and total score on the Aquatic Readiness Assessment questionnaire. The ARA will be assessed twice on each participant, a pre-and posttest which will be assessed three weeks apart.

Procedures:

Your swimming instructors will be asked to complete the ARA pretest at the time of admission to the study and the ARA posttest three weeks later. You will be assessed twice, by five instructors at your facility. The ARA has nine components: water orientation and adjustment, water entry, breath control, buoyancy, body position, arm propulsion, arm recovery, leg action, and combined movement. Each component has a score ranging from one-five and a total score of 27 or higher must be attained through the assessment by 80% or four out of five instructors for the participant to move forward to level two in the aquatic training program.

Risk of Participation:

There are no known risks associated with participating in the study which are greater than those encountered on a daily basis in an aquatic facility.

Benefit:

A potential benefit from this study may include identifying potential aquatic skill training methods that could enhance the instruction of aquatic skill training in private and/or community facilities. If you are interested, we will send you a copy of the results of the study when finished.

Confidentially:

The record of the study will be kept private. Any written results will discuss private and/or community facility findings and will not include information that will identify you. Research records will be stored securely and only researchers and individuals responsible for research oversight will have access to the records. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and wellbeing of the people who participate in the study.

Okla. State Univ.
IRB
Approved 4-30-14
Expires 4-30-15
IRB # ED 14-92

The investigators will attend to ensuring the confidentiality of the participants of this study by assigning a random number representing each participant and removing individual names and other identifiable information from the ARA by the PI. The records with the associated random numbers of the participants will be kept in a locked file cabinet by the PI of this study at Oklahoma State University in the dissertation advisor's office (Dr. Tyler Taps). The data will be transported from the facility – (private and/or community), by the PI in secure box, which will be locked in the presence of the instructor. Upon arriving on campus the PI will perform all coding and entry of data in the Dissertation Advisor's office. The PI and research staff will be the only individuals with access to the locked filing cabinet containing the documents. After the coding of the research documents only the random number will appear on the reports and publications regarding the facility or program; no reference will be made to your name. After the completion of the data analysis the original research documents will be shredded. It is expected the documents will be maintained approximately three years from the initiation of the study.

Compensation:

I understand that there is no compensation for participating in this research study.

Contact:

If you have questions about the research you may contact Terry Shannon M. Ed., Principle Investigator at 7777 South Lewis Avenue, Tulsa, OK 74171, 918-495-6787. Or Dr. Tyler Tapps, dissertation advisor, at 183 Colvin Recreation Center, Stillwater, OK 74078, 405-744-5499.

If you have any questions about your rights as a research volunteer, Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 47078, 405-744-1676 or irb@okstate.edu.

Participants Rights:

I understand that my participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my permission at any time.

Consent Documentation:

I have been fully informed about the procedures listed here. I am aware of what I will be asked to do and of the benefits of my participation. I also understand the following statement:

I have read and fully understand permission form. I sign freely and voluntarily. A copy of this form will be given to me.

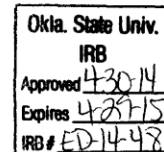
Signature of Participant

Date

I certify that I have personally explained this document before requesting that the participant sign it.

Signature of Researcher

Date



PARENT/GUARDIAN PERMISSION FORM

OKLAHOMA STATE UNIVERSITY

Project Title:

Optimal Aquatic Readiness: A Private vs Community Aquatic Programming Comparison

Investigators:

Terry Shannon M.Ed. and Dr. Tyler Tapps

Purpose:

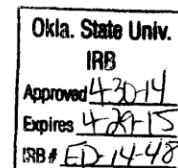
The purpose of this study is to investigate if a participant in a private aquatic training program may reach optimal readiness more quickly, when compared to that of a community aquatic training program based on the instructors scoring. Your facility is being asked to participate in this study because you meet the requirements set forth by the researcher. The type of information this study wishes to collect include age, gender, WSI certification, of your instructors, and total score on the Aquatic Readiness Assessment questionnaire. The ARA will be assessed twice on each participant, a pre-and posttest which will be assessed three weeks apart.

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Risk of Participation:

There are no known risks associated with participating in the study which are greater than those encountered on a daily basis in an aquatic facility. The participants that are being assessed will require the usual supervision expected by your facility and participant when you are instructing normal aquatic skill instruction.



: December, 2013

Benefit:

A potential benefit from this study may include identifying potential aquatic skill training methods that could enhance the instruction of aquatic skill training in private and/or community facilities. If you are interested, we will send you a copy of the results of the study when finished.

Confidentially:

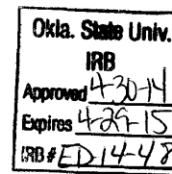
The record of the study will be kept private. Any written results will discuss private and/or community facility findings and will not include information that will identify you. Research records will be stored securely and only researchers and individuals responsible for research oversight will have access to the records. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and wellbeing of the people who participate in the study.

The investigators will attend to ensuring the confidentiality of the participants of this study by assigning a random number representing each participant and removing individual names and other identifiable information from the ARA by the Aquatic Skill Instructor at the two facilities – (private and/or community) and after the study is completed by the Principle Investigator (PI) Terry Shannon M.Ed. The records with the associated random numbers of the participants will be kept in a locked file cabinet by the PI of this study at Oklahoma State University in the dissertation advisor's office (Dr. Tyler Taps). The Aquatic Skill Instructor currently instructs aquatic skill training as the fundamental purpose of his or her position at their facility of employment. The data will be transported from the facility – (private and/or community), by the PI in secure box, which will be locked in the presence of the instructor. Upon arriving on campus the PI will perform all coding and entry of data in the Dissertation Advisor's office. The PI and research staff will be the only individuals with access to the locked filing cabinet containing the documents. After the coding of the research documents only the random number will appear on the reports and publications regarding the facility or program; no reference will be made to the names of the participants, after the completion of the data analysis the original research documents will be shredded. It is expected the documents will be maintained approximately three years from the initiation of the study.

Compensation:

I understand that no funds have been set aside by Oklahoma State University to compensate my facility. If you decide to not participate in this study, another facility will be asked to replace you for data collection purposes.

I: December, 2013



Contact:

If you have questions about the research you may contact Terry Shannon M. Ed., Principle Investigator at 7777 South Lewis Avenue, Tulsa, OK 74171, 918-495-6787. Or Dr. Tyler Tapps, dissertation advisor at 183 Colvin Recreation Center, Stillwater, OK 74078, 405-744-5499.

Or

If you have any questions about your rights as a research volunteer, Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 47078, 405-744-1676 or irb@okstate.edu.

Participants Rights:

I understand that my child's participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my permission at any time. Even if I give permission for my child to participate I understand that he/she has the right to decline.

Consent Documentation:

I have been fully informed about the procedures listed here. I am aware of what my child and I will be asked to do and of the benefits of my participation. I also understand the following statement:

I have read and fully understand permission form. I sign freely and voluntarily. A copy of this form will be given to me. I hereby give permission for my child
_____ participation in this study.

Signature of Parent/Legal Guardian

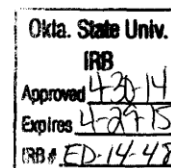
Date

I certify that I have personally explained this document before requesting that the participant sign it.

Signature of Researcher

Date

I: December, 2013



**CHILD ASSENT FORM
OKLAHOMA STATE UNIVERSITY**

Dear Student,

We are interested in learning about the swimming lessons and how quickly you learn those particular swimming skills. In order to understand this, we would like you to fill out some forms. All you need to do is go through your normal swimming lessons. Nothing will change for you, we are just going to record your score and compare it to you score after six (6) lessons. Your parent/guardian is aware of this project.

Please understand that you do not have to do this. You do not have to answer any questions that you do not want to. You may stop at any time and go back to your parents.

Your name will not be on the forms you fill out, and you will be given a number that will be put on your answer sheet so no one will know whose scores they are. The only way anyone would know how you scored is if we are worried about you, and then we would call your parent/guardian. If you have any questions about the form or what we are doing, please ask us. Thank you for your help.

Sincerely,

Terry Shannon
Graduate Student Oklahoma State University

Dt. Tyler Tapps, Ph.D.
Associate Professor Oklahoma State University

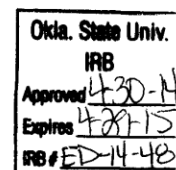
I have read this form and agree to help with your project.

(your name)

(your signature)

(date)

id: December, 2013



VITA

Terry Vernon Shannon

Candidate for the Degree of

Doctor of Philosophy/Education

Thesis: OPTIMAL AQUATIC READINESS: A PRIVATE VS COMMUNITY
AQUATIC PROGRAMMING COMPARISON

Major Field: Leisure Studies

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Leisure Studies at Oklahoma State University, Stillwater, Oklahoma in December, 2014.

Completed the requirements for the Master of Science in Education at East Central University, Ada, Oklahoma in 1995.

Completed the requirements for the Bachelor of Science in Accounting at Southeastern Oklahoma State University, Durant, Oklahoma in 1989.

Experience:

Oral Roberts University Aug. 2013 – Present
Assistant Professor in HPE Department – Sports Management

Cameron University Aug. 2010 – May 2013
Instructor in HPE Department – Sports & Fitness Management Degree Program

East Central University Aug. 1994 – May 2010
Instructor in HPER Department - Coordinator of Recreation Degree Program

Professional Memberships:

Oklahoma Association of Health, Physical Education, Recreation and Dance
North America Society of Sport Management
National Association of Basketball Coaches