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Swimming Without Fear: Equitable Instruction

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Abstract

A qualitative single-subject exploratory case study approach was used to examine the effectiveness of an intervention process to assist a 30-year-old female in reducing her fear of water. During the 18-week intervention, systematic desensitization was utilized in conjunction with multiple data sources to determine its success. Data sources included the Spielberger State-Trait Anxiety Inventory (STAI), semi-structured interviews, swimming skills tests, collages, and participant and researcher journals. Data analysis examined changes in scores for the STAI and swimming skills tests while an inductive data analytic strategy was applied to organize and make sense of the interviews, collages, and participant journal entries. A researcher's journal was kept confirming major findings. Results showed a decrease in fear as documented by interviews, participant journal entries, and the post-collage. No differences in scores were noted for the STAI and swimming skills tests. These findings suggest that cognitive and psychological progress was made by the participant; however, more time was needed to transform this progress into performing physical skills in the water.

Keywords: fear, systematic desensitization, qualitative research, swimming

Our participant bravely shared the following narrative with us as the researchers and authors of this study. We knew she was fearful of water when she volunteered for the study, but it was not until the end of the study that the details of that fear were revealed. We chose to present a portion of it here at the beginning, to allow the reader to experience this fear firsthand. This traumatic experience involved being abducted as a young child while walking to school on a day when she was told to stay home with a relative:

...Even as I sit here thinking about this moment, it still makes me feel like it's not real and that it was all just one really bad dream. I have nightmares where I think that maybe what I went through wasn't really me and that it was someone else who told me the story, or I read about it and now I can't get it out of my head. So, what is the connection? I remember that there was a lake near where I was being kept (or at least it seemed like a lake, it could have been a pond). For me, it was a very large body of water and I knew that it was really dirty and gross. I remember my hands being bound and having to walk over to the water and then having to go in—he forced me to go in. The water was really cold, and I felt the sludge creeping in between my toes and up my legs...

The fear that I felt at that moment was indescribable. I did feel like there was a part of me that was being swallowed by the fear, and I felt like I was rotting. He held my head underwater for what felt like an eternity, and I could feel the dirt going into my ears and even creeping in between my

lips. I thought of my mom for that moment and figured she would not approve of me being this dirty. To get the dirt and germs off of me, she would make me shower in hot water 'til I was red. Of course, she would do this out of love, but in my head all I kept thinking was I can't open my mouth because more of the bugs and dirt would go into my mouth and how would I get that out. You might wonder how could someone so young remember all of this? Well, if I could forget it, I would, but unfortunately, I can't. My brain won't let me forget it even if I tried. When I felt that I wouldn't be able to hold my breath any longer, I looked up and could see a little bit of light coming through the water and I prayed that I could get out and that no matter what I had done to deserve this, I would never do it again. I guess someone heard that and let me out. If you were to ask me, 'What do you think you did to deserve that?' At that age, I would have said, 'It's because I didn't listen to my Mom, and I went to school that day. I should always listen to my mom. This was my punishment for not listening...'

According to the World Health Organization (WHO), drowning is the third leading cause of unintentional injury death worldwide, accounting for 7% of all injury-related deaths. This equates to an estimated 360,000 annual drowning deaths worldwide. Children, males, and individuals with ample access to water are most at risk of drowning (WHO, 2018). Nearly half of Americans have a fear of swimming pools and about 3,800 drowning deaths occur every year (Lachocki, 2012). Additionally, many people are not confident swimmers. About 66% of Americans are afraid of open bodies of water like lakes, rivers, or the ocean and 46% are afraid of the deep end of a pool (Lachocki, 2012). Although drowning rates have decreased over the last 15 years, fearful individuals take fewer risks in water (Brenner et al., 2003). Furthermore, drowning remains the second leading cause of unintentional injury and death in children ages 1-11 years. This accounts for over 1,000 child deaths per year (Lachocki, 2012). Young children under the age of 5 comprise a particularly high-risk group and experience the highest drowning mortality rates of all (Morrongiello et al., 2014). The Centers for Disease Control and Prevention reported that overall, 37% of Americans are unable to swim, and 62% of African Americans along with 47% of Hispanic-Americans are less likely to know how to swim (Lachocki, 2012). Typically, many young adult non-swimmers develop psychological barriers to the pool such as fear of water and fear of failure (Newsome et al., 2001).

Past research has supported the use of systematic desensitization as an intervention for reducing fear and anxiety. Rooted in reciprocal inhibition, systematic desensitization involves two key steps. Step 1 is to teach activities that promote relaxation such as deep breathing, progressive muscle relaxation, and imagery. Step 2 is to introduce an individual to a series of situations (hierarchy)

that they find fear inducing while remaining completely calm. When performed in water, this method is known as in-vivo desensitization or gradual exposure (Wolpe, 1958). Jacobson (1929) was the first to assert that relaxation techniques such as deep breathing, progressive muscle relaxation and imagery help ease anxiety levels. Past studies that included relaxation techniques demonstrated significant progress in reducing tension and anxiety among several populations (Bommareddi & Valsarai, 2015; Hayama & Inoue, 2012; Kim et al., 2016; Pan et al., 2012; Simonsmeier & Buecker, 2017). To date, little work has been done with those afraid in water.

Wolpe applied relaxation techniques to in-vitro desensitization. Menzies and Clarke (1993) described in-vitro desensitization as vicarious or imaginal exposure to feared stimuli: in this case, water. Several early studies have supported in-vivo desensitization to be more successful in treating fear in water than in-vitro (Bentler, 1962; Lewis, 1974; Menzies & Clarke, 1993; Osborn, 1986; Pomerantz et al., 1977; Ultee et al., 1982). Weiss et al., (1998) specifically examined the impact of peer models on swimming skill performance and psychological response. Results indicated that peer mastery and coping models combined with swimming lessons were more effective in reducing fear than swimming lessons alone. One study evaluated the effects of an intervention involving physical guidance and reinforcement for pool avoidance exhibited by a 14-year old girl with autism and a severe intellectual disability (Rapp et al., 2005). The outcomes were successful as the participant continued to approach, enter, remain in the pool, and other bodies of water without guidance or food reinforcements. A more recent study investigated the effects of a multi-component intervention on increasing water skills for three typically developing children. The intervention encompassed goal setting, self-monitoring, behavioral skills training and positive reinforcement. Results showed that the intervention increased water skills and positive affect while reducing phobic behaviors (Chan et al., 2016).

Historically, minimal attention has been given to the assessment and treatment of childhood phobias as it remains a relatively neglected area of research. Even fewer studies have focused on adult fear as well as other phobias connected to fear in water despite its common existence in society (Depiano, 1985). Current research is needed to understand the intervention process across the lifespan. Therefore, the purpose of this study was to examine the effectiveness of the intervention process to reduce fear of water. The specific research question was, “How effective was the proposed intervention in reducing fear in water for a 30-year-old female?” From a pragmatic perspective, the larger aim is to develop a teachable and sustainable intervention for aquatic professionals to apply since no unified approach exists.

Method

Design and Setting

Case studies favor *how* and *why* questions that investigate “a contemporary phenomenon (‘the case’) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident” (Yin, 2018, p. 15). A case study:

 copes with the technically distinctive situation in which there will be many more variables of interest than data points; benefits from prior development of theoretical propositions to guide design, data collection, and analysis; and relies on multiple sources of evidence, with data needing to converge in a triangulating fashion. (Yin, 2018, p. 15)

Additionally, case study research allows investigators to explore simple to complex interventions in an effort to inform professional practice (Yin, 2003 as reported by Baxter & Jack, 2008). For this reason, a single-subject exploratory case study approach was selected to measure the effectiveness of an intervention process in reducing fear in and around water. The study took place on a university campus equipped with office space, a locker room, two outdoor swimming pools, and a pond. One session took place at a local beach.

Participant

A combination of criterion and convenience sampling strategies were purposively used to recruit an individual for this case study. The criteria were self-reported feelings of fear in water and the ability to communicate in English. The participant worked at the university and knew the researchers.

Data Collection

Six instruments were used to collect data: Spielberger’s State-Trait Anxiety Inventory (STAI); semi-structured interviews; swimming skills tests; collages; a participant’s journal; and a researcher’s journal. The STAI was used to help understand the participant’s daily and situational anxiety levels (Spielberger, 1983). It has been shown to have very strong psychometric properties with good reliability (Barnes et al., 2002) and validity (Kabacoff et al., 1997). An interview guide was built based on the researchers’ previous professional experiences, past research in the area of aquatics, a review of literature, and three pilot interviews. Interviews lasted between 30-70 min and took place in a quiet office space on campus. Pilot interviews took place off campus in a private setting. Each interview was audio-recorded and transcribed verbatim. The swimming skills test was modeled after common aquatic skills found in the American Red Cross Adult Swim Level 1 course: Learning the Basics. This course is designed to introduce the inexperienced or fearful adult to the water (American Red Cross, 2021). The participant was asked to create drawings that represented her beliefs about fear and water. Instead of

drawing, the participant chose to construct collages. In a study with individuals diagnosed with AIDS (Anderson & Spencer, 2002), researchers discovered that, “as the richness of cognitive representations emerged, it became apparent that greater depth could be achieved by asking participants to draw their image of AIDS and provide an explanation of their drawing (Anderson & Spencer, 2002, p. 1342). Throughout the study, the participant and primary researcher maintained journals. The template for the participant’s journal included four columns: the date; the situation (context); what happened; and thoughts and feelings. The template for the researcher’s journal included six columns: the day; the date; what was happening; reflection, methodological notes, and theoretical notes.

Procedures

After receiving human subjects approval from the University’s institutional review board, we met with the participant in a private office space to explain the study, fill out consent forms, issue a participant Bill of Rights, and answer any questions about the study. Next, the participant completed Spielberger’s Trait Anxiety Inventory followed by pre-interview questions. Lastly, the participant was asked to keep a journal throughout the study and create a collage. During week two, we met the participant at the outdoor swimming pools to administer Spielberger’s State Anxiety Inventory followed by the pre-swimming skills test. She did not feel comfortable entering the water at that time. Instead, she verbally rated her level of fear when asked about each skill listed. Due to the participant’s continued level of fear, all but one trip to the pool took place near but outside of the water. On that single occasion, we sat on the edge of the pool at the shallow end with our feet submerged in the water. Three days of the study were spent walking on campus to a nearby pond; one day was spent at a local beach. The same process was followed for collecting mid- and post-anxiety inventories, interviews, and swimming skills tests with the exception of the collage. A mid-collage was not collected due to physical and health challenges the participant was experiencing at that time. The researcher’s journal entries began when pilot interviews were conducted and continued throughout the study.

For pool, pond, and beach visits, the participant constructed her own hierarchies. These self-designed hierarchies consisted of gradated situations that represented skills the participant wanted to learn throughout the study (see Table 1). Hierarchies were routinely created as new skills arose. A process called interpolation can be used to assist participants with these progressions. Interpolation is defined as the act of inserting or introducing elements between other elements or parts. This process began by creating a rating scale of 1-9 on a sheet of paper. Next to 1, the participant would describe a situation that caused no fear; next to 9, a situation that caused overwhelming fear. Number 5 would describe a situation midway between scene 1 and scene 9. The remainder of the hierarchy

was filled out following this pattern. While progressing through each hierarchy, a traffic light analogy was introduced to monitor the participant's level of fear. If the light registered green, the participant was engaged in an activity that did not generate fear. If the light was yellow, the participant was engaged in an activity that would likely generate some fear. Finally, if the light conveyed red the participant was engaged in an activity that was generating fear (Ravizza & Hanson, 1995). The most critical factor was for the participant to remain calm at all times. If fear began to emerge during any step in the hierarchy, the participant was guided back to the previous step or transitioned to an activity that promoted relaxation until a state calmness was restored.

Table 1

Post-Study Hierarchy for Beach Visit

1. The night prior to going to the beach with a friend, I pictured myself on the beach just trying to remain calm.
2. Incorporated a lot of breathing exercises.
3. I was able to tell myself, "I'm going to go in."
4. On the day of the beach trip, I continued breathing exercises at the beach.
5. I began enjoying the sound of the water and allowed that to flow over me.
6. I walked toward the water.
7. I walked backward once the water rose.
8. Repeated steps 6 and 7.
9. My friend suggested I go just a bit farther, and I did.

Note. This hierarchy was established post-study by the participant in preparation for a beach visit with a friend. It exemplifies the participant's ability to self-monitor her level of fear.

Intervention

We intended to meet twice a week for 32 sessions for 50 minutes but met 24 times for 90 min during the 18-week intervention. This change in schedule was due to the participant's health challenges and availability. During the final week of the study the research conducted a debriefing session.

Data Analysis

An inductive data analytic strategy was used to scrutinize interviews and participant journal entries based on the work of Yin (2018), Corbin & Strauss (2015), and Glaser & Strauss (1967). Transcriptions and journal entries were read several times (soaking) while making preliminary notes in the margins. Line-by-line coding of the data was done using in-vivo codes (captured from the data themselves), research literature, and the interview questions. A codebook was developed that listed the central research question, each code, the definition of each code, and corresponding quotes under each code. Similar codes were grouped together to develop themes. The participant was asked to provide an explanation of her pre- and post-collages

(Anderson & Spencer, 2002). Additionally, the primary researcher conducted a side-by-side comparison of the pre- and post-collages with special attention given to the configuration of the pictures, photo selection, colors, size, and text. The STAI was scored using the scoring keys to note any changes in trait and state anxiety levels. Swimming skills test scores were examined to detect any decreases in fear. The researcher's journal was used to confirm major findings.

Data were validated using several strategies consistent with qualitative research (Creswell, 2013). We independently coded interview and participant journal data before coming together to discuss emerging codes and themes. Each data analysis meeting was audio-recorded and served as an audit trail for making decisions about the data. During the coding process we *bracketed* our own water experiences in an effort to reduce researcher bias. Member checking was conducted throughout the study. This included taking the transcribed data, analyses, interpretation, and conclusions back to the participant for review and discussion. The length of the intervention allowed for prolonged engagement with the participant and continual observation during data collection and water sessions. Data sources were triangulated to ensure trustworthiness and transferability of major findings. With regard to reliability, an inter-coder percent of agreement (P) of at least 80% was maintained when coding interviews and participant journal data. The formula used to calculate P was total number of agreements divided by the total number of agreements plus the total number of disagreements multiplied by 100 percent. This process helped ensure we agreed a majority of the time on which code word was assigned to a passage of text.

Results

Findings from pre-, mid-, and post-interviews, 12 participant journal entries, and pre- and post-collages revealed cognitive and psychological progress made by the participant during the study. Thirty researcher journal entries helped support these conclusions. Conversely, this growth did not yet translate into lower state anxiety levels across pre-, mid-, and post-STAI scores or decrease levels of fear on swimming skills tests.

Four themes emerged from the interviews, participant journal entries, and collages: origins of fear; consequences of fear; coping strategies; and enjoyment in, on, or around ocean water. Themes and codes are presented in Table 2. Each theme is described, and example quotes are identified in Tables 3 - 6.

Table 2*Themes and Codes*

Themes	Codes
Origins of fear	Sparked a fear Situational fear Self-talk
Consequences of fear	Distrust Missed opportunities Somatic response
Coping strategies	Avoidance behaviors Facing my fears
Enjoyment in, on, or around ocean water	Possible opportunities Love for the ocean Security

Themes*Origins of Fear*

This theme represented the events that shaped and continue to sustain the participant's level of fear. Codes under this theme included sparked a fear, situational fear, and self-talk (see Table 3).

Table 3*Theme 1: Origins of Fear*

Code	Example quote
Sparked a fear	“I chose these images mostly because when we began this study I was completely terrified of the water. Even though I love the water, I was afraid of being in it, or around it because of my experiences. The top middle one is a reflection of how I felt when I almost drowned a few times; and the Jaws image is mostly because I am afraid of sharks and seeing one as a child really scared me and made me not want to go into the water also.” (pre-collage narrative)
Situational fear	“We walked to the orange grove on campus today by the pond and looked at the turtles for a little bit. She was asked how she felt at the time we were standing right in front of the pond. She responded that she was totally fine. The reason for her feeling relaxed about

it was because she knew that no one would go in the pond and in her mind, she felt pretty confident that she wouldn't be pushed in either *because it's a pond that no one will get into.*"

(researcher's journal)

Self-talk

"...because when you're [on] those tour boats, they are a lot bigger and there are a lot more people, and I think that's also partially maybe the fear also. I don't do well in crowds of people, so you know, what if [I] finally get enough courage to go the edge of the boat, and someone knocks me over, and then there is a shark in there? That's how my mind works...which is a stupid process, but that's just how my mind works." (mid-interview)

Consequences of Fear

This theme represented the negative consequences of being fearful. Codes under this theme included distrust, missed opportunities, and somatic responses (see Table 4).

Table 4

Theme 2: Consequences of Fear

Code	Example quote
Distrust	"I didn't really feel like they were paying attention necessarily, especially because I felt like, you know, the person was pushing me down, the lifeguard or someone should have noticed. It's not like there were a hundred kids in the pool. Someone should have noticed that this person was pushing me down. It felt like eternity. It didn't feel like just 10 seconds. Literally, like every time I kept putting my head up to breathe she was pushing me down because she couldn't get out. So, how is it that you're a lifeguard or a teacher, and you are not seeing this (chuckles)? And it's not even, like what are you doing? Like, why aren't you paying attention? And if there is not enough people to watch everybody, then don't let the kids be there all at the same time. You know, so like that propelled my lack of trust in people, instructors, and things like that. I have a friend [who] works at the YMCA, an instructor for a dance class, and she

	<p>was like ‘why don’t you take swim lessons at the YMCA?’ And I was like nope! Can’t do it (chuckles).” (pre-interview)</p> <p>“Interview highlighted lack of trust of others (except her father) due to three traumatic episodes that involved others holding the participant underwater (may need trusted individual to accompany those afraid in water).” (researcher’s journal)</p>
Missed opportunities	<p>“...you know when I was in Hawaii over the vacation, I tried so hard.... they have a beach called the Black Sand Beach! I wanted so much to go into the water, and the waves and the water in Hawaii [are] so beautiful and so I took these amazing photographs, but I would see everybody else going in there, but I just couldn’t...” (pre-interview)</p> <p>“She was observing a few people having fun in the water, and she felt sad that she could not do it.” (researcher’s journal)</p> <p>“I love whales and killer whales are my favorite and my dream is to one day be in the water with killer whales. Or even being able to be strong enough to be [on] a boat and see them in real life. I dream about that day all the time.” (pre-collage narrative)</p>
Somatic response	<p>“...The idea of being in the water again is pretty intense to me. Even just sitting here writing about it makes me a little nervous. My hands are shaking a bit. I feel a little silly feeling this way, but at the end of the day, what am I supposed to do?” (participant’s journal)</p> <p>“The big image of the water in the middle is mostly because (even as I write this now) I feel very overwhelmed by the depth and expanse of the water; there’s so much of it and sometimes it’s intimidating. It’s never ending.” (pre-collage narrative)</p>

Coping Strategies

This theme represented how the participant has dealt with fear throughout her life. Codes under this theme included avoidance behaviors and facing my fears. Avoidance behaviors characterized a maladapted approach to fear whereas facing-

my-fears acknowledged fear while simultaneously taking steps to minimize or eliminate it (see Table 5).

Table 5
Theme 3: Coping Strategies

Code	Example quote
Avoidance behaviors	<p>“I won’t take baths anymore because even though it’s not as much water, just the idea of laying in the water like that scares me, so I only shower, which I guess is good (chuckles).” (pre-interview)</p> <p>“I don’t participate in anything aquatic related. I’ve wanted to take the swimming for beginner’s class here, but I just couldn’t take it. There is just too many people.” ... I can’t afford to take private lessons, but then I just cannot be in a classroom setting like that.” (pre-interview)</p>
Facing my fears	<p>“I think it just goes back to my positive outlook or trying to be positive. I don’t want the anxiety to control me. So, it’s the idea that I’m not going to let the anxiety stop me anymore. I’m going to let it happen, and then once it passes, what’s my next step. So, I think my relationship with water is going to get better. Eventually I will be able to, you know, get in there (chuckles). I don’t know if I’ll be able to fully swim, but I would like to be able [to be] in the water, and not have that anxiety and panic attack.” (post-interview)</p> <p>“The post-collage is mostly relating to my personal growth throughout this experience with you. I know that I still have a lot to work on, and I plan to work on things, but I feel a bit more confident in letting things go a bit more and realizing that in order for me to fulfill my dreams I have to move forward. I love the ocean and I love the peace it brings me.” (post-collage narrative)</p>

Enjoyment In, On or Around Ocean Water

This theme represented the participant’s desire to be in, on, or around the ocean while feeling safe and comfortable. Codes under this theme included love for the ocean, possible opportunities, and security (see Table 6).

Table 6*Theme 4: Enjoyment In, On or Around Ocean Water*

Code	Example quote
Love for the ocean	<p data-bbox="665 409 1331 693">“I love the ocean and I love the peace it brings me. It is the one place that I can go and just feel completely connected to Mother Nature - that’s why the first image of the sunset. The pictures of the whales are still for the same reason. I want to keep my goal close to me and keep trying to get to my dreams of seeing a killer whale in their natural habitat.” (post-collage narrative)</p> <p data-bbox="665 714 1331 1039">“Today was our first beach day. There were a lot of people at the beach. But, because the participant loves the ocean so much, it acted as a distraction for her, and she was not too concerned or uncomfortable with so many people around. She really enjoyed the water except the one time the water touched her knees. However, she did go farther (shin level) then she would have if she had gone by herself. Overall, it was a good experience...” (researcher’s journal)</p>
Possible opportunities	<p data-bbox="665 1060 1331 1312">“Oh my God it would be so great! I’d be able to go in the water! I’d be able to actually go swimming, and you know do a little paddle boarding, or learn to even possibly surf. I think surfing is amazing. I would love to be able to do that. And, you know, not just be the person [who] just watches all of her friends go out into the ocean.” (pre-interview)</p>
Security	<p data-bbox="665 1333 1331 1753">“You know, because my dad was with me, there was very minimal anxiety, obviously like I said, having my friend there [at the beach], she would’ve done anything she could to help me, but, it’s a different kind where it’s like you are still not my blood. If my parents are there and there was a shark that was going to come and get me, they would have stepped in between me and the shark. My friend probably would have pulled me away, which makes sense, you know, it’s nothing against her but, the comfort was definitely a lot more with my parents.” (pre-interview)</p>

“...when I’m around people that I know will protect me, I’m not as terrified. So when I was at the beach with the both of you, I knew that if something were happening to me, both of you would do whatever you could to make sure that I was okay...”

(post-interview)

“The participant felt comfortable today and took the next step by putting her feet in the water. She sat between us. We hung out there by the pool with our feet dangling in the water for a good 10 minutes.”

(researcher’s journal)

Taken together, the interviews, journals, and collages helped the researchers understand the participant’s experiences in water, her motivations, and needs in order to tailor the intervention as the study progressed. This, in turn, laid a foundation of trust and sense of security that allowed the participant to feel in control while being around or in the water.

The State-Trait Anxiety Inventory (STAI)

The participant completed the STAI at pre-, mid-, and post-testing. Both inventories consisted of 20 questions. The state anxiety inventory assessed how the participant felt at a specific moment in time. The trait anxiety inventory assessed how the participant generally felt on a day-to-day basis. The range for both inventories is 20 (lowest anxiety) to 80 (highest anxiety). Overall, state anxiety scores were consistent throughout the study with a two-point drop during mid-testing. Trait anxiety scores increased during mid- and post-testing compared to pre-testing (see Table 7).

Table 7

Total Score for State-Trait Anxiety Inventory

	State Anxiety	Trait Anxiety
Pre	67	59
Mid	65	63
Post	67	64

Fear Associated with Swimming Skills Test

The participant completed a pre-, mid-, and post- feeling of fear associated with a swimming skills test. A scale, numbered 1–5, was used to assess the fear associated with each swimming skill (1 = *none*, 2 = *minor*, 3 = *moderate*, 4 = *significant*, 5 = *overwhelming*). The tests were conducted verbally on the pool deck because the

participant was too uncomfortable to enter the water. The participant was asked to rate her level of fear as if she were in the water performing each skill (see Table 8).

Table 8

Fear Associated with Swimming Skills Test Scores (1=none; 5=overwhelming fear)

Swimming Skill	Pre, Mid, Post	
	Shallow Water	Deep Water
1. Getting in	4, 4, 4	5, 5, 5
2. Putting the face in	5, 5, 5	5, 5, 5
3. Floating on the front	5, 5, 5	5, 5, 5
4. Floating on the back	5, 5, 5	5, 5, 5
5. Propulsion on the front	5, 5, 5	5, 5, 5
6. Propulsion on the back	5, 5, 5	5, 5, 5
7. Breath (bobbing)	5, 5, 5	5, 5, 5
8. Water entries (jump/dive)	5, 5, 5	5, 5, 5

Discussion

Strategies

The study findings shed new light on how aquatic professionals can best facilitate learning for those participants who are extremely afraid in water. Two key intervention strategies included taking time to understand a person's water experiences and using systematic desensitization to gradual expose them to the water. Each key intervention strategy is discussed within the context of previous literature.

Understand a Person's Water Experiences

Taking time to understand the participant's water experiences was achieved formally and informally. First, formal semi-structured interviews were conducted in order to gain insight into the participant's relationship with water (Stillwell, 2011). This allowed the participant to verbally express her feelings throughout the study. This formal approach was accompanied by many informal conversations that took place going to and from the water. Second, the participant created two collages that offered a visual representation of this relationship (Anderson & Spencer, 2002). This provided an opportunity for her to convey her emotions using a creative

process. Third, the participant's journal further illuminated her day-to-day encounters with the water. This enabled her to use written text to communicate the physical, cognitive, and psychological aspects of her journey. Even though the STAI and swimming skill test scores showed no improvement, gaining awareness into the participant's history with water helped build rapport, trust, and continuously shape the direction of the research.

Systematic Desensitization

Using systematic desensitization and gradual exposure to the water facilitated a conducive learning environment (Bentler, 1962; Lewis, 1974; Menzies & Clark, 1993; Osborn, 1986; Pomerantz et al., 1977; Ultee et al., 1982). Due to her past experience with meditation and breath work, the participant was keenly familiar with these skills and the potential they yielded. Little work was done with us to learn and practice these relaxation techniques or learn new ones. The same held true for step two in the process: designing hierarchies. Even though the participant was less familiar with this step, she had a good sense about breaking down what she felt comfortable doing around the water into small manageable steps. Ultimately, the flexibility offered by the intervention empowered the participant to select a preferred body of water to practice in, choose her ideal relaxation techniques, and construct her own hierarchies.

Employing these two strategies created a learning environment that is a shift from the traditional way swimming lessons are taught. It puts the learner at the center of the experience versus a teacher-centered approach where the teacher controls what skills the students will perform and when they will perform them regardless of psychological readiness (Weimer, 2002). This process gradually reduces the fear participants encounter when compelled to do something in the water they are not prepared to do (Stillwell, 2011). Instead, now they have skills to work through their individual, or group, hierarchies at a manageable pace while simultaneously remaining calm. Balancing the power between the teacher and student will slowly dissipate fear by placing the student in control of the learning situation while the teacher's primary role becomes that of a facilitator (Weimer, 2002). When students know they will be safely and gradually exposed to the water, it is likely to result in thinking that is more realistic and less exaggerated. Therefore, they believe they are more capable of coping with their fear. Moreover, the teacher's personalized attention may have a positive impact on success (Spiegler & Guevremont, 1998).

Study Strengths and Limitations

The use of a qualitative single-subject exploratory case study approach to examine the effectiveness of an intervention to reduce fear of water, proved to be a study strength. This approach allowed researchers to focus, in-depth, on the progress of one participant by collecting multiple forms of data. Several study limitations emerged as the study progressed. First, the nearest beach was approximately 20 miles from campus and could not be easily coordinated once the study was underway. The length of the intervention needed to be extended to accommodate more time at the beach. Secondly, the participant's unique and dramatic history of fear as a child challenges the transferability of the results to other more typical fear of water cases. Lastly, getting to know each participant can be time-consuming.

Conclusion and Recommendations

Two of the most significant lessons learned from this study were building a trusting relationship with our participant and allowing her to control her learning environment at all times. Based on her previous water experiences, she had learned that trusting others, with few exceptions, in and around the water was difficult. Learning to trust others, herself, and being in the water again was an important part of the journey. Allowing our participant to be in complete control during the instructional process was reinforced by a learner-centered environment where she had *a voice*. This meant making choices about the sequence of skills (hierarchies), relaxation techniques employed, and, if possible, choosing the body of water where she felt most comfortable. Together, these lessons helped our participant move forward cognitively and psychologically and equipped her to take on the next challenge – enjoying the water without fear.

Trust was built by getting acquainted with our participant through informal conversations and at formal data collection points. When it came to physical activities such as sitting on the edge of the pool with our feet in the water, we honored her personal space while remaining available for physical assistance. Although getting to know participants can be time-consuming, different strategies can be embedded to offset this effort. Offering swimming lessons for those afraid in water would create homogeneous groups of participants with a shared experience. Once assembled, this would allow for meaningful and relevant discussions around the topic of fear. These discussions could take place anytime during the lesson. Likewise, engaging participants in icebreaker, cooperative, and team-building activities during the lesson would provide a playful time that enhances relaxation and boosts social interactions. Two premiere swim schools for those afraid in water incorporate in and out-of-the-water discussion sessions as part of their programs and in-water games and activities (Miracle Swimming School for Adults and Strategies for Overcoming Aquatic Phobia – S.O.A.P). Overall, we found this time was well spent in terms of building trust with our participant. She

felt comfortable sharing her water experiences with us as well as physically trusting us in and around the water.

The flexibility of the intervention, delivered within a learner-centered environment, helped foster trust and put our participant in control of her own learning. The role of the researchers in this environment become that of a facilitator who used their aquatic expertise to provide continuous support, suggestions, and ideas to the participant rather than dictate what the participant would do and when they would do it. An intervention that customizes swimming instruction for individuals afraid in water would allow for equitable access to learn-to-swim programs.

Providing additional training to aquatic professionals using these strategies could ensure quality lessons for those sidelined by fear. The importance of this training was punctuated by a pilot interviewee who said, “Taking swimming lessons proved that I can’t swim.” Even in the most extreme cases, this intervention offers a starting point for assisting those afraid in water. Other day-to-day things that can greatly aid participants during instruction are keeping warm, wearing goggles for good swimming vision, and using earplugs and nose plugs as needed. Future research should examine and refine intervention strategies across diverse populations in a variety of settings.

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