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Closing Racial Disparity by Dismantling Constructs of Fear - A Practical Methodology for Learning to Swim

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Cover Page Footnote

Thank you to Milton Nelms for your gift of knowledge, methods, and experience. The work described in this article is only possible because you shared with us your approaches and drills.

Abstract

African American, Black, Hispanic, Latino, and low-socioeconomic communities have lower swimming ability and higher relative drowning rates than White and high-socioeconomic communities, distinguishing the former as high-priority populations to engage with effective learn-to-swim programming. This article demonstrates how prioritizing the reduction of fear-producing brain processes while learning to swim can result in 79.5% of high-priority population non-swimmers being able to jump into deep water, roll onto their backs and either float or tread for 60 seconds, and swim 25 yards after an average of 14 practice sessions. Practical explanations of four key components— water exploration, structured games, emulating coaches, and water safety education—are provided. Three real-world programming examples detail how the curriculum was structured and results for (1) a youth learn-to-swim program, (2) a high school program, and (3) a weekly day camp program.

Keywords: race, socioeconomics, disparity, fear, drowning, swimming, learn to swim

In the United States, 64% of African American/Black children, 45% of Latino/Hispanic children, and 79% of children in households with income less than \$50,000 have little or no swimming ability (Irwin, C., Irwin, Ryan, & Drayer, 2009). 11- and 12-year-old African American youth drown in swimming pools at ten times the rate same-aged White youth drown (CDC 2014). Small incremental increases in African American/Black participation in swimming result in a substantially larger impact on drowning prevention in the same population (Myers, Cuesta, & Lai, 2017). Research has rejected the assertion that underrepresented youths lack pool access (Irwin, C., Irwin, Ryan, & Drayer, 2009). In fact, 82% of parents who explain that their children have never taken swim lessons due to “no access to pool,” say they live within ten minutes of a pool (USA Swimming, 2014, p. 49,53). Other swimming-related myths rejected by research are: swimming is too expensive; pools are not accessible; African American/Black and Latino/Hispanic children are not interested in swimming; and chlorine’s effect on hair or skin is undesirable (Irwin, C. et al., 2009; Irwin, C., Pharr, Layne, & Irwin, 2017; USA, 2014).

Misimi found overcoming fear is the most common barrier to why people never learn to swim (2020). In the early 2010s, Milton Nelms introduced the concept of increasing a person’s ability to self-rescue through improving somatic feel of the water by reducing their psychological fear (Gould and Nelms, 2017). After learning of Nelms’s work, Dane Wolfrom and Christine Snellgrove began to explore dismantling systemic constructs of fear to increase swimming participation and outcomes for racially and socioeconomically underrepresented youth in

Tacoma, Washington. The outcome was a learn to swim approach that Wolfrom and Snellgrove called Beginner Swim Team (BST).

Wolfrom and Snellgrove helped (2019) Metro Parks Tacoma (MPT) add a BST to their already established USA Swimming Club team and SwimAmerica swim lesson program. MPT's inaugural year of BST served over 200 youth, 90% of whom exceeded the criteria to pass out of Metro Parks Tacoma's traditional swim lessons program after twelve 60-minute practices spread over six weeks (Wolfrom, 2019). MPT's club swim team and BST combined to serve more than 450 swimmers in 2018, with race and poverty demographics similar to Tacoma's 2018 population, as illustrated in Table 1 (Wolfrom, 2019). In October 2019, the National Summer Learning Association's featured MPT's BST program at their national conference in Atlanta.

Table 1

Metro Parks Swim Team Participation Compared to Census (Wolfrom, 2019)

Metro Parks Swim Team Participation Compared to Census		
Swim Team Ethnicity and Poverty Level Compared to the Census.		
	2018 Metro Parks Swimmers	2018 Tacoma 17&U Population
African American	11.0%	9.4%
American Indian or Alaskan Native	1.3%	1.8%
Asian	15.1%	9.4%
Hispanic or Latino	13.3%	11.2%
Native Hawaiian and Pacific Islander	1.8%	1.3%
White	45.4%	65.9%
Other	16.2%	12.1%
Below Poverty	33.6%	33.6%

Ethnicity and poverty level is what swimmers reported during program registration
Population is under 18 years old from the US Census Bureau's 2018 American Community Survey.

In 2021, Wolfrom and Snellgrove launched a BST program for a nonprofit USA Swimming team, *Metro Aquatics*. In the first twelve months (September 2021 to August 2022), 310 youth with no previous swimming experience participated. After an average of 14 practice sessions, 246 of the participants could jump into deep water, roll onto their backs and either float or tread for 60 seconds, and/or swim 25 yards. Six high school participants who initially self-identified as “uncomfortable placing face in water” were certified as American Red Cross lifeguards after 18 practice sessions across six weeks. Table 2 illustrates race and

income demographics of Metro Aquatics’ first year BST program compared to Tacoma’s demographics (United States Census Bureau, 2021). This article details how BST addresses systemic fear constructs that may cause disparities in swimming participation and drownings.

Table 2
Metro Aquatics Beginner Swim Team Compared to American Community Survey

<i>Metro Aquatics Beginner Swim Team compared to American Community Survey</i>		
	2021-2022 Metro Aquatics Beginner Swim Teams	2021 Tacoma Population *
American Indian / Alaska Native	1.1%	1.9%
Asian / Asian American	9.9%	9.6%
Black / African American	21.3%	9.4%
Hispanic / Latino	17.9%	12.9%
Two or More Races	6.5%	14.8%
Native Hawaiian / Pacific Islander	1.9%	0.9%
White alone	41.4%	59.4%
Low-income	78.4% <i>(received financial assistance)</i>	28.6% <i>(less than 200% poverty level)</i>

* United States Census Bureau (2021)

**Psychological Considerations of “Being Taught to Swim”
verses “Learning to Swim”**

By definition, “teaching is giving lessons about a particular subject to a group of learners...while learning is gaining knowledge by studying, being taught and experiencing” (Classe 365, 2016). BST allows participants to learn how to swim through experience and somatic exploration, rather than being taught how to swim through hearing instructions on what to do with arms and legs relative to body.

Traditional swim lesson curricula prioritize floating before propelling and moving arms/legs relative to the body rather than responding to water pressures and flows. Traditional programs can reinforce emotional fears of water by sending subconscious messaging that one is not safe in the water without assistance. This messaging may occur through enforcement of sitting or holding onto the wall; staying in “caged” tot docks until it is their turn for a “ride” with their instructor; asking if they are okay when they come up coughing water; or being told that they are only safe if they use external floatation such as noodles, water wings, or kickboards. If fueling emotional fear responses slow down how long it takes for participants to begin swimming unassisted, participants from underrepresented populations may fear they are confirming a stereotype that they cannot swim, which

can cause further disparity in swimming competence (Spencer, Steele, & Quinn, 1999; Steele & Aronson, 1995).

Edgar Dale's cone of experience states that 90% of what people know is learned by experiencing new things, and only 10% has been learned through reading and listening (Dale, 1969). It would follow that swim lesson programs which expect students to sit out of the water listening to swim instructors might take several months for participants to begin swimming unassisted. Some traditional programs progress participants from sitting on the wall to floating, which is remaining completely still in the water. They also may teach body limb movements in relation to the body (i.e., "move your hand like this holding your elbow like this"), which dissociates limbs from feeling water pressure.

There may be a thin line between fearing and respecting the water. The BST approach posits that fear of the water occurs predominantly in the reptilian and limbic brains, and respecting the water occurs predominantly in the neocortex-cerebellum. Operating in the neocortex-cerebellum is important both in developing a physical, proprioceptive relationship with water and in one's ability to self-rescue under duress (self-rescue includes recognizing and avoiding developing unsafe situations). Youth can recognize fear-induced behaviors and expressions in parents, instructors, and other adults through facial emotion recognition (Kong, 2022); and such recognition can condition youth to have a limbic emotional fear response to water. Much of the BST approach works on accessing participant's neocortex-cerebellum throughout a variety of stimuli. To access learners' neocortex-cerebellum, coaches may ask questions such as "What did you eat for breakfast?" "What is your favorite sport?" "What is your favorite ice cream?" BST has learners playing tag or competing in relay races, which help develop a feeling for water pressure and flow. By focusing on these methods, the average learner begins to swim after a few sessions—even though no one specifically taught them. Of the 310 participants in Metro Aquatics' BST first year, 52 self-identified as afraid to get in the water when they showed up at their first practice. All 52 entered the water by themselves before the end of their first practice session.

Beginner Swim Team Curriculum Design

BST curriculum maximizes time learners spend in their neocortex-cerebellum by intentionally preceding something new or challenging with something familiar and/or fun. One way to accomplish this is by adapting exercises and games that youth play on other sports teams, in PE class, or at playgrounds. The BST curriculum has four key components: water exploration, structured games, emulating coaches, and water safety education. The first three components were identified through several years of applying various approaches and tracking trends

in what most regularly preceded “breakthrough” moments for learners. Water safety is considered a priority to reduce drownings.

A typical BST practice consists of a warm-up, time learning each of the four competitive strokes, water exploration, and a safety lesson. The program is organized by time—coaches are given a time duration to spend on warm-up, each stroke, water exploration, and water safety. Table 3 illustrates a template for BST practice durations. Learners remain in the water and moving as much as possible, with a goal of the entire session. To help keep things moving, learner groups of 24 swimmers may have 2-3 coaches, with one coach giving instructions, a second demonstrating, and a third might be preparing for what is coming next.

Table 3
Template for 45- & 60-minute Beginner Swim Team sessions

Total Session Duration	45 minutes	60 minutes
Warmup	6 minutes	10 minutes
Stroke 1	6 minutes	7 minutes
Exploration	2 minutes	3 minutes
Stroke 2	6 minutes	7 minutes
Exploration	2 minutes	3 minutes
Stroke 3	6 minutes	7 minutes
Exploration	2 minutes	3 minutes
Stroke 4	6 minutes	7 minutes
Exploration	2 minutes	3 minutes
Safety Lesson & Activity	7 minutes	10 minutes

Warm-up typically follows a pattern similar to other sports—jogging, squatting, jumping jacks, and other PE-like exercises...all performed in the water. Stroke learning involves a progression of: swimming, skill or game, and then more swimming. An example of a game for front crawl stroke is alligator tag (moving in the water with mouths open and half full of water). Alligator tag helps a swimmer’s brain program not to fear when water enters the mouth while swimming.

Sessions are designed to emphasize inclusion though creating a sense of belonging and valuing learners as unique individuals (Shore et al., 2011), since such emphasis can decrease anxiety and increase self-esteem (Hunt et al., 2023; Baumeister & Leary, 1995). Particular attention is given to creating a sense of “I belong in the water” for each individual learner.

Water Exploration

BST incorporates a lot of water exploration. Exploration is freeform space and time where swimmers learn how their bodies move in the water. Exploration serves two purposes—it provides swimmers space to allow anxiety to subside, and it heightens somatic relationship with water through removing instructional distractions. Water exploration can be effective when placed immediately following something new or challenging. Even though water exploration is not structured, the space presented often results in breakthrough moments for learners.

Structured Games

Structured games are part of the stroke work within learning sessions. BST encourages learners to play tag, to participate in relay races and other games all while developing a somatic feel of the water that will later transform into effective swimming. While cognitively and emotionally focusing on fun, the body somatically learns how to interact with water. Most BST skills were introduced or inspired by Milton Nelms. Some examples of stroke-specific skills include:

- Playing follow the leader while laying or sitting on a kickboard (freestyle)
- Backpedaling – running backwards using arms to help (backstroke)
- Manta – moving underwater, arms constantly engaged with water (breaststroke)
- Ottering – horizontal body on surface rolling from chest to feet (butterfly)

Some examples of skills that are not stroke-specific include:

- Alligator Breathing – breath with open mouth half in the water and half out of the water
- Depth Charges – float in a ball and sink to the bottom by exhaling air
- Freeze Tag – to become unfrozen you need to do 3 depth charges
- Handstands – contests, walking, follow the leader

Emulating Coaches

In BST, learners somatically explore how pressure and wave patterns in the water create movement. Stroke technique is not explained verbally. Instead, coaches demonstrate a stroke and then the learners make an attempt at the stroke. Initially, the result may look like chaos and flailing. After a few sessions, learners begin to emulate the movement of their coaches. BST curriculum works on all 4-competitive strokes at each practice. Coaches demonstrate the stroke while learners emulate what they saw, then a stroke-specific structured game, and finally another coach demonstration and swimmer emulation.

Water Safety

Each practice contains a safety lesson, where swimmers learn how to call for help in an emergency, what rules to follow around water, and other safety tips. Water safety lessons are designed specifically for different ages and abilities. Young swimmers practice what to do if they or someone else get in trouble: self-rescuing by rolling to their backs, treading water, swimming to safety, and yelling for help; calling for help and safely reaching or throwing something to a struggling person. As swimmers get more comfortable and older, such as high school students, lessons might reflect basic water safety and even lifeguard training certification for those who are interested.

Three Case Studies of Beginner Swim Team Application

The following are three narratives from coaches who oversaw and coached different BST programs in 2022.

Case Study #1 – First-person Experience Coaching Children Ages 5-12

It is day 1 of a new series of practices. There are three coaches and 24 excited and anxious swimmers waiting to get in the water. As we get in, one swimmer hesitantly walks to the edge of the pool and stops not wanting to go any further. I go over to see what is happening. Knowing that if I can get them to relax, they will get in, I ask “what did you eat for breakfast?” And other questions. I get them to sit on the edge with feet in the water. Seeing this before, I know they will eventually get in; not wanting to miss out on all the fun their peers are having in the water. I return to the rest of the group.

During warm up we run, tiptoe walk, and do jumping jacks. I notice several swimmers hesitantly let go of the wall and tentatively venture away. Realizing that they can stand on the tires when away from the wall, they become more confident and relax—starting to participate freely. (We use tires at our locations that are deeper than learners’ shoulders to raise the pool bottom across the pool and allow free range of the learners.)

As we play alligator tag, swimmers start to venture anyway from the wall more and more. They become so focused on trying to tag me. There is a sense of relief as they realize they can touch because of the tires we have spread out on the bottom of the pool. As they chase me, they are laughing as they bounce from tire to tire. What I observe is that not only are they having fun but that they are learning how to move, and some are already starting to swim.

As practice goes on, we try handstands, human balls, and move while sitting on kickboards. These young swimmers try everything – even the one that was reluctant at the beginning is now bouncing from tire-to-tire smiling and laughing.

As I demonstrate strokes, swimmers follow along trying to copy what I am doing. It looks like floundering at the beginning, but I do not worry because I know that it will soon become swimming.

During water exploration, I observed that some are trying the skills that we have been practicing, and another group has started a new game of tag. I decide to join in with the group playing tag and they love to chase me.

We end practice with our daily safety tip and skill. Today we talk about what are the rules of the pool and who and where the lifeguard is. The skill of the day is to have swimmers jump in and roll on to their backs. One-by-one they practice this skill creating muscle memory. Some I help a bit while smiling. I end practice by “high fiving” each swimmer and asking what the one thing was that they had the most fun with.

From a coach’s perspective, making it swim team works better for me than swim lessons because swimmers are proud they belong to a team. Playing games is not only fun for young swimmers but also for us coaches—it allows a different interaction with young kids than what they are used to in school. I have observed that most swimmers are eager to try new things – even if they are hesitant—especially if their peers are trying it and smiling. Tapping into their competitive nature through playing tag and relays allows them to experiment with movement in the water.

Case Study #2 – First-person Experience Coaching High School Students

We ran a high school program (4 sessions per week for 4 weeks) with two groups of students: the first hoping to become lifeguards and the second to become BST coaches. This was my first time coaching high school students who did not know how to swim. Of the 39 students, 34 were People of Color and all 39 either qualified for free and/or reduced lunch or were first-generation in the United States. Considering I was working with a new age group, I had some concerns about how this experience would go. My biggest concern coming into this was that the students who were afraid of the water or did not know how to swim would be teased by the other students, and that would discourage them from wanting to try and participate. This experience was quite the opposite of that. Students were very encouraging and supportive of each other, which made this experience different in a special way. Our methodology allowed them to watch each other and make observations about what they needed to improve on and attempt the different skills and strokes. As they progressed and made improvements, they slowly transitioned from asking questions and getting tips from the coaches to asking each other. The students were always willing to help each other and their eagerness to learn and conquer skills grew as well.

Many of the students in the program initially did not know how to swim or had limited swimming skills. We started with 4 students completely afraid to get into the pool, 3 who could tread water and make it across the pool, and the rest comfortable in the water as long as they were always in contact with the pool bottom. Most of the first practice was spent playing a lot of games and doing fun relays which resulted in those who were afraid to get in, getting in, and allowed the rest of the students to get more comfortable. Like youth BST practices, we covered each stroke every practice by doing a drill then the stroke. The blank stares and glares I got from students after asking them to try butterfly or a handstand were not surprising but each time, they felt like they could not do something, I encouraged them to try and they did. There were times where we had to modify something depending on the student's skill level but there was never a time where a student refused to at least try. The skill I modified the most was handstands. For the students who did not like putting their face in the water, I would have them start by practicing blowing bubbles then progress to ball floats, then depth charges, and finally a handstand. By the end of the first week, each student was at least attempting to do a handstand.

During the second week of practice the lifeguarding group went into the deep end and practiced a two-minute tread. One student from the BST coaches group noticed and asked what they were doing and if they could join. That student then encouraged the rest of the future BST coaches to go try it as well and even those who were not as comfortable in the water pushed themselves down a little deeper into the pool and tried to do the two-minute tread. Some of the students were able to accomplish the two-minute tread and others were not, but by the end of the second week, every student was able to swim across the pool (42 feet) doing each competitive stroke.

When the lifeguarding group began to start practicing lifeguarding skills some of the students from the coaches group transitioned over into the lifeguarding group. The students in the lifeguarding group surprised themselves with how much they grew over a short amount of time. They would practice a skill then say, "wow I didn't think I would be able to do that." The part of the training that they dreaded the most was the 300 swim because they did not think that they would be able to finish, but each person finished. The swim coaches group spent the last two weeks coaching each other, experiencing what it is like to lead and mentor. They had a lot of fun coming up with new games and relays. The most difficult part of each practice was getting the students out of the pool when time was up. They continued to develop their own skills by going down to the deep end to practice treading, surface dives, and asking for more difficult drills to continue developing their stroke skills. They always wanted to practice one last skill, do one more relay, or play a few more minutes of whatever game we were playing. What surprised me the most

was their eagerness to learn and willingness to try new things. Each student developed the skills to stay afloat if they fall into water, and all were invited to either become either a BST coach or lifeguard. Each student was able to start having a healthy and safe relationship with the water in four weeks.

Case Study #3 – First-person Experience Coaching at Youth Day Camp

The BST swimming curriculum is applicable to the weekly day camps that I run during the summer. Many of the children that attend camp aren't comfortable in the water and haven't had swimming lessons prior to the camp. This makes the camp a perfect setting to use the curriculum. Specifically, this curriculum is very beneficial to the children because it helps them to develop self-rescuing skills in the span of one short week.

With many of the children at the camp, alligator breathing is a skill used to create comfortability with water in the mouth. This skill, Alligator breathing, happens when a person opens their mouth and allows water to naturally flow in and out while moving around with the head out of the water. In most cases, many of the children I've seen at camp are initially fearful of water that they accidentally swallow. By introducing alligator breathing, many children develop a quick comfort with water being inside of the mouth. In many cases, I have seen the children begin to submerge their heads under water and become open to learning more swimming skills once they have overcome the fear of getting water in their mouth.

Additionally, many aspects of BST curriculum have been incorporated into the warmup and other class time at camp. These aspects include skills like ottering, coasters, running, and backpedaling. All of these skills encouraged the children to feel the water in different ways and explore their movement through the water.

Overall, with the camp only being one weeklong it wasn't realistic for the children to learn and master the strokes in swimming. Instead, by incorporating BST curriculum into the workouts and activities, I have been able to teach memorable fun water skills and movements that will likely keep the children safe and begin to develop stroke technique naturally.

Conclusion

With BST methodology, fear of water is shifted to respect for the water, allowing learners to operate in their neocortex-cerebellum, and allows somatic exploration of water pressure upon the body that generates lift and propulsion. Traditional swim lessons may perpetuate fear and hinder progress through a "teaching to swim" approach. In contrast, the BST "learning to swim" process generates a path forward where 79.5% of participants within 14 practice sessions are able to jump into deep water, roll onto their backs and either float or tread for 60 seconds, and/or swim 25

yards after an average of just under 14 practices. The fun process and few number of sessions before people learn to swim make BST an advised programming consideration for helping close racial and socioeconomic drowning disparities. The components of BST are adaptable to any established or new learn-to-swim curriculum. Future research is recommended into how reducing fear may diminish other forms of racial or economic disparity too.

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