

International Journal of Aquatic Research and Education

Volume 11
Number 4 *Selected Papers from 2018*
Lifesaving Foundation Drowning Prevention and
Rescue Research Conference

Article 7


10-18-2019

Crises in the Aquatic Profession

Robert Keig Stallman

Norwegian School of Sport Science, Lifesaving Foundation, Tanzanian Lifesaving Society, Norwegian Lifesaving Society, International Drowning Research Alliance, robert_keig@yahoo.com

Follow this and additional works at: <https://scholarworks.bgsu.edu/ijare>

 Part of the [Health and Physical Education Commons](#), [Kinesiology Commons](#), [Leisure Studies Commons](#), [Recreation Business Commons](#), [Sports Sciences Commons](#), [Sports Studies Commons](#), and the [Tourism and Travel Commons](#)

Recommended Citation

Stallman, Robert Keig (2019) "Crises in the Aquatic Profession," *International Journal of Aquatic Research and Education*: Vol. 11 : No. 4 , Article 7.

DOI: <https://doi.org/10.25035/ijare.11.04.07>

Available at: <https://scholarworks.bgsu.edu/ijare/vol11/iss4/7>

This Education Article is brought to you for free and open access by the Journals at ScholarWorks@BGSU. It has been accepted for inclusion in International Journal of Aquatic Research and Education by an authorized editor of ScholarWorks@BGSU.

Abstract

In this paper, I propose there are several crises in the aquatic profession and I explain what they are and how to address them using research and my own observations. I use an innovative questioning process to do this by asking you the reader a series of questions after which I explain each. The first crisis has to do with the quantity of trained swimming instructors relative to the population that they serve. In many western European and North American high income countries (HICs), the teacher:student ratios are declining and it is getting increasingly difficult to hire trained swim instructors. In low and medium income countries (LMICs), the ratios remain devastatingly low and allow few persons to receive formal swim lessons. The second aquatic crisis I address is the apparent lack of competence and experience of many swim instructors in both HICs and LMICs. Part of the issue appears to be that most novice swim instructors only teach for 1-3 years creating a large turnover in instructors. Due to the lack of experience, the likelihood of new instructors to be highly effective is dramatically reduced. Among many training agencies, public pressure has been to reduce the amount of time and expertise required to become certified. The final crisis relates to the aquatic curricula provided by the primary training agencies (e.g., American Red Cross, YMCA of the USA). For the most part, the validity and reliability of swimming curricula have not been evaluated rigorously. Few if any evaluations of the efficacy of swimming curricula have been regularly conducted. The primary measure of program success continues to be how many students are enrolled in programs rather than how well students had learned to swim. I propose an ongoing need to address each of these crises as a primary way to address the drowning crisis faced worldwide.

Keywords: aquatic profession, drowning prevention, water safety instructors, learn-to-swim

Some will question the contention that there are crises in the aquatics profession. In the following section, I tell you why I strongly believe there are. While statistics were difficult to obtain, my experience and observations raised my concerns. Rather than speculating or estimating too aggressively, I attempt to ask questions, the possible answers to which should cause us all to reflect seriously on our current situation in aquatics.

As of 2017, 131.4 million children were born every year and that number continues to rise exponentially. This means that 360,000 were born every day, 15,000 every hour. In other words, the number of new "non-swimmers" who require instruction, is likewise increasing exponentially. The question is, of course, can we keep up? My personal observation has suggested that we are not training new instructors at an adequate rate to keep up with the need. We are overwhelmed. In some countries the number of instructors trained is clearly going down. Some high-income countries (HICs) find that it is getting more

difficult to recruit people to instructor training. Low- and middle-income countries (LMICs) have always found it difficult.

The average career length of the instructors we do train remains short. The turnover is huge. We might ask, “If an instructor stays with us for only a few years, is this long enough to gain sufficient expertise in teaching?” And finally, “Does this mean that *most* instructors are not expert at teaching?” “Are *most* of our children taught by persons who have limited expertise at teaching swimming?” If so, its little wonder so many cannot swim.

We face more than one crisis in aquatics. The recent World Health Organization (WHO) Reports on Drowning have shown the global burden of drowning is at crisis proportions (360,000 per annum), especially considering that so many fatal drownings are avoidable (WHO, 2014; 2017). Some experts also suggest that the real number may be as many as 2-3 times greater, not to mention the non-fatal drownings. That approximately 90% of all fatal drownings occur in LMICs (WHO, 2014) is also a crisis (perhaps a different one). A third possible crisis is that in LMICs few if any instructors are trained, thus limiting the possibility to attend to one of the more important interventions, that is, teaching as many people as possible to be water competent. A fourth crisis is the difficulty of obtaining reliable drowning statistics, especially in LMICs.

Finally, the consequences of the high turnover of new swimming instructors which leads to a broad lack of experience, is inexpert and thus ineffective teaching. Instructors who are with us for such a short period of time, fail to address the most relevant methodological issues when teaching. Most often, an error correction method of teaching is used. A one-size fits all perspective is assumed and command style teaching (i.e., teacher-centered technique) dominates (Langendorfer, 2010). And finally, the curricula used to teach children (e.g., learning - teaching progressions) have not been adequately studied, validated, or disseminated.

The crises I wish to focus on in this article are within the so-called “profession of aquatics” (especially related to learn - to - swim globally) but especially in high income countries (HICs). The three most precious resources controlling our swim teaching activities are time, space, and effective teaching. I especially address here the latter, that is, effective teaching. Typically, and unfortunately, the control of time and space is often decided by someone else. It is often out of our hands. The quality of effective teaching, however, is primarily within our control. Yet aquatic programs often fail to train instructors to provide the most effective teaching. This represents the primary aspect of the crisis I wish to explore with you in this paper.

The Demand

I use the word “demand” as the header to this section to allow us to employ the idea that supply and demand as an economic concept can also be used at least metaphorically to help us quantify the situation in the aquatic profession. We are of course talking about the “need” to promote drowning prevention through learning to swim. What is really the scope of the global drowning problem? What is the “demand” for new instructors? Far greater than most realize, I fear. Are we keeping up? Probably not!

Since you are reading this, you are most probably one of those who a) is involved in teaching aquatics and b) has stuck it out. Before continuing I therefore hasten to say that this discussion relates specifically to that intervention which addresses the capacity of any individual to protect themselves from drowning because of their psychomotor, cognitive and affective competencies – the creative integration of these in a holistic manner and especially the teaching thereof. Also, our concern is obviously for the global situation, understanding that in some few local situations such as in some HICs, the number of births is not increasing and that the recruitment to instructor training is adequate.

The Global Scope of Drowning

The real need (i.e., demand) is described by the drowning rate. From the later 1800s as steam power replaced the sail, the global drowning rate was astronomical. Although that rate was well reduced by the time of WWII, it has remained relatively stable in the subsequent seven decades. Given that many fatal drownings are preventable and that measures to prevent them have been less than adequate, we remain seriously behind.

In general, males are more at risk than females, children more than adults. In some HICs young males are most at risk. In most LMICs, drowning is a leading cause of death by accidental injury for pre-school-aged children. In Bangladesh, 17,000 children drown annually (Linnan, Rahman, Rahman, Scarr, & Cox, 2011; Rahman, Mashreky, Chowdury, Giashuddin, Uhaa, Shafinaz, 2009, Rahman, 2019).

In some HICs the drowning rate has fallen slowly in recent years. That the global rate has not improved markedly in the past 75 years has a complex explanation (if indeed it can be explained). There are many causes of drowning. This requires numerous forms of intervention. One of these forms which experts agree is one of the more important is that of teaching people to be water competent. *So what do we teach, why, and how – but also, by whom?*

Let me close this section by sharing with you a thought experiment which I have used with students and with conference participants. The starting point is the figure 360,000 annual drowning deaths (WHO, 2017). What would you do with this number if we said: “Only 85 countries were included in this

statistic” (WHO, 2014). How many drownings do we have now? If we then said: “Among those included (mostly HICs), some are as much as 50% incorrect.” How many do we have now? How would you adjust our number if we then also added: “Among those countries excluded from the official statistic most are LMICs where 90% of all drownings occurred.” How many now? Finally, we now tell you: “In the ICD 10 system of the WHO for recording deaths, water traffic deaths, natural disasters, and suicides are NOT recorded as drowning.” How many now?

My own number is well over 1,000,000 fatal drownings per year! How about yours? If this is the case, more people drown each year than die of HIV-related diseases (UNAIDS, 2017); perhaps more than the number of traffic deaths (1.25 million – WHO, 2015). In other words, far more people drown than most people (and governments) realize. It is indeed a leading killer, a major public health problem and worthy of more attention than it gets. And many of these drowning deaths were preventable. Additionally, we now understand that the number of non-fatal episodes with death occurring later or with major, often life-long complications is underestimated and has a great impact on society (Peden, Mahoney, Barnsley, & Scarr, 2018).

The Need for Instructors

Every year, a large new cohort of non-swimmers is born (~131.4 million). Observation has suggested that we are not training new instructors at a rate that allows sufficient swim lessons. Data were hard to find. But, as an example, one U.S. national organization which teaches swimming to 2-3 million people every year, also trains about 15,000 instructors each year. The instructors’ average careers are short. Only the persistent instructors (as I hope most of you are who read this) continue for more than a few years, teaching enough children and enough hours to gain a level of expertise. In some countries, the number of instructors trained is going down. Some HICs have found that it is getting more difficult to recruit people to instructor training. And sadly, many organizations have reduced their criteria to achieve certification (e.g., shorter courses, reduced age for qualification, lower rigor). A new cohort of non-swimmers is born every day (360,000 of them). Where are we? How can we improve recruiting and especially, how can we retain these sorely needed new instructors?

In the USA during this past decade, close to 4.0 million children have been born each year. Let’s say that swimming instruction is sought on average at five years of age. This means that at any point in time, five cohorts of infants and toddlers (from 0-5 years of age) await instruction. This would be about 20 million. And many delay instruction, or if within the school systems where if they receive instruction at all, they may not receive it until 8-9 years of age. This might add another 12-15 million. And all of those 40-year-olds who cannot swim (of whom there are many) were once children who failed to learn to swim. *How many are there who wait and sorely need instruction?* In the USA alone,

a conservative guess could possibly be 50 million (if our guess of 50 million is realistic, that is about 15% of the population). Yet some have told us that by 15-16 years of age, probably only 50% - 60% of the population can swim. This would at least double our figure of 50 million to 100 million, nearly 1/3 of their population. *Are the handful of organizations which train instructors and the number of instructors trained able to meet this demand?* You may answer this yourself.

The Supply

The national organization described above (with ~40,000 active instructors), by far the largest in the U.S., only reaches about 3% of those in the U.S. who are in need of instruction. Yes, there are other organizations who train instructors – so let's double our number of certified instructors (meaning ~80,000). Now they might reach 6% of those in need. We could be even more generous and increase this number by adding all of those non-certified instructors (many private persons call themselves instructors but have no certification). So we double it again (160,000). Now we reach, say 12-15% of those in need.

There are many private persons (and private swim schools) who establish themselves as swimming instructors and teach only for profit. In some cases, they are neither trained nor certified and have the tendency to teach to/for the paying client, according to the clients wishes rather than addressing the needs of drowning prevention.

In the WHO *Implementation Guide* for preventing drowning (2017), six interventions were recommended. When discussing the intervention of teaching children swimming and water safety skills, the *Guide* emphasized the need for the training of instructors and considered instructor certification as essential. While the proliferation of inexperienced, untrained, uncertified, and possibly incompetent instructors may increase the number of instructors, *does it increase the availability of effective teaching? Do more children learn that which is needed?* I think not! Inadequate and ineffective teaching may actually contribute to drowning rather than to prevention. See the subsequent discussion about adequate effective teaching.

Teaching swimming long has been an attractive summer job for high school and college students. It is almost always a part time job. During the school year it is limited by the simple fact that full-time students have limited time. In some cases the person may work more but primarily in the summer. *But how many of these novice instructors teach more than a few years?* How many become really interested in the intricacies of the relationships between the human body and water? How many find movement in the water fascinating? How many become dedicated to drowning prevention? How many even understand the relationship between learning to swim and drowning prevention? Who are willing to develop a sense of responsibility for teaching people those

protective competencies which can reduce the risk of drowning? How many who start as a swimming instructor stay long enough to become expert at it? Maybe 10%?

The Turnover

If we reexamine the national organization I described earlier which teaches 2 – 3 million people each year and which has trained 15,000 instructors each year and normally has maintained 40,000 active instructors, we can manipulate these numbers (Langendorfer, personal communication, 2018). A stable, active group of 40,000 with 15,000 trained every year suggests that our average instructor continues for only 2.67 years. *Is this enough experience to acquire expertise at teaching swimming?* The numbers also suggested that each instructor would teach 75 children each year to cover the total taught, or a total of 200 children during their career. *Is this enough cases to acquire teaching competency?* If this single organization tried to cover the needs of the entire U.S. (the 100 million named above), each of the 40,000 instructors would have to teach 2500 children every year. Obviously they cannot.

Remember that this HIC (and only one of a half dozen or more organizations) used as an example has a century-long tradition of swimming and water safety activities, an extensive degree of systematic instruction, and the benefit of an extensive aquatic infrastructure. And I should note that some organizations do have a longer average career (though not long enough). What about all of those countries which do not have this advantageous starting point?

How Good is Good Enough?

Psychologist Anders Eriksson (1993), a self-proclaimed expert on “expertise,” has claimed that it takes about 10,000 hours to become an expert as a performer, requiring well over 10 years of structured practice and feedback. This would mean of course that such an expert would have trained at their performance specialty about 1000 hours per year, or 2.5 - 3 hours every day, seven days a week.

If less experienced instructors taught (e.g., 10 hours a week for most of the year), they might reach 400 - 500 hours/year. At this rate it would take 20 – 25 years to reach the 10,000 hours described by Eriksson to become an expert. To be generous, let’s say it takes half of that just to become somewhat proficient at what we do (i.e., 5,000 hours and five years). An hypothetical instructor, teaching 500 hours a year, would still need 10 years, just to become reasonably proficient at their performance of choice. How many continue for 10 years? Remember, the average career of instructors in the exemplar organization was only 2.67 years. Maybe 10%? This means that the typical instructor never becomes even “marginally proficient” at teaching, teaching half or less of the time necessary to gain true instructional expertise. And many instructors last an even shorter time and teach less while active. Again, lets be generous. What if

25% of trained instructors last 5 years. Then 75% never gain marginal teaching proficiency. The consequences are then that at any given point in time, *perhaps 75% of our children are being taught by instructors who are not proficient at teaching. Is this possible? Is it acceptable?* The wonder is not that half of our children cannot swim by 11-12 years of age, but that half can, despite the teachers' lack of instructional skill.

Admittedly, Eriksson focused on the learners of physical skills rather than on teachers and on teaching as a field in his work on expertise. He therefore did not mention the number of “cases” (e.g., number of students taught) but focused on performance practice time (i.e., the number of hours spent in practicing music, art, or sports). When the learner is a teacher, learning to become an expert teacher, however, every case is different. This means that of the number of different learners who present with very different needs, background, experience, developmental levels, and more – each represents a unique learning experience for the instructor/teacher. In other words, not only the number of hours of teaching is critical in achieving expertise, but also the number of “cases,” (i.e., student learners). This combination potentially makes achieving expertise even more difficult (i.e., less likely for the typical, short career instructor). If it takes 5,000 hours just to be moderately proficient at teaching, it may also take 5000 swimming learners, and about five years. And half that (by our generous estimate) to be “marginally proficient” so that the necessary learning takes place.

In a country well known to me, where swimming is a compulsory subject in the primary schools, most children receive one lesson per week. It would appear that this is an administrative convenience and bares no relationship to any planned pedagogical strategy deemed effective in terms of learning. Indeed, no pedagogue would recommend one lesson per week as satisfactory to learn anything. Given that in this country the classroom teacher is most often the swimming instructor, they usually teach one hour per week, again, usually only when their own class receives instruction. And this is most often for only half of the school year. Thus typically, the child receives 10 – 15 hours of instruction each year for a maximum of 3-4 years (many receive less). While the pupils have accumulated 30-40 hours, over 3 – 4 years, so have the teachers. A teacher may repeat this cycle four to five times during their entire career. If the teacher instructs 10 - 15 hours each school year, they would require 100 years to become an expert, 50 years to become just “good enough” (i.e., moderately proficient) assuming regular feedback, guided practice, and incentives to improve).

What are the Consequences?

The combination of the global population explosion, the probable failure of instructor training programs to keep up, and the huge turnover of instructors may have dire consequences on the acquisition of swimming skills that contribute to drowning prevention. As discussed previously, the most obvious

conclusions are that at any given point in time, a majority of our instructors have not attained sufficient experience to be even just “minimally proficient” at what they do (or “think” they do). That a majority of our ranks are inexperienced novices then leads to several consequences which are not only alarming but simply unacceptable. Do our children not deserve better?

Lack of Teaching Effectiveness Leads to Poor Results

Inexpert and inexperienced teaching causes ineffectiveness in pedagogy and learning. At the hands of inexperienced instructors, even an appropriate amount of time may be insufficient to produce desired performance. When both time and space are at a premium, ineffective teaching exacerbates the problem. While sufficient data were not available, pilot studies and personal observation have suggested that in HICs about 50% of 10-11 year old children cannot swim at an adequate level of proficiency to prevent drowning. In LMICs the rate of non-swimming may be much higher. At an exemplar university in an LMIC in Africa, it was observed that over 90% of the students could not swim. Those few who could swim were from seacoast areas and were self - taught. When an adult has reached a mature age without learning to swim, they may logically be skeptical that they could or should learn. To be successful, they would require an experienced instructor with expertise teaching adults (Whiting, 1973). In such situations, learning results are not encouraging. In several Northern European countries, only by the age of 15-16 years of age are more than 50% - 60% able to swim in spite of compulsory instruction in primary school (grades 1 -10). Inexperienced instructors, in programs with inadequate curricula and instructional practices, with insufficient time are doomed to failure. Examples of ineffective teaching are numerous. They could and do fill books. It may not be possible to rank them in order of severity but the following are among the most alarming and negatively consequential.

Inadequate Teaching May Actually Contribute to Drowning

There are many who believe that swimming instructors contribute to drowning prevention. Many of them may. Most readers of this journal are professionals who make an invaluable contribution to the aquatic profession. But there are swim instructors, probably a majority, who may not. In fact, by committing what some of us might consider the cardinal sins of teaching, they may even contribute to drowning rather than prevent it (i.e., failing to help learners adequately judge their own skill levels and capabilities).

The International Can You Swim? Project. Conceived in 2007 at the World Conference on Drowning Prevention in Porto, Portugal, the International Can You Swim? Project, sought to explore the differences between perceived water competence and actual water competence. Both experience and research (Moran, Stallman, Kjendlie, Dahl, Blitvich, Petrass... Shimongata, 2012) had suggested that many (especially males) overestimate their swimming proficiency. The exposure to ineffective teaching often leads

to an unclear view of what one really “can” and “cannot” do. If ineffective teaching contributes to a discrepancy between actual competence and perceived competence, it could surely provide one explanation for emergency episodes in the water. The “Can You Swim” project was launched in New Zealand, followed quickly by studies in Norway, Australia, and Japan using similar research protocols. Four countries and five universities participated. Young adult students were asked to identify their competence level without realizing they would later actually be tested (e.g., Can you swim 50m, 100m, 200, 400m, > 400m?). Seven skills were explored. Perception of their risk was also explored by asking them to rate themselves on five scenarios of potential danger in an aquatic setting. When combining the results from these five studies, overwhelmingly most failed to accurately estimate what they really could do in the water. Virtually all over-estimated themselves with males being in the extreme in spite of the fact that they were by any measure no better than the females and that generally, both men and women were only average to poor in skill level. At the same time, they ranked themselves as good swimmers and at little risk. A majority of the females also over-estimated themselves although a clearly identified minority actually under-estimated themselves. The deadly duo of over-estimating competence and under-estimating risk may logically stem from inadequate practice resulting from inexperienced teaching and surely contributes to the occurrence of emergency episodes (Moran, et al, 2012).

The Water Competence Project. The phrase, water competence, was coined by Langendorfer and Bruya (1995). They called for a return to the notion of swimmers acquiring all-around aquatic development and proficiency, among other things. Moran (2013) adapted this concept to the drowning prevention context. In 2017, a working group presented a scholarly review paper which a) screened high level swimming teaching organizations, b) identified the most common competencies being taught, and c) supported each of these competencies with research evidence suggesting that these have drowning prevention qualities (Stallman, Moran, Quan, Langendorfer, 2017). The focus was on answering the question, “what should we assess and teach?” in order to reduce the risk of drowning. They argued that reducing risk and thus reducing the rate of drowning should be the primary aim of all aquatic education. Inadequate teaching frequently has not covered all of the competencies identified in this project. Hallmarks of inadequate teaching were the failure to include essential competencies, a failure to identify appropriate goals, and failure to include measurable learning outcomes so that pupils have a relatively accurate overview of what they “really” can and cannot do (Petross, Blitvich, McElroy, Harvey and Moran, 2012).

Employing an “error correction” model. Traditional swimming teaching has presumed that initial swimming performances naturally are “incorrect.” Most instructors are taught to be obsessed with “expunging

errors“ rather than to encourage learners constructively to “*explore*“ and to *discover*“ the nature of the relationship between the water and their movement (Langendorfer, 2010; 2015).

Command style of teaching. Command style teaching often goes hand-in-hand with the error correction approach. If all are alike, it is also easy to assume that they should not only all do the same thing but also at the same time. Command style teaching also presumes that persons learn to swim by copying what a teacher says and shows (commands) them to do. Any attempt at constructing their own learning using exploration or guided discovery is frowned upon because it doesn't fit in, especially for the learner who does things ‘*differently*.’ Guiding pupil discovery and reflecting on one's capabilities is ignored.

Focusing on the goal. The inexperienced instructor and sometimes even the curriculum of the organization which has trained these instructors have tended to focus on specific final goals. They fail to see, as the Zen proverb tells us, that “He who sees only the goal does not see the way.” The ‘way’ is the ‘process.’. They fail to understand that the ‘process’ is paramount. Like fine wine, it takes time to ferment (a process)

Didactic Failure. Bredecamp (1987) discussed developmentally appropriate practices in relation to the teaching of young children. The focus was on a teaching approach which emphasized a process of learning which paralleled development rather than a single and final “right way“ to do things. Robertson (1993) identified three tools for the teacher which are essential when pursuing a developmentally-focused teaching methodology. The first was assessing or evaluating progress developmentally. This includes the capability to differentiate between a developmentally rudimentary movement pattern versus more advanced patterns while realizing that neither is better or worse. The second tool is individualizing teaching, recognizing that all children are different and learn and achieve in different ways and at different rates. In particular, it says large groups should be made into smaller groups, for example by using station learning. Finally, the third tool is a focus on making learning tasks easier or harder as the learner progresses. The use of “task setting“ as a developmental teaching tool requires the teacher to understand that the tasks and aquatic environment can be systematically “engineered“ to promote success in acquiring swimming skills. It also stresses that swimming tasks must mirror various aquatic environments beyond the pool (e.g., open water, moving water).

Failure to observe, assess, guide, and explore from a developmental perspective. Most instructors are unfamiliar with the developmentally appropriate practices that have been described as fitting activities to the needs of the individual learner (Robertson, 1993). Learning occasionally can follow the old adage of “trial and error” or “learning by our mistakes.” A developmental

approach, however, considers that the learning of any task abides by a set of change principles including that change occurs progressively, cumulatively, emerges from multiple complex factors, and is distinguished by unique individual differences. Our jobs as swim instructors are not to focus on and correct errors so much as to discern where a swim learner is along a developmental continuum and to help guide the learner in the direction of new steps towards more advanced movement patterns. We could even say that developmentally there are no such things as mistakes, only behaviors that are less effective or efficient than others. The developmental perspective does not merely apply to children and novices, but has application to all learners across the lifespan. Robertson (1993) reminded us that everyone, regardless of where someone falls along the lifespan continuum, they are ready to change something in some way.

Failure to individualize. Swim learners differ dramatically, in many ways, including how and at what rate they learn. The typical inexperienced novice instructor is unable to cope with individualizing, understanding neither why, when, nor how to do it. They may consider it too time consuming, too difficult, unnecessary, or, more likely, a mystery due to never having been given any understanding of how to individualize. An obvious consequence of failure to individualize is to treat all students as if they are identical. They are not! An “one-size-fits-all” mentality permeates most traditional learn-to-swim programs and their instructors’ efforts. The consequence is that there are always some (maybe many) learners left behind. What they are “ready” for is never even considered. Most swim instructors have never seen an example of effective individualizing of teaching/learning.

Failure to guide by making tasks easier or more difficult. While there is no universal progression which fits all learners, the difficulty of each task is governed by well-acknowledged characteristics and factors. By manipulating these “task factors,” it is possible to make a task (e.g., floating) simpler/easier (e.g., by adding some kind of flotation) or more complex/difficult (e.g., adding clothing). When acquiring any new task, the steps may be small or large and can be predicted by employing what is called a “developmental task analysis. “What are these steps? What do they look like?” Many instructors have no idea. We often call these steps a “progression.” Any progression has such steps and the learner may be able to find the one that is just right, not too small (easier), not too large (more difficult). The so called “progression” is an arrangement of these steps by degree of difficulty or complexity that are specified in a typical developmental task analysis, factor by factor. In guided discovery style, we employ developmental task analysis implicitly. Much of this is beyond the comprehension of the typical novice instructor with no introduction to developmental task analysis..

Failure to organize for safety/learning. Organizing the activities for a group of swim learners considering both safety and optimal learning is an art as much as a science. When effectively done, it can make a huge difference in learning. Among other things, we now know much about the need for repetition in the learning process. Individuals in a well-organized group, performing well-organized activities, exhibit a high level of activity. They are able to safely repeat a new movement far more times than when not well-organized. The experienced instructor organizes the activity creatively and within a play-oriented, learning-friendly, mastery-oriented climate. Few understand that organizing optimally for learning is also optimal organizing for safety. This is one of the most obvious failures of inexperienced novice instructors.

Where Are We Today?

All of the Above

Finally, after all of the previous consequences, the inexperienced novice instructor often accepts a far lower achievement level than that which is possible, that which should be expected, and which is necessary to reduce risk of drowning. They may even produce a “finished product” who is more at risk to drown due to unrealistic perceptions of their aquatic skills. Such a learner may have “holes” in the foundation of their achieved level of water competence. Necessary bricks in the foundation of building water competence are missing. And the learner may be unaware of this, assuming that they are more competent than they really are (Moran, et al., 2012).

Whether or not aquatics is a profession deserving recognition needs to be examined elsewhere. Many swimming instructors are professionals. Some are not. Many of our children are taught by ineffective instructors – many fail to learn to swim under a dysfunctional system or no system at all – the global drowning statistics appear to not be going down. While the WHO figures have dropped from 372,000 in 2014 to 360,000 in 2017, they admit that these figures are taken from only 85 countries and that other uncertainties further prevent us from having more reliable statistics. Many experts believe the real figure may be 2-3 times greater, (i.e., over one million which would now be more than for HIV-related diseases) (UNAIDS, 2017). Even in some HICs where drowning rates are stable or slightly declining, there is little evidence about the causes of this decline in drowning rate. Some interventions may be succeeding where others are failing.

Concluding on a more positive note, we do have many wonderful, professional “aquatic educators.” Many children are well taught and learn sufficiently and with great joy. As I have argued in this article, I believe unfortunately they may be in the minority. Aquatic educators and agencies cannot afford to be complacent, to accept the current situation.

Proposed Solutions

It is extremely difficult to arrive at straightforward solutions to complex challenges like drowning prevention. We might, however, name some of the measures used by different water safety societies around the globe which successfully may have provided effective teaching, resulting in a majority of students learning to swim and where the resulting drowning rate is lower than the norm. Possible recommendations include:

- Place the majority of swim teaching and water safety effort in the primary/elementary level schools. While we obviously need all of the help we can get, schools are the venue where theoretically we should be able to meet all children.
- Have swimming instruction made compulsory in the schools. Where water safety instruction is offered in the schools, certification of teachers also needs to be compulsory as part of teaching licenses, especially for health and physical education specialists.
- Collaborate among aquatic organizations which teach swimming and train instructors. These organizations often have a long history and tradition of water safety education, store much valuable experience, and hold tremendous pride in their work. They commonly have a standardized curriculum which their trained instructors follow. To the degree that aquatic organizations can collaborate and validate the most effective curricula and reliable teaching techniques will enhance swimming teaching.
- Promote cooperation among non-governmental organizations (NGOs), local and national governments, teacher preparation departments at universities, public and private school systems, and agencies which train water safety instructors. Such cooperation and collaboration should enable advances in valid and reliable teaching techniques.

References

- Bredenkamp, S., (1987). *Developmentally appropriate practices in early childhood*. Washington D.C.: National Association for the Education of Young Children.
- Eriksson, K.A., Krampe, R.T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363-406.
- Langendorfer, S.J. & Bruya, L.D. (1995). *Aquatic Readiness: Developing Water Competence in Young Children*. Champaign IL: Human Kinetics.
- Langendorfer, S.J. (2010). Applying a developmental perspective to aquatics and swimming. *Proceedings: The XI International Symposium on Biomechanics and Medicine in Swimming*. Oslo, Norway, 2010.
- Langendorfer, S.J. (2015). Changing learn-to-swim and drowning prevention using aquatic readiness and water competence. *International Journal of*

- Aquatic Research and Education*, 9(1), 4-11. doi: 10.25035/ijare.09.01.02
- Langendorfer, S.J. (2018). Personal communication.
- Linnan, M., Rahman, F., Rahman, A., Scarr, J., & Cox, R. (2011). Child drowning in Asia: From evidence to action. *Proceedings of World Conference on Drowning Prevention* (p.29). Da Nang, Viet Nam. 10-13 May, 2011.
- Moran, K., Stallman, R.K., Kjendlie, P-L., Dahl, D., Blitvich, J.D., Petrass, L.A., McElroy, G.K., Goya, T., Teramoto, K., Matsui, A., & Shimongata, S. (2012). Can you swim? Real and perceived water competency among young adults. *International Journal of Aquatic Research and Education*, 6(2), 122-135. doi: 10.25035/ijare.06.02.05
- Peden, A. C., Mahoney, A.J., Barnsley, P., & Scarr, J. (2018). Understanding the full burden of drowning: A retrospective, cross-sectional analysis of fatal and non-fatal drowning in Australia. *BMJ Open*, 8(11):e024868.
- Petrass, L.A., Blitvich, J.D., McElroy, K., Harvey, J., & Moran, K. (2012). Can you swim? Self-report and actual swimming competence among young adults in Ballarat, Australia. *International Journal of Aquatic Research and Education*, 6(2), 136-148. doi: 10.25035/ijare.06.02.06
- Petrass, L.A., & Blitvich, J.D. (2014). Preventing adolescent drowning: Understanding water safety knowledge, attitudes and swimming ability. The effect of a short water safety intervention. *Accident Analysis and Prevention* 70, 188-194.
- Rahman, A., Mashreky, S.R., Chowdury, S.M., Giashuddin, M.S., Uhaa, S.M., Shafinaz, s., et al. (2009). Analysis of the childhood fatal drowning situation in Bangladesh: Exploring prevention measures for low income countries. *Injury Prevention*, 15, 75-79.
- Robertson, M.A. (1993). *Developmentally appropriate practices*. Presentation to the Midwest Association for Health, Physical Education, Recreation and Dance. Toledo, Ohio, 1993.
- Stallman, R.K., Moran, K., Quan, L., & Langendorfer, S.J. (2017). From swimming skill to water competence: Towards a more inclusive drowning prevention future. *International Journal of Aquatic Research and Education*, 10(2), Art. 3. doi: 10.25035/ijare.10.02.03
- UNAIDS (2017). UNAIDS: Data – 2017. *Joint United Nations Programme on HIV/AIDS*. UNAIDS/JC2910E.
- Whiting, H.T.A. (1971). *The Persistent Non-Swimmer*. London: Museum Press.
- World Health Organization (WHO) (2014). *Global Drowning Report*. Geneva: Author.
- World Health Organization (WHO) (2015). *Global Status Report on Road Safety*. Geneva: Author.
- World Health Organization (WHO) (2017). *Implementation Guide for Drowning Prevention*. Geneva: Author.