

5-Lesson Survival Swimming Program Pilot

Summary

Swimming and water safety competency is seen as a critical skill for the prevention of drowning. It is embedded across all levels of the Victorian Curriculum (Foundation to Level 10). However, existing research has identified a number of barriers to the delivery of instruction in schools, including the costs of delivery and transportation, and an already crowded curriculum. Life Saving Victoria has developed a five-lesson pilot program to attempt to mitigate some of these barriers whilst maintaining a quality swimming and water safety education program.

This evaluation of the 5-Lesson Survival Swimming Program pilot, delivered to two schools in the City of Greater Dandenong, demonstrated that Year 5 and 6 students were able to increase their water safety knowledge and significantly increase their survival swimming skills in five consecutive lessons and demonstrated fair to good retention of these outcomes four months later.

This research demonstrates that survival swimming strokes can be taught quickly and provide non-swimmers with foundation skills to begin safe aquatic engagement. However, to maximise learning outcomes, multiple, ongoing lessons are recommended by swim teachers as indicated by the results. This research highlights the importance of regular engagement in swimming and water safety activity across multiple school years.

Background

Swimming and water safety lessons are a key drowning prevention strategy¹; however, there is limited evidence as to the effectiveness of this intervention and the best way to deliver it.

Swimming and water safety is embedded within the Health and Physical Education learning area of the Victorian Curriculum. In Victoria, Birch and Matthews² identified program cost as the greatest barrier to primary school-aged children's participation in formal lessons, followed by a crowded curriculum and transport costs.

School feedback from a 10-Lesson Survival Swimming Program Pilot in 2015³, indicated a need for programs of a shorter duration to address these barriers. In response, the 5-Lesson Survival Swimming Program was developed, which comprised five practical lessons in the pool combined with classroom theory. The program was piloted and evaluated, with key outcomes presented here. This project forms part of the Public Water Safety Initiative (PWSI).

Aim & Objectives

The overall aim of the 5-Lesson Survival Swimming Program pilot was to teach key survival swimming and water safety skills to primary school children in Year 5 and 6 in a condensed format. The specific objectives of the pilot program evaluation were to determine:

1. The effectiveness of two delivery modes for a 5-Lesson Survival Swimming Program in developing swimming ability and water safety knowledge of Year 5 and 6 primary school aged children: (i) a practical 5-Lesson Survival Swimming Program alone; and (ii) a practical 5-Lesson Program with additional embedded theory; and
2. The retention of water safety competencies in the short- and medium-term following participation in each of the swimming programs.

Method

Program design

Two schools in the City of Greater Dandenong were engaged to participate in the pilot program. Year 5 and 6 students participated with parent consent. Schools within this local government area were selected for this study based on drowning risk factors. That is, schools comprising a high proportion of students from culturally and linguistically diverse backgrounds and being located in an high level of relative socioeconomic disadvantage⁴ - factors commonly associated with lower access to swimming and water safety education.

The five, consecutive, 45-minute lessons focussed on 'survival swimming', designed to prepare a child for aquatic-related emergencies and unexpected water entry, particularly in open water environments.

¹ Wallis, B. A., Watt, K., Franklin, R. C., Taylor, M., Nixon, J. W., & Kimble, R. M. (2015). Interventions associated with drowning prevention in children and adolescents: systematic literature review. *Injury Prevention*, 21(3), 195-204.

² Birch, R., and Matthews, B. (2014). *Sink or swim: The state of Victorian primary school children's swimming ability*. Life Saving Victoria: Melbourne.

³ Birch, R., Matthews, B., Petrass, L., & Blitvich, J. (2015). *A pilot study evaluating a Before School Survival Swimming Program*. Life Saving Victoria: Melbourne.

⁴ Australian Bureau of Statistics. (2016). 2033.0.55.001 - *Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia, 2016*. Australian Bureau of Statistics: Canberra

One school received the practical program only (practical only); the other received the same practical program with additional embedded theory delivered in the classroom (practical and theory). Practical lessons were delivered by qualified AUSTSWIM teachers of Swimming and Water Safety.

Evaluation design

The program was evaluated using a pre-post design, which employed tests of key practical survival swimming skills and a water safety knowledge quiz. These were administered pre- and post-program and four months following, to measure retention. Swim teacher and school teacher feedback was obtained via a questionnaire and semi-structured interviews, respectively.

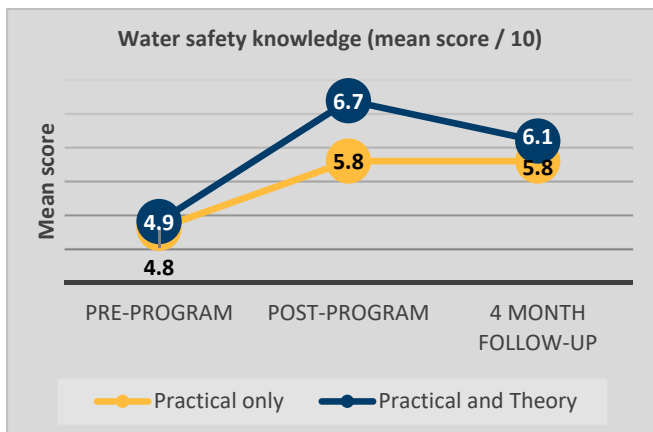
Results

Overall, 71 students participated in the pilot, with 51 completing the pre- and post-program stages and 41 completing the pre, post and follow-up stages. Five swim teachers and four school teachers provided feedback.

Program effectiveness

Water safety knowledge

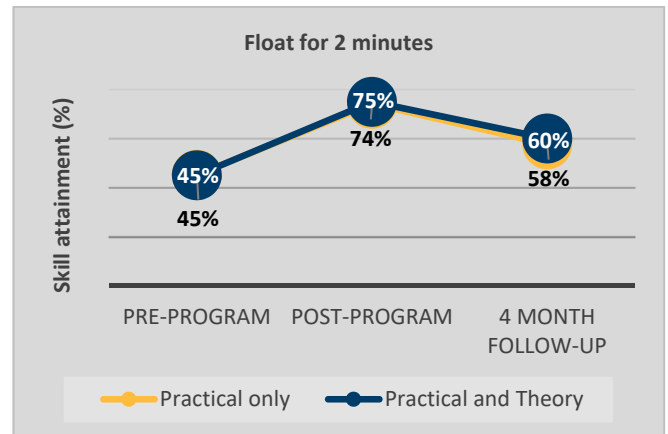
Knowledge was measured by 10 water safety true /false questions. Both program types saw statistically significant improvements in water safety knowledge as a result of the program, from 4.8 (practical only) and 4.9 (practical and theory) out of 10 pre-program, to 5.8 and 6.7 post-program, respectively and 5.8 and 6.1, respectively at follow-up.



Float for two minutes

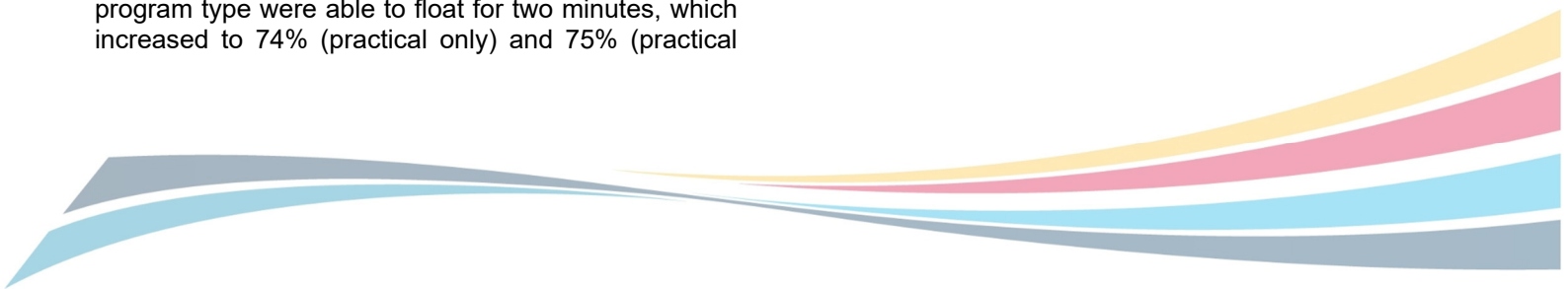
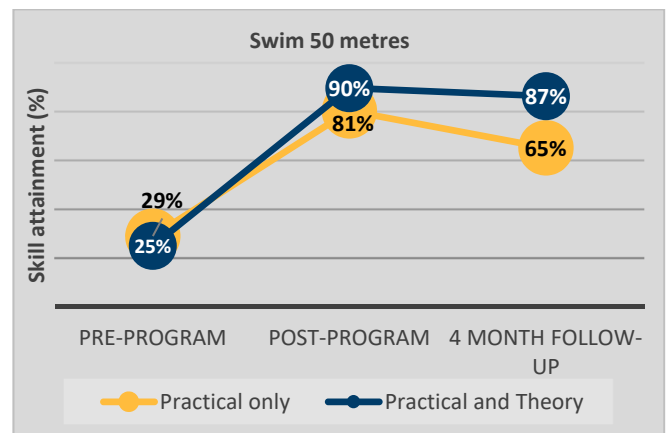
The proportion of students that were able to float, scull, or tread water for two minutes improved significantly for both program types; however, there was no statistically significant difference at any stage *between* program types (i.e. delivery method did not impact float outcomes). Pre-program, 45% of students from each program type were able to float for two minutes, which increased to 74% (practical only) and 75% (practical

and theory) post-program, and 58% (practical only) and 60% (practical and theory) of students at follow-up.



Swim 50 metres

There was also a significant improvement in the proportion of children able to swim 50 metres post-program (including the retention stage) for both program types, from 29% (practical only) and 25% (practical and theory) pre-intervention, to 81% and 90%, respectively post-intervention and 65% and 87%, respectively at follow-up. It is noted that, at follow-up, 10 of 41 students were found to have engaged in traditional swimming lessons since completing the program.



Retention: Four-month follow-up

As described, follow-up testing of students' water safety knowledge and survival swimming skills four months after completing the program demonstrated varying levels of retention.

Water safety knowledge among the practical and theory group decreased, but remained higher than the practical only group, which may be a result of the additional theory sessions this group received.

Students' ability to float for two minutes remained similar at all stages between intervention groups; whereas there were differences between groups in terms of the 50-metre swim. Whilst almost 87% of students in the practical and theory group achieved this skill at the end of five lessons, the four-month follow-up showed a decrease. Nevertheless, this was still more than twice the proportion that could swim 50 metres pre-program.

The high levels of achievement in swimming distance can be partly attributed to students choosing to swim survival backstroke, which they learned in the program rather than traditional strokes such as freestyle. This skill is a vital learning outcome for this cohort and should be integrated into school swimming programs. Survival backstroke is quicker and easier to learn than freestyle, uses less energy, keeps the face out of water to keep the airways clear for breathing, and can ultimately save a life.



Program feasibility

The 5-Lesson Survival Swimming Program was regarded overall as successful by all interviewees; it was seen as a positive step to build student water confidence, knowledge and skills.

All swim teachers agreed that the program delivered important lifelong skills and knowledge. Although they felt that five lessons were too few to make a substantial impact, they agreed the program provided a good foundation for basic water safety and skills to facilitate further engagement in aquatic activity. Some swim teachers thought the content required follow-up

sessions to maintain skills and knowledge due to the short nature of the program. Swim teachers felt the students enjoyed this program more so than standard school swimming lessons. One remarked, *"because it is a bit different, kids are more engaged and were excited to come"*.

Teachers from both schools felt that their participation was valuable as it was a great opportunity for their students to learn water safety skills, which some would not otherwise have access to due to factors such as socio-economic constraints, lack of awareness and cultural traditions or expectations.

"...part of the lesson is to explore their local waterways where they can go swimming, so they've got that knowledge – hopefully they can act on it."
– Organiser/ classroom teacher

"I think it's a really important tool for all the kids to have. To see our kids' confidence being built is brilliant." – Teacher's aide to a student

Discussion

Enhanced survival swimming skills and knowledge

This evaluation demonstrated that the five lessons had a significant impact on students' ability to float, scull and tread water for two minutes and swim 50 metres. This demonstrates the value of survival swimming programs to successfully teach important skills within a short timeframe compared to traditional stroke-focused swimming skills. However, the observed decline in skills and knowledge among some students after four months suggests that regular exposure to swimming and water safety education is an important consideration for this cohort.

Students from a similar program over 10 lessons in a neighbouring Council⁵, achieved somewhat better post-program results for these skills compared to students in this 5-lesson format. Whilst this may signal that 10 lessons may have a greater impact, this factor should be considered with caution as it measured a different cohort of students.

Nevertheless, the 5-lesson program was found to be a worthwhile platform for developing foundation aquatic survival skills and knowledge, even among competent swimmers, whilst addressing key barriers to participation. It should be regarded as a 'first step' towards integrating these skills into more regular practice.

⁵ Birch, Matthews, Petrass & Blitvich (n2).

Importance of classroom-based theory

Students who participated in the practical program with additional embedded theory delivered in the classroom demonstrated better water safety knowledge outcomes immediately post-program. However, the decline in knowledge at the retention stage again highlights the importance of integrating water safety into the class curriculum.

To minimise the common barriers of program and transport cost and a crowded curriculum, school teachers could deliver water safety content in the classroom (e.g. recognising dangers, responding safely to emergency situations, lifejacket wear). This will reduce the number of pool visits required and maximise time spent developing aquatic skills when there.

Limitations

The overall low water safety knowledge scores could potentially be a reflection on student reading comprehension, as discussed with school staff during interviews.

The overall characteristics of the group may have changed due to 10 participants not attending the retention testing, possibly affecting the outcome.

"It was a great opportunity for some of the kids that would never otherwise get to do it."
– Assistant Principal

Lessons learnt

Maximising learning outcomes

- Overall, these Year 5 and 6 students were able to improve their survival swimming skills and water safety knowledge in five consecutive lessons and demonstrated fair to good retention of these outcomes four months later.
- Swimming and water safety should be delivered across multiple school years. Singular exposure is unlikely to be adequate to embed swimming and water safety skills among students who do not have access to swimming lessons outside of school.
- Potentially lifesaving survival swimming strokes can be taught quickly and provide non-swimmers with foundation skills to begin safe aquatic engagement. However, to maximise learning outcomes, further, ongoing lessons are recommended by swim teachers and indicated by the results.

Program implications

Future programs should consider:

- Providing content options to suit a range of abilities. The extension activities should challenge competent swimmers, and additional water familiarisation and floating activities should be included for non-swimmers.

- The timing of religious and cultural holidays as well as other school activities in order to maximise participation.
- Having spare swim wear, towels and clothes for the survival sequence available for students who forget their own.
- Having the resources available (e.g. activity suggestions and equipment such as ropes) for others to borrow. Note that lesson plans are now available in the LSV Swimming & Water Safety Toolkit.
- Providing information to parents and students in simple English or translated if required.
- Having a sole organisational driver of the program within the school, for streamlined communication and organisation.

Areas for future consideration

- Additional longer-term research investigating five lessons delivered multiple times across the primary school years should be considered to improve knowledge of effective swimming and water safety education delivery methods.
- Additional consideration needs to be given to delivering swimming and water safety education in areas with higher culturally and linguistically diverse populations and students with English as a second language.
- Noting drowning rates in open water are significantly higher, consideration to delivering programs (or part of programs) in open water should be given.



Acknowledgements

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"[The] best thing about the program was trying to learn new techniques and how to save someone from drowning or having a hard time in the pool or beach."
– Student (competent swimmer & previously participated in traditional swimming lessons)