

## **Aquatic Literacy or water competence for children: objectives, programs and evaluations**

*Kristine De Martelaer*

*Department of Movement and Sport Sciences, Vrije Universiteit Brussel (Brussel, Belgium)*

### **General introduction**

Since the work of Brenner et al. (2006), Moran & Stanley (2006), Langendorfer et al. (2015), Quann et al. (2015) and Stallman et al. (2017) on aspects of water competences, there is an increasing interest in programs and studies that focus on a broad(er) approach on how to learn children to move and behave safe in the water. Taking into account constructive alignment in education and Physical Education in particular, the goals, learning-teaching programs and the evaluation have to be coordinated. For optimal self-esteem, motivation, engagement and safety, it is necessary that children, parents and teachers have realistic perceptions of the water competences while being active in aquatic leisure.

### **Description of the organization of the symposium**

The authors of the four sessions have a collaboration on a common pictorial scale of perceived water competence among children. The first presentation is a study that addresses the fundamentals and associated sequence of development in order to integrate in a swimming test battery. An effective and efficient assessment is important for product and process evaluation of swimming lessons. In the second and third contribution the focus is on competence and perceived competence of aquatic skills and how these are perceived by the parents. Each of the presenters will start with research questions that are very relevant for scientific purposes and practice. In addition to the data processing and analysis, implications for the swimming organizations and instructors/teachers will be treated in the discussions. The development objective swimming assessment and of the pictorial scale for perceived water competences is relevant to expanded on a larger scale and in various cultures in the future.

### **References**

- Brenner, R.A.; Moran, K., Stallman, R.K., Gilchrist, J., & McVan, J. (2006). Swimming ability and the risk of drowning. In J.J.L.M Bierens (Ed.), *Handbook on Drowning: Prevention, rescue treatment*, Chapter 3.8.1 (pp. 112-117). Berlin, Germany: Springer-Verlag
- Moran, K. & Stanley, T. (2006). Toddler drowning prevention: Teaching parents about water safety in conjunction with their child's in-water lessons. *International Journal of Injury Control and Safety Promotion*, 13(4), 279-283.
- 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), 2. DOI: 10.25035/ijare.09.01.02
- Quan, L.; Ramos, W.; Harvey, C.; Kublick, L.; Langendorfer, S.; Lees, T.A.; Fielding, R.R.; Dalke, S.; Barry, C.; Shook, S.; & Wernicki, P. (2015). Toward defining water competency: an American red cross definition. *International Journal of Aquatic Research and Education*, 9(1), 3. DOI: 10.25035/ijare.09.01.03
- Stallman, R.K.; Moran, K.; Quan, L.; & Langendorfer, S. 2017). From Swimming Skill to Water Competence: Towards a More Inclusive Drowning Prevention Future. *International Journal of Aquatic Research and Education*, 10, 2, article 3. DOI: 10.25035/ijare.10.02.03

## **Validation of aquatic fundamentals sequence of development**

*Boris Jidovtseff<sup>1</sup>, Mary Vandermeulen<sup>1,2</sup>, Anne Delvaux<sup>1</sup>, Andora Vidal<sup>1</sup>*

<sup>1</sup> *Department of Sport and Rehabilitation Sciences, University of Liege (Liege, Belgium)*

<sup>2</sup> *HELMo Sainte-Croix, Preschool Teacher Training College (Liege, Belgium)*

### **Introduction and objectives**

Aquatic competences refer to all fundamentals that should be developed in order to get familiarized with the aquatic environment. Assessing aquatic competences is critical during childhood since this period is very favourable to the development of these fundamentals, which can be characterized by sequences of development. Any testing battery that aims to situate children in their aquatic competence development should include all fundamentals and consider the different steps of progression. The aim of the study was to validate with experts the fundamentals and associated sequence of development in order to integrate them in a new relevant testing battery.

### **Methodology**

Six experts of aquatic competences reply to a first questionnaire with the aim to validate the content of a new testing battery, fundamentals and their sequence of development. The study was built on an action-research model. Reply and comments of these experts were used to improve the initial version of the battery, the fundamentals and their sequence of development. Reviewed version was submitted to these experts for a final validation. Only the results from fundamentals and sequence of development validation will be developed in this presentation.

### **Results and discussion**

The eight fundamentals that have been unanimously identified by the experts were: (1) entry in the water; (2) immersion ; (3) buoyancy ; (4) gliding ; (5) balance ; (6) breathing ; (7) vision, and (8) propulsion on the front and on the back. The sequence of development presented in the initial version was mostly approved by the experts although few changes were required.

### **Conclusions and perspectives**

Validated sequence fundamentals and sequence of development should be paired to each tested situation in order to determine accurately children level and needs in each of the identified fundamentals. Such approach could be helpful to develop a more accurate pedagogical approach.

## **Children's water competence as evaluated by parents, children and the swimming teacher**

Arja Sääkslahti<sup>1</sup>, Stella Atabekian<sup>1</sup>, Kirsti Lauritsalo<sup>2</sup>

<sup>1</sup>Faculty of Sport and Health Sciences, University of Jyväskylä (Jyväskylä, Finland)

<sup>2</sup>Faculty of Education and Psychology, University of Jyväskylä (Jyväskylä, Finland)

### **Aims**

The first aim was to determine the parent's understanding of their own child's aquatic skills before swimming lessons. The second aim was to examine how competent children are in perceiving their aquatic skill level after 10 swimming lessons.

### **Methods**

A total of 16 preschool children (6 years of age) participated in a course of 10 swimming lessons. Before the lessons, parents answered a questionnaire describing 16 different aquatic situations at three different skill levels. After 10 lessons, each child perceived his/her own skills in these 16 situations via a pictorial scale. The teacher evaluated the children's skill level at the beginning and at the end of the lessons. The answers were compared and an agreement percentage (%) was used to determine similarities and differences within these evaluations.

### **Results**

The agreement percentage between the parents and the swimming teacher was 68.4%, varying from 46% to 92%. Parents overestimated as often as they underestimated. When comparing the children's own perception and the teacher's evaluation, the mean agreement was 85.3% with a variation of 65% to 100%.

### **Discussion and conclusions**

This pilot study revealed that the parents' evaluation of their child's aquatic skills may not be valid. The parents' answers differed from the teacher's evaluation mainly in floating skills (back and front star), as well as water entry by jumping. This is a risk factor when families are near the water and parents are not aware of their children's abilities. However, after swimming lessons the children were surprisingly accurate in their own evaluations. Therefore, swimming instructors and teachers could use a perceived water competence measurement tool to inform parents of their children's skill level. More research is needed with larger study samples and different cultures.

## **Relationship between children's and parents' perceived water competence of the child**

Lise Buelens<sup>1</sup>, Eva D'Hondt<sup>1</sup>, Julie Stainier<sup>1</sup>, Eline Van der Linden<sup>1</sup>, Kristine De Martelaer<sup>1,2</sup>

<sup>1</sup>Département of Movement and Sport Sciences, Vrije Universiteit Brussel (Brussel, Belgium)

<sup>2</sup>Département of Education, Utrecht University (Utrecht, the Netherlands)

### **Aims**

The perception about the water competence of the child helps to determine the degree of supervision and freedom parents give their children in, on and around water. The purpose of this study was to analyze the relationship between children's and parents' perceived water competence of the child and to examine the freedom parents give to their children as well as the awareness they raise about possible dangers in, on and around water in relation to their perception about the water competence of the child.

### **Methods**

The perception about the water competence of the child was measured by using the 'pictorial swimming scale' with a rating scale of 0 to 34, based on 17 items that had to be scored (0/1/2). This questionnaire was administered to children aged between 6 and 9 years enrolled in six different swimming schools in Flanders and Brussels (N=134, 56% boys and 44% girls) and their parents (N=134, 71.9% mothers and 28.1% fathers). The freedom parents give to their children and the awareness they raise in, on and around water were measured by using a 'freedom and awareness questionnaire' with a rating scale of 0 to 55, based on 11 questions scored from 1 to 5.

### **Results and discussion**

Nine significant correlations were found between children's and parents' perceived water competence of the child ( $\rho=0.401-0.733$ ,  $p<0.001-p=0.047$ ). Gender of the child ( $F=5.97$ ,  $p=0.016$ ) and parent's perception of the child's water competence ( $F=24.9$ ,  $p<0.001$ ) were significant factors influencing the degree of freedom parents give to their children in, on and around water. Gender of the parent ( $F=3.52$ ,  $p=0.063$ ) fell just beside the limit of significance. Girls were found to be given more freedom than boys, while fathers allowed their children more freedom than mothers did. When parents estimate the water competence of their child as high (a score of 30 or higher), they give their children more freedom in, on and around water. This may be interesting information for physical educators.