# Pictorial scale of perceived water competence (PSPWC) testing manual Version 1.2

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# TESTING MANUAL of the Pictorial Scale of Perceived Water Competence (PSPWC)

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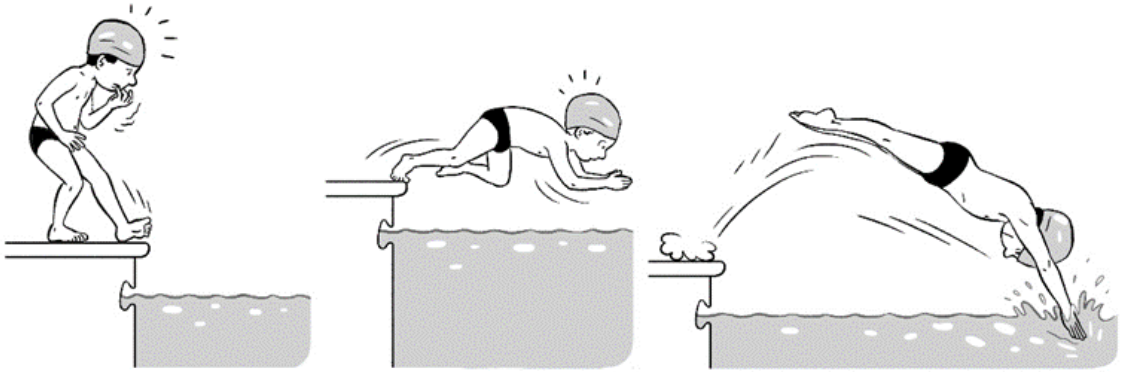
# MANUAL TESTING

# Pictorial Scale of Perceived Water Competence (PSPWC)



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*Version 1.2 (November 2020)*

## Imprint

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***Project origin:***

This Pictorial Scale of Perceived Water Competence is a project of the "early years" special interest group of International Association for Physical Education in Higher Education ([Association Internationale des Écoles Supérieures d'Éducation Physique] AIESEP).

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# Introduction

Perceived competence (PC) can be defined as one's beliefs about his or her ability with regard to achievement. PC is a key element in competence motivation theory (Harter, 1978). According to Harter's model, feelings of competence are a primary factor in motivation and can be related to cognitive, affective and behavioral outcomes. Measuring perception of competence has great pedagogical and scientific interest, especially during childhood. Harter (1982) stated that it was necessary to differentiate PC into three dimensions of competence: cognitive, social and physical competence because children do not perceive themselves as competent in the same way in different (developmental) areas. "In fact, perception represents the individual sense about the ability to conduct several tasks and is influenced by some personal traits and the complexity of the event" (Murcia & Pérez, 2008). Therefore, it is important to determine PC in specific contexts and situations.

Perceived physical competence might be considered as a multidimensional construct and needs specific and appropriate assessment tools for its different dimensions (Barnett *et al*., 2016). It means that children might perceive their own ability in some specific areas of physical competence differently to other areas. More specifically, Estevan and Barnett (2018) described perceived motor competence as a subset of perceived sports/athletic competence and being able to be further divided into perceived stability, object control and locomotor competence. As a consequence, growing attention has been devoted to the development of specific assessment tools to be able to measure these different dimensions of perceived motor competence in young children (Barnett, Ridgers, Zask, & Salmon, 2015; Lopez *et al*., 2016; Moreno & Ruiz, 2008; Perez & Sanz, 2005).

However, to obtain valid and reliable measures of perceived physical competence, it is important to ensure that the assessment tool is adapted to the target population by including motor skills that children are likely to achieve in their environment (Barnett *et al*., 2015). Harter and Pike (1984) suggested that with children under 8 years old, perception of competence should be assessed through a pictorial scale. This approach facilitates children's understanding of the task, preserves their attention and is accompanied by more reliable answers (Harter & Pike, 1984). Such pictorial scales reproduce drawings of a motor skill, with performance of the situation depicting an image that can be viewed as being "not really competent" to "very competent" in that particular task (Barnett *et al*., 2015). This format allows the child to choose the drawing s/he most identifies with.

Water competence is a very specific part of motor competence that deserves to be investigated, and developing a pictorial scale of perceived water competence (PWC) adapted to children offers many research perspectives that could apply to learning to swim as well as to drowning prevention (Garrido, Costa & Stallman, 2016; Moreno & Ruiz, 2008; Stallman, Moran Dr, Quan & Langendorfer, 2017).

To date, only one pictorial scale has focused on the measurement of young children's PWC (Moreno & Ruiz, 2008). However, the associated assessment tool does not fully assess aquatic fundamentals and the target age group is limited (i.e. 4 to 5 years). Therefore, the development of a more complete PWC assessment tool appropriate for children from 4 to 8 years old is needed.

The Pictorial Scale of Perceived Water Competence (PSPWC), presented in this manual, aims to address the following specific needs: (1) to be adapted to children aged from 4 to 8 years; (2) to be suitable for children of different swimming levels; (3) and to cover all the aquatic fundamentals (e.g. entry into the water, immersion, flotation, propulsion, etc.).

# Building and validity of the PSPWC

The idea to develop the PSPWC started during the "early years" special interest group meeting, held at the 2016 AIESEP congress in Laramie, USA (Figure 1). Preliminary discussions between the initiators of the project (Kristine De Martelaer, Arja Sääkslahti, Kristy Howells and Boris Jidovtseff) were quickly enlarged to involve additional experts (Lisa Barnett, Aldo Matos da Costa, Liliane De Sousa Morgado, Eva D'Hondt), who were implicated in the PSPWC development. Experts were invited to the group based on their knowledge around water competence in children and/or development of instruments to measure perception of physical competence.

The development process involved numerous exchanges (by email and skype) between these experts (English was the chosen language to facilitate this process), in order to elaborate an initial version of the present assessment tool. It was decided to select **different situations with gradual difficulties** being able to explore **fundamentals of water competences** that are required for learning to swim and for the prevention of episodes of risk of drowning (Francotte, 1999; Garrido *et al*., 2016; Langendorfer & Bruya, 1995; Stallman *et al*., 2017). These aquatic fundamentals were initially: water entry (WENT); breath control (BC); buoyancy (B); water orientation competencies or balance (WO); propulsion or swimming competencies (P); underwater or immersion competencies (I); water exit (WEXI). Two additional aquatic fundamentals were added later: gliding (G) and vision (V).

The first version of the PSPWC was made of 16 different situations corresponding to 16 aquatic skills with increasing difficulties and involving different level of water depth: (Sk1) Lying down in a prone position using hands on the bottom to move forward (as a crocodile); (Sk2) Standing and submersion in the water; (Sk3) Blowing bubbles under water; (Sk4) Catching an object under water; (Sk5) Floating on the back (back star); (Sk6) Floating on the front (front star); (Sk7) Water entry by slide; (Sk8) Pushing from the wall and gliding under water; (Sk9) Leg propulsion on the back; (Sk10) Leg propulsion on the front; (Sk11) Water entry by jumping (Sk12) Water entry by diving; (Sk13) Water exit by climbing out; (Sk14) Vertically treading water; (Sk15) Turning from the front to the back in an aligned position (i.e. longitudinal axis rotation); (Sk16) Changing direction while swimming on the front (i.e. transverse axis rotation).

Based on the above recommendations, all 17 aquatic skills or test items were represented by drawings in order to engage young children's interest, to keep their attention, to facilitate their understanding and to obtain more meaningful responses (Barnett *et al*., 2015; Harter, 1982). A professional illustrator, selected by the expert group, drew the images based on detailed movement descriptions with adjustments if necessary.

We decided to construct the scale with three level progressions for each situation, skill or test item, as follows: Level 1 = "not able to do the skill"; Level 2 = "skill in progress"; Level 3 = "able to do the skill". The experts selected a three level scale rather than a scale with a dichotomous "able vs. not able" choice, which is found in some other pictorial scales, as they considered it more appropriate to have a process-oriented scale showing a child's developmental progression (Langendorfer & Bruya, 1995). Such a format may minimize the likelihood of children giving a socially desirable response (Harter, 1982; Moreno Murcia & Ruiz Perez, 2008) and was already used in an aquatic pictorial scale before (Moreno *et al*., 2008).

The very first version of the PSPWC has been submitted to all the authors (expert group) for critical analysis, questioning especially the relevance of each situation and the quality of the pictures. Only small changes have been made and a seventeenth situation has been added: turning from the back to the front (i.e. sagittal axis rotation) (Sk17). The expert group also agreed on the validation process to be hold (Jidovtseff et al, 2017).

A preliminary face validity has been conducted in Belgium and revealed that only four situations[1] needed significant improvements. Results also showed that the face validity was significantly lower with children aged under 5 years. The PCPWC has been modified according to these results. Then, a face validity has been conducted by the same Belgian team over 120 children aged from 5 to 8 years, demonstrating that all situations and pictures, except one[2], were well-understood by the children. Results of the face validity have been presented in September 2019 at the 3rd CIAPSE congress in Verona, Italy (Morgado *et al.*, 2019). Content validity was conducted by inviting a panel of international experts in water competence from the countries represented in the author group (i.e. Australia, Belgium, Finland, Portugal, and United Kingdom) in order to complete a validation questionnaire on the pictorial scale. These experts met the two following criteria: 1) having 5 five years' experience in the field area of children water competence as teacher and/or researcher; 2) not being involved in the instrument development. These experts validated to a large majority the pictorial scale and only minor modifications were required. Pictures of the PSPWC were further improved by the professional illustrator following the experts' recommendations as well as children's ability to understand the pictures. Results of the face and content validity studies is going to be submitted for publication in 2020.

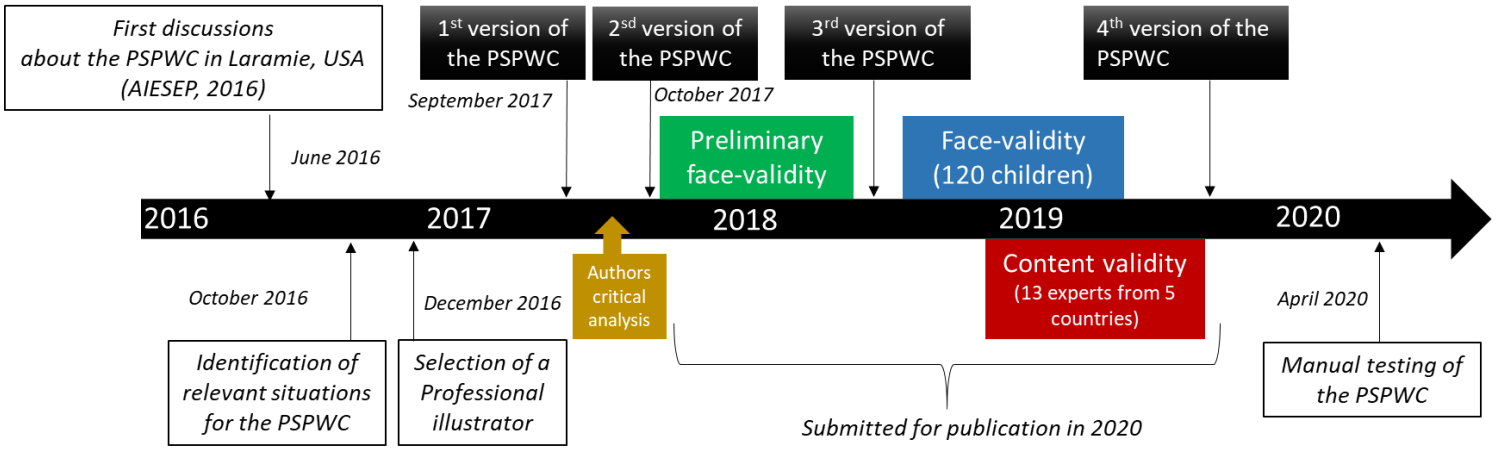



*Figure 1 - Timeline and process of development and of validation of the PSPWC.*

[1] The four problematic situations were: Water exit by climbing out ; longitudinal axis rotation ; transverse axis rotation and sagittal axis rotation. The three last situations were particularly difficult to understand for the youngest children as each level was illustrated through as sequence of two or three draws.
[2] Water exit by climbing remain confusing for the children and needed clarification.

# Aquatic fundamentals measured by the PSPWC

Table 1 - Aquatic fundamentals measured by the PSPWC

| Aquatic skills | | Depth of water | Aquatic fundamentals | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Water entry (WENT) | Water exit (WEXI) | Immersion (I) | Water orientation (WO) | Buoyancy (B) | Gliding (G) | Propulsion (P) | Breath control (BC) | Vision (V) |
| Sk1 | Lying down in a prone position using hands on the bottom to move forward (as a crocodile) | SW | | | X | X | | | X | | |
| Sk2 | Standing and submersion in the water | SW to WSL | | | X | | | | | | |
| Sk3 | Blowing bubbles under water | WHL | | | X | | | | | X | |
| Sk4 | Catching an object under water | WHL | | | X | X | | | | X | X |
| Sk5 | Floating on the back (back star) | WHL or WSL | | | | X | X | | | | |
| Sk6 | Floating on the front (front star) | WHL or WSL | | | | X | X | | | X | |
| Sk7 | Water entry by slide | WSL | X | | | | | | | | |
| Sk8 | Pushing from the wall and gliding under water | WHL or WSL | | | | X | X | X | | X | |
| Sk9 | Leg propulsion on the back | WSL -DW | | | | | X | X | X | | |
| Sk10 | Leg propulsion on the front | WSL-DW | | | | | X | X | X | X | |
| Sk11 | Water entry by jumping | DW | X | | | | | | | | |
| Sk12 | Water entry by diving | DW | X | | | | | X | | X | |
| Sk13 | Water exit by climbing out | DW | | X | | | | | | | |
| Sk14 | Vertically treading water | DW | | | | X | X | | | | |
| Sk15 | Turning from the front to the back in an aligned position (i.e. longitudinal axis rotation) | DW | | | | X | X | | X | | |
| Sk16 | Changing direction while swimming on the front (i.e. transverse axis rotation) | DW | | | | X | X | | X | | |
| Sk17 | Turning from the back to the front (i.e. sagittal axis rotation). | DW | | | | X | X | | X | | |

** Different depths of water: Shallow water (SW) (i.e. water until knees); Water at Hip Level (WHL), Water at Shoulder Level (WSL); Deep water (DW) (i.e. head fully under water in standing position).*

# Testing procedure

The PSPWC can be applied for use in **children** (i.e. measurement of their own perceived water competence), in **parents** (i.e. measurement of their perception of the children's water competence) and/or in **teachers** (i.e. measurement of their perception of pupils'/students' water competence). While adults will be able to autonomously complete the questionnaire, it will be important to accompany children in this process, mainly to channel their attention, to ensure that the situations presented are well understood and to clarifies their replies.

## Procedure with children

Administering the questionnaire with the child has to **take place in quiet environment** in order to avoid any distraction. It has to be **conducted individually** in order to ensure that the child has understood the situation and gives an answer that corresponds to his/her perceived water competence. The adult evaluator starts with a short and standardized explanation of the scale and of the procedure.

*" I'm going to show you pictures of a child doing a whole series of exercises in the water. There are easy exercises and others more difficult. For each exercise there is a picture that represents this child who is not yet able to do the exercise; a picture of the child learning to do the exercise and a picture of the child who is able do the exercise alone. For each situation, I will ask you to show me the image of the child that best suits you. It's really very important that you show me the image that corresponds to what you can do! Did you understand ? We can start ?"*

Additional explanation could be added if needed. Once the child understands what to do and agrees to participate, the evaluator starts to administer the questionnaire with the first situation. The same procedure is reproduced for each of the 17 situations. The adult takes note on the encoding grid of the child's perceived water competence for each situation. Here is the procedure to follow for each situation:

**1) The adult shows the drawings of the situation to the child.**

*Example: "In this situation the child tries to move forward in a horizontal (prone) position with the help of the hands"*

**2) The adult asks the child if s/he has already experienced the situation.**

*Example: "Have you tried this before?"*

**3) The adult asks the child to select the picture that is the most like him/her.**

*Example: "Could you please show me the picture that is the most like you if you were doing this?"*

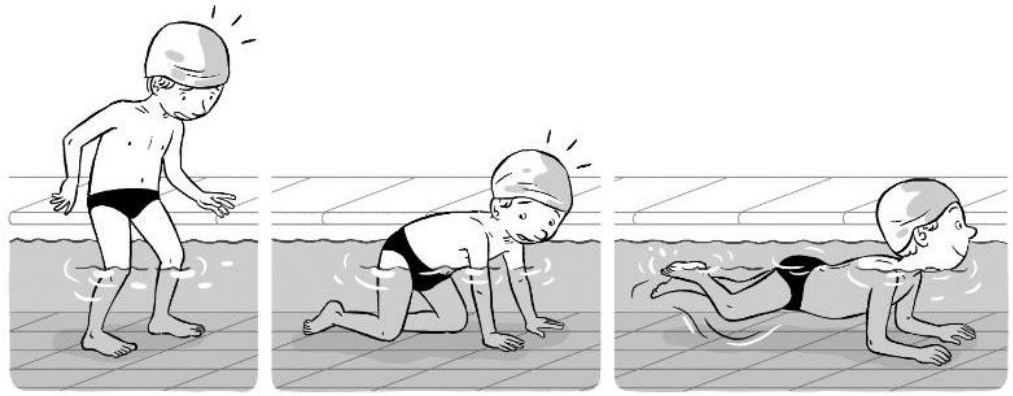
When the adult is sure that the children has really replied in accordance to his or her own perceived water competence, s/he can move forward to the next situation.

## Situation 1 - Lying down in a prone position using hands on the bottom to move forward (as a crocodile) (Aquatic fundamentals: I, WO, P; Depth of water: SW)

- Presentation to the child: *"In this situation, the child attempts to move forward in the prone position with the help of the hands."*

*Table 2 - Description of the three levels of progression of the situation 1.*

| Level | Description |
|---|---|
| **1** | The child stands up in the shallow water but does not dare to lie down. |
| **2** | The child moves forward on all fours but s/he is not completely submerged in the water. |
| **3** | The child lies down in a prone position with arms or hands in contact with the bottom of the wading (paddling) pool, with the body extended and immersion until shoulders. |



***L1: Not Able*** ***L2: In Progress*** ***L3: Able***

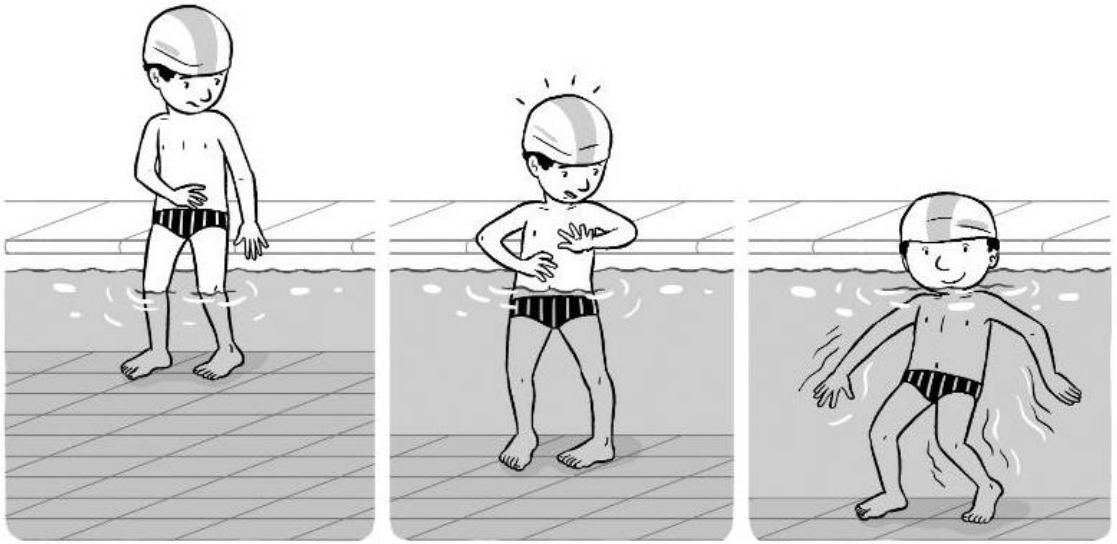
*Figure 2 - Picture of the three levels of progression of the situation 1*

## Situation 2 – Standing and submersion in the water (Aquatic fundamentals: I; depth of water: SW to WSL)

- Presentation to the child: *"In this situation, the child goes into deeper and deeper water."*

*Table 3 - Description of the three levels of progression of the situation 2.*

| Level | Description |
|---|---|
| **1** | The child is standing in the water and accepts immersion until knees. |
| **2** | The child is standing in the water and accepts immersion until belly button. |
| **3** | The child is standing in the water and accepts immersion until shoulders. |



***L1: Not Able*** ***L2: In Progress*** ***L3: Able***

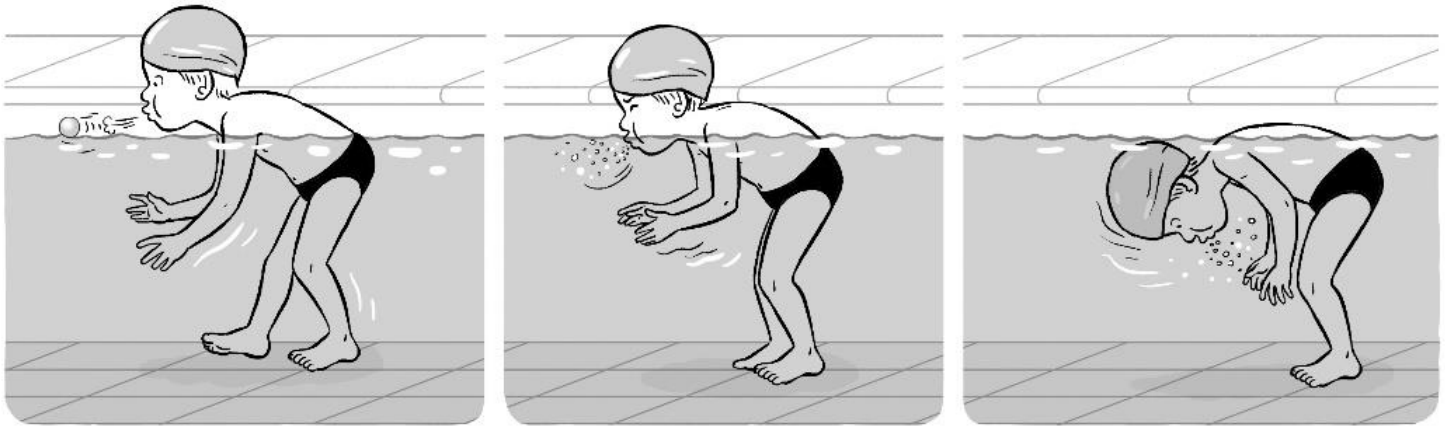
*Figure 3 - Picture of the three levels of progression of the situation 2.*

## Situation 3 – Blowing bubbles under water; (Aquatic fundamentals: I, BC; depth of water: WHL)

- Presentation to the child: *"In this situation, the child tries to blow bubbles with the head under water."*

*Table 4 - Description of the three levels of progression of the situation 3.*

| Level | Description |
|---|---|
| **1** | The child just dares to put his/her chin into the water but not his/her mouth. S/he is able to blow a floating ball. |
| **2** | The child puts his/her mouth in the water and blows bubbles but does not dare to put the nose or the eyes in the water. |
| **3** | The child submerges the whole head under water and blows bubbles. |



***L1: Not Able*** ***L2: In Progress*** ***L3: Able***

*Figure 4 - Picture of the three levels of progression of the situation 3.*

## Situation 4 - Catching an object under water; (Aquatic fundamentals: I, WO, BC, V; depth of water: WHL)

- Presentation to the child: *"In this situation, the child tries to catch an object under water."*

*Table 5 - Description of the three levels of progression of the situation 4.*

| Level | Description |
|---|---|
| **1** | The child tries to get the object with one hand in the direction of the object but face outside the water and feet on the ground. |
| **2** | The child catches an object in shoulder deep water, with the head under the water and feet on the ground. |
| **3** | The child catches an object in shoulder deep water, with the head under water and feet losing contact with the floor. |

***L1: Not Able*** ***L2: In Progress*** ***L3: Able***

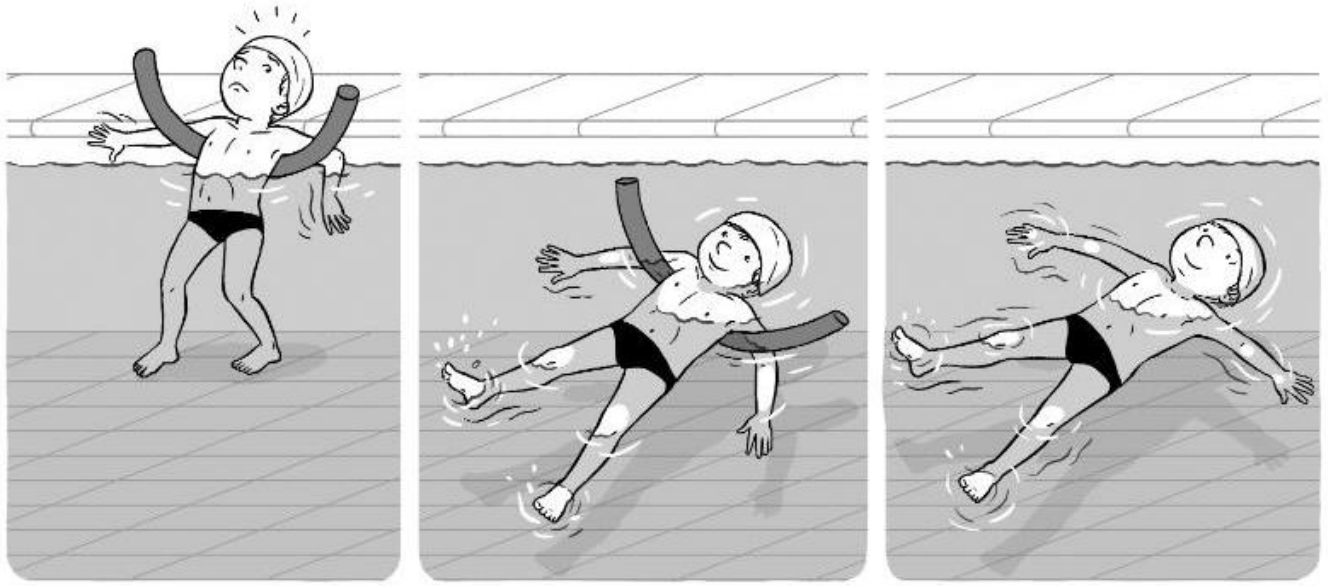
*Figure 5 - Picture of the three levels of progression of the situation 4.*

## Situation 5 - Floating on the back (back star); (Aquatic fundamentals: WOR, BUO; depth of water: WHL or WSL)

- Presentation to the child: *"In this situation, the child tries to do a back star float."*

*Table 6 - Description of the three levels of progression of the situation 5.*

| Level | Description |
|---|---|
| **1** | The child tries to do the back star with a floating device but fails. The child is standing in the water with the head back but the feet do not leave the bottom of the pool. |
| **2** | The child is doing a back star with a floating device; ears are submerged, body is well aligned. |
| **3** | The child is doing a back star without any help and with ears submerged |



***L1: Not Able*** ***L2: In Progress*** ***L3: Able***

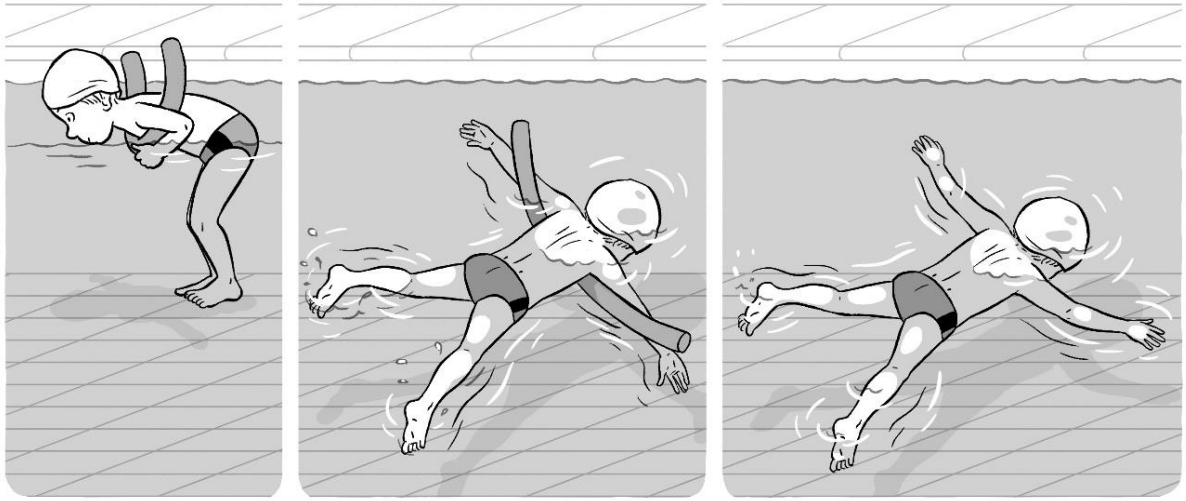
*Figure 6 - Picture of the three levels of progression of the situation 5.*

## Situation 6 – Floating on the front (front star); (Aquatic fundamentals: WO, B, BC; depth of water: WHL or WSL)

- Presentation to the child: *"In this situation, the child tries to do a front star float."*

*Table 7 - Description of the three levels of progression of the situation 6.*

| Level | Description |
|---|---|
| **1** | The child tries to do the front star but fails. The child is standing with his/her face just over the water looking towards the bottom of the pool, but does not dare to put his/her face in the water and the child's feet do not leave the bottom of the pool. |
| **2** | The child is doing a front star with a floating device; face is in the water, body is well aligned. |
| **3** | The child is doing a front star without any help and with face in the water. |



***L1: Not Able*** ***L2: In Progress*** ***L3: Able***

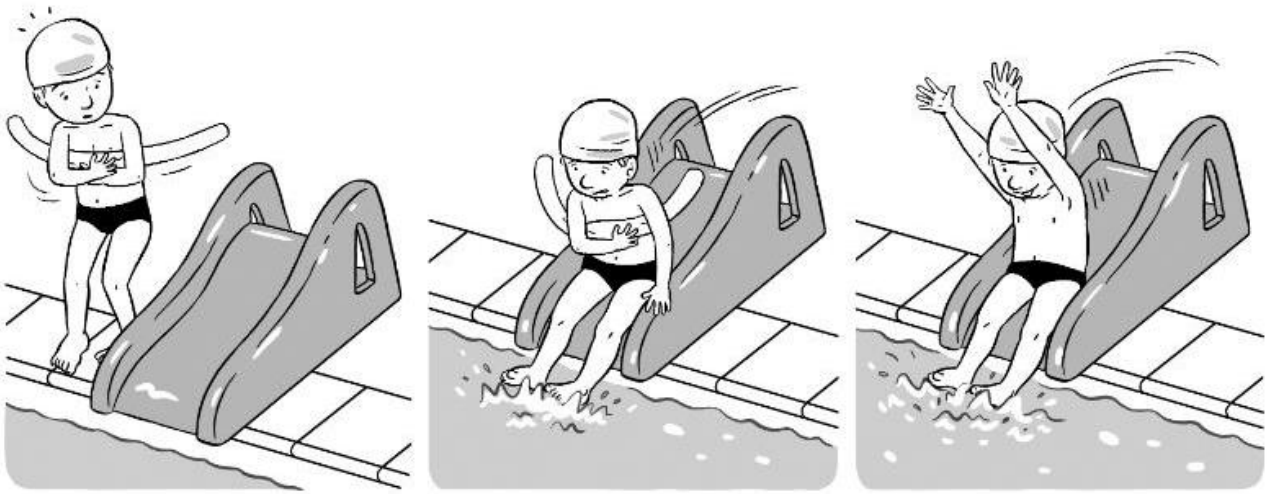
*Figure 7 - Picture of the three levels of progression of the situation 6.*

## Situation 7 – Water entry by slide (Aquatic fundamentals: WENT; depth of water: WSL)

- Presentation to the child: *"In this situation, the child tries to enter the water from a slide."*

*Table 8 - Description of the three levels of progression of the situation 7.*

| Level | Description |
|---|---|
| **1** | The child does not dare to go on the slide, with (or without) a floating device. |
| **2** | The child enters the water from a slide with a floating device. |
| **3** | The child enters the water from a slide without any floating device. |



***L1: Not Able*** ***L2: In Progress*** ***L3: Able***

*Figure 8 - Picture of the three levels of progression of the situation 7.*

## Situation 8 - Pushing from the wall and gliding under water (Aquatic fundamentals: WO, B, G, BC; depth of water: WHL or WSL)

- Presentation to the child: *"In this situation, the child pushes from the wall and glides with outstretched arms and long body."*

*Table 9 - Description of the three levels of progression of the situation 8.*

| Level | Description |
|---|---|
| **1** | The child grips the board of the pool, puts his/her foot/feet against the wall but does not leave the wall. |
| **2** | The child pushes from the wall and glides a little bit, body not aligned and face partly out of the water. |
| **3** | The child pushes from the wall and glides some metres with the head under water between the outstretched arms, body aligned. |

***L1: Not Able*** ***L2: In Progress*** ***L3: Able***

*Figure 9 -Picture of the three levels of progression of the situation 8.*

## Situation 9 – Leg propulsion on the back (Aquatic fundamentals: B, G, P; depth of water: WSL -DW)

- Presentation to the child: *"In this situation, the child tries to swim on his/her back."*

*Tableau 10 - Description of the three levels of progression of the situation 9.*

| Level | Description |
|---|---|
| **1** | The child takes the board of the pool with one hand and with the other hand s/he takes a floating device, and tries to set off but does not leave the wall by keeping feet on the ground, hip is flexed, head outside the water. |
| **2** | The child swims on the back with a floating device, head aligned with body and with minimal progression through the water by kicking his/her legs. |
| **3** | The child swims on the back without any floating device, body aligned, arms alongside the body and is progressing well (some metres) through the water by kicking his/her legs. |

***L1: Not Able*** ***L2: In Progress*** ***L3: Able***

*Figure 10 - Picture of the three levels of progression of the situation 9.*

## Situation 10 – Leg propulsion on the front (Aquatic fundamentals: B, G, P, BC; depth of water: WSL -DW)

- Presentation to the child: *"In this situation, the child tries to swim on his/her front."*

*Tableau 11 - Description of the three levels of progression of the situation 10.*

| Level | Description |
|---|---|
| **1** | The child takes the board of the pool with one hand and with the other hand, s/he takes a floating device, and tries to set off but does not leave the wall by keeping foot on the ground, uncoordinated segmental movements, head outside the water. |
| **2** | The child swims on his/her front with a floating device, body not aligned, arms outstretched in front with face out of water and with minimal progression through the water by kicking his/her legs. |
| **3** | The child swims on their front without any floating device, body aligned and arms outstretched in front with fully submerged face and is progressing well (some metres) through the water by kicking his/her legs. |

***L1: Not Able*** ***L2: In Progress*** ***L3: Able***

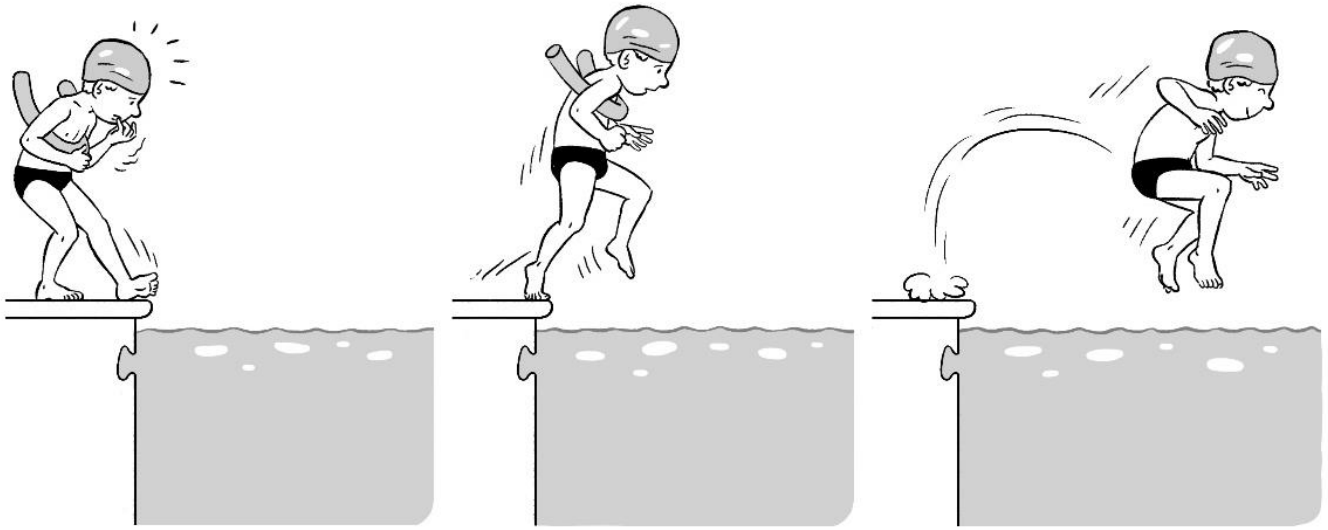
*Figure 11 - Picture of the three levels of progression of the situation 10.*

## Situation 11 – Water entry by jumping (Aquatic fundamentals: WENT; depth of water: DW)

- Presentation to the child: *"In this situation, the child jumps into the water."*

*Table 12 - Description of the three levels of progression of the situation 11.*

| Level | Description |
|---|---|
| **1** | The child does not jump into the water with (or without) a floating device. |
| **2** | The child jumps into the water with a floating device. |
| **3** | The child jumps into the water without any floating device. |



***L1: Not Able*** ***L2: In Progress*** ***L3: Able***

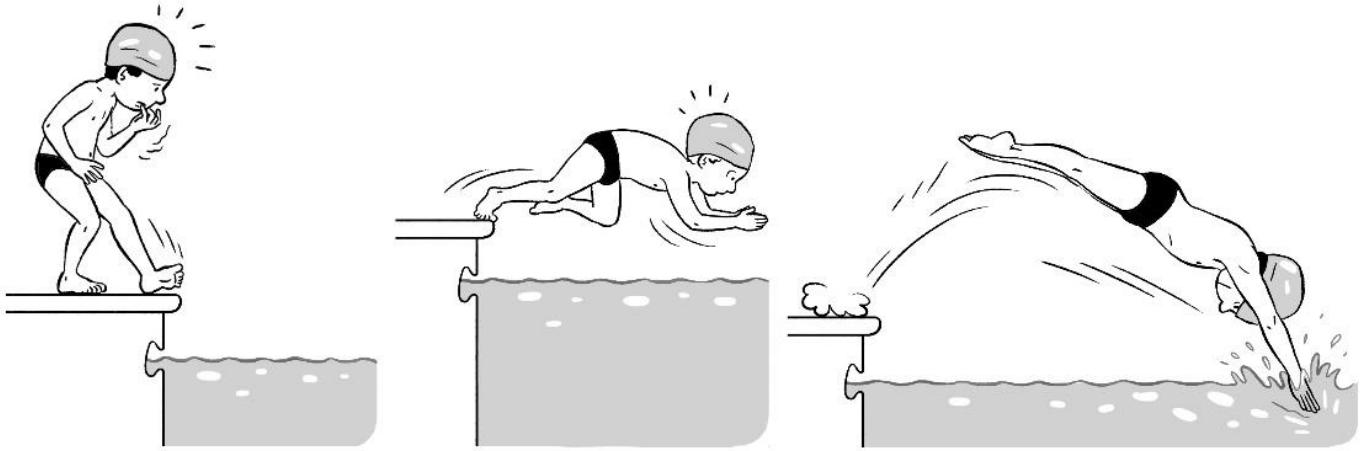
*Figure 12 - Picture of the three levels of progression of the situation 11.*

## Situation 12 – Water entry by diving (Aquatic fundamentals: WENT, G, BC; depth of water: DW)

- Presentation to the child: *"In this situation, the child tries to dive into the water."*

*Table 13 - Description of the three levels of progression of the situation 12.*

| Level | Description |
|---|---|
| **1** | The child does not dare to dive into the deep water. |
| **2** | The child jumps, trying to dive with hands in the direction of the water. Head and body are not aligned with the arms and are not oriented downwards toward the water. |
| **3** | The child dives into the deep water, aligned body position, ears between the arms. |



***L1: Not Able*** ***L2: In Progress*** ***L3: Able***

*Figure 13 - Picture of the three levels of progression of the situation 12.*

## Situation 13 – Water exit by climbing out (Aquatic fundamentals: WEXT; depth of water: DW)

- Presentation to the child: *"In this situation, the child tries to exit the deep water by climbing out."*

*Table 14 - Description of the three levels of progression of the situation 13.*

| Level | Description |
|---|---|
| **1** | The child tries to get out of the deep water without pushing on the bottom. The child grips the pool edge with his/her arms but cannot climb out. |
| **2** | The child tries to get out of the deep water without pushing on the bottom. The child has difficulties climbing out. |
| **3** | The child easily climbs out of the deep water without pushing on the bottom. |

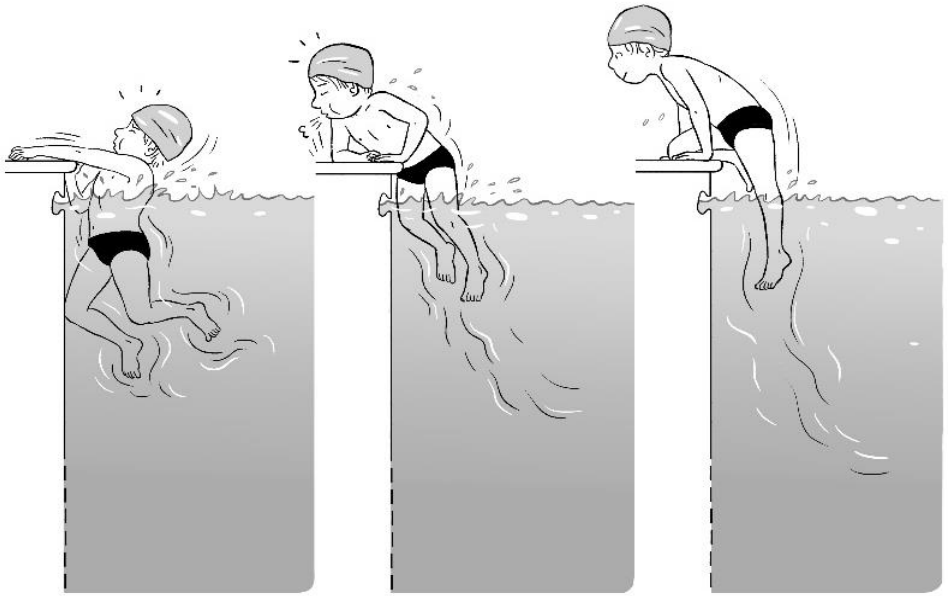



*Figure 14 - Picture of the three levels of progression of the situation 13.*

## Situation 14 –Vertically treading water (Aquatic fundamentals: WO, B, P; depth of water: DW)

- Presentation to the child: *"In this situation, the child is treading water."*

*Table 15 - Description of the three levels of progression of the situation 14.*

| Level | Description |
|---|---|
| **1** | The child grips the board of the pool but does not leave the wall and does not dare to tread. |
| **2** | The child is vertically treading water with a floating device. |
| **3** | The child is vertically treading water without any floating device and can keep his/her head above water. |

***L1: Not Able*** ***L2: In Progress*** ***L3: Able***

*Figure 15 - Picture of the three levels of progression of the situation 14.*

## Situation 15 – Turning from the front to the back in an aligned position (i.e. longitudinal axis rotation) (Aquatic fundamentals: WO, B, P; depth of water: DW)

- Presentation to the child: *"In this situation, the child tries to turn from the front to the back while moving in the same direction."*

*Table 16 - Description of the three levels of progression of the situation 15.*

| Level | Description |
|---|---|
| **1** | The child starts by swimming on the front, s/he tries to do a longitudinal axis rotation with a floating device but s/he is not successful. |
| **2** | The child starts by swimming on the front, does a longitudinal axis rotation and turns from the front to the back with a floating device, making uncoordinated movements, and continues by swimming on the back. |
| **3** | The child starts by swimming on the front, does a longitudinal axis rotation and turns from the front to the back without any floating device, the body aligned and with an efficient use of the arms (one arm extended upward and the other along downward the body, is turning in direction of downward arm), and continues by swimming on the back. |

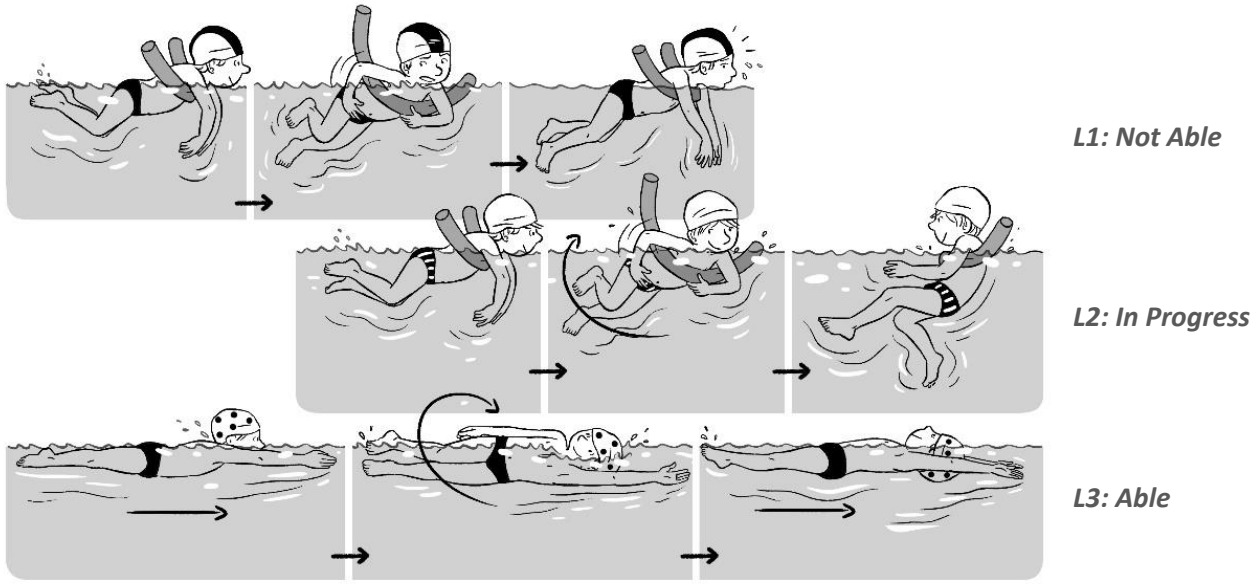



*Figure 16 - Picture of the three levels of progression of the situation 15.*

## Situation 16 – Changing direction while swimming on the front (i.e. transverse axis rotation) (Aquatic fundamentals: WO, B, P; depth of water: DW)

- Changing direction while swimming on the front Presentation to the child: *"In this situation, the child tries to change direction while swimming on the front."*

*Table 17 - Description of the three levels of progression of the situation 16.*

| Level | Description |
|---|---|
| **1** | The child starts by swimming on the front, s/he tries to change direction with a floating device but s/he is not successful. |
| **2** | The child starts by swimming on the front, s/he can change direction with a floating device, and continues by swimming on the front. |
| **3** | The child starts by swimming on the front, s/he can change direction without any floating device, and continues by swimming on the front. |

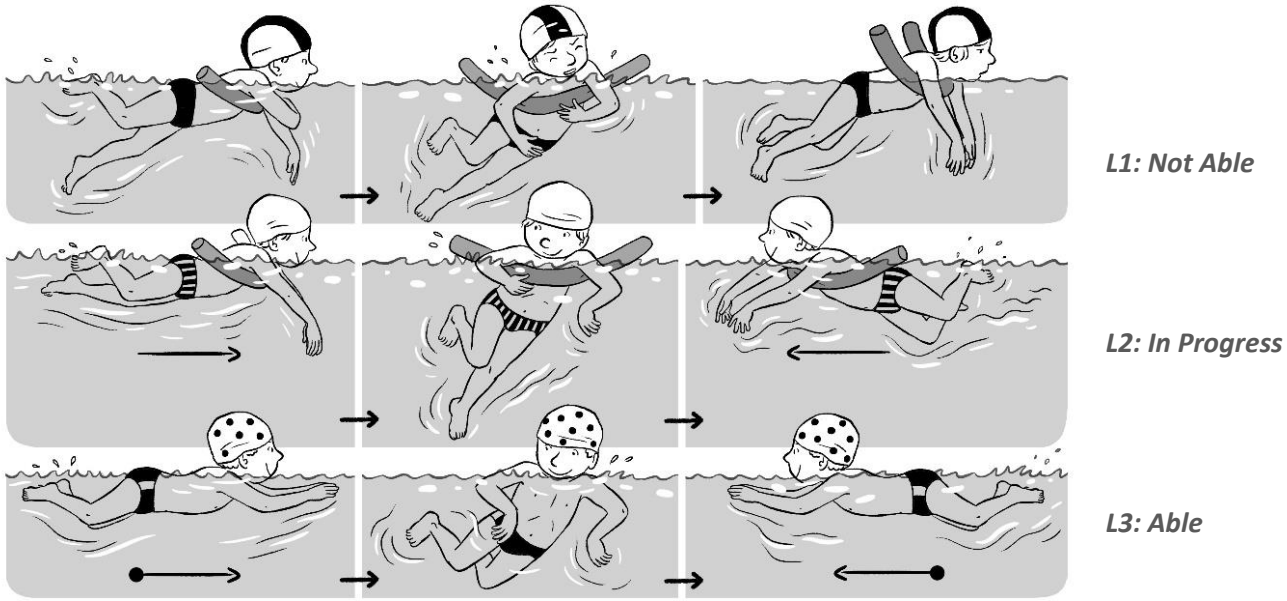



*Figure 17 - Picture of the three levels of progression of the situation 16.*

## Situation 17 – Turning from the back to the front (i.e. sagittal axis rotation) (Aquatic fundamentals: WO, B, P; depth of water: DW)

- Presentation to the child: *"In this situation, the child tries to change direction by turning from the back to the front."*

*Table 18 - Description of the three levels of progression of the situation 17.*

| Level | Description |
|---|---|
| **1** | The child starts by swimming on the back, s/he tries to turn from the back to the front with a floating device but s/he is not successful. |
| **2** | The child starts by swimming on the back, the child can rotate from the back to the front (dorsal position to the ventral position) with a floating device, and continues by swimming on the front. |
| **3** | The child starts by swimming on the back, the child can rotate from the back to the front (dorsal position to the ventral position) without any floating device, and continues by swimming on the front. |

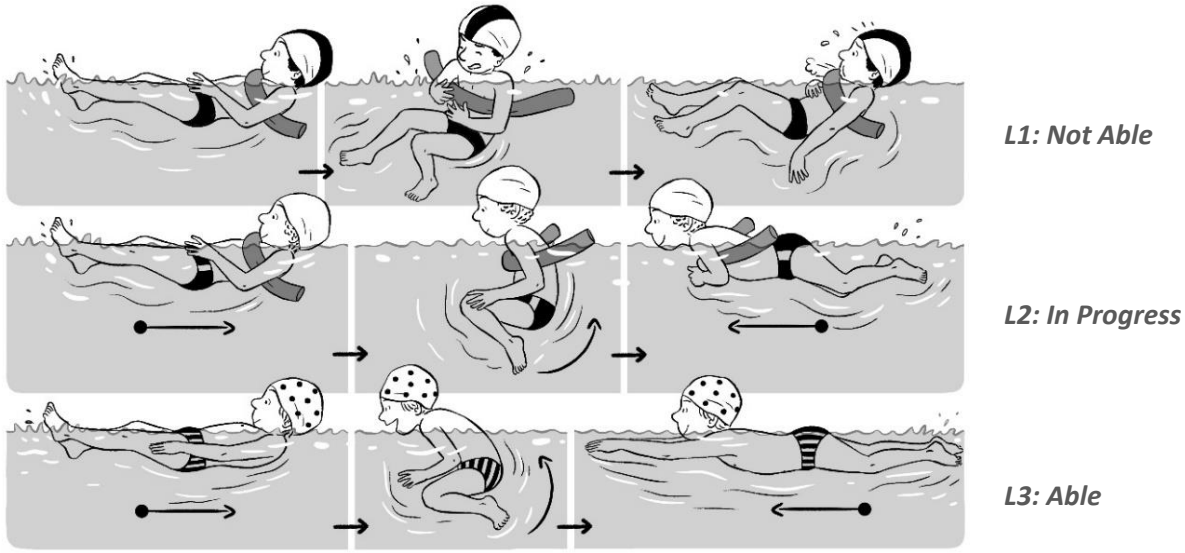



*Figure 18 - Picture of the three levels of progression of the situation 17.*

# Encoding grid

*Table 19 - Encoding grid.*

| First name | | Last name | | Date of birth | | Gender: F - M |
|---|---|---|---|---|---|---|
| Date | | Venue | | | | |
| Evaluator | | | | | | |

| Test item | Test description | Depth of water | Already tried | Not Able | In progress | Able |
|---|---|---|---|---|---|---|
| Sk1 | Lying down in a prone position | SW | | | | |
| Sk2 | Standing in the water | SW to WSL | | | | |
| Sk3 | Blowing bubbles | WHL | | | | |
| Sk4 | Catching an object | WHL | | | | |
| Sk5 | Back star | WHL or WSL | | | | |
| Sk6 | Front star | WHL or WSL | | | | |
| Sk7 | Water entry by slide | WSL | | | | |
| Sk8 | Gliding under water | WHL or WSL | | | | |
| Sk9 | Leg propulsion on the back | WSL -DW | | | | |
| Sk10 | Leg propulsion on the front | WSL-DW | | | | |
| Sk11 | Jump into the water | DW | | | | |
| Sk12 | Dive into the water | DW | | | | |
| Sk13 | Exiting deep water | DW | | | | |
| Sk14 | Treading water | DW | | | | |
| Sk15 | Longitudinal rotation | DW | | | | |
| Sk16 | Transverse rotation | DW | | | | |
| Sk17 | Sagittal rotation | DW | | | | |

# Translation procedures for the cross-cultural use of the PSPWC

To allow cross cultural-use of the PSPWC in different countries and to allow international comparison, the instrument needs to be well translated in order to avoid any result due to errors in translation rather than differences in the people or the variables being measured and the instrument should also be adapted culturally, if needed (Chapman & Carter, 1979; Beaton et al, 2000). One crucial element during such translation process is making sure the **item intents** and, therefore, the **construct concepts are maintained** across different languages and culture settings (Hawkins et al, 2020). Specific for the perceived water competence, this means the items have to cover the aquatic fundamentals as explained in the 'Building and validity of the PSPWC' in the Testing Manual.

The procedure recommended for PSPWC translation is presented in the Figure 19, and is adapted from the procedure recommended by Beaton et al. (2000).

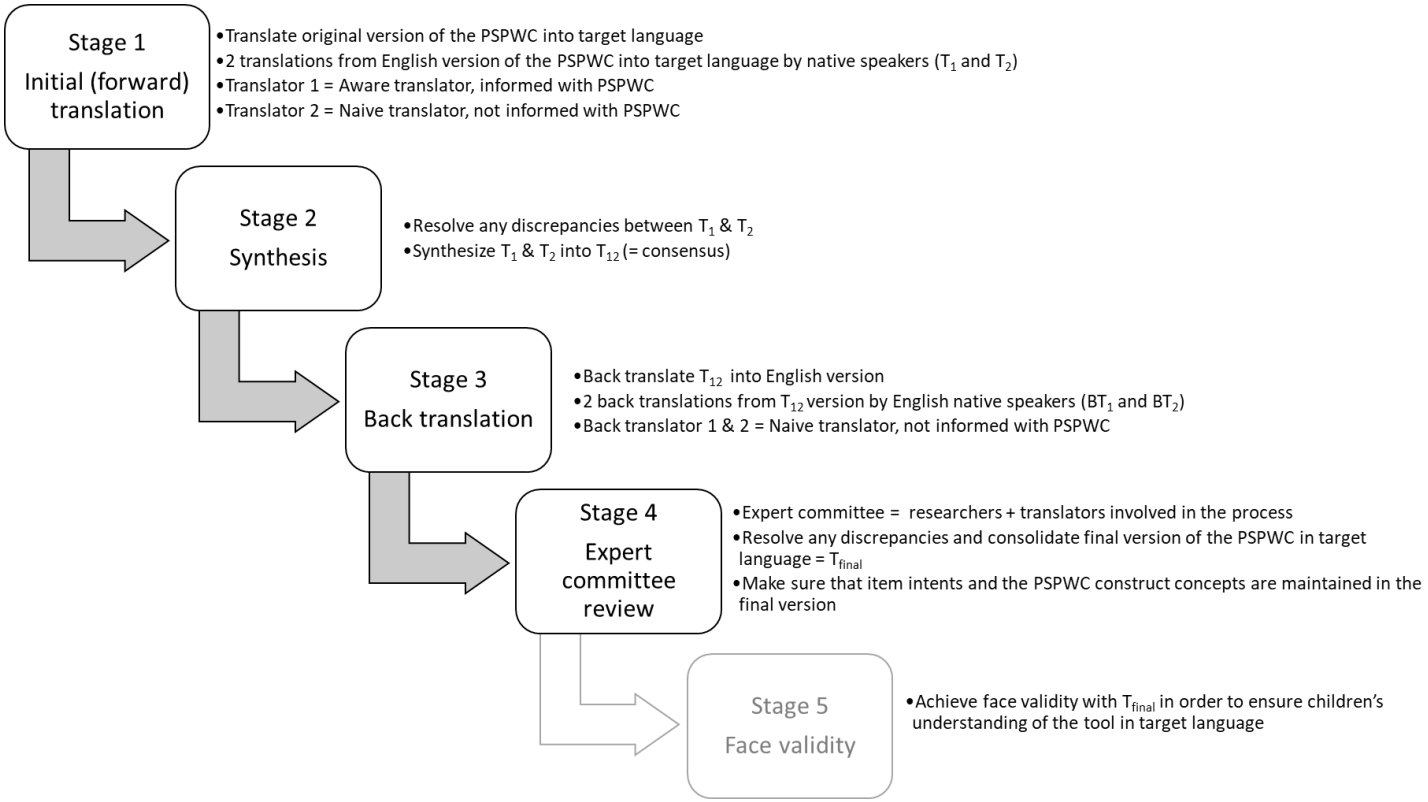



*Figure 19 - Graphic representation of the stages of cross-cultural translation of the PSPWC into local language*

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