Efficiency of water familiarisation:

CEREKI’S RESEARCHES AND EXPERIENCES IN WATER HABITUATION

Manhattan Mornard, D Deflandre, A Delvaux, M Cloes, B Jidovtseff
University of Liège

I. Tests battery development*

• 20 gradual tests estimate 5 basics of water habituation
  - Water entry
  - Flooding and viewing
  - Floating and water balance
  - Propulsion
  - Breathing

• In 3 depth’s levels
  - Small depth (30-40 cm)
  - Medium depth (70-80 cm)
  - High depth (+150 cm)

• Assessment was
  - Entertaining
  - Longitudinal
  - Reachable
  - Fast

*Mise au point d’une batterie de tests en accoutumance à l’eau pour des enfants de 3 à 6 ans et analyse de leur niveau d’accoutumance (Schiettecatte, Vandermeulen et Jidovtseff, 2010)
• 250 children from 18 different classes
  - 1st preschool (3-4 years) : N = 42
  - 2nd preschool (4-5 years) : N = 51
  - 3rd preschool (5-6 years) : N = 157
  - Including 82 children of CEReKi (2nd et 3rd preschool)

• Water Habituation increases with age
• Very important interindividual variability
• CEReKi >>> others

II. Comparison of two methods**

Pretests water habituation (September 2011)

<table>
<thead>
<tr>
<th>CEReKi sample</th>
<th>Tradition sample</th>
<th>Control sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 25</td>
<td>N = 25</td>
<td>N = 27</td>
</tr>
<tr>
<td>Non appropriate pool CEReKi's equipment</td>
<td>3 # and progressive depths Good learning conditions Directed activities</td>
<td>No regular water habituation</td>
</tr>
<tr>
<td>Free games and guided exploration</td>
<td>No aquatic lesson</td>
<td></td>
</tr>
</tbody>
</table>

Post-tests water habituation (February 2012)

**Analyse de l’efficacité de l’accoutumance à l’eau chez l’enfant préscolaire (Mornard, Deflandre, Delvaux et Jidovtseff, 2012)
• 13 video-recorded lessons
  ➢ 6 in CEReKi (3 with 1st and 2nd preschool and 3 with 3rd preschool)
  ➢ 7 in traditional sample (3 with the beginners-group, 3 with the intermediate-group and 1 with the experts-group)

• Quantitative and qualitative analysis

Intervention analysis in two schools

\[ y = 11.963x - 20.174 \]

\[ R^2 = 0.4992 \]

Total score according to the age

Total scores increases with the age such as other studies:
- Schiettecatte, 2010
- Moreau, 1995
- Francotte, 1999

Very important interindividual variability
BUT ...

- Some children of the Tradition sample reached the limit of the battery (improvement in technical swimming that is not measurable)
- CEReKi is as efficient as Traditional approach with less lessons (13x30' < 29x40') regarding water habituation
### Intervention analysis (quantitative)

<table>
<thead>
<tr>
<th></th>
<th>Tradition</th>
<th>CEReKi 1°-2°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lessons volume (***</td>
<td>29 x 40 min = 1160 minutes</td>
<td>13 x 30 min = 390 minutes</td>
</tr>
<tr>
<td>Motion time (***</td>
<td>24% (278 minutes)</td>
<td>47% (183 minutes)</td>
</tr>
<tr>
<td>Waiting time (***</td>
<td>49% (468 minutes)</td>
<td>17% (66 minutes)</td>
</tr>
<tr>
<td>Free games (***</td>
<td>7%</td>
<td>17%</td>
</tr>
<tr>
<td>Guided Activities (***</td>
<td>17%</td>
<td>0%</td>
</tr>
<tr>
<td>Non-appropriate behaviours (**)</td>
<td>1%</td>
<td>3%</td>
</tr>
<tr>
<td>Reprimands (**)</td>
<td>1%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Emotional interventions (****)</td>
<td>5%</td>
<td>13%</td>
</tr>
</tbody>
</table>

### Intervention analysis (qualitative)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Lesson</th>
<th>Water entry</th>
<th>Flooding</th>
<th>Floating</th>
<th>Equilibration</th>
<th>Breathing</th>
<th>Propulsion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tradition Beginners</td>
<td>1</td>
<td>+</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>+</td>
<td>++</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>+</td>
<td>++</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Tradition Intermediate</td>
<td>1</td>
<td>++</td>
<td>+</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>++</td>
<td>+</td>
<td>+++</td>
<td>+</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>++</td>
<td>+</td>
<td>+++</td>
<td>+</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>Tradition - Experts</td>
<td>++</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>+++</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>CEReKi 1° et 2° preschool</td>
<td>1</td>
<td>++</td>
<td>+</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>++</td>
<td>+</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>++</td>
<td>+</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>CEReKi 3° preschool</td>
<td>1</td>
<td>++</td>
<td>+</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>++</td>
<td>+</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>++</td>
<td>++</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>
III. Improvement of the initial test battery***

- The first test battery (Schiettecate & al., 2010) can not assess the improvement in technical swimming (Mornard & al., 2012)

- The 3rd study aims to add some tests about swimming (backstroke, crawl and breaststroke)

- Score in water habituation (WH) AND in technical swimming (TS)

---

***Amélioration d'une batterie de tests afin d'évaluer le niveau d'accoutumance à l’eau d’un enfant de trois à neuf ans (Delsupexhe, Mornard et Jidovtseff, 2014)***

- 194 children 3 to 9 years of age
- Divided into 4 groups
  - Preschool CEReKi (N = 43)
  - Prechool others (N = 37)
  - Primary school old CEReKi (N = 20)
  - Primary school others (N = 94)

- Technical swimming score according to habituation water score

\[ y = 0.7398x - 7.1187 \]
\[ R^2 = 0.404 \]
• Very important interindividual variability!

• Preschool: CEReKi = Others (WH and TS)

• Primary school: CEReKi old >>> Others (WH and TS)

**CONCLUSION**

• Water habituation is very important before learning technical swimming

• Appropriate teaching skills are recommended (games, fun, free)

• Pleasure, enjoyment, amusement, entertainment

• Fear, anxiety, panic