



“Dare to save a life at school”:
implementation of a basic life support cycle in the PE curriculum



Alexandre Mouton, Charlotte Laurent, Manon Collin, Simon Verdonck, Damien Overt, Denis Ulweling & Marc Cloes



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In Europe and the U.S., at least 700,000 people die each year following sudden cardiac death

2000 death/day → Third common killer after cancer and other cardiovascular diseases

Berdowski et al., 2010



Survival rate : 5 to 10%

+ Bystander cardiopulmonary resuscitation (CPR)

X 2 - 4

+ Early defibrillation

X 5 - 7



ERC (2015)



Out-of-hospital cardiac arrest
is witnessed in 60–80%

Holmberg et al., 2000



But less than 20% of people can
react appropriately

Plant & Taylor, 2013



Recommended to learn CPR at
school to increase survival rate

Bottiger & Van Aken (2015)

- ✓ Trained teachers can provide adequate resuscitation training in schools
(*Lukas et al. 2016*)
 - ✓ Physical education (PE) teachers are recommended to incorporate resuscitation training in their curriculum (*Colquhoun, 2012*)
 - ✓ Schoolchildren serve as multipliers: at home they teach their brothers and sisters, their parents, their grandparents and many others in their families
(*Bottiger & Van Aken, 2015*)
- ➔ PE would contribute in shaping individuals anchored in their society, meeting physical literacy and accountability objectives (*Whitehead, 2013*)

AIM

Examine the feasibility, the relevance and the impact on knowledge and practical skills of the implementation of a basic life support cycle in the PE curriculum

Methods



1

Context

- ✓ One secondary school in the center of Liège (Belgium)



- ✓ 44 female students (17,15±0,36 y) in their last year of secondary school
- ✓ One female PE teacher (26 y) holder of a Master in PE and of an aquatic lifesaving degree

2 Program development

- ✓ Collaboration between the *Francophone Belgian Lifesaving Association (LFBS)* and the *University of Liège*



- ✓ One day training of the PE teacher by a BLS instructor from the LFBS

➔ Active participation of the PE teacher in the creation of the BLS cycle

Equipment



x4



x2

3

Program: 6 PE classes of 50-minutes

Class 1

- ✓ Information about the cycle
- ✓ Initial knowledge assessment (19 items questionnaire)

Class 2

Class 3

Where are hands
placed for chest
compression ?



Where are electrods
placed for defibrillation?

Class 4

Class 5

- ✓ Sharing of BLS experiences (training and real-life)
- ✓ Questions-answers

Class 6

3

Program: 6 PE classes of 50-minutes

Class 1

- ✓ Training of BLS without equipment
- ✓ 2x3 workshops

Class 2

Frequency of compressions (100-120/min)

Class 3

Resistance training (2min)

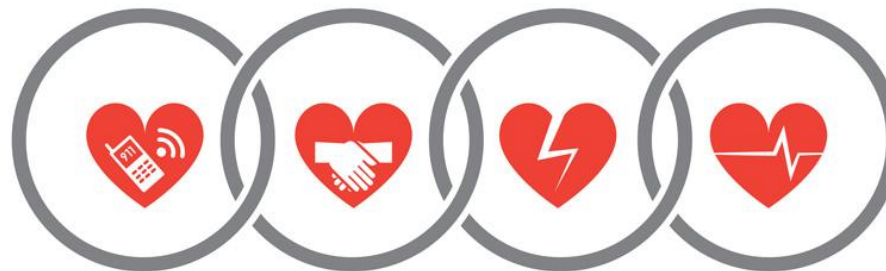
Check victim status and call for help

Class 4

Class 5

Class 6

THE SURVIVAL CHAIN



EARLY ACCESS

EARLY CPR

EARLY DEFIBRILLATION

EARLY ADVANCED CARE

3

Program: 6 PE classes of 50-minutes

Class 1

- ✓ Discover and insufflate with the pocket mask
- ✓ 2-Person CPR training



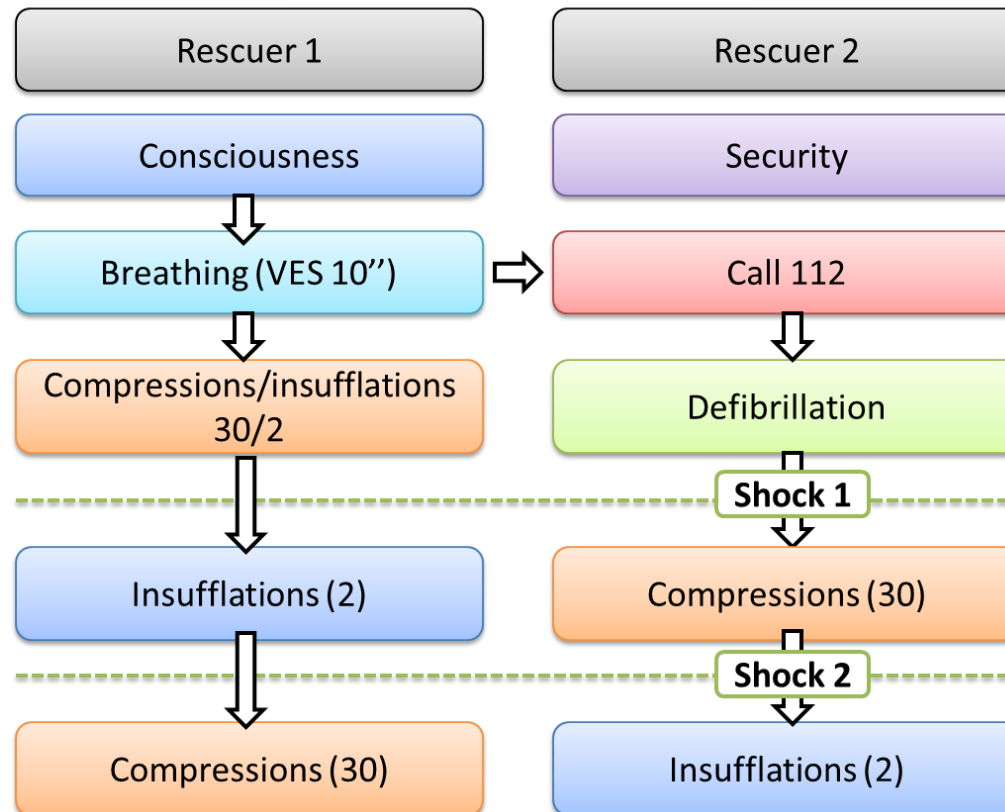
Class 2

Class 3

Class 4

Class 5

Class 6



3

Program: 6 PE classes of 50-minutes

Class 1

- ✓ Discover the DEA (training DEA + where to find it?)
- ✓ Training of the BLS protocol with the DEA

Class 2

Class 3

Class 4

Class 5

Class 6



3

Program: 6 PE classes of 50-minutes

Class 1

✓ Five workshops to prepare the assessment

Class 2

Simulated assessment X 2

Class 3

Resistance
training (2min)

2-Person CPR
training

Class 4

Video (real-life CPR+DEA)

Class 5

<https://youtu.be/3ZXZUoB7GU8>

Class 6

3

Program: 6 PE classes of 50-minutes

Class 1

- ✓ Final knowledge assessment (19 items questionnaire)
- ✓ Practical assessment: 1-Person BLS+AED

Class 2

➔ Assessed by the PE teacher + external instructor

Class 3

➔ 16 items evaluation grid

Class 4

- ✓ Questions about the feasibility and the relevance of the BLS cycle

Class 5**Class 6**

Results

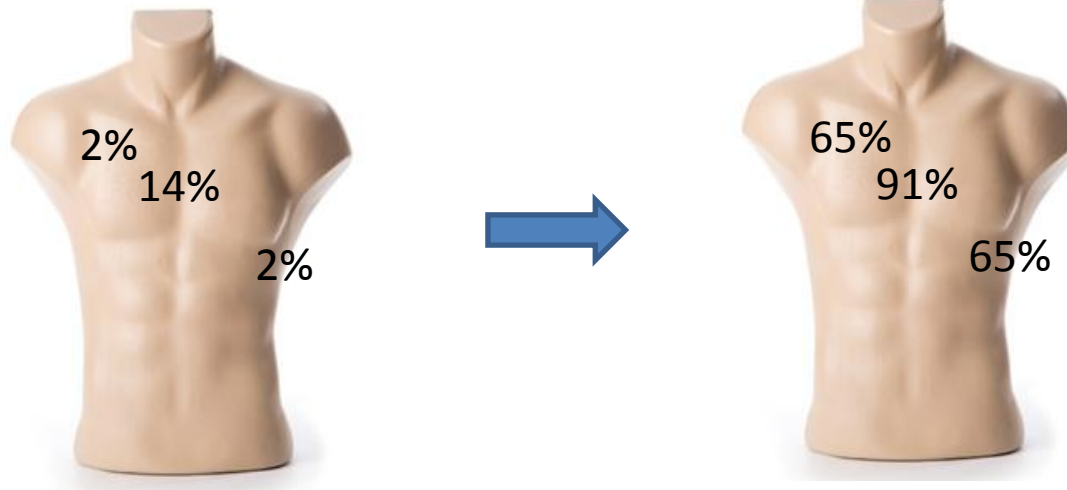


1 Pre-Post Intervention comparison

✓ Scores on Questionnaire (/20; n=44)

Pre-intervention	Post-intervention
6,12 ± 3,25 [1-14]	17,32 ± 1,79 [10,5-20]

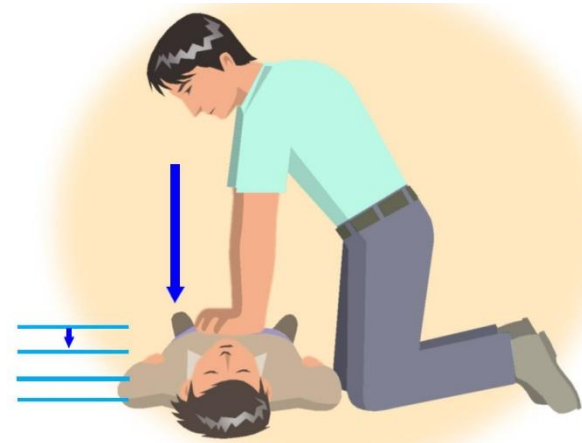
➔ Significant improvement ($p < 0,00$)



1 Pre-Post Intervention comparison

- ✓ Scores on practical test (hands-on CPR; /20)

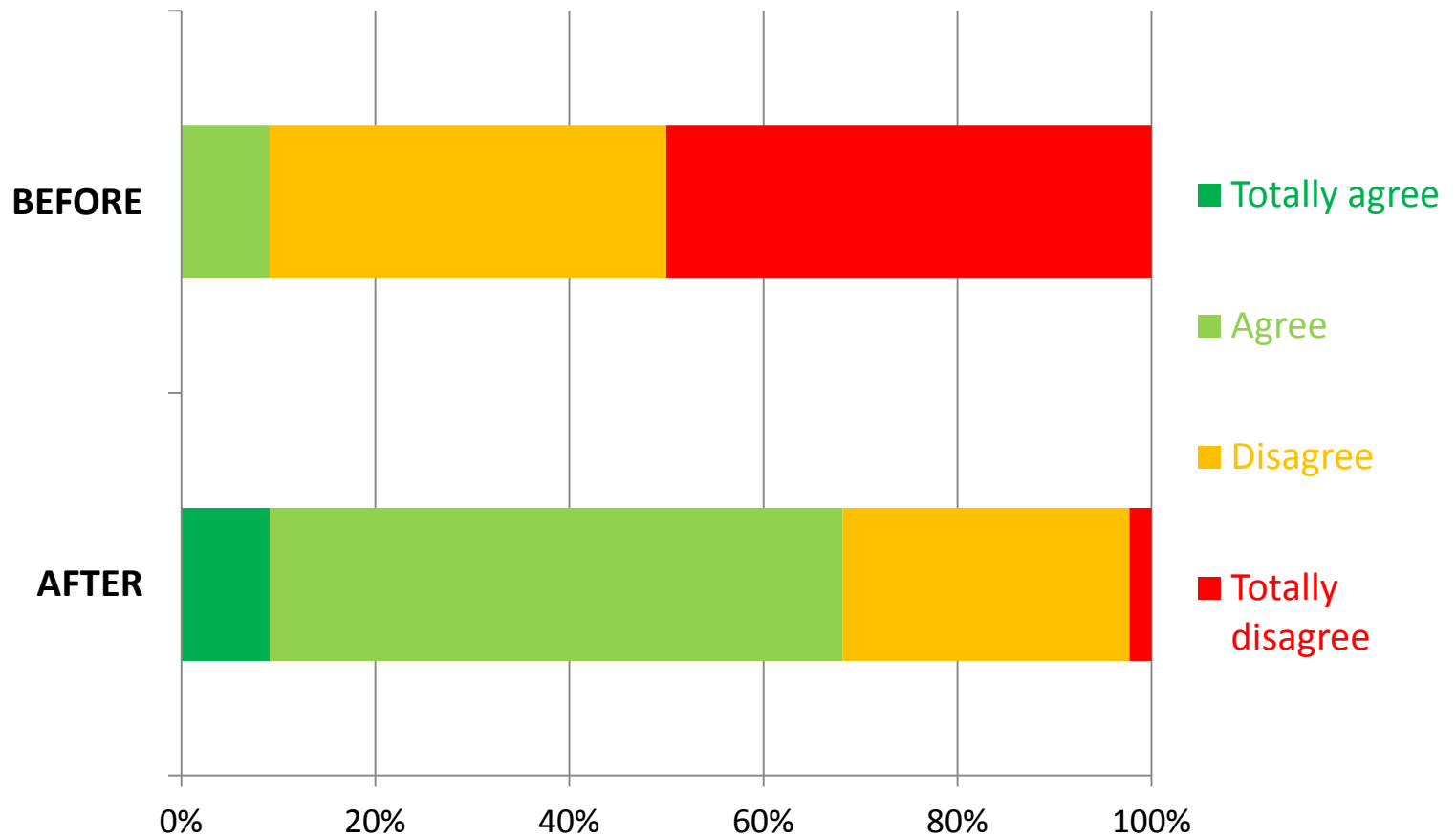
17,16 ± 1,72
[13,6-20]



2

Feasibility and relevance

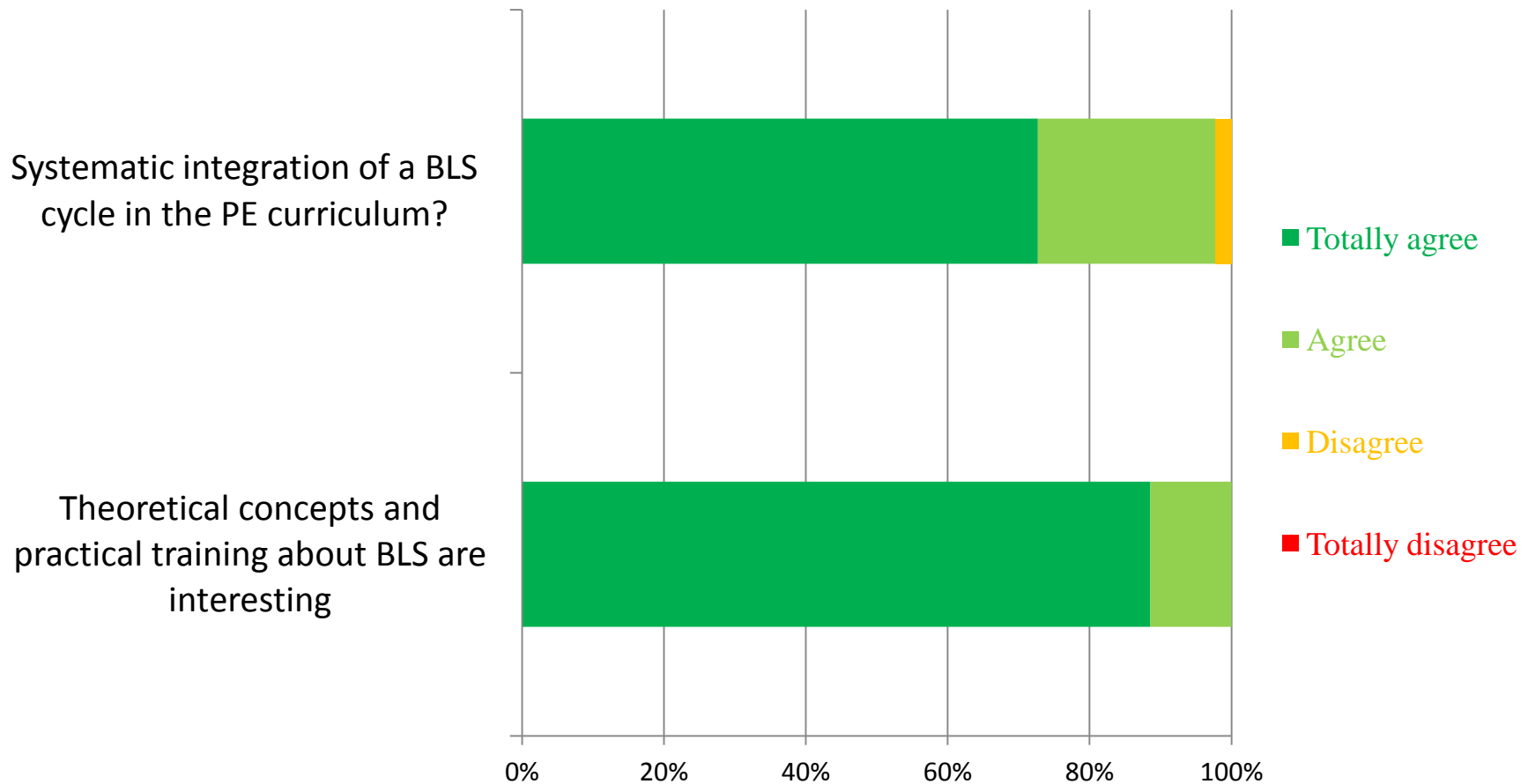
- ✓ « Today, you feel able to provide first aid to a cardiac arrest people »



2

Feasibility and relevance

- ✓ Students agree with the integration of BLS in their PE curriculum



2

Feasibility and relevance

- ✓ SWOT analysis by the students and the PE teacher:

Strengths	Weaknesses
<ul style="list-style-type: none">- Fast results on lifesaving skills- Students motivation- Limited need for sport facilities- Physical literacy/accountability- PE role highlighted in society	<ul style="list-style-type: none">- Buy/rental of specific material- 50min class are too short- No certificate delivered to students- No objective practical assessment- Large groups of students
Opportunities	Threats
<ul style="list-style-type: none">- Adapt (add first aid) the cycle to obtain an european BLS certificate- Integrate BLS earlier in the PE curriculum (primary-secondary school continuum)	<ul style="list-style-type: none">- Competencies of the PE teacher in BLS must be sufficient- Unknown long-term effectiveness

Conclusions



- ✓ Fast and conclusive enhancement of the confidence, knowledge and practical competencies about BLS



Confirm existing results (Colquhoun, 2012)

- ✓ Need for an official recognition of the BLS cycle for the students



Guidelines for a certificate delivered in the school context
(Lukas et al. 2016)

- ✓ Need for an official recognition of the BLS cycle in the PE curriculum



Develop in-service training for PE teachers
(Plant & Taylor, 2013)



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Alexandre.Mouton@ulg.ac.be



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