Slide 1

Implementing new technologies in PE : The arduous path of a group of teachers

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Slide 2

Current observations

- Today's children and adolescents never knew a world without technology
- Tablets, smartphones, and other apps belong to their normal life

Slide 3

Current observations

- Use of technology in the gym
  ◦ Up to date trends

- OK but …

Integrating Technology INTO **Physical Education and Health**
Fourth Edition
Ken Felker

Slide 4

Current observations

- Technology has first to serve the teaching-learning process

Darla Castelli's keynote at the 2013 AIESEP Conference

Connecting New Technologies to Learning: Data Driven Decision Making
Darla M. Castelli, PhD   The University of Texas at Austin

Slide 5

Current observations

- Technology has first to serve the teaching-learning process
  ◦ Motivation of the students
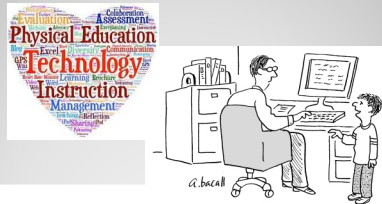 ◦ Support to the teaching tasks + the learning

Castelli (2013)   **Recommendations**

1. Think broadly about the role of the physical educator
2. Focus on considerate, evidenced-based technology integration
3. Use technology to inform practice
4. Think pedagogy first, technology second
5. Create a climate in which, if technology fails, learning still occurs
6. Avoid becoming "tools of our tools"

Slide 6

Current observations

- Teachers are not always at ease with technology
  ◦ Specific competences and/or interest
  ◦ Available resources (financial, maintenance …)
  ◦ Time to prepare and to use

"In return for an increase in my allowance, I can offer you free unlimited in-home computer tech support."

Slide (top-left)

- Informal survey (109 Wallonian PE teachers)

Category	Definition	Example
Professional development	Teacher's lack of competence	*'I don't have knowledge enough to use them'*
Financial aspect	The technological tools are expensive and there is no $$$	*'The school doesn't provide us the needed budget'*
Environment	Difficulty to adapt NT in PE	*'Equipment storage is impossible'*
Teacher interest	The teacher does not see why NT should be used	*'I'm not interested'*
Regulation	NT are forbidden	*'Students cannot use their cellular, so I don't use it'*
Social limitation	NT limit social interactions	*'Youth are already on screens enough'*
Time	NT take time	*'These tools need time'*
PE status	Other courses have priority	*'NT are reserved to theoretical courses'*
Students' behaviors	Students reaction against video	*'My students don't want to be filmed'*

(Badges: 2d, 1st, 3rd)

Current observations

- Informal discussions indicate that PE teachers would like but …

… do not know how to do
… do not dare

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Slide (middle-left)

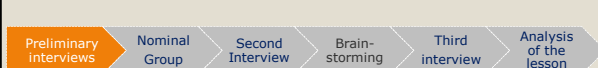TIME FOR ACTION

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Purposes of the presentation

- Describe an action research implemented to encourage a group of PE teachers to introduce new technologies in their lessons

- Analysis the collaborative process

- Draw practical implications for continuous professional development

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Methods

- One tutor mentioned that he would be interested to introduce technology in the PE courses in his school

- He proposed to motivate his colleagues to form a working group designed to prepare a project

- He asked our support and we proposed a collaborative approach

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Slide (bottom-right)

| Preliminary interviews | Nominal Group | Second Interview | Brain-storming | Third interview | Analysis of the lesson |

- Objective:
  ◦ To identify the characteristics of the teachers
  ◦ To prepare the meeting
- Tool: semi-structured interview
  ◦ Presentation
  ◦ Societal anchorage
  ◦ Theoretical knowledge content taught
  ◦ Use of new technologies
  ◦ Personal interest about a concrete project
- 5 teachers (P1, P2, P3, P4, P5)

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Preliminary interviews | **Nominal Group** | Second Interview | Brain-storming | Third interview | Analysis of the lesson

- Objectives:
  - To identification the needs, objectives, available resources and
  - To selection of a project
- Tools:
  - Content analysis (audio recording)
  - Analysis of the verbal exchanges and produced documents
  - Participant observation
- 4 teachers (P1, P2, P3, P4)

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Preliminary interviews | Nominal Group | **Second Interview** | Brain-storming | Third interview | Analysis of the lesson

- Objective:
  - To get a feedback about the nominal group
- Tool: semi-structured interview
  - Process used for the previous meeting
  - Selected objectives
  - Preparation of the next step
- 4 teachers (P1, P2, P3, P4)

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Preliminary interviews | Nominal Group | Second Interview | **Brain-storming** | Third interview | Analysis of the lesson

- Objectives:
  - To identify the way to implement the project
  - To prepare the design of some lessons
- Tools:
  - Content analysis (audio recording)
  - Analysis of the verbal exchanges and produced documents
  - Participant observation
- 2 teachers (P1, P3)

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Preliminary interviews | Nominal Group | Second Interview | Brain-storming | **Third interview** | Analysis of the lesson

- Objective:
  - To get a feedback about the brainstorming
- Tool: semi-structured interview
  - Opinions
  - Intentions
- 2 teachers (P1, P3)
- Summary of the meeting with P3

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Preliminary interviews | Nominal Group | Second Interview | Brain-storming | Third interview | **Analysis of the lesson**

- Objective:
  - To analyze the imagined lesson(s)
- Tool: open interview
  - Description of the lesson plan
  - Analysis of the lesson's objectives
  - Discussion about the technology use
  - Identification of the possible difficulties
- 3 teachers

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Preliminary interviews | Nominal Group | Second Interview | Brain-storming | Third interview | Analysis of the lesson

Follow up

- Objective:
  - To analyze the long term effect
- Tool: phone interview (November 2015)
  - Implementation of the lesson
  - Analysis of the barriers
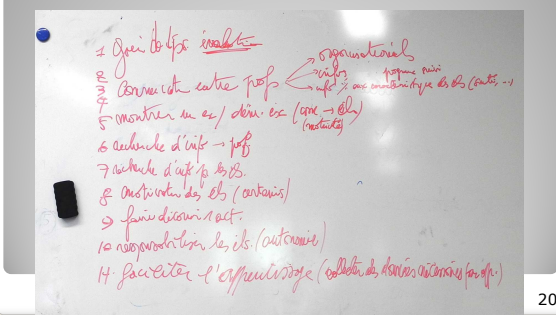- 3 teachers (P1, P2, P3)

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What's happened?

- At the beginning
  - T1 (coordinator), T3 (youngest) are motivated but want to work together
  - T2 and T4 are curious but not ready to invest much time in a first step
  - T5 is not interested at all before seeing the concrete effects on students
  - Technology is seen as a mean to eventually increase time on task and improve feedback
  - Lack of competence is perceived as a determining limiting factor
  - Current practice is satisfying

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What's happened?

- The reasons to use technology in their classes

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Slide 21

What's happened?

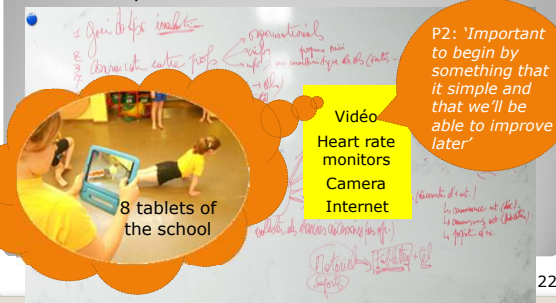- The reasons to use technology in their classes

Save time for evaluation		
Communication between the teachers	Organization	
	Content taught	
	Students' characteristics	
Modeling (task or exercise) to the students		
Search of information by the teacher		
Search of information by the students		
Students' motivation		
Facilitate the discovery of an activity		
Provide responsibilities to students (autonomy)		
Make the learning easier		

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Slide 22

What's happened?

- The technology to use to increase the students' autonomy

P2: 'Important to begin by something that it simple and that we'll be able to improve later'

Vidéo
Heart rate monitors
Camera
Internet

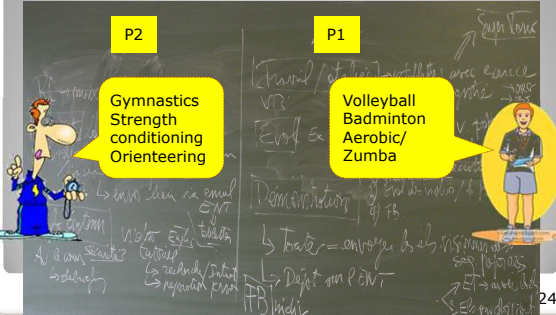8 tablets of the school

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Slide 23

What's happened?

- After the nominal group
  - Common satisfaction about the meeting and the project
  - P1 express a fear about the lack of control of the students (mistrust towards learners' independence)
  - P2 regrets that only 4 PE teachers of the schools are interested by the project + is surprised by the large array of opportunities offered by the technology + is now convinced by the interest of the project
  - P3 is happy with the constructive way of the meeting and the positive impact of the university staff that is a catalyst for the school teachers + share her motivation
  - P4 does not feel competent + will wait for the production of his colleagues

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Slide 24

What's happened?

- The focus group: focus on a product

P2
Gymnastics
Strength conditioning
Orienteering

P1
Volleyball
Badminton
Aerobic/ Zumba

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What's happened?

- The focus group: focus on a product

P2

P1

SC: the students look for video for some muscles → virtual school

VB: video prepared by the teacher illustrating the drills

Gym: self-evaluation (selection of the best trial)

Bad: video with models specific to some mistakes

Orient: tutorial with the content

Zum: video with the chore to learn

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What's happened?

- Opinion about the brainstorming

T1	T2
Very good job	The best meeting
Not so easy but necessary to limit chose one direction	Being only 2 was easier in order to avoid dispersion
Concrete production	Concrete aspects
The most difficult aspect will be to let the students work 'by themselves'	Opportunity to share ideas that one did not have

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What's happened?

- The lesson(s) – P1
  ◦ Badminton
  ◦ Free use of model video available on the tablets during the first part of the unit
  ◦ The lesson before the evaluation, students will work by 4 with a tablet (2 will record and give feedback to the 2 others)
  ◦ One evaluation sheet will be available
  ◦ For the evaluation lesson, pairs of students are video recorded and determine the best trial to be used by the teacher

'What's bother me the most is that I'll have to stay in the background'

What's happened?

- The lesson(s) – P2
  ◦ Strength conditioning
  ◦ Groups of 4-5 students who will have to find on Internet video that illustrate exercises for some muscles (they will be invited to record their own video) + prepare the music to be used during the lessons
  ◦ Control by the teacher
  ◦ Video will be uploaded on the tablets and explained by the students will be available to illustrate the stations

'I am really motivated to update my teaching approaches and eager to see the result'

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What's happened?

- The lesson(s) – P3
  ◦ Strength conditioning
  ◦ Preparation of several groups of exercises classified in specific folders according to the muscle group to be trained
  ◦ Students select the exercises they want following a logbook where they have to write what they are doing

'The most difficult was to chose one idea because I had so many options'

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What's happened?

- The implementation (after 6 months)
  ◦ P1 and P2 both underlined that they were not able to implement their projects
  ◦ Their colleague in charge of the tablets' management was not available for a sick leave …
  ◦ P3 moved to another job and works now in higher education

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Conclusion

- Even if PE teachers lack of confidence in the use of technology in their lessons, they are able to find their own way to go further
- It seems that they hesitate to invest the time because they are not pursued of the real cost-benefit balance (discomfort zone)
- The large array of opportunity seems to be one of the biggest obstacle as the practitioners do not know where to start
- An external support can play the role of catalyst but the follow up should be planned on a long term

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Conclusion

- We underlined again the power of the team work, emphasizing the interest of the development of communities of practice focusing on specific interest
- If we want to increase the use of technology in the gym, it would be necessary to identify those teachers who are interested and to invite them to share their experiences + invite their interested colleagues to test simple tools before implementing more time consuming projects

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Thank you

Références

- Castelli, D.M. (2013, July). *Technologies to Learning: Data Driven Decision Making*. Paper presented at the 2013 AIESEP International Conference 'Physical education and sport: Challenging the future', Warsaw, Poland. Available on Internet: http://www.aiesep.ulg.ac.be/upload/aiesep_2013_warsaw_keynote_castelli.pdf

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