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

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Current observations

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

Current observations

- Use of technology in the gym
  - Up to date trends
  - OK but ...

Current observations

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

Recommendations (Castelli, 2013)
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”

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
Informal survey (109 Wallonian PE teachers)

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

Current observations

- Informal discussions indicate that PE teachers would like but …
  - do not know how to do
  - do not dare

Purpose 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

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

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)
Objectives:
- To identify 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)

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)

Objective:
- To get a feedback about the brainstorming

Tool: semi-structured interview
- Opinions
- Intentions
- 2 teachers (P1, P3)
- Summary of the meeting with P3

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

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)

Objective:
- Follow up
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

The reasons to use technology in their classes
<table>
<thead>
<tr>
<th>Reason</th>
<th>Technology to use to increase the students’ autonomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save time for evaluation</td>
<td>Video heart rate monitors, Camera, Internet</td>
</tr>
<tr>
<td>Communication between the teachers</td>
<td>Tablets of the school</td>
</tr>
<tr>
<td>Organization</td>
<td>Gymnastics, Strength conditioning, Orienteering</td>
</tr>
<tr>
<td>Content taught</td>
<td>Volleyball, Badminton, Aerobic/Zumba</td>
</tr>
<tr>
<td>Students’ characteristics</td>
<td></td>
</tr>
<tr>
<td>Facilitate the discovery of an activity</td>
<td></td>
</tr>
<tr>
<td>Provide responsibilities to students (autonomy)</td>
<td></td>
</tr>
</tbody>
</table>

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
What’s happened?

The focus group: focus on a product

P1

SC: the students look for video for some muscles

virtual school

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

Orient: tutorial with the content

P2

VB: video prepared by the teacher illustrating the drills

Bad: video with models specific to some mistakes

Zum: video with the chore to learn

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 happened?

The lesson(s) – P2

• Strength conditioning
  • Preparations 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

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

What’s happened?

Opinion about the brainstorming

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

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
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.

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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Références