L'utilisation des méthodes mixtes dans un paradigme de constructionnisme social de recherche en éducation physique et pédagogie du sport

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Paradigms, exemplars, segments

- Paradigms are epistemic communities of researchers who share similar basic beliefs, values, interests and expertise – they exemplify the social organisation of knowledge
- Exemplars of procedural and methodological forms of research, embodying rules for conducting rigorous research
- Segments are specialisms within a paradigm

A social constructionist paradigm

- Members share basic belief that physical education is socially constructed by individuals and groups, often through struggle and contestation
- Members value social justice and education as empowerment
- Members challenge the status quo and share interests in developing alternative forms of physical education

A segment: pedagogies of affect

Affective learning occurs only when it is planned for and exemplified by someone whose presence reflects the desired qualities.

The interaction of curriculum, teaching, and assessment to produce affective learning as a directly and intentionally pursued outcome.

An exemplar: a mixed methods study of pedagogies of affect

- Study 1: Observation and analysis of teacher behaviour (and pupil responses) – quantitative design
- Study 2: Self confrontation interviews with teachers (and pupil focus groups) – qualitative design

Quantitative study grounded in self-determination theory

- ☐ Need-supportive teaching can promote positive affective learning outcome. (Behzadnia et al., 2018; Haerens et al., 2015)
- ☐ Need-thwarting teaching produces less desirable outcomes. (Behzadnia et al., 2018; Haerens et al., 2015)

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Study 1 Research Questions

- Is teachers' behaviour needs-supportive and needs-thwarting physical education lessons?
- To what extent is their behaviour supportive and controlling?

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Methods

Participants

- 20 physical education teachers (11 males, 9 females) teaching 2 lessons each, one week apart

M age = 30.0 , range = 24 – 42 years

M teaching experience = 7 years, range = 1 – 14 years

Measures

- *Observed teaching behaviour*
  - Need-supportive and need-thwarting teaching behaviour observation tool
- *Pupils questionnaires*
  - Basic psychological needs satisfaction and frustration
  - Autonomous motivation, controlled motivation and amotivation
  - Positive affect and negative affect

(Alterman et al., 2019)

Observation tool

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Teaching Style	Sub area	Items	Description
Autonomy support	Participative	8 items	Identify students' personal interests by engaging in a dialogue with students
	Attuning	9 items	Accept and understand how students feel
Structure	Guiding	17 items	Provide appropriate help and assistance
	Clarifying	7 items	Give clear instructions
Controlling teaching	Demanding	8 items	Require disciple to make clear what students have to do
	Domineering	7 items	Exert power to students to make them comply
Chaos	Abandoning	6 items	Give up on students and don't care about students
	Awaiting	5 items	Allow students to do their own thing

Observation tool

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		If you were a student in this class, would you feel that the teacher...	0-5 min ET	5-10 min ET	10-15 min ET	15-20 min ET	20-25 min ET	25-30 min ET
rticipative	1	The teacher gives pupils the opportunity to give input first, instead of always giving instructions themselves, and tries to avoid unnecessary information by asking questions.	0	0	0	0	0	0
	2	The teacher offers an option choice (= which exercises).	0	0	0	0	0	0
	3	The teacher offers an action choice (= with whom, for how long, in what order, etc.)	0	1	1	0	0	0
	4	The teacher provides exercises to encourage the pupils to take responsibility (e.g. the pupils are given the opportunity to lead the game as referees, the pupils are responsible for their own learning process).	0	0	0	3	3	0

0…not at all observed
1…slightly observed
2…sometimes observed
3…often observed
4…observed all the time (typical for this fragment)

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Reliability

	Internal Consistency (α)	Intra-rater Reliability (N=10)	Inter-rater Reliability (N=10)
Autonomy support	.75 ✓	.85 ✓	.83 ✓
Structure	.83 ✓		
Controlling teaching	.57 ⚠		
Chaos	.48 POOR		

< 0.5 = poor; > 0.5 and < 0.75 = moderate; > 0.75 = good

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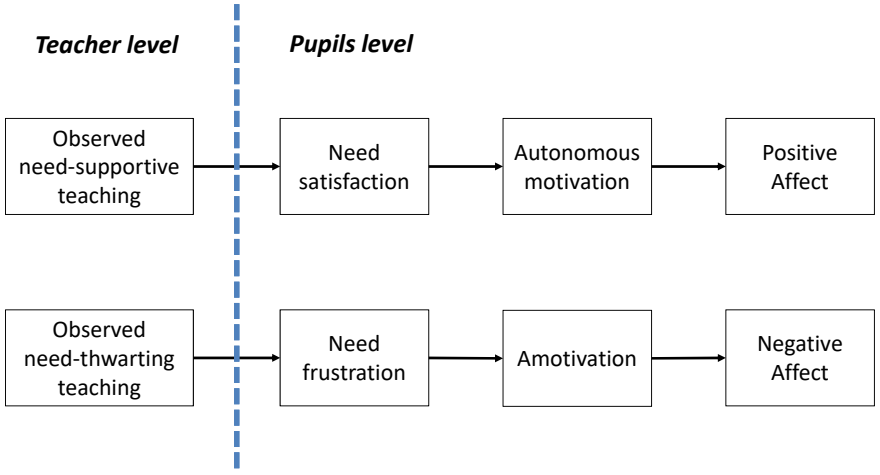
Multi-level path analysis (hypothesis)



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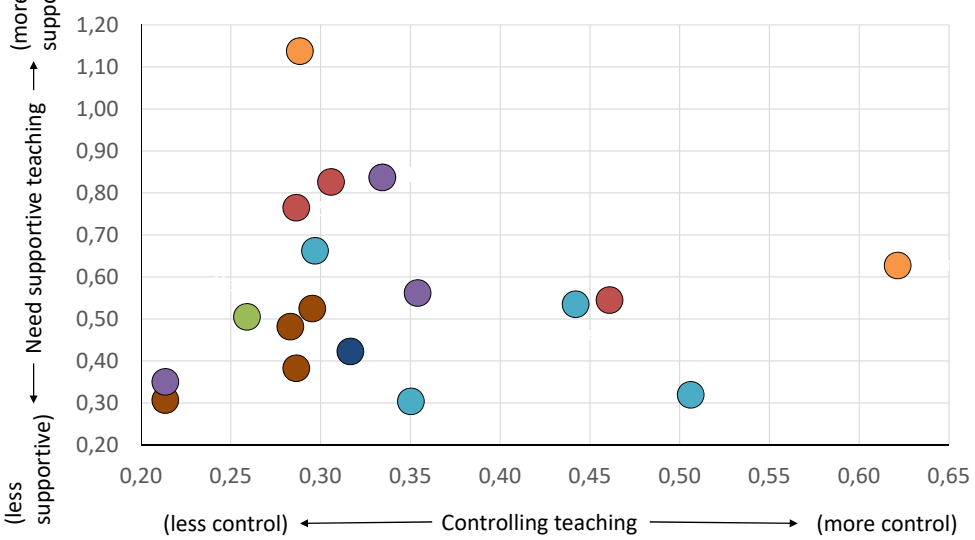
Graphical representation of teaching type (n=18)



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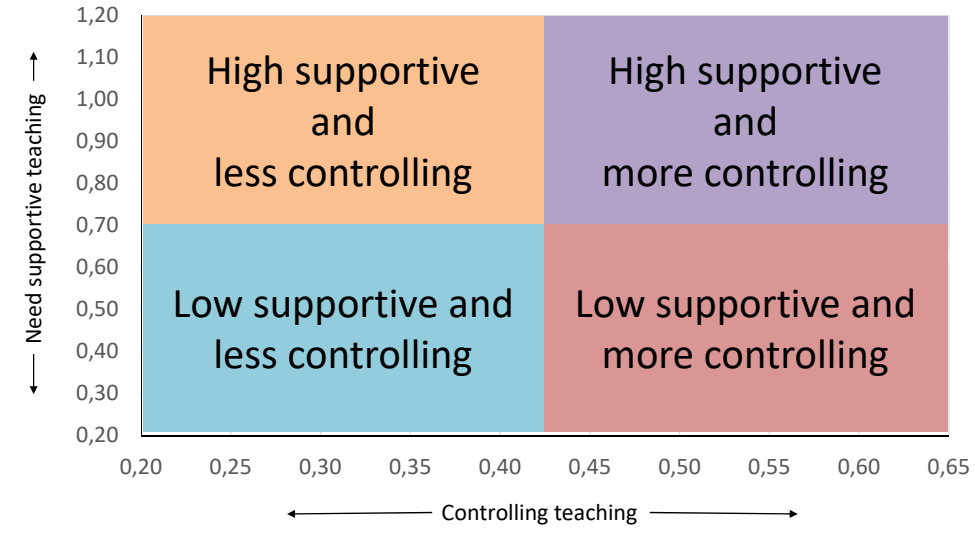

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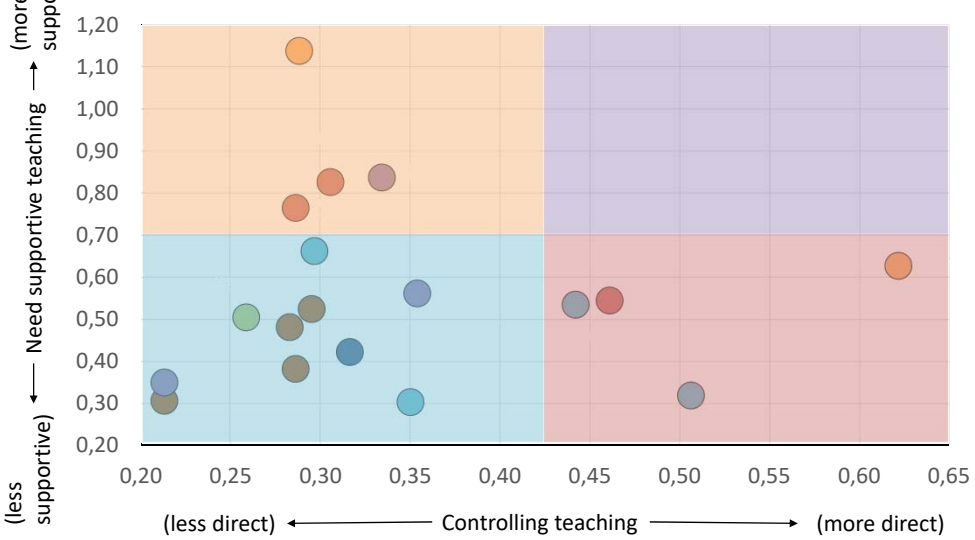

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Qualitative study: what else do we need to know?

- The use of the observation tool can assess teachers' need-supportive and need-thwarting teaching behaviour. However…

Teachers' own intentions of teaching behaviour are hidden.

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Study 2 Research Questions

- Are teachers aware of their teaching behaviour?
- How do teachers explain their behaviour?

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Methods

need-supportive and need-thwarting teaching behaviour

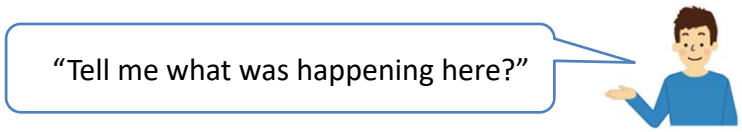
Critical incident analysis

- Analyse critical moments in the teaching process.

Self-confrontation interview

(Amade-Escot, 2005)

- Prompt the participants to explain what they do and the knowledge they use during the lessons.



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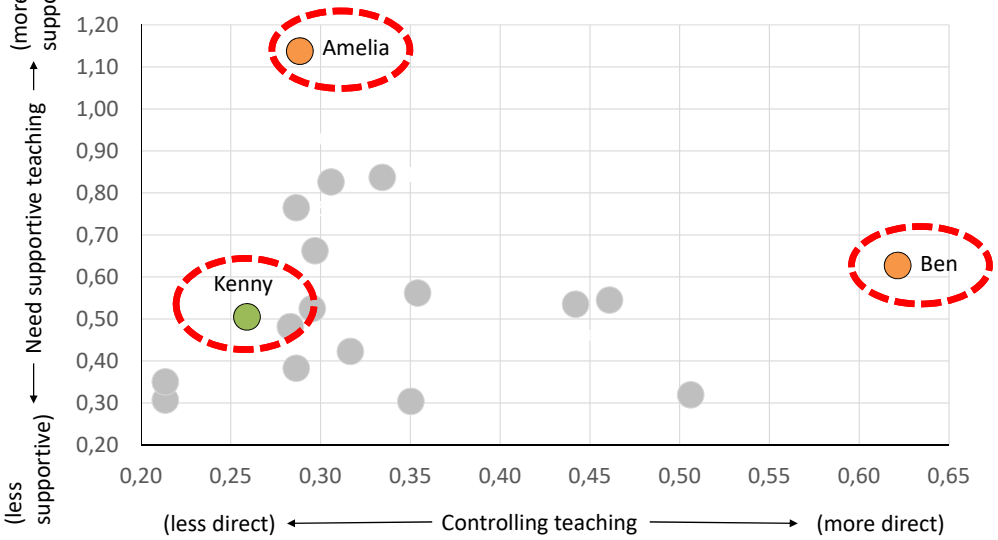
Participants



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Participants' profile

Amelia	Ben	Kenny
Female	Male	Male
1 year	2 years	5 years
Badminton	Basketball	Ball game
S2 girls only	S1 boys only	S1 mixed
17 pupils	13 pupils	28 pupils
HSLC	LSHC	LSLC

Amelia scene 1 – HSLC

Video

- Offered different activities and equipment that the pupils can choose according to level of difficulty and their needs.

Amelia scene 1 – HSLC

Self-confrontation interview

I've just given them that autonomy, because I know they're quite able and they're motivated. So I was interested to see what they would come up with that. And it's quite good because I can sometimes get ideas from them, and use drills that they've created in other classes (…) I don't think I could do that with all of my classes (…) I know that they work well, so I was able to just let them.

- Explained why she has given pupils choices.
- She learns from what the pupils come up with.
- Her knowledge of this class is a factor in her giving them choices.

Some pedagogical implications

- Need-supportive teaching works well as a proxy to measure precisely teacher-pupil interactions for affective learning.
- Need-supportive teachers were able to reflect on their own teaching critically.
- Teachers need to know their pupils well to practise pedagogies of affect.

A segment: a climbing activity system

Double stimulation occurs when a mediating artefact is provided

The interaction of the core components in the activity system in order to overcome an inherent contradiction needs double stimulation to construct learning and agency

Climbing activity system in physical education

- A system considered in its integrity and different levels of unit of analysis. Activity system is irreducible. (Foot, 2016)
- Adoption of the mediating artefact as a useful tool in the activity.(Wartofsky, 1979)
- Collective activity embedded in the community of practice allows participants to deliberate using various rules and division of labour to grasp the object (sub-goal). (Burbules, 2016)
- Contradiction drives the change and improvement . (Engeström, 2001)

An exemplar: a mixed methods study of a climbing activity system

- Study 1: Observation and analysis of pupils ' motion and responses towards the activity – quantitative design
- Study 2: Video recording (analysis of their behaviour), interviews with pupils (individually)– qualitative design

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Study 1 Research Questions

- Do the cards help pupils to better climb the wall and meet their goal?
- Do pupils adapt their motion and change their tracks according to their motor answers?

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Methods

Participants

- 4 children (2 boys , 2 girls)

M age = 9.0, range = 7 – 11 years

M climbing experience = 0 years , range = 0 years

Artefact

- Cards which represent feet and hands on the holds

Measures

- *Pupils' paper sheet*

- Number of times they have fallen
- Number of times they have changed their path
- How many cards they have used ?
- How did they manage to assemble the cards ?

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Observation tool

Track n°……	Feelings : 😀 ☹
How many times did you fall ? *(tick the box)* ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	
How many times did you change the track? *(tick the box)* ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	
Were the instructions clear ? ☐ yes ☐ no ☐to improve : ……..	
Did you have fun ? ☐ yes ☐ no	
Did you get the book the top of the wall? *(tick the box)* ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	
How did you manage to have the cards correspond to your track ?	

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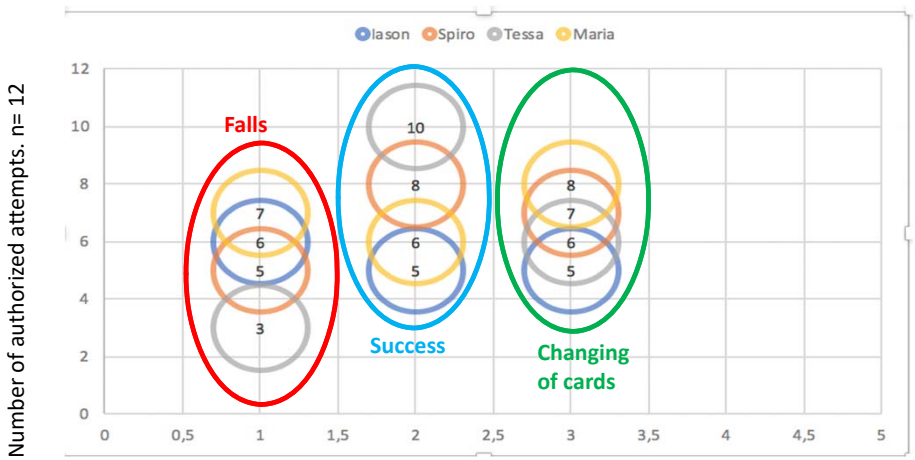
Results



Qualitative study: what else do we need to know?

- A complement of results to understand learning process and track the reflection in action as an inner process in the climbing code creation

Pupils' on going-processes are hidden.

Study 2 Research Questions

- Do pupils plan their ascent before climbing ?
- How do pupils explain their choices in the code creation?
- Are they confronted to other forms of problems?

Methods

Discursive manifestations

(Engeström & Sannino, 2011)

Interviews

- Analyse critical moments in the pupil's on-going process.
- Prompt the participants to explain what they do and how they manage to do during the activity

Discursive manifestations
Stimulus 1: Reflexivity and interpretation

Dilemma

Conflict

Critical Conflict

Double Blind

There are too many cards
I don't use cards to climb, but my body !

Discursive manifestations
Stimulus 2: Construction of a stimulus auxiliary-means

Dilemma	
Conflict	I tried to place the cards on the mat but they kept moving
Critical Conflict	Which cards correspond to which holds. If I assemble them there is no logical line in my ascent
Double Blind	

Discursive manifestations
Stimulus 3:Practical action for collecting and reflecting for a new activity

Dilemma	I can't understand your path
Conflict	If I want to use the card path of my peer, I don't know what holds he used. So I can't take his path
Critical Conflict	
Double Blind	I used the pictures of the cards before climbing. I noticed the shape of the holds then I climbed trying my cards and my holds.

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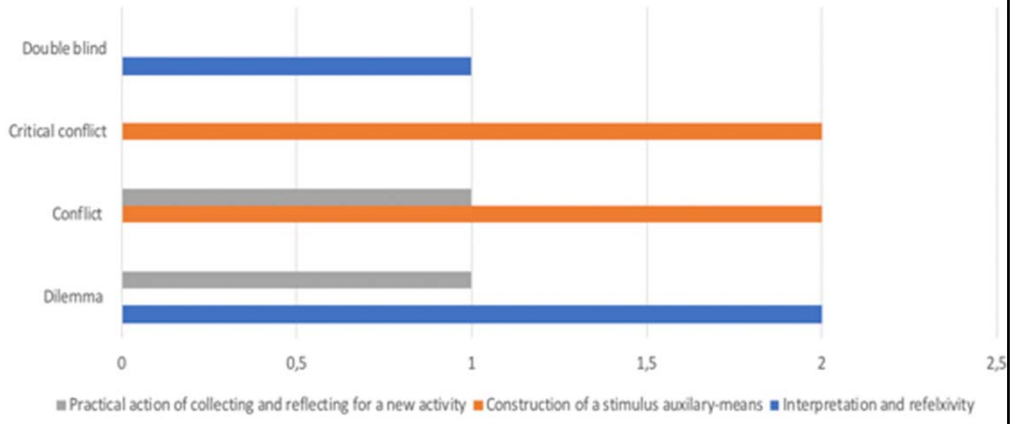
Analysis of Discursive manifestations



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Some further pedagogical orientations

- Pupils are able to create a climbing code thanks to the mediating artefact: the climbing cards .
- The reflection in action on the cards develops empowerment and active thinking.
- The thinking process is like an unplugged activity linked to a kind of computational thinking .

Conclusion

- We have provided two exemplars of mixed method studies within a social constructionist paradigm in physical education
- Two segments of this paradigm discussed here are pedagogies of affect and a climbing activity system and double stimulation
- We propose on the basis of our examples that it is unhelpful to describe mixed-methods research as a third paradigm