



KATHOLIEKE UNIVERSITEIT  
**LEUVEN**

**The effects of a student-centered versus teacher-centered teaching approach on tactical learning outcomes: a volleyball case.**

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## Introduction


**Student-centered instructional models in physical education**

- **Sport Education** (*Siedentop, 1994*)
- **Tactical games (e.g. Teaching Games for Understanding, TGfU)** (*Bunker & Thorpe, 1982*)
- **Cooperative learning** (*Ward & Lee, 2005*)

Self-control	← - - - - - →	External control
Learning process	← - - - - - →	Learning product
Cooperative learning	← - - - - - →	Individual learning

*Behets (2001)*


**student-centered model**                      **teacher-centered model**




## Research question

**Impact of three different instructional models to learning**

- *student-centered model with tactical questioning*
- *student-centered model without tactical questioning*
- *teacher-centered model*




**development of tactical awareness in a small-side volleyball game**



## Experimental design


**1. Participants:**  
122 university students divided in three instructional model groups:

- **student-centered model with tactical questioning group**
- **student-centered model without tactical questioning group**
- **teacher-centered model group**



**decision-making**

Figure Teaching Games for Understanding (TGfU): the curriculum model (Bunker & Thorpe, 1982)



## Experimental design

**2. Procedure:**  
Six lessons of 50-minutes with specific volleyball instructions of a small-side volleyball game (same content for all groups) during six weeks


Lesson 1   Lesson 2   Lesson 3   Lesson 4   Lesson 5   Lesson 6

**Tactical awareness:**  
Test moments: pre-test, post-test and retention-test

pre   Lesson 1   Lesson 2   -->   Lesson 6   post   6 weeks   retention


**Task:**


- assessment of ten series of three game situations each focussing on one specific tactical principle of the taught small-side volleyball game
- response box with four possible buttons to press: situation A (A), B (B), C (C) or no answer (D)



## Experimental design

**Tactical awareness:**  
Computer animations using Macromedia Flash MX Professional





## Results

**Data-analysis:**

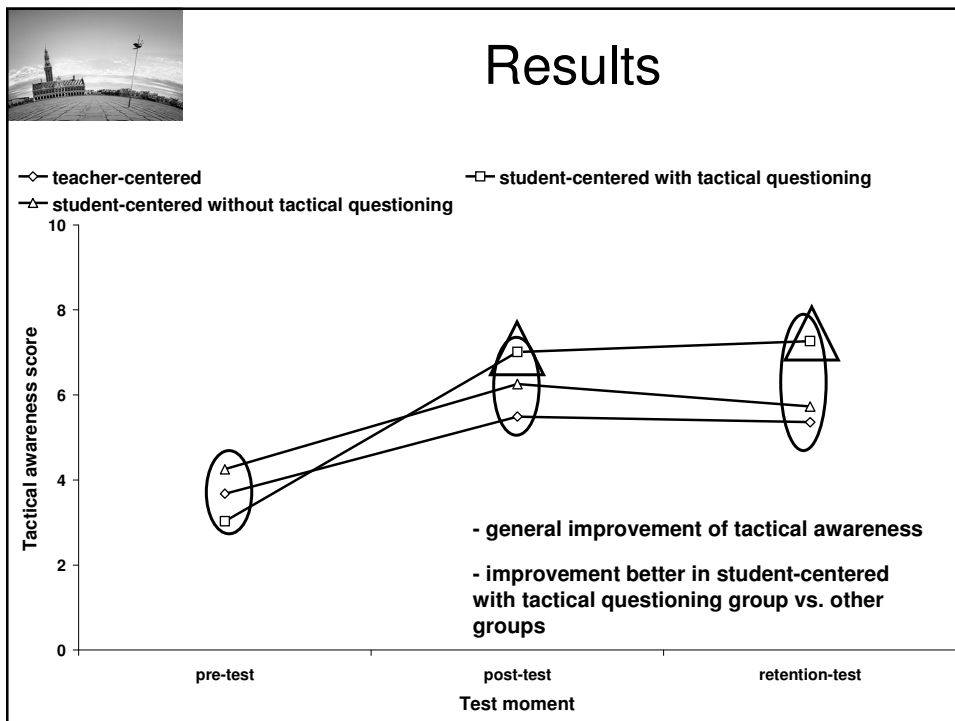
Tactical awareness score for the assessment of 10 situations with:

- correct answer = +1
- wrong answer = - 1/3
- no answer = 0

**Statistical analysis:**

Linear Mixed model with

<b>repeated factor</b> <b>Test moment</b> <i>(pre-test, post-test, retention-test)</i>	<b>X</b>	<b>fixed factor</b> <b>Instructional model group</b> <i>(student-centered with tactical questioning, student-centered without tactical questioning, teacher-centered)</i>
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## General conclusion

→ learning of tactical principles of a (small-side) volleyball game was more efficient in the student-centered instructional model group characterized with tactical questioning consisting of specific qualitative and quantitative observations focusing on several tactical principles of volleyball

→ *but* student-centered without tactical questioning and teacher-centered instructional model also meaningful increase of tactical awareness scores after six lessons



## References

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