OTTO VON GUERICKE
UNIVERSITÄT
MAGDEBURG

Challenges in Cross Disciplinary Research – connecting Sports, Pedagogy and Psychology

Prof. Dr. Elke Knisel

Faculty of Human Sciences

Department of Sport Pedagogy & Sport Sociology

Outline

1. Introduction
   1. Interdisciplinary Activities of Researchers
2. Cross Disciplinary Research Project 1
   1. Health(a)ware
3. Cross Disciplinary Research Project 2
   1. Technology-Based Autonomy-Supportive Teaching in PE Class
4. Conclusions
   1. How to Establish a Cross Disciplinary Project?

Introduction

Cross Disciplinary Research

Scientists must work together to save the world

Interdisciplinary Activities of Researchers

Surveys *Interviews*

Views on career effects of interdisciplinary research

	Graduate student	Non tenure-track	Post-doctoral fellow	Assistant professor	Associate professor	Professor
Total Re-sponses	99	155	59	47	53	147
Positive	67	104	42	34	43	109
Neutral	16	43	11	12	8	23
Negative	16	8	6	1	2	15

Five university-based interdisciplinary research programs funded under the National Science Foundation Environmental Research and Education Portfolio

Interdisciplinary Activities of Researchers

Graduate students demonstrated higher rates of interdisciplinarity than professors

When asked why the students were willing to take professional risks graduate students frequently mentioned societal benefits
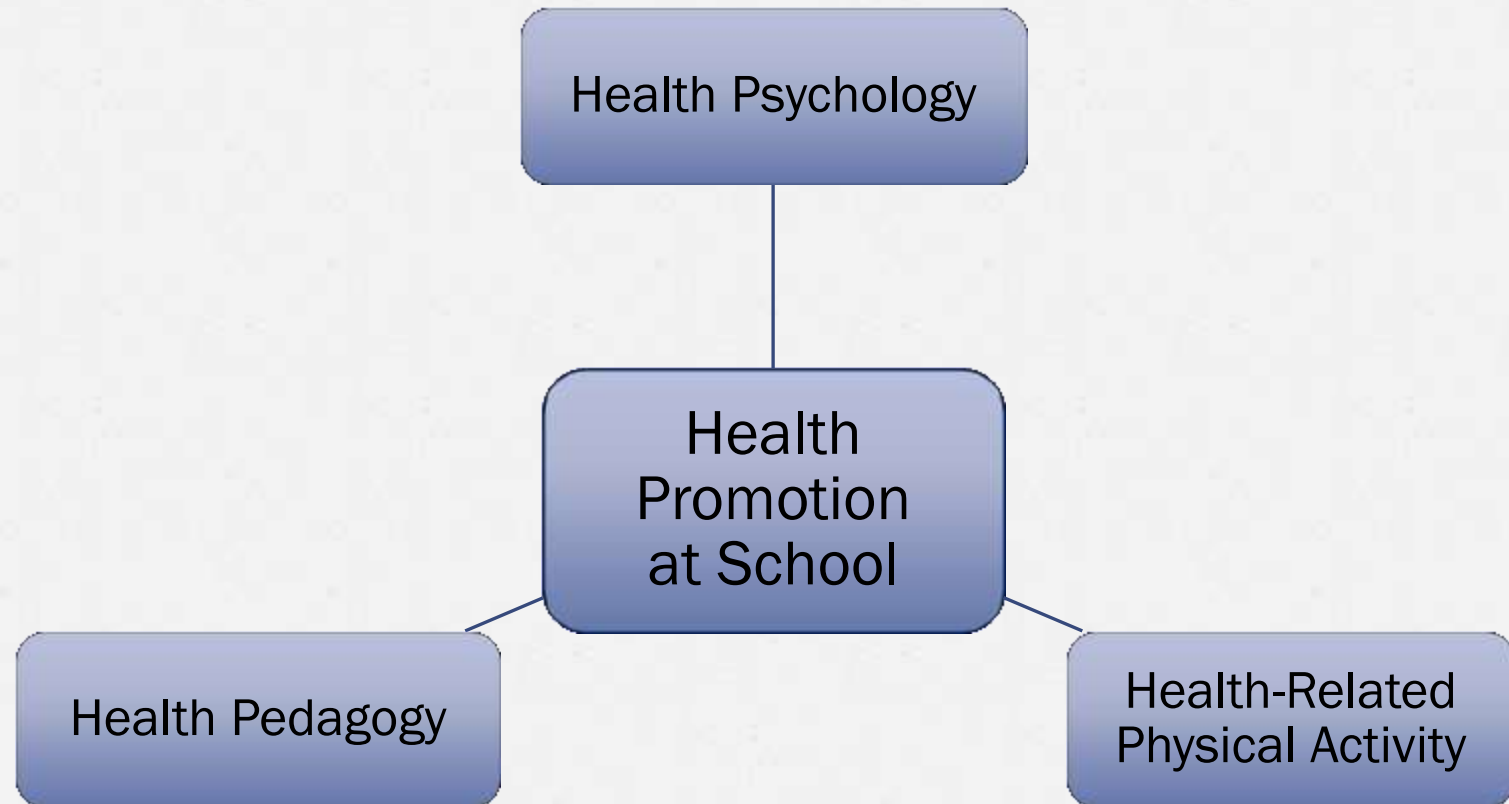
Rhoten, D. & Parker, A. (2004). Risks and Rewards of an Interdisciplinary Research Path. *Science, 306*, 5704, pp. 2046 DOI: 10.1126/science1103628
www.sciencemag.org

Health(a)ware

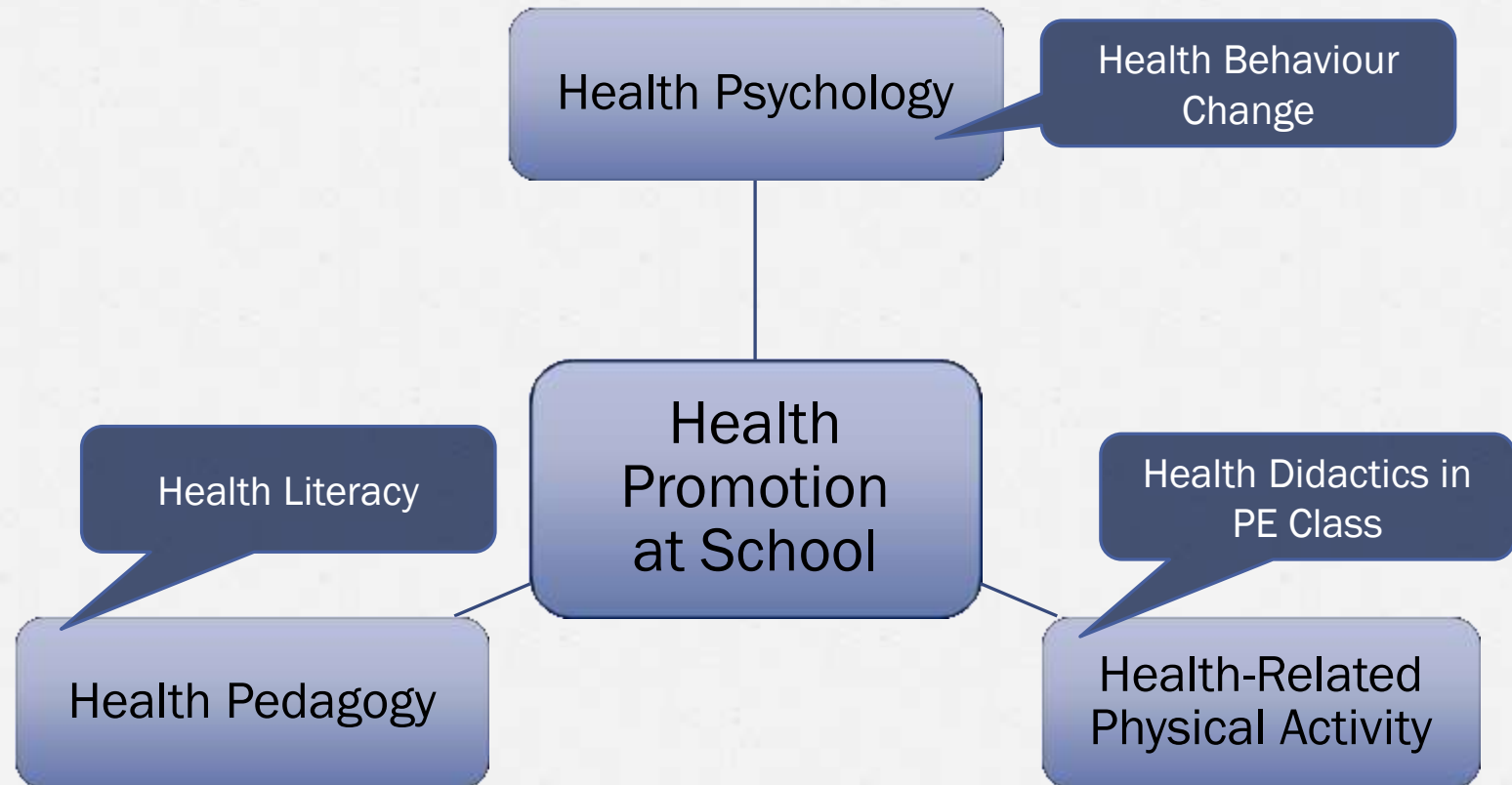*Interdisciplinary Research Project 1*

Funded by the European Community in the Socrates Program Comenius 2.1. Action – Training of School Education Staff

Project number 128737-CP-1-2006-1-DE-COMENIUS-C21
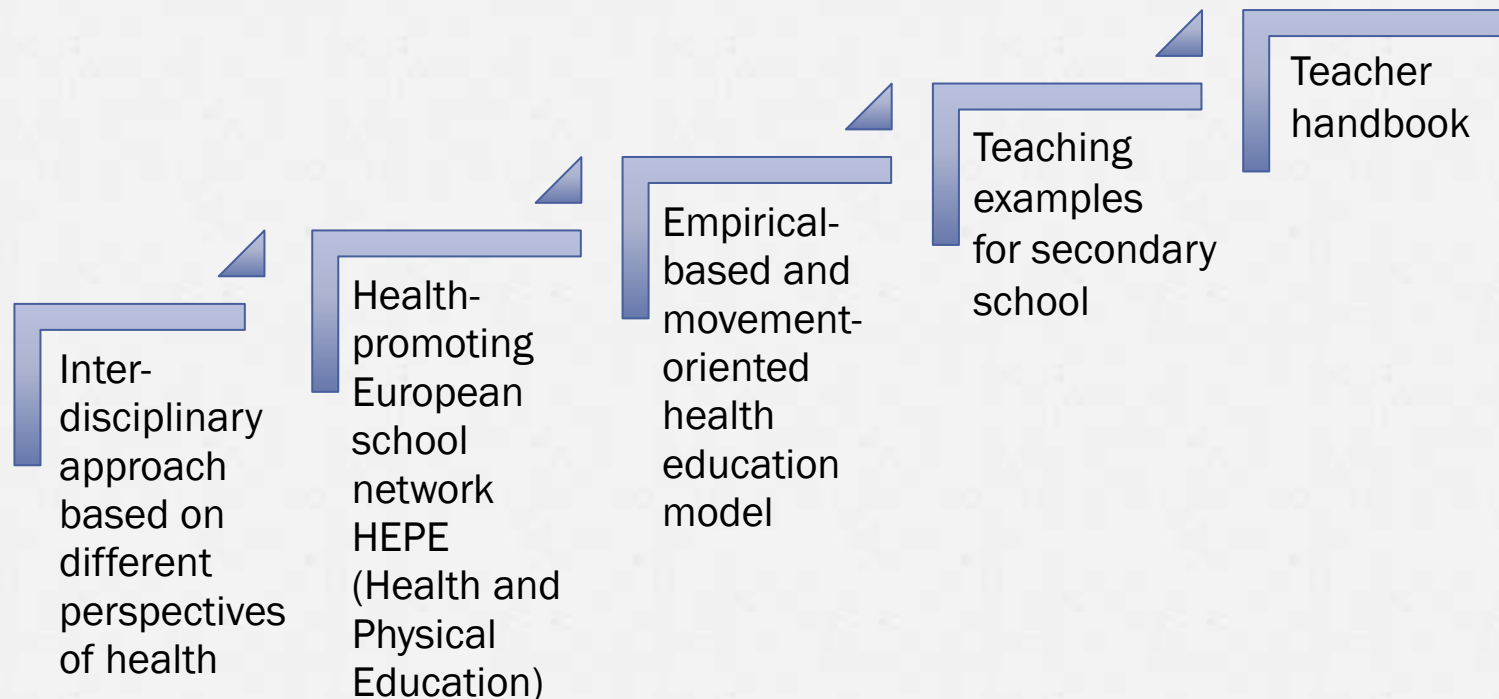
Cross Disciplinary Research

Cross Disciplinary Research

Health Psychology

Health Behaviour Change

Health Promotion at School

Health Literacy

Health Didactics in PE Class

Health Pedagogy

Health-Related Physical Activity

Cross Disciplinary Project Work

Inter-disciplinary approach based on different perspectives of health

Health-promoting European school network HEPE (Health and Physical Education)

Empirical-based and movement-oriented health education model

Teaching examples for secondary school

Teacher handbook

Knisel, E., Kleiner, K., Bronikowski, M., Gonzalez-Gross, M., Martinkova, I. & Erdmann, R. (2016; in press) (Eds.). *Health promotion at school – pedagogical aspects and practical implications.* Prag: deGruyter.

Technology-Based Autonomy-Supportive Teaching in PE Class
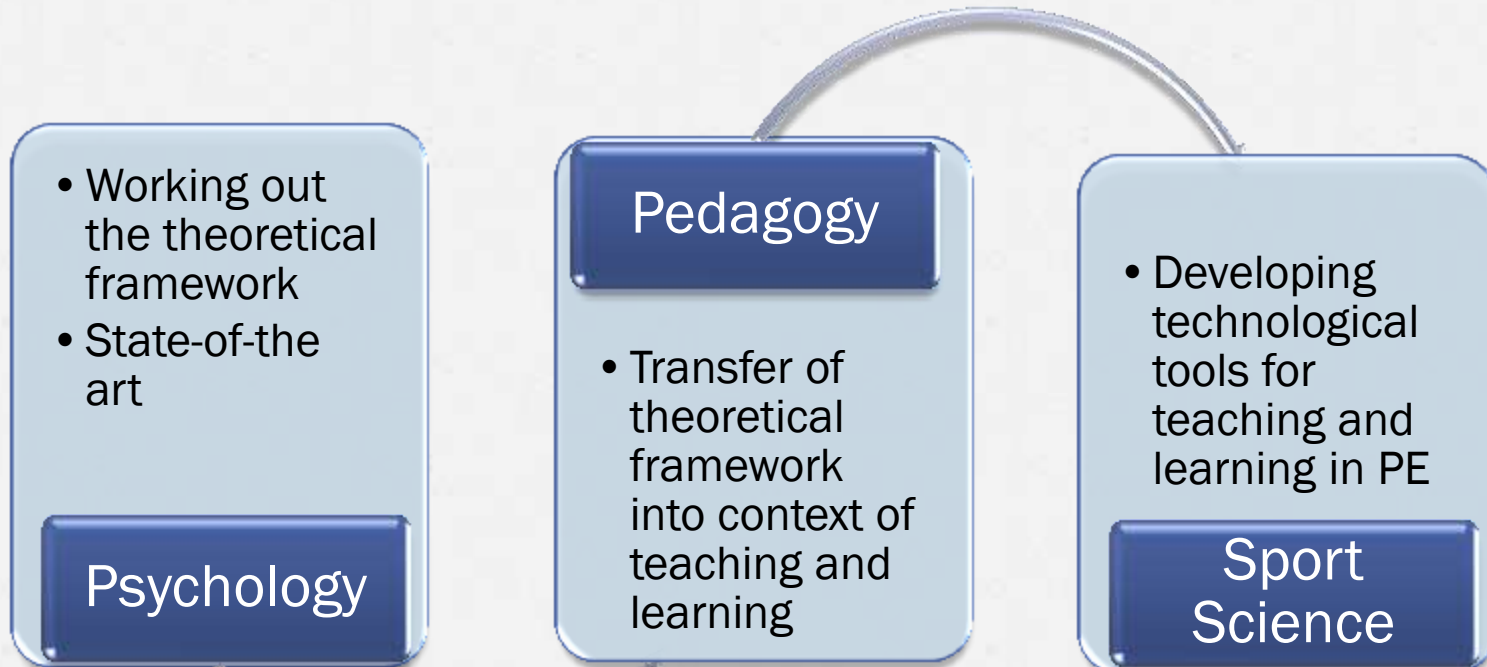
Cross Disciplinary Research Project 2

Central Innovation Programme for SMEs (ZIM)

OVGU & CCC Software

Application for funding of a cooperation project

"Waterfall" Method

Development of a tool to evaluate teacher-student-interaction

Psychology
- Working out the theoretical framework
- State-of-the art

Pedagogy
- Transfer of theoretical framework into context of teaching and learning

Sport Science
- Developing technological tools for teaching and learning in PE

Mahalakshmi, M. & Sundararajan, M. (2013). Traditional SDLC Vs Scrum Methodology – A Comparative Study. *International Journal of Emerging Technology and Advanced Engineering, 3*(6), 192-196. DOI: 10.1.1.413.2992

Technology-Based Autonomy-Supportive Teaching in PE

Psychology

Self-determination theory as the theoretical framework of the project

Psychological need for competence, autonomy and relatedness

Pedagogy

New didactical approach to translate self-determination theory into teaching and education

Autonomy-supportive vs. Controlled teaching

Sport Science

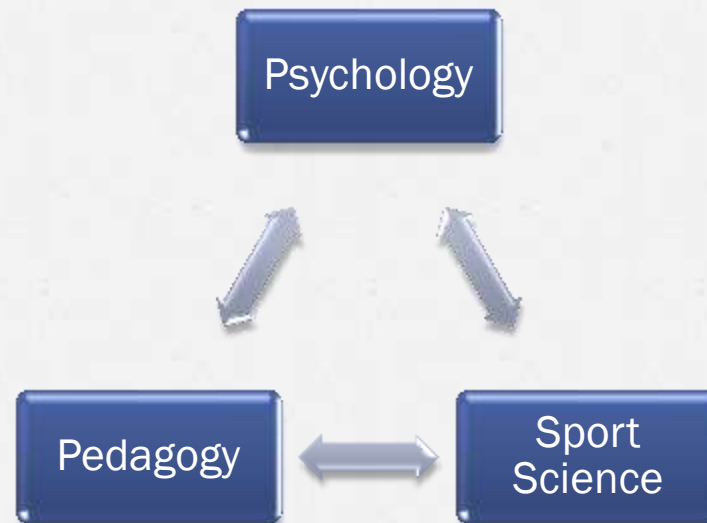Evaluation of teacher-student-interaction in PE class

Application of a timeline and live- and posterior-tagging items of autonomy-supportive and controlled teaching

Sequential Order

Cross Disciplinary Research
SCRUM Methodology
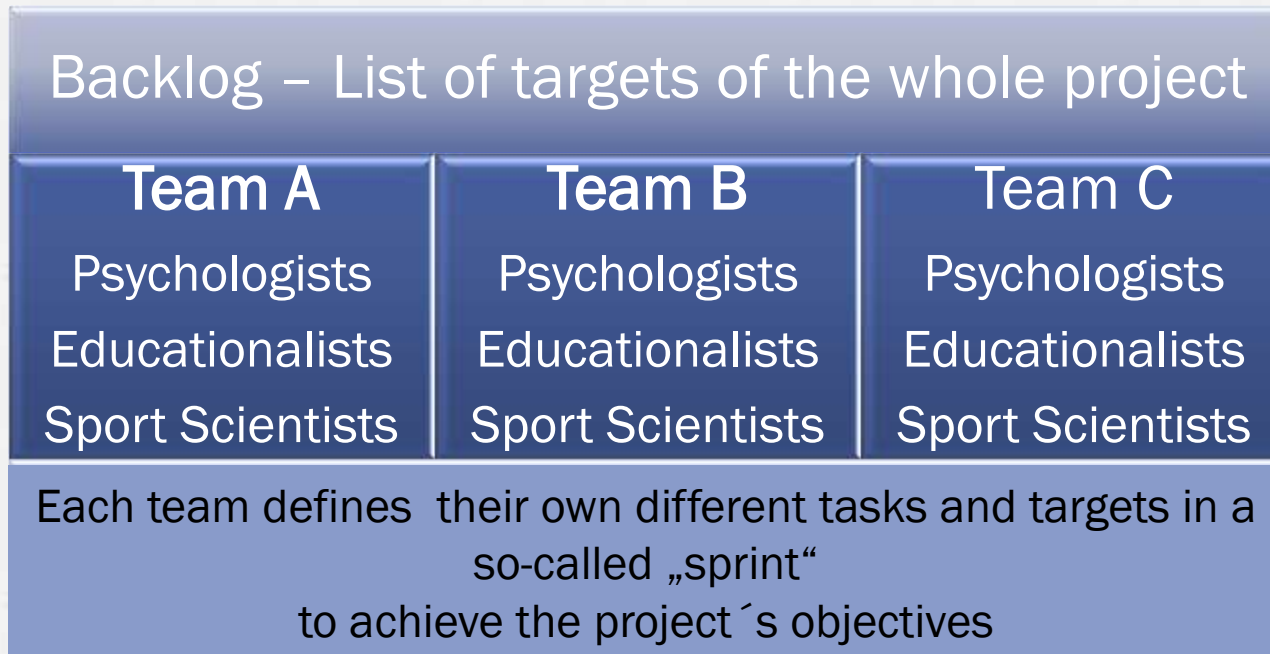## Establishment of Inter-Disciplinary Teams

Backlog – List of targets of the whole project		
Team A	**Team B**	Team C
Psychologists	Psychologists	Psychologists
Educationalists	Educationalists	Educationalists
Sport Scientists	Sport Scientists	Sport Scientists
Each team defines their own different tasks and targets in a so-called „sprint" to achieve the project´s objectives		

Products of the Cross Disciplinary Project

Sprint 1
- Self-determined learning model of instruction

Sprint 2
- Criteria for autonomy-supportive and controlling teaching style in PE

Sprint 3
- Scouting System

CCC Software

Scrum Positions

A S S I G N M E N T

Product Owner – Project Manager

Charge of the project

Determination of the roles within the teams to achieve the targets

SRUM Master – Team administrator

Fulfilment and documentation of the runtime of the sprint

Inter-disciplinary team members

Self-organisation of the work

No hierarchical structure

Mahalakshmi, M. & Sundararajan, M. (2013). Traditional SDLC Vs Scrum Methodology – A Comparative Study. *International Journal of Emerging Technology and Advanced Engineering, 3*(6), 192-196.
DOI: 10.1.1.413.2992

Conclusions

How to Establish an Cross Disciplinary Project?

How to Establish a Cross Disciplinary Project?

Objective(s) of the project

Product Backlog

Sprint and team design
Sprint backlog, targets and tasks for the inter-disciplinary team members

Inter-disciplinary team meetings (Scrum)

Sprint review meeting

Final presentation of the product

How to Establish a Cross Disciplinary Project?

O Comprehensibility of the product backlog

O Acceptance of different perspectives

O Transparency

    O Regular interdisciplinary team meetings

    O Sprint review meeting

O Self-organisation of the interdisciplinary teams

Scrum Methodology

O Damian, D., Lasseniusy, C., Paasivaaray, M., Borici, A. & Schröter, A. (2012). *Teaching a Globally Distributed Project Course Using Scrum Practices.* DOI:10.1109/CTGDSD.2012.6226947

    O Project-driven collaboration between the University of Victoria, Canada and Aalto University, Finland.

    O Involved 16 students in Canada and nine students in Finland, divided into three globally distributed Scrum teams working on the same project

O Pope-Ruark, R., Eichel, M., Talbott, S. & Thornton, K. (2011). Let's Scrum: How Scrum Methodology Encourages Students to View Themselves as Collaborators. *Teaching and Learning Together in Higher Education*, Iss. 3 (2011). http://repository.brynmawr.edu/tlthe/vol1/iss3/5

    O Group projects and collaborative learning

Thank you!

Elke.knisel@ovgu.de