

Highway to Health - an innovative Way to address Health in Physical Education Teacher Education (PETE)

Highway to Health - una forma innovadora de abordar la salud en la formación de profesores de Educación Física (PETE)

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Abstract. In the last two decades the German educational system has experienced significant changes. The new generation of curricula is no longer input-oriented, but its targets are output-oriented. A central characteristic of these new curricula is the fact that learning targets are described in terms of competences students have to acquire. Taking the example of health as a content the following article presents theoretical, conceptual as well as practical aspects of how competence-oriented teaching-learning processes in Physical Education Teacher Education as well as in PE lessons in school are conceptualized and implemented. On the background of the theoretical «Erlanger Model for Competence Orientation in Sport (ECSpo)» the article gives answers to the following guiding questions: Which sport-related health competencies should be conveyed to pupils in physical education (PE) and how should this be done? Which competencies do PE teachers need in order to address the topic health in PE lessons? Specific learning objectives and learning tasks developed and applied in a joint project seminar between university and school are presented and discussed.

Keywords: Physical education, health, teacher education.

Resumen. En las últimas dos décadas el sistema educativo alemán ha experimentado cambios significativos. La nueva generación de programas de estudio no es más «input-oriented». Sus objetivos son orientados a los productos. La característica central de estos nuevos currículos es el hecho de los objetivos de aprendizaje son descritos en términos de competencias que los estudiantes tienen que adquirir. Tomando el ejemplo de la salud como contenido, este artículo presenta los aspectos teóricos, conceptuales, así como aspectos prácticos de cómo los procesos de enseñanza-aprendizaje orientado a competencia son conceptualizados en la formación del profesorado de Educación Física, así como en clases de educación física en la escuela. En la base teórica del «Erlanger Model for Competence Orientation in Sport (ECSpo)» el artículo da respuestas a las siguientes preguntas orientadoras: ¿Qué competencias para la salud relacionadas con el deporte deben ser comunicadas a los alumnos de educación física (PE) y cómo deberá ser esto hecho? ¿Qué competencias necesitan los profesores de educación física con el fin de abordar el tema de la salud en las clases de educación física? Son presentados y discutidos objetivos específicos de aprendizaje y tareas de aprendizaje desarrollado y aplicado en un seminario conjunto entre la universidad y la escuela.

Palabras clave: Educación física, salud, formación del profesorado de educación física.

Background Information

In the last two decades the German Educational System has undergone fundamental changes. In 1999, Germany for the first time participated in the Program for International Student Assessment (PISA). Not only in an international comparative perspective but even more within Germany the test results for German pupils were rated as not matching the expectations. It was worse. The results were classified as being very poor and devastating (Baumert et al., 2002). It was a real PISA shock and for the German Educational System the turn of the Millennium had some unexpected and unpleasant side effects.

The so-called PISA shock launched an intensive and thorough discussion about the concepts of teaching and learning, about the existing curricula and the educational system in general. Schools as well as universities were very carefully looked at, all processes had to undergo rigid reviews and all programs were thoroughly scrutinized.

In the aftermath of the PISA shock, the political discussion as well as the scientific discourse prepared the ground for a variety of changes. On an organizational and structural level, for example, the prevalent concept of part-time schools was judged to be increasingly dysfunctional for achieving the educational goals and to overcome social inequalities in the educational sector. This judgement prepared the ground for developing schools from part-time schools to all-day schools, which hitherto seemed entirely unthinkable in Germany.

With regard to the core concept of teaching and learning and curricula design another paradigm shift took place. Whereas up to this date curricula were designed with a strong input orientation, now a dramatic change occurred. It was no longer assumed that the specification of contents is an adequate governance tool and control instrument for pupils' learning results. The new generation of curricula – in line with

the upcoming evidence based educational research – strictly followed the idea of output and competence orientation. Each curriculum – in school as well as in universities – had to fulfil the requirement that learning targets have to be formulated as resulting competences.

Whereas the former generation of curricula precisely described age-specific contents in different subject matters the new competence-oriented curriculum generation describes the learning targets as outcome of the teaching-learning process and sees the learner as an active agent. Pupils (or university students) are able to describe, explain, understand, interlink, apply.... the knowledge they have acquired.

Additionally, another new big challenge started to influence the educational sector. This big challenge is the constructive alignment of the teaching-learning process with the assessment and examination as well as with the curriculum design (Biggs, 1996; 2003). The idea is, that we have to teach what we want to examine and we have to examine the competences described in the curriculum. In practice, this is not as easy as it may sound. Currently, under the new circumstances this constructive alignment which best is mediated by adequate learning tasks (Schaper & Hilkenmeier, 2013) has not yet been successfully established.

The following article addresses some of these issues in a theoretical, conceptual and practical perspective. The shift of paradigm and the new orientation described above was applied to a university seminar, which strictly tried to work with a competence-oriented teaching-learning approach. The topic used was *Health*.

Introduction

In Germany «Health» is one of several pedagogical perspectives¹, which should be addressed in Physical Education (PE). Furthermore, in the setting of school and PE the topic «Health» is understood as being a content, which helps to achieve educational goals in PE and in school, namely, it is supposed to support the education to sport as well as the education through sport. Health is a topic with a significant value in all PE curricula nation-wide² (cf. Krick, 2010). Despite some minor discrepancies regarding health in the sport pedagogical and sport didactical

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discourse (vgl. Balz, Erlenmeyer, Mergelkuhl & Kastrup, 2016) there is an overall trend focusing on the development of *health-related capabilities* (Kurz, 2004). In this perspective, the goal of PE is not primarily to produce direct health outcomes (such as fitness), but it aims at developing competences in the pupils «to practice sports in a healthy way, to assess the health effects of one's own sport activities and, if necessary, to modify the activity in order to be more healthy» (ibid, p. 65; own translation). This new concept is also entitled sport-related health competence (SRHC)³ (cf. Töpfer & Sygusch, 2014).

However, research indicates that there are significant differences and a considerable delay between legal innovation, scientific demands and curricular requirements on the one hand and the implementation of these features in everyday reality in school sport on the other hand (cf. Brettschneider & Brandl-Bredenbeck, 2011; Hardman & Marshall, 2006; Balz & Neumann, 2014; Onofre et al. 2012). When asked PE teachers emphasize and ascribe pedagogical goals and contents (e.g. health education, social inclusion) to their PE lessons, the reality of PE lessons, however, shows that most PE teachers only teach sport specific skills (cf. Hapke, 2015; Oesterreich & Heim, 2006). Thus, the implicit understanding of education is functional and sport immanent where the idea is prevalent that doing sport automatically supports health education. In this perspective, health often is explained with and reduced to pupils' movement time. A goal-oriented approach explicitly addressing health and trying to convey health-related competencies and support the development of sport-related health literacy in pupils does not really exist.

Usually, PE students and future PE teachers have already gathered a lot of experiences in sport and have been socialized for nearly two decades in a variety of sport settings, especially in sport clubs (O'Bryant et al., 2000; Oesterhelt et al., 2012), where health is not a prominent issue. These long-lasting and powerful experiences (Klinge, 2007) not only influence and design the subjective theories of teachers regarding PE, but these subjective theories show a strong perseverance and are influential on the contents of PE lessons and how PE is taught. These rather stable subjective theories often are guiding principles in everyday practice and impede the transfer of new didactical and pedagogical knowledge (e.g. regarding health education) – which has been acquired in the first phase of PETE programs at the university – into the second phase of teacher trainee and finally into the reality of PE lessons (Blotzheim & Kamper, 2007).

Generally speaking, the reality of PE in school and in Physical Education Teacher Education programs at Universities regarding the topic of health seems to be considerably different from the requirements of the curriculum. The curriculum clearly expresses the educational task of PE and refers to the current pedagogical and didactical knowledge.⁴

What are the reasons for these significant differences occurring in reality? We assume structural as well as personnel-related aspects such as the role of the teachers, their competences and their attitudes to be important factors. A simplified model of impact regarding the relation «teacher education – pupils' learning» is presented by Frey & Jung (2011). They develop a model of professionalization, «which explains

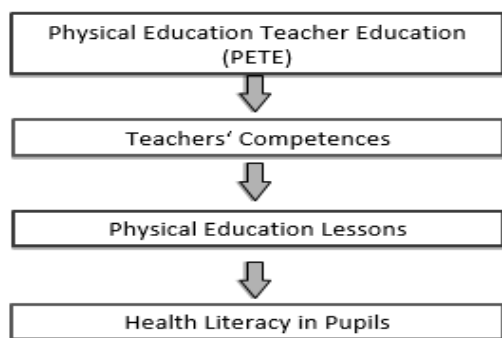


Figure 1: Causal chain model of impact regarding the relationship «teacher education – pupils' learning» (Frey & Jung, 2011)

the relationship between teachers' experiences and students' learning success as a causal chain». This model allows – in a simplified way – «a cursory orientation and points to basic elements... such as experiences during the teacher education process and acquired competences» (p. 540). According to this model the development of competences strongly corresponds with pupils' learning experiences during lessons. Adequate didactical arrangements of the teaching-learning process are crucial in this process. The ability to arrange a successful (according to the goals set) teaching-learning process in turn is dependent on teachers' competences which for their part have been developed through experiences in the teacher education program.

In a bottom-up perspective, a more explicit application of this causal chain model to the topic of health in PE can be described as follows: health-related competences and health literacy in pupils develop – at least partially – via thematic, health-focused arrangements in PE lessons. In order to be able to offer health-focused arrangements PE teachers need to dispose of the appropriate scientific and didactical knowledge and competences. In order to prepare future PE teachers the Physical Education Teacher Education programs (PETE) should offer knowledge and practical experience to show how these scientific and didactical elements can be implemented and applied in school and in PE lessons.

This causal relationship model offers a structure for the following explanation, which is based on the vision of a good health-focused PE. Having this in mind the primary question is: *Which sport-related competences (WHAT FOR? referring to «goal-setting») should be conveyed to pupils in Physical Education and HOW (referring to «didactical arrangements») should this be done?* Consequently, and in the logics of the causal chain model mentioned above we need to ask the following questions regarding PETE: *Which competences are necessary for PE teachers in order to be able to successfully teach PE with a focus on health? HOW can these competences be addressed and developed in PETE programs?*

Which sport-related health competencies (WHAT FOR? «goal-setting») should be conveyed in Physical Education and HOW («didactical arrangement») should this be done?

Initiated by the more general discussion on competences in the field of empirical educational research, first reflections in sport pedagogy and in sport didactics regarding the operationalization of health competences have been launched in recent years (cf. Balz, 2016, pp 109-112). Töpfer & Sygusch (2014) suggest a model of *sport-related health competences (SRHC)* to be used for PE, which can be seen as a basis for didactical concretion and empirical evaluation.

Their approach integrates the knowledge in sport pedagogy and sport didactics regarding the topic of health in PE (Balz, 2016; Tittlbach & Heß, 2016) into Gogoll's *model of competences in sport and movement culture* (2013). According to Sygusch & Töpfer (2014) *sport-related health competence* comprises «the entity of knowledge, capabilities and willingness a pupil should dispose of in order to participate and act in the field of sport [outside of school and in a lifetime perspective; amendment by the authors] so that positive health outcomes result due to this actions» (ibid, p. 169; own translation).

With regard to health-related contents the model differentiates objective dimensions of health (e.g. physical health resources, fitness, risk factors, training), subjective dimensions (e.g. psychosocial health resources, well-being, self-regulation) as well as more general and comprehensive dimensions (e.g. complex models of health like salutogenesis, ambivalence of sport and health) (ibid, p. 155-159). The model also suggests that objective health parameters should be addressed «not mainly via training and exercise, but the goal should be to understand what are the effects of such a training, what is the adequate quantity of a physical activity [dose-response problematic; amendment by the authors] and what are appropriate methods» (Balz, 2016, p. 110; own translation).

In accordance with Gogoll's three domains of competences in sport and movement culture – to explore and to understand, to classify and to interpret, to decide and to plan (2013, p. 18-19) – specific competence-oriented learning outcomes can be operationalized, e.g.

- to explore and to understand

Pupils explore and understand the effects of endurance exercise on the cardio-vascular-system in different team sports.

Pupils explore and understand the relationship between team sports and social well-being.

- to classify and to interpret

Pupils explain general principles and specific load parameters to improve the overall aerobic endurance.

Pupils differentiate between situations in which team sports lead to social well-being or to social discomfort.

- to decide and to plan

Pupils plan a six-month training program in order to improve the overall aerobic endurance.

Pupils take decision about the organization and implementation of team sports in order to enhance social well-being.

The question of how to teach and empower pupils to acquire competencies in PE (and of course students in PETE) leads to a new discussion about students' learning tasks named «task culture». The guiding principle in this concept of «task culture» is the learner's cognitive activation (cf. Kleinknecht, 2010; Pfitzner & Aschebrock, 2013).

With the help of so-called *learning tasks* – which are different from *performance tasks* (Leisen, 2010) – cognitive activation in pupils should lead to working autonomously on a specific problem and to «actively think about possible solutions, explore these solutions by referring to already existing knowledge» (ibid., p. 2). With regard to competence-oriented teaching-learning situations, however, additional guiding principles are suggested: *the relevance to everyday life, openness for divergent strategies and results, reflection of content and learning progress* (cf. Kleinknecht, 2010).⁵

Teacher competencies: Which competencies do PE teachers need in order to address the topic health in PE lessons?

Competence orientation nowadays is a wide spread and accepted concept in Teacher Education in different school subjects. However, Physical Education Teacher Education programs are generally more conservative and until now, only few ideas related to competence orientation in teaching and learning do exist. That is why a new «Erlanger Model for Competence Orientation in Sport (ECSpO)» (cf. Ahns & Sygusch, 2015; Lutz, Brandl-Bredenbeck, Sygusch & Jäger, 2016) has been developed as a heuristic model in order to further specify the topic health in the project *Health.edu* mentioned above. ECSpO is inspired by concepts regarding Physical Education lessons (Gogoll, 2013) and additionally stems from established concepts of teacher education in general (cf. Blömeke, 2008) as well as from concepts in Higher Education (cf. Schaper & Hilkenmeier, 2013). The draft concept comprises three dimensions: processes, levels of complexity and contents (cf. fig. 1).

The *process dimension* comprises processes resp. activities of acquiring knowledge and of applying this knowledge. The dimension *levels of complexity* assumes an increasing level of competences the more complex, broader and deeper the acquired and applied facts are. The dimension *content* refers to a differentiation into subject-related scientific competences, subject-related didactical competences and in-depth competences in educational sciences (Blömeke, 2008).

At this point, the specification and operationalization of ECSpO takes place. The following three teaching areas of health in Physical Education lessons are identified as being relevant *disciplinary contents*: objective, subjective and comprehensive dimensions of sport and health. Additionally, other *subject-specific scientific contents* are integrated according to the SRHC-model mentioned earlier. With regard to health-related teaching learning-situations basic *subject specific didactical contents* are also integrated (e.g. lesson planning, type of sport and movement, student task & task culture).

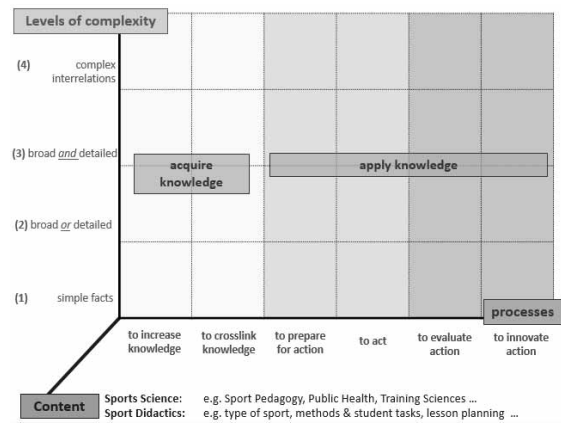


Figure 2: Erlanger Model for Competence Orientation in Sport (ECSpO)

The six steps of the process dimension (to increase knowledge, to crosslink knowledge, to prepare for action, to act, to evaluate action, to innovate action) offer a heuristic frame to deduce competence-oriented learning outcomes as well as to conceptualize specific learning tasks. The process dimension differentiates between the cognitive activities of *acquiring knowledge* and the practical activity of *applying knowledge*. Both are necessary in order to develop competences. The final goal and core activity in this whole process is the individual's capability to *act* (cf. figure 2). This action refers to specific and authentic teaching-learning situations, which can only be solved if students dispose of the necessary competences – here deriving from and acquired through health-related content knowledge and didactical knowledge. In this sense, ECSpO is coherent with the broader scientific discourse where this is called «problem solving in variable situations» (Weinert, 2001) or «context-specific disposition of cognitive capabilities ... for situations and challenges in specific domains» (Klieme & Leutner, 2006).

Starting from the core activity «to act: explore & implement» all domains of to *acquire knowledge* and to *apply knowledge* are subsequently modified (cf. figure 2). By doing this, the available knowledge (active knowledge) and the active use of this knowledge are actually interlinked within the process domain.

· To increase knowledge: to explore & to reproduce

The activity to increase knowledge describes the observation and incorporation of new information respectively new facts. The notion of «to explore» indicates an active learning process by a learner, which might be encouraged and initiated through adequate learning tasks.

To reproduce refers to the outcome – hence, solely to the reproduction of accumulated facts. *Example: The students enumerate adaptations of the cardio-vascular system through regular endurance exercise and they state specific criteria for a health-related endurance exercise (Level of complexity 2).*

· To interlink knowledge: to organize & to explain

To interlink knowledge comprises the systematic incorporation and organization of new knowledge into already existing structures of knowledge. To organize emphasizes the systematic process, supported by adequate learning tasks, of properly dealing with new information. To explain refers to the outcome which comprises the broad and detailed knowledge and the ability to present this re-organized knowledge. *Example: The students explain adaptations of the cardio-vascular system through regular endurance training and give a rationale for health-related endurance training (Level of complexity 2)*

· To prepare action: to plan & to decide

To prepare action refers to the transfer of complex and interlinked facts into more applied situations (respectively lesson planning). With regard to the *learning tasks* aiming at the development of competences in students to plan and to decide refer to the decision making processes of how and why relevant facts as well as how and why criteria for lesson planning are selected. With regard to the *outcome* the concepts of to plan and to decide describe the acquired abilities to prepare action on the basis of scientific and didactical knowledge. *Example: The students select criteria for health-related endurance exercises and conceptualize*

learning tasks by which pupils can explore and understand these criteria and which, additionally, enable them to organize and interpret these criteria (Level of complexity 3).

To act: to try out & to implement

To act: to try out & to implement comprises the transfer from previous knowledge based planning into concrete action. *To try out* refers to the learning processes (respectively learning tasks) encouraging the use of factual knowledge and action planning. This also includes a balanced approach between a rigid and stringent application of what was planned and flexible adaptations. *To implement* aims at the outcome, hence at adequately applying the factual knowledge and action planning in variable challenging situations in physical education lessons. *Example: The students line out learning tasks for the pupils regarding the activities to explore and to understand as well as to organize and to explain specific criteria of health-related endurance exercise. They moderate and reflect the processing and completion of the tasks by the pupils (Level of complexity 3).*

Post-processing: to reflect & to evaluate

This step comprises the knowledge and criteria based discussion of one's own action. *To reflect* refers to the post-processing, which is initiated by specific learning tasks and comprises the juxtaposition of planning and implementation, the interpretation of teacher behavior, as well as the assessment of feasibility and effects. *To evaluate* refers to the outcome, e.g. the acquired capabilities to classify the actual differences between planning and implementation and to draw conclusion in order to adapt and change future behavior. *Example: The students evaluate the implementation of their learning tasks by assessing to what extent the pupils have been able to explore the criteria of health-related endurance exercise and to what extent their interpretation was knowledge-based (Level of complexity 3).*

To innovate action: to develop & to conceptualize

Based on the precedent activities the step *to innovate action* includes the development of something new (e.g. strategies for solutions, recommendations, concepts). Initiated by specific learning tasks, *to develop* aims at the process of integrating acquired and applied knowledge as well as at the deduction of overall principles and recommendations. On the basis of interlinked knowledge and proved action *to conceptualize* aims at the outcome, e.g. the newly developed capability to create something new and innovative and the capability to write this down in a draft concept. *Example: The students conceptualize learning tasks based on subject knowledge which have been tested in practice and which have undergone a post-processing. These learning tasks enable the pupils to autonomously plan knowledge-based health-related endurance exercise (Level of complexity 3).*

Highway to Health: Learning objectives and learning tasks in Physical Education Teacher Education (PETE)

The theoretical and conceptual aspects mentioned above have been applied to a university seminar held in the academic year 2015/2016. In the following we want to show, how this systematic competence-oriented approach (ECSpO) can be used to develop competences in future PE teachers and which kind of learning tasks in PETE can be used to prepare a health-related approach in PE lessons.

In PETE programs the development of competences regarding the topic *health* are initiated and prepared in academic lectures and seminars emphasizing the perspective of sport science. Equally important are courses emphasizing the perspective of didactical knowledge in different sports and in different physical activities. Health is one of the typical cross-cutting topics of sport science which is equally important in social and behavioral sub-disciplines (e.g. Sport Pedagogy, Sport Psychology, Public Health) and in sub-disciplines of natural sciences (e.g. sports medicine, training science).

The project seminar presented below was running for a whole academic year (10 ECTS). Different approaches from sport sciences and sport didactics were included. The overarching objective was the development of competences to plan, implement and evaluate health-

enhancing measures in school sport under everyday school conditions (working with real pupils, in schools, respecting decision making processes etc.) (ISS FAU, 2013). This project seminar was realized in cooperation with schools close to the university. The selection of specific topics is coordinated with the partner schools.

In the present case, the following topic was selected for the seminar: „Sport-related health literacy in PE lessons of grade 10 – concept development and implementation». The overall task of the project seminar was to develop a sustainable concept and to write a manual for the school involved. The concept was been applied and tested in the practice of real PE lessons. To be able to successfully create and write an innovative manual regarding health the students' competences must have reached the highest level of complexity (Level 4) (cf. figure 3).

The students...

A ... interlink and interpret scientific subject knowledge regarding health and competence orientation and apply these to «Health in PE»

B ... do lesson planning and teach PE in a competence-oriented way with regard to different aspects of health (subjective aspects, objective aspects, general aspects)

C ... evaluate their own lesson planning and create a variety of different lessons regarding the development of pupils' health competence in PE

The project seminar has two phases each of them chronological and content-related. *Phase I* refers to preparatory and organizational issues: project management, evaluation, sport-related health competence, curriculum. Student expert groups prepare proposals (related to different topics), which have to be presented to the partner schools. These proposals clarify and state the goals, the project procedure, the main health-related areas which are addressed as well as the didactical concept (10 lesson units) including the evaluation. During this process, the university lecturer acts as learning guide, moderator and supervisor.

		A		B		C
(4) complex interrelations			II B2	II B3 II B4	II C1 II C2	II C3
		II A2 II A3	II B1			
(3) broad and detailed		I A3	I B			
		II A1	I A1 I A2			
(2) broad or detailed						
		acquire knowledge	apply knowledge			
(1) simple facts						
		to increase knowledge	to crosslink knowledge	to prepare for action	to act	to evaluate action
					to innovate action	

Figure 3: Classification of competence-oriented learning targets in the seminar „Health Promotion in School Sport“

One of the expert groups dealt with „sport-related health competence». Within this expert group competence-oriented learning targets and related learning tasks were specified according to the ECSpO taxonomy. In a first part acquiring and combining knowledge referring to sport-related health competence was a core element. In a second part the application of interlinked knowledge gradually grew in complexity and this process was the main focus (*prepare action*). Figure 3 shows the classification of the following learning targets with regard to the processes and the level of complexity.

A To accumulate and to interlink knowledge: The students ...

IA1 ... explain the model of sport-related health competence: referring to basic and consistent understanding, processes, level of complexity and contents;

IA2 ... summarize objective, subjective and general aspects of health;

IA3 ... classify correctly sport-related health competence within the current sport pedagogical discourse and within the debate concerning competence-orientation in teaching and learning;

B Prepare action: The students ...

I B ... *deduce specific health-related topics, which are appropriate for competence-oriented PE lessons.*

In order to achieve these learning targets the following specific learning tasks are assigned to the students:

- Please, identify and name expert knowledge regarding „health competence», which is necessary for processing the following overall task: „teach *competence-oriented health-related PE*». List and describe your already existing knowledge and additional knowledge you have to acquire.

- Please, prepare a short and concise presentation regarding the basic idea, the processes, the level of complexity and the contents.

- Please, specify the health-related topics for your lesson units and find a general title for the units.

- Please, write down text blocks and integrate them into a joint application to submit to the partner schools.

The last two tasks resulted in the title of the lesson units: **Highway to Health**. This title expresses the learning target agreed upon between the university students and the PE teachers in school. Every pupil should be empowered to continuously and autonomously take his or her individual *Highway to Health* to reach an adequate status of *health competence and sustainable health*. In total, the *Highway to Health* comprises 10 lesson units.

The learning tasks mentioned above are realized and processed in the seminar in alternation of group work and individual work. Presentations (posters, power-point etc.) of preliminary and/or final results are put together to a final project application which is presented to the group of PE teachers of the partner schools. The final results of phase I – at the same time commitment and mandate for phase II – are the alignment of the lesson units with the ideas and the concepts of the partner school.

This mandate is taken into consideration and addressed in *phase II*. Five teaching teams (five students each) take responsibility of the **core task of phase II** (implementation of 90 minutes competence-oriented health-related lesson unit). The expert groups established in *phase I* are supervising the process of implementation and give advice where necessary. The university lecturers act as learning guides, moderators and supervisors of the whole process.

Building on the core task mentioned above the first step is to identify which subject-related scientific knowledge and expertise (health, competence, ...) and which didactical knowledge and expertise (e.g. contents, learning tasks) are available and which additional and new elements of knowledge have to be acquired and extended in breadth and/or depth.

Following the ideal-typical and stepwise procedure of phase II (from acquiring knowledge to producing a manual) is outlined. According to the ECSPo taxonomie competence-oriented learning targets and related learning tasks are specified.

Within the process of *acquiring knowledge* it is all about the *accumulation of new knowledge* and about the *interlinkage* of already existing (e.g. from previous seminars) and newly acquired knowledge. The overarching task mentioned above is split-up into sub-goals (cf. figure 3 regarding the classification of learning targets according to the ECSPo taxonomy).

A to accumulate and interlink knowledge: *The students ...*

II A1 ... *describe selected dimensions of subjective, objective and general health;*

II A2 ... *explain the potential of physical activity and sport when using appropriate teaching methods to maintain and to restore these dimension of health;*

II A3 ... *interpret these dimensions and do apply them in the context of the pedagogical setting as well as in accordance with the model of sport-related health competences (SRHC).*

In order to achieve these learning targets the following specific learning tasks are assigned:

- Please, put together your body of knowledge for the selected objective, subjective and general dimensions of health (use a flipchart); deduce what kind of knowledge has to be accumulated in addition and

search for further and additional literature.

- Please, outline the most important aspects of your selected dimensions (use a flipchart) and present them to the seminar participants.

- Please, identify and write down controversial statements regarding the classification of the dimensions within the state-of-the-art knowledge in sport pedagogy (Topic *Health*, model of SRHC). Engage in a group discussion with different roles: a scientist with a background in health, a university lecturer in sport pedagogy, a school principle, PE teacher, pupil etc.

Within the process of *applying knowledge* the following activities are combined: *to prepare action* and *to act* as well as *to evaluate action* and *to innovate action* (cf. figure 3).

B to prepare and implement action: *The students ...*

II B1 ... *identify and write down specific topics as well as competence-oriented learning targets; they choose adequate contents (physical activities and/or sports) and teaching methods (learning tasks) in order to achieve the learning targets;*

II B2 ... *adapt learning targets, contents and methods to the specific conditions of the chosen class;*

II B3 ... *implement their lesson planning;*

II B4 ... *adapt their teaching in a flexible way to classroom reality (e.g. non-participating pupils, missing material, pupils' reaction, learning progress).*

Learning tasks:

- Please, outline a one-pager handout regarding a teaching idea (topic, targets, contents, methods) and present it to the seminar participants.

- Please, write down a lesson plan considering the specific conditions of the chosen class: learning targets, adequate learning tasks, time structure, materials etc.

- Please, try out your lesson planning in a 90-minute lesson unit; during the lesson please take into account new realities that might appear.

C to post-process action and to innovate action: *The students ...*

II C1 ... *realize similarities and differences between planning and implementation; they critically interpret their teaching with regard to learning targets, methods and challenges during the lesson;*

II C2 ... *evaluate the planning and teaching draw conclusions for future lesson planning;*

II C3 ... *develop and write down recommendations based on their practical experience as well as on their knowledge based critical reflection regarding the teaching of health-related PE.*

Learning tasks:

- Please, use a portfolio to summarize the most important similarities and differences between your lesson planning and the actual lesson. Take into consideration the feedback of the teachers as well as of your fellow students.

- Please, interpret some selected differences referring to the state-of-the-art knowledge in sport science and sport didactic and write down some consequences for your future lesson planning.

- Please, refine your lesson planning by using a peer-coaching approach: exchange experiences with other groups of the seminar, discuss the different portfolios, modify different lesson planning (advising, revising etc.) and design joint recommendations.

- Please, write down your modified lesson planning and recommendations. Compile a manual including all resulting products and materials from the project seminar. Present the manual to the pupils and teachers of the partner schools.

The final result of the project seminar *Highway to Health* contain 10 lesson units addressing different kind of sports and physical activities already tested in schools and refined. With regard to health-related issues some objective dimensions of health (endurance, power, injuries) as well as some subjective dimensions of health (body awareness, social well-being, mood management) have been chosen and realized. The

Table 1:
Highway to Health: Selected topics and related competence-oriented learning targets

Physical Activity	Dimension	Topic	Learning Targets The pupils ...
to wrestle and to scuffle	body awareness	Fighting until the doctor comes! or: Body awareness through fighting.	- explore and understand the difference between tension and relaxation of different muscle groups during wrestling and scuffling. - deal properly with and interpret subjective load and overload of specific muscle groups during wrestling and scuffling. - perceive their individual threshold between physical well-being and discomfort during wrestling and scuffling. Additionally, they are able to plan and situationally adapt their training. - perceive signals of physical overload during wrestling and scuffling and are able to adapt their fighting.
		Only a strong team can make it! Not only are we successful – but it also feels good!	- explore and understand the relationship between team sports and social well-being. - explain the significance of social competences and social support for social well-being within a team. -are able to differentiate situations which lead to social well-being in team sports from those causing discomfort. - make decisions concerning the organizational aspects and execution of team sports in order to support social well-being in all participants.
to play games – respecting and changing rules (e.g. Basketball)	social well-being	Run til you drop! or: Regulate your own health-conscious endurance training.	- explore and understand the effects of endurance exercises in different team sports on the cardio-vascular system. - explain heart rate measurements and measures for perceived exertion (BORG-Scale) and assess these measures in training sessions with varying intensities. - explain principles for improving the overall aerobic endurance. - plan a training program to improve the overall aerobic endurance within a school term (six months).
		ambivalence - sport injuries	- explore and understand typical risks of injuries when doing parkour (free running). - explain emergency care and basic first-aid measures (e.g. "pause-ice-compression-elevation") for typical injuries occurring in free running. - develop a warm-up and training session for free running specifically aiming at the reduction of the risk of injuries. - assess and take into consideration the potential risks of injuries when planning and realizing a parkour.
Using gymnastic apparatuses and sport equipment for physical activities (e.g. Free Running)	ambivalence - sport injuries	No Fun without risk? Be aware of possible injuries in free running!	- explore and understand typical risks of injuries when doing parkour (free running). - explain emergency care and basic first-aid measures (e.g. "pause-ice-compression-elevation") for typical injuries occurring in free running. - develop a warm-up and training session for free running specifically aiming at the reduction of the risk of injuries. - assess and take into consideration the potential risks of injuries when planning and realizing a parkour.

following table presents the examples of the topics generated by combining physical activities and health dimensions. Additionally, the related competence-oriented learning targets are displayed in the table 1.

Finally, the manual is part of the written examination within the project seminar. As a second part, each student writes a critical self-reflection regarding his/her individual learning progress, one's own role in the seminar, about the initial expectations and the final achievement of personal goals. Last, but not least, they assess the lessons learned in the project for their future professional field.

Concluding Remarks

The conceptual and theoretical considerations as well as the detailed example presented here show the complexity of the development and implementation of competence-oriented teaching and learning units. However, with regard to the newly implemented competence-oriented curricula in German schools and universities it is an obligation and a necessary step to tackle these new challenges, to properly deal with the teaching tasks in school and university and finally, to develop examples of how we can successfully cope with these challenges.

Furthermore, we hope, that the example presented here shows that it is not only an obligation, but also a worthwhile and exciting endeavor, which best can be realized in project-oriented learning by combining university teaching and teaching in schools. By doing so, the whole teaching learning process itself becomes strictly competence-oriented and gets more coherent in the eyes of students and teachers. Last, but not least the important constructive alignment of teaching/learning, assessments and curriculum design can be achieved in a convincing way.

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