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Modular support toolkit for teachers

Claude Scheuer & Sandra Heck

UNIVERSITÉ DU LUXEMBOURG

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Authors: Claude Scheuer & Sandra Heck (Institute for Teaching and Learning – Department of Education and Social Work – University of Luxembourg; Campus Belval – MSH; 11, porte des Sciences; L-4365 Esch-sur-Alzette)

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Project Coordinators: Erin Gerlach & Jeffrey Sallen (Faculty of Human Sciences - Educational Sciences & Didactics in Sports - University of Potsdam)

Principle Investigators: Erin Gerlach & Jeffrey Sallen (University of Potsdam, Germany); Christian Herrmann (University of Basel, Switzerland; Zurich University of Teacher Education, Switzerland); Claude Scheuer (University of Luxembourg, Luxembourg)

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No.	Institution	Involved researchers
1	European Physical Education Association [EUPEA], Switzerland	Tamás Csányi, Jana Vašíčková
2	Goethe-University of Frankfurt, Germany	Fabienne Ennigkeit, Christopher Heim
3	Hanze University of Applied Sciences, Groningen, Netherlands	Remo Mombarg, Berdien Moraal – van der Linde
4	Lithuanian Sports University of Kaunas, Lithuania	Arūnas Emeljanovas, Brigita Miežienė
5	Masaryk University of Brno, Czech Republic	Jaroslav Vbras, Petr Vlček
6	National and Kapodistrian University of Athens, Greece	Emmanouil Adamakis, Irene Kossyva
7	University of Basel, Switzerland	Christian Herrmann, Harald Seelig, Marina Wälti
8	University of Foggia, Italy	Dario Collela, Cristiana Simonetti, Domenico Monacis
9	University of Liège, Belgium	Boris Jidovtseff
10	University of Lisbon, Faculdade De Motricidade Humana, Portugal	Marcos Onofre, Ana Quitério
11	University of Luxembourg, Luxembourg	Andreas Bund, Sandra Heck, Claude Scheuer
12	University of Potsdam, Germany	Erin Gerlach, Maike Niehues, Jeffrey Sallen
13	University of Salzburg, Austria	Günter Amesberger, Benjamin Niederkofler
14	University of Trnava, Slovakia	Jana Labudova, Dana Masarykova

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0 INTRODUCTION

In the frame of the BMC-EU project (Basic motor competencies in Europe), a support framework and a modular support toolkit on the basis of the concept of basic motor competences and the results of the data collection in phase 1 of the project was developed as part of intellectual output 3. The aim of this toolkit is to be implemented mainly at the level of regular physical education lessons to initiate adaptations regarding the content and methods in physical education instruction.

In a first step, the support framework was developed for getting from the diagnosis of the students' basic motor competencies and the strengths and weaknesses identified in the assessment to concrete interventions. Based on this framework, supportive handouts in form of a modular support toolkit were developed, ready to be implemented in concrete educational situations to support students with additional needs in basic motor competencies.

The modular support toolkit includes guidelines for the interpretation of MOBAK (*Motorische Basiskompetenzen*; German for basic motor competencies) test results, the MOBAK support framework, a glossary, as well as the modular support toolkit with materials for physical education teachers in the form of MOBAK task description cards and MOBAK activity cards based on principles of variation and on a competence-oriented approach.

1 GUIDELINES FOR THE INTERPRETATION OF THE TEST RESULTS

In the following, some essential preliminary information on the interpretation of the MOBAK test results is given. When interpreting the obtained data, the focus lies on the two MOBAK competence areas *self-movement* and *object movement* (value range 0-8 points each). Two targets are pursued. On the one hand, educational needs are to be diagnosed, and on the other hand, it is aimed to provide a comparison of the achieved performances with the norm sample.

1.1 DIAGNOSTICS OF EDUCATIONAL NEEDS

From a content point of view, performances of 0 to 2 points in a competence area are defined as ***in need of support***. This means that the child has scored zero points in at least two of the four MOBAK test items, and thus did not pass either of the two tests. The performance in the individual MOBAK test items should be taken into consideration for the instructional design of physical education lessons. This allows individual support within the framework of physical education.

In contrast, a child who achieves 7 to 8 points in a MOBAK competence area can be rated as ***above average***. This child masters all four MOBAK test items with at least one point. Accordingly, the child comprehensively fulfils the requirements stipulated in the curricula. A gender- and age-specific distinction is not necessary for this individual diagnosis of need of educational support. The MOBAK test instruments reflect the requirements of the first and second or third and fourth grade classes stipulated in the curricula, which equally apply to both boys and girls.

1.2 COMPARISON WITH THE NORM SAMPLE

For a differentiated classification of the performances, the norm value tables can be used to identify and compare the relative position of the performances of an examined child with respect to the norm sample. For this purpose, the obtained raw values in the MOBAK competence areas as well as the MOBAK total value are as-signed an interval percentile rank (PR) and a T-value (in-depth Herrmann, 2018).

1.3 INTERPRETATION OF THE TEST RESULTS

After the MOBAK test has been implemented and after a spreadsheet with the results of the test has been forwarded to the teacher (figure 2), the central question comes up what information can be taken from the results. This section shall guide the teacher by giving concrete examples of test results and derived interpretations. It thereby aims to support the teacher in the interpretation of his/her own result sheets and consequently builds the base for the support framework (chapter 1).

1.3.1 Interpretation of the test results on class level

Figure 1 gives an overview of the test results of one class. On the qualification level, it provides information about the percentage of children in the class having passed the respective test item two times, one time or not at all. As for the qualifications throwing and catching, it provides the same information for 5-6, 3-4 or 0-2 successful trials. Furthermore, the average total score of the class in the two basic motor competencies self-movement and object movement is indicated. All these data are presented in comparison to the total sample values.

Name: School:				Values of total sample	Your class
Object movement		**Throwing**	0–2 hits	53 %	42 %
			3–4 hits	34 %	58 %
			5–6 hits	13 %	0 %
		**Catching**	0–2 x caught	10 %	9 %
			3–4 x caught	22 %	46 %
			5–6 x caught	68 %	45 %
		**Bouncing**	0 x passed	34 %	42 %
			1 x passed	26 %	25 %
			2 x passed	40 %	33 %
		**Dribbling**	0 x passed	29 %	33 %
			1 x passed	28 %	42 %
			2 x passed	43 %	25 %
	Total «object movement» (4 x 0-2 pts. = 0-8 pts.)			4.4	3.9
Self-movement		**Balancing**	0 x passed	9 %	8 %
			1 x passed	16 %	0 %
			2 x passed	75 %	82 %
		**Rolling**	0 x passed	23 %	9 %
			1 x passed	16 %	18 %
			2 x passed	61 %	73 %
		**Jumping**	0 x passed	42 %	42 %
			1 x passed	27 %	42 %
			2 x passed	31 %	16 %
		**Running**	0 x passed	12 %	17 %
			1 x passed	17 %	8 %
			2 x passed	71 %	75 %
	Total «self-movement» (4 x 0-2 pts. = 0-8 pts.)			5.5	5.7

Figure 1. Example of a test result sheet of one class

Figure 2 provides an indication about the possible interpretation of the test results of the same class. Generally, the class report sheet provides information on the ***class level*** only (upper right corner in figure 3). In this case, the children of this class have low results in *object movement* and good results in *self-movement*, both in comparison to the total sample (in red). Thus, *object movement* should be promoted in this class in general. More specifically, the results are low in the test tasks *throwing*, *bouncing*, *dribbling* and *jumping* (in blue), which means that these basic motor qualifications should be promoted on class level as well.

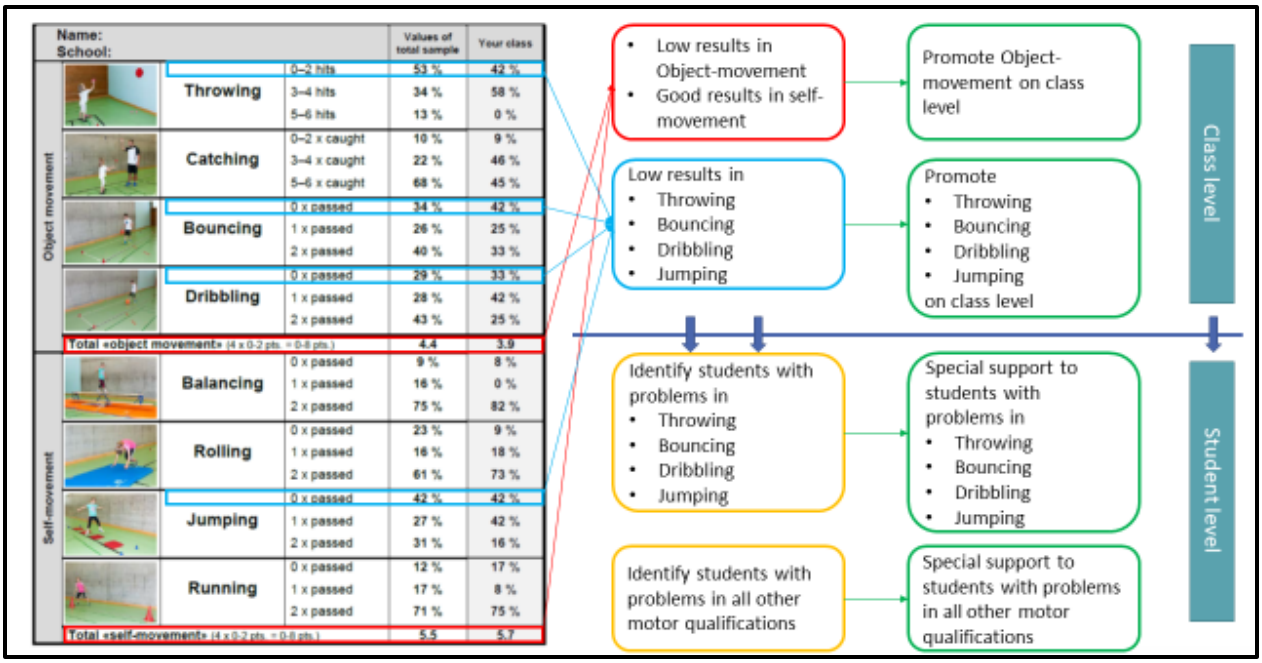


Figure 2. Interpretation of the test results on class level

Furthermore, it is necessary that the teacher looks at the individual test results of the children (see also 1.3.2). It will be important to identify those children that have low results in the test tasks throwing, bouncing, dribbling and jumping (0 points in the respective test items, in yellow). Those children should be supported specifically in the development of these basic motor qualifications. In addition, it will be important to identify those children that have low results in any other test tasks, even if the average class results might be good in comparison to the total sample. In this specific example, the percentage of children not passing a single test task varies between 8% and 42% (right column). Finally, those children having low results in several basic motor qualifications need a special consideration and will have to be supported and promoted in future physical education lessons.

1.3.2 Interpretation of the test results on student level

As indicted in the previous chapter, it is primordial that the teacher looks at the individual test results of the students, in order to identify weak (but also strong) basic motor competencies and basic motor qualifications, in order to be able to plan physical education classes accordingly with regard to differentiation.

Figure 3 gives an overview of the individual test results of one child. On the qualification level, it provides information about the results in the respective test items (or basic motor qualifications): 0, 1 or 2 points, according to the respective scoring system. In comparison to the individual results, the average class results and the average total sample results are indicated as well. Furthermore, the total score in the two basic motor competencies self-movement and object movement is indicated, this in comparison to the average total score of the class and to the total sample values.

Name: School:			Student results	Class results	Total sample results
Object movement		Throwing	0	0.6	0.6
		Catching	0	1.6	1.4
		Bouncing	1	1.1	0.9
		Dribbling	1	1.1	0.9
	Total Object movement (4 x 0-2 pts. = 0-8 pts.)		2	4.4	3.8
Self-movement		Balancing	2	1.7	1.6
		Rolling	1	1.4	1.6
		Jumping	1	0.9	0.7
		Running	2	1.6	1.6
	Total Self-movement (4 x 0-2 pts. = 0-8 pts.)		6	5.5	5.7

Figure 3. Example of a test result sheet of one student

Figure 4 provides an indication about the possible interpretation of the test results of one individual child. In this example, the child has very low results in object movement and good results in self-movement, both in comparison to the class and to the total sample (in red). Thus, this child should be promoted specifically in object movement. In particular, the results are very low in the test tasks throwing and catching (0 points; in blue); consequently, these two motor qualifications should be promoted specifically for this child. Furthermore, the results are average in bouncing, dribbling, jumping and rolling (1 point; in yellow) which means that these motor qualifications should be promoted as well. The results in balancing and running are very good, in order that in these basic motor qualifications a higher level can be targeted.

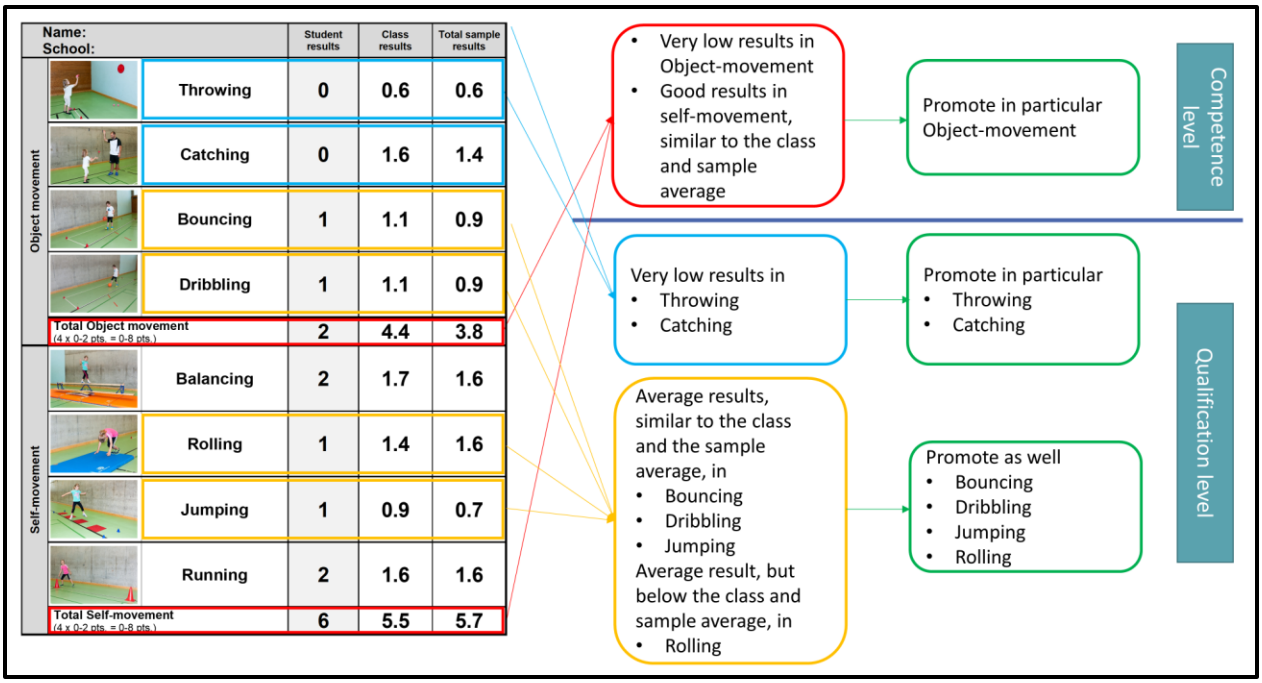


Figure 4. Interpretation of the test results on student level

To sum up, the test results give the teacher information about the general competence level of his/her class and of every individual child based on the assessed motor tasks. They moreover show possible low levels in certain basic motor competencies and/or basic motor qualifications, thus motor activities that need support and therefore should be further emphasized in future physical education lessons in order to foster a learning and an improvement of basic motor competencies of the whole class and every individual child.

2 MOBAK SUPPORT FRAMEWORK AND MODULAR SUPPORT TOOLKIT

2.1 GENERAL SUPPORT FRAMEWORK

After the implementation of the test the focus of this chapter is on the practical implications, meaning how the knowledge that the teacher has gained through the interpretation of the results can be used to (re-)organize future physical education lessons. In the frame of the BMC-EU Project therefore a general support framework that shall help to find ways to use the test results for the organization and possible enhancement of future physical educations lessons has been developed. Leading questions from the teacher's point of view – which shall be answered in this chapter – are the following:

- How can a teacher generally improve the basic motor competencies in a class?
- How can the children's low test results in certain basic motor qualifications be improved?

Before giving concrete examples of how to frame physical education lessons in practice, a fundamental theoretical background shall be set to understand better the choice of practical implications thereafter.

First, it is essential to know that the framework is based on a competence-oriented approach, as basic motor competencies are considered as requirement for the success of learning strategies in motor learning. The MOBAK test itself aims to measure the children's basic motor competencies, thus it is coherent that also the support measures are oriented towards competencies.

Furthermore, as second central term, the so-called pressure conditions that can be described as adjusting screws when it comes to task difficulty in a physical education setting will be introduced.

2.1.1 Competence-orientation

Teachers follow particular aims in their lessons, meaning that as a result the students should ideally develop competencies within a lesson or a serious of lessons. So what is generally meant by competencies? And more precisely what are competencies in physical education?

Competencies are *"the cognitive abilities and skills available to individuals to learn to solve certain problems, and the associated motivational, volitional and social readiness and ability to successfully and responsibly use the solutions to solve problems in variable situations."* (Weinert, 2001, pp. 27f)

"Sport and movement-cultural competence refers to the ability to explore, develop, arrange and judge the physical, social, material and intentional relations of one's own sport-related action, as well as the knowledge of action gained through the use of other, including physically and motor

based, performance dispositions in order to be able to act self-determined and responsible in the area of sport and movement." (Gogoll, 2014, p. 98)

These are two significant examples of the various definitions of competence-orientation that exist. When choosing the content for a physical education lesson under the frame of a competence-orientation, it is important to know that the task should ideally reflect the children's perspective. The child has a movement-oriented problem that needs to be solved, situations vary, but he/she has gained the knowledge and experience to find adapted measures to solve the particular problem or related issues in the future. A concentration on the learning outcome, a student-centered approach and the development of competencies are thus central principles in this concept (Schröder, 2015).

Pfitzner and Aschebrock (2013, p. 2) highlight certain aspects that shall be respected in the development of competence-promoting tasks:

- *"Competence-promoting tasks should have potential for differentiation.*
- *Competency-enhancing tasks open up the possibility of developing several alternative solutions instead of reaching the goal via a narrow, predetermined path.*
- *Competitive tasks should build a learning attitude among learners by addressing their area of interest.*
- *Competence-promoting tasks should have a relationship to life, at least always context-related and situational significance."*

Neumann (2013, pp. 175ff) further underlines and specifies what competence-orientation means in primary physical education settings:

(1) "Physical education should be based on students' prior knowledge and ability.

(2) Physical education should support the acquisition of competence through the processing and reflection of tasks by, for example, students working on tasks that are levelled according to requirements.

(3) Physical education should preferably take into account requirements-oriented tasks, for example by taking up movement topics that stem from the current movement world of the students and make sense to them.

(4) Physical education should promote individual learning and achievement by, for example, giving students individualized teacher feedback.

(5) Physical education should systematically offer test opportunities by, for example, continuously giving students the opportunity to recognize and evaluate their own learning and performance gains through self- or external control."

Based on this understanding, the later proposed actions and further supporting tasks consider competence-orientation as a basis. The concept will also be further concretized in the section on the different modules.

2.1.2 Coordination Request Controller (CRC)

The MOBAK-test instrument contains eight different motor tasks assessing basic motor qualifications, further divided into the motor competence areas *self-movement* and *object movement*. How can these basic motor qualifications be promoted in order to support the development of the respective basic movement competencies?

The ***Coordination Request Controller (CRC)*** (translated from the German "Koordinations-Anforderungs-Regler") is a model to record requirements for coordinative demands of motor tasks. It furthermore allows deriving content for a coordination-oriented promotion of motor competences. Thus, the CRC breaks away from the approaches of the traditional "coordinative skills" and evolves into a more practice-oriented model that focuses on the coordinative demands of motor tasks (Neumaier, 2016).

The CRC is based on a variation of pressure-conditions and thereby helps to concentrate on performance requirements of motor tasks and their possible promotion (Neumaier, 2016). Each exercise can be individually adjusted according to the children's respective performance level and situation. Whereas Neumaier's (2016) model originally also includes the so called information requests (e.g. different senses like acoustical), the focus shall here be exclusively on the pressure conditions to make the model less complex and easier transferable into practical actions for the teachers.

Different motor tasks require different coordinative requests: a penalty kick in football requires different coordinative motor abilities than crawling or a smash in badminton (Nobis & Cimanowski, 2012). Neumaier (2016) differentiates the pressure conditions into five categories under which coordinative tasks have to be fulfilled (figure 5):

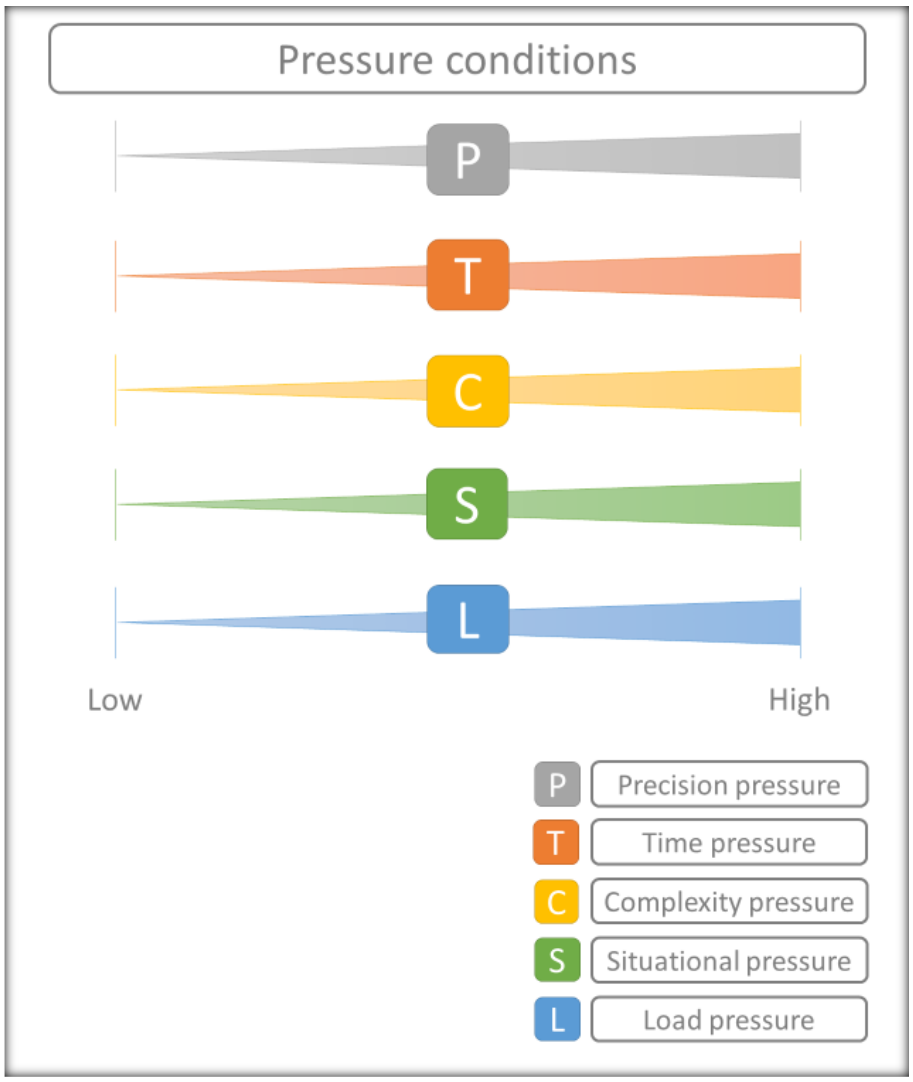


Figure 5. Analysis grid of the coordinative requirement profiles of sports motor skills (modified according to Neumaier, 2016, p. 97)

PRECISION PRESSURE[1]

Requirements with regard to the movement accuracy (process/result accuracy)

A differentiated self- and outside-perception and an appropriate building of a target value are the basis for the accomplishment of precision pressure. Self- and outside-movement in the environment and a differentiated precisely tuned control of the muscles play also an important role. For demands in precision, the aspects of target precision or result precision and the precision of the execution itself need to be distinguished. For cyclic motion tasks with rhythmic demands, the repeatability is of great importance. In other sports, for example in apparatus

[1] All descriptions of the pressure conditions are derived from Neumaier, 2016, pp. 101-115 and from Gossmann, 2016, pp. 15f.

gymnastics or in figure skating, the process accuracy is explicitly an object of valuation. In sports games, goals or hits determine the result, here the accuracy of the result is crucial. The initial position, which can occur statistically or dynamically, as well as constant or variable execution conditions are also important. The precise mastering of the movement task often interacts with the temporal and spatial accuracy.

TIME PRESSURE

Requirement regarding the available movement time and/or
the speed of movement to be achieved

Time pressure describes the need to execute a particular physical activity either in a given time period or as quickly as possible. In any case, the speed of the execution of the physical activity is a main requirement. The appealed interplay between the movement speed and the movement precision leads to a "speed-accuracy trade off", which means that for complex and challenging movement tasks with increasing movement speed the precision decreases; nevertheless, this assumption is not universal in the context of sport. The different speed demands for time pressure occur at the beginning and in the execution of the movement, which is the reason why the duration of the movement and the final pace are subordinate. Movements that require a fast beginning are reaction tasks and have demands to the rapidity of reactions.

COMPLEXITY PRESSURE

Requirements with regard to the simultaneous and/or successive parts of the movement as
well as to the scope of the muscle groups involved

The complexity pressure of the movement increases when several movement parts of a movement action need to be coordinated. A simultaneous coordination exists when the different (or additional) movement parts are carried out simultaneously. If the movement is lengthened by connecting several parts of the movement, it is a successive coordination. The choice and scope of the muscle groups that are included have an effect on the complexity of the movement. This includes whether the movement is requiring fine or large motor skills, which muscles/body parts must be coupled together and the laterality problematic of the left and right side of the body.

SITUATIONAL PRESSURE

Requirements regarding the variability and complexity of
the environmental and situational conditions

Environmental conditions influence situational variables and situational complexity. The variability expresses the environmental situation in which a movement task should be carried out, i.e. whether it is statistically consistent but static or different from place to place, or changing dynamically. The complexity describes the scope of information of the environmental elements that should be observed.

LOAD PRESSURE

Requirements regarding the physical-conditional and mental stress conditions

Load refers to the external, objectively ascertainable requirements associated with a motion task. By contrast, strain refers to the subjectively perceived, individually acting load, i.e. the inner personal requirements. Load pressure depends on the individual requirements of a person. Physical and psychological strains affect the person. The physical strain is conditional-energetic and linked to conditional motor abilities (strength, endurance, etc.); the psychological strain is linked to psychological processes (concentration, will, motivation, emotions etc.).

CONSEQUENCES BASED ON THE CHOSEN FRAMEWORK

In the frame of the BMC-EU project, the CRC allows to view the coordinative requirements of a motor task and/or of a basic motor qualification. The focus is thus on the coordinative requirements of a task, not on the coordinative skills of a person.

With the help of a scroll bar the level of existing pressure conditions of a certain task can be demonstrated. Considering these aspects of pressure conditions shall facilitate the creation of new tasks and settings that aim at supporting the pupils' development of basic motor competencies. Those practical implications are further explained in the different modules of the support toolkit.

2.2 MODULES OF THE SUPPORT TOOLKIT

On the base of the chosen theoretical framework, this chapter aims at developing modules that further concretize the support for future PE lessons. It explains in a first part the practical consequences of choosing a competence-oriented approach, followed by an in-depth analysis of the coordinative requests of the sixteen MOBAK test tasks assessing the eight basic motor qualifications in the two MOBAK test instruments.

2.2.1 Competence-oriented approach

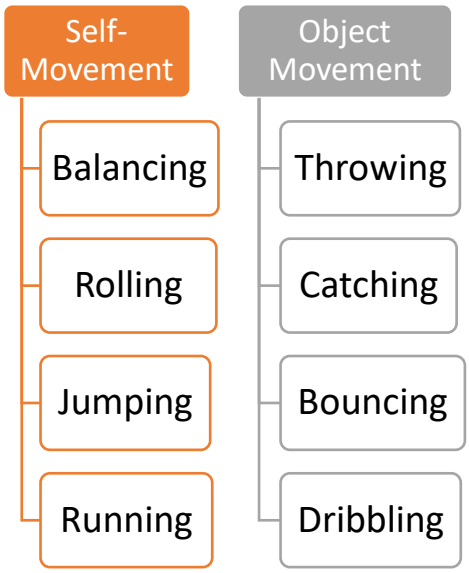


Figure 6. Overview of the two embracing areas of competences (self- and object movement) and the eight corresponding basic motor qualifications

While competence-oriented curricula urge teachers to organize their physical education classes oriented toward competence, teachers have difficulties to transform the competence demands into lessons and unit plans. Central aim of this section is to use the test results and the theoretical framework to give concrete advice to develop and further support the implementation of competence-oriented tasks in elementary school physical education classes.

Competence in this understanding is always determined by personal and situational aspects. This means that a child cannot be generally described as motor competent but only as competent to cope with a specific task requirement (in this case provided by the MOBAK test) (Hirtz, 1998). Therefore *"a competence orientation in primary school physical education ideally suggests the consideration and development of different functions of tasks: diagnostic tasks, competence acquisition tasks, learning reflection tasks and application tasks"* (Neumann, 2014, p. 176). Whereas the diagnostic tasks are already incorporated in the test phase, the three other tasks can be part of the initiatives that follow the test. Their concretization is one of the objectives of this section.

So what practical consequences go along with the use of competence-orientation as a theoretical framework for the support tool-kit for teachers?

When the overall aim is to develop the children's competencies, the creation of learning tasks (Kleinknecht, 2010), which in the frame of physical education lessons can also be called movement tasks (Laging, 2006), becomes central. The task format can be open or closed, and Neuber (2002) distinguishes in this context between a ***movement instruction*** (requires the learners to follow a certain, given movement form) and a ***movement stimulation*** (requires learners to engage in exploratory motor action that is usually based on collective thinking and decision-making). It possibly simplifies the task analysis (Pfitzner & Aschebrock, 2013), but on the

base of the children's self-reliance a further distinction between movement tasks for guided and for discovery learning seems adequate (Neumann (2014, p. 176f):

- *"A movement task for guided learning requires from the learner the motor coping with a given or self-raised movement problem. For the solution of such movement problems, there are in principle different possible solutions that are pre-structured, prefaced or planned by the teacher.*
- *A movement task for discovering learning requires from the learner the motor coping with a given or self-raised movement problem. For the solution of such movement problems, there are in principle various possible solutions which can be discovered by the pupils and – depending on the task – can be considered and assessed according to specific criteria."*

Both options offer different learning opportunities for the children. This becomes even clearer when viewing an exemplary task for competence-oriented physical education on the topic of "balancing". The related basic motor qualification has been diagnosed by the MOBAK test. Just in a side note it shall be mentioned that the pure motor skills and their support are in the focus here, while "balancing" in PE lessons also includes further decisive educational objectives, like e.g. "safety", "helping", "devices", "rules", "creativity", "organization" (Neumann, p. 177).

The following example is based on a concrete example for a competence-oriented physical education class for 7-years-old pupils given by Neumann (2014). It aims to further develop the balance competencies of a child in a physical education lesson that is organized in different stations. The tasks could be divided into *competence acquisition*, *learning reflection* and *application*:

Competence acquisition task: *"Today, if the balancing station seem too easy, you can try to make balancing harder for you. There is a bucket at each station with ropes, gymnastic balls, Hacky Sack[2] and a tennis ring!"*

Learning reflection task: *"I have noticed that many children are balancing to put their feet side by side. However, we have seen in the last lesson that, in case the balancing line gets narrower, this 'technique' no longer works. Therefore, please check today, which stations you already accomplish with the right technique, and at which stations you have to practice still more. In addition, every child gets a sheet; a pencil lays respectively at the station!"*

[2] "Hacky Sack" is the name of a brand of footbag which is the term for a small, round bag filled with dry grain (e.g. rice) or sand, which is kicked into the air as part of a competitive game or as a display of dexterity.

I can – checklist[3]

I succeed in...

I'm getting better and better in...

I do not succeed yet in...

Application task: *"Today we are building five different balancing stations that you have all got to know in the last few lessons. I make sure that you design the structure according to our rules. When balancing, please think of the right technique and decide for yourself whether you want to solve the balancing tasks with help, without help or with an additional task! "*

In the following sub-chapters, the examples and advices concentrate on the first mentioned task format, the so called "competence acquisition task". When it comes to the concrete choice of methods and contents for future physical education lessons, also examples for the two other task types will be given (based on the given example of balancing).

2.2.2 The derivation of methodological measures and concrete examples

2.2.2.1 Coordination Request Controller (CRC)

The CRC-analysis follows three main steps:

- The creation of a coordinative request profile (based on pressure conditions)
- The development of principles of variation
- The derivation of methodological measures and concrete examples

This means that first for each of the eight MOBAK tests a coordinative request profile will be given. Consequently, the focus is set on the tasks with their specific requirements, which again mirrors the understanding of a competence not as a reflection of a general motor ability but as a movement solution for a certain task request (Neumaier, 2016).

As a second step, the exciting adjustments screws will be demonstrated and concrete possible tasks for future physical education lessons will be given. The possible learning reflection and application tasks that have been described in the previous chapter for the task of "balancing" can be easy transferred to the other basic motor qualifications, once the base is set by having suitable ideas for competence acquisition tasks.

2.2.2.2 The creation of a coordinative request profile

Which pressure conditions exist in the respective movement situations that the different MOBAK tests initiate?

[3] A respective checklist can be presented to the children in written or with pictures or symbols (for children not yet able to read)

The answer to this question is essential to identify the coordinative request profile of each of the sixteen MOBAK tasks assessing the eight basic motor qualifications in MOBAK-1-2 and MOBAK-3-4. Summarizing the respective requests for the two different competence areas (*self-movement* and *object movement*), can moreover demonstrate which pressure conditions are generally stronger or lower demanded by the different tasks. This thereafter also allows reflecting on the question whether a certain specifically high-pressure condition (like for instance precision) might lead to difficulties not only in one specific but also simultaneously in different related basic motor tasks.

Like Neumaier, Mechling, and Strauß (2002) use it for the different sport disciplines, also here, with regard to the analyses of the sixteen MOBAK tasks, a Likert scale is produced. The scale embraces five intervals (minimum, low, medium, high and maximum) and intermediate values (e.g. low to medium or high to maximum) in order to quantify the values of the scroll bar: Graphs respectively describe pressure conditions of each task. The respective controller constellation represents the expected difficulty of the initial MOBAK task. The adjustments are based on previous experiences with children of the same age group, as well as on an internal comparison between the requirements of the different tasks. The controllers are individually changeable and adaptable to the particular performance and to a person's learning level. This is especially relevant when it comes to the development of principles of variation and concrete tasks.

The following tables show the coordinative request profiles, precisely the pressure conditions, of each of the sixteen MOBAK test items:

Table 1. Pressure conditions in the MOBAK competence area Self-Movement

MOBAK – Competence area *Self-Movement*		
Qualification	**Pressure conditions MOBAK 1-2**	**Pressure conditions MOBAK 3-4**
Balancing  	*Precision pressure*: high, as the position of the feet on the bench is important. *Time pressure*: low to medium, the pupil shall balance without stopping. Thus, a fluent movement forward is needed. *Complexity pressure*: low to medium, the upper body is used to help to find balance and needs to be stabilized; only the extremities are moving forward to walk. *Situational pressure*: medium, the bench is used as a seesaw and moving when the pupil is crossing it. *Load pressure (mental stress)*: medium to high, to fail and fall down the bench.	*Precision pressure*: high, as the position of the feet on the bench is important. *Time pressure*: low to medium, the pupil shall balance without stopping. Thus, a fluent movement forward is needed. *Complexity pressure*: high, the upper body is used to help to find balance and needs to be stabilized; while walking forward and backward on the bench obstacles have to be crossed. *Situational pressure*: low, the condition of the bench is each time the same and no additional information needs to be recorded for the movement. *Load pressure (mental stress)*: medium, to fail and fall down the bench.
Rolling  	*Precision pressure*: low to medium, it has to be rolled on a broad gymnastics mat. *Time pressure*: low, there is no time limit given. *Complexity pressure*: medium to high, both arms, legs and body have to be moved at the same time while orientation in the room is needed. *Situational pressure*: low to medium, the condition is each time the same, but depending on the pupils' performance the muscles need to react and possibly balance. *Load pressure (mental stress)*: medium, to fail and not be able to roll or roll straight ahead.	*Precision pressure*: low to medium, it has to be rolled on a broad gymnastics mat. *Time pressure*: low, there is no time limit given. *Complexity pressure:* high, jumping and rolling thereafter have to be coordinated; when rolling the arms, legs and body have to be moved at the same time while orientation in the room is needed. *Situational pressure*: low to medium, the condition is each time the same, but depending on the pupils' performance the muscles need to react and possibly balance. *Load pressure (mental stress)*: medium to high, to fail and not be able to roll or roll straight ahead. As the pupil has to jump and roll on a box, this might cause additionally fear.

Jumping  	*Precision pressure*: high, as the position of the feet next to the carpet squares is important. *Time pressure*: medium, the pupil shall jump fluently across the tiles without stopping for more than 1 sec. *Complexity pressure*: high, the pupil has to differentiate between jumping with one or two legs and simultaneously to orientate him-/herself in the room. *Situational pressure*: low, the conditions to fulfil the task are each time the same. *Load pressure (mental stress)*: low to medium, to fail (for instance to mix up when one and when two legs are used).	*Precision pressure*: medium to high, the rope has to be moved and crossed steadily and precise. *Time pressure*: medium to high, the right moment to jump is timely limited. *Complexity pressure:* medium to high, the pupil has to move the rope with the arms and to jump over the rope continuously (during 20 seconds). *Situational pressure:* low, the conditions to fulfil the task are each time the same. *Load pressure (mental stress)*: low to medium, to fail (for instance to jump in the right moment).
Running  	*Precision pressure*: low to medium, moving sideways between two cones. *Time pressure*: low to medium, the pupil shall perform fast and fluent sidesteps. *Complexity pressure*: low to medium, coordinating the side-movement of the legs with support of the upper body. *Situational pressure*: low, the conditions to fulfil the task are each time the same. *Load pressure (mental stress)*: low to medium, to fail (for instance not be able to move fluently between the cones).	*Precision pressure*: low to medium, moving sideways and straight along a given rectangle. *Time pressure*: low to medium, the pupil shall perform fast and fluent movements and change fluently between the different styles of running. *Complexity pressure*: medium, coordinating the change of directions in running. *Situational pressure*: low, the conditions to fulfil the task are each time the same. *Load pressure (mental stress)*: low to medium, to fail (for instance to mix up when it shall be moved forward and when to the side).

Table 2. Pressure conditions in the MOBAK competence area Object Movement

MOBAK – Competence area *Object Movement*		
Qualification	**Pressure conditions MOBAK 1-2**	**Pressure conditions MOBAK 3-4**
Throwing  	*Precision pressure*: high, pupil has to throw balls at a target. *Time pressure*: low, there is no time limit given. *Complexity pressure*: low to medium, coordinating body and arm movement. *Situational pressure*: low, the conditions to fulfil the task are each time the same. *Load pressure (mental stress)*: low to medium, to fail and not be able to hit the target.	*Precision pressure*: high, pupil has to throw balls at a target. *Time pressure:* low, there is no time limit given. *Complexity pressure*: low to medium, coordinating body and arm movement. *Situational pressure*: low, the conditions to fulfil the task are each time the same. *Load pressure (mental stress)*: low to medium, to fail and not be able to hit the target.
Catching  	*Precision pressure*: medium, the pupil has to position the arms and hands (and sometimes also move) so that he/she is able to catch the ball. *Time pressure:* medium, there is only limited time when the ball can be caught after bouncing. *Complexity pressure*: medium, moving in direction of the ball has to be coordinated with a correct arm-hands-movement to catch thereafter. *Situational pressure*: medium, the test supervisor tries to throw similarly, but the ball might bounce differently. *Load pressure (mental stress)*: medium, to fail and not be able to catch the ball; some pupils are also generally afraid of thrown balls (and possible related injuries).	*Precision pressure*: medium, the pupil has to move and to position the arms and hands so that he/she is able to catch the ball; additionally he/she has to control power and throw the ball in the right distance (which allows catching). *Time pressure*: medium, there is only limited time when the ball can be caught after throwing. *Complexity pressure*: medium to high, throwing and moving in direction of the ball has to be coordinated with a correct arm-hands-movement to catch thereafter. *Situational pressure*: high, as the ball has each time a different trajectory. *Load pressure (mental stress)*: medium, to fail and not be able to catch the ball; some pupils are also generally afraid of thrown balls (and possible related injuries).

Bouncing  	*Precision pressure*: medium to high, the pupil has to bounce a ball without losing control through a given corridor. Time pressure: low to medium, the pupil has to move forward smoothly and continuously. *Complexity pressure*: medium to high, bouncing the ball has to be coordinated with orientation in the room while moving. *Situational pressure*: medium, as the ball is bouncing differently after each contact with the hand. *Load pressure (mental stress)*: low to medium, to fail (for instance not be able to bounce and move in the right direction).	*Precision pressure*: medium to high, the pupil has to bounce a ball without losing control through a given corridor. *Time pressure*: low to medium, the pupil has to move forward smoothly and continuously. *Complexity pressure*: high, bouncing the ball has to be coordinated with orientation in the room (along obstacles) while moving. *Situational pressure*: medium, as the ball is bouncing differently after each contact with the hand. *Load pressure (mental stress)*: low to medium, to fail (for instance to lose the ball while bouncing).
Dribbling  	*Precision pressure*: medium to high, the pupil has to dribble a ball without losing control through a given corridor. *Time pressure*: low to medium, the pupil has to move forward smoothly and continuously. *Complexity pressure:* medium to high, dribbling the ball has to be coordinated with orientation in the room while moving. *Situational pressure*: medium, as the ball is moving differently after each foot contact. *Load pressure (mental stress)*: low to medium, to fail (for instance not be able to dribble and move in the right direction).	*Precision pressure*: medium to high, the pupil has to dribble a ball without losing control through a given corridor. *Time pressure*: low to medium, the pupil has to move forward smoothly and continuously. *Complexity pressure*: high, dribbling the ball has to be coordinated with orientation in the room (along obstacles) while moving. *Situational pressure*: medium, as the ball is moving differently after each foot contact. *Load pressure (mental stress)*: low to medium, to fail (for instance to lose the ball while dribbling).

2.2.2.3 The development of principles of variation

Having compiled a coordinative request profile for each of the sixteen MOBAK tasks sets the basis for identifying the related adjusting screws. This means that a teacher, when seeing the CRC, already knows which pressure condition he/she is able to vary.

Task variation in this context means to vary pressure conditions that are central for a certain task and to give room for differentiation and for adaptions to the children while respecting their individual performance level. In general, the level of pressure can be increased or decreased. A pressure condition which is high in the initial task requirements can be decreased for a class or a child which has shown difficulties in the implementation of this task (low MOBAK test result). In contrast, a pressure condition that is on a low level in the initial task can be increased in a further lesson. Apart from that, also already initially demanding pressure conditions can be increased in case certain tasks and related skills should be developed further.

This means in the concrete teaching situation and under consideration of a competence-oriented approach that children shall be able to choose a task which best fits their individual level and/or needs. Consequently, the role of the teacher is to create a learning situation, for instance by giving new material, by giving ideas for variation etc., which allows the children themselves to increase or lower the requirements of the task or to try out different situations.

2.2.2.4 The derivation of methodological measures and concrete examples

Once the principles of possible variation have been clarified, the base for the development of new tasks to support the further development of the tested qualifications is set. This will be done in the form of so-called MOBAK task description cards that allow the teacher to have information in a summarized format: on the front side of the description card the initial coordinative request profile of the MOBAK task is described (on the right side), together with the task description and a general information about the tested basic motor qualification (on the left side; figure 7); on the backside, principles of variation for an assignment of tasks in a future physical education lesson are given (figure 8). The latter include examples for increasing and decreasing pressure conditions.

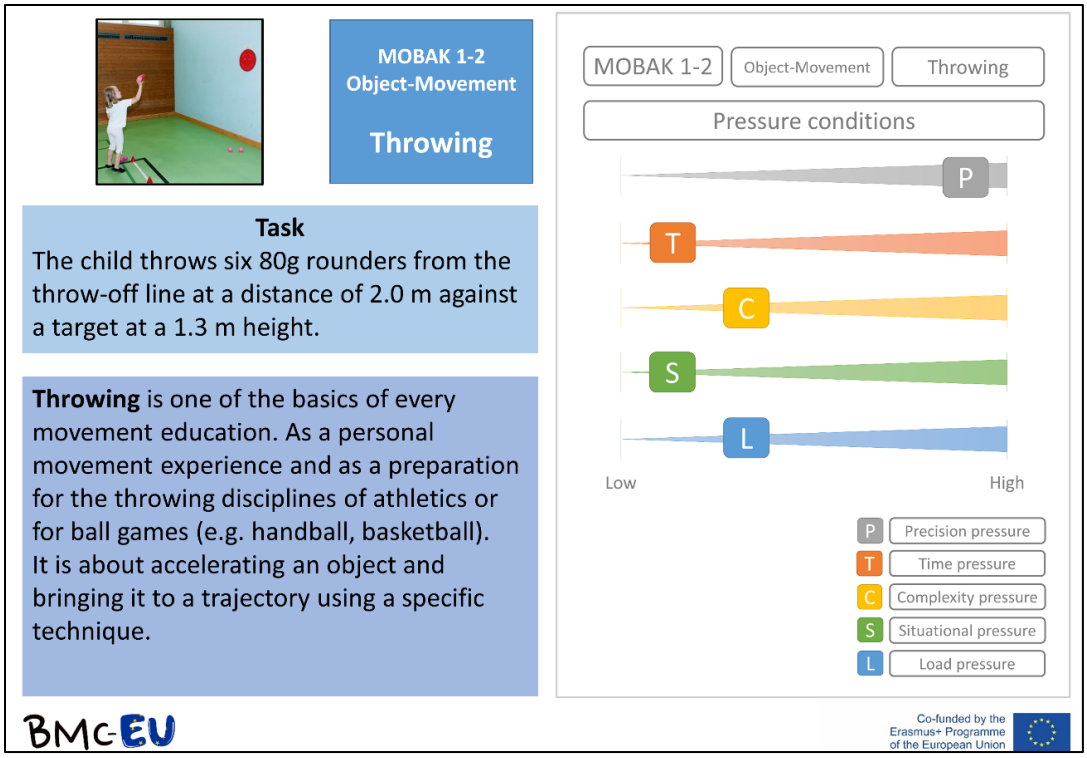


Figure 7. MOBAK task description card (front side): Initial Coordinative Request Profile, here "throwing"

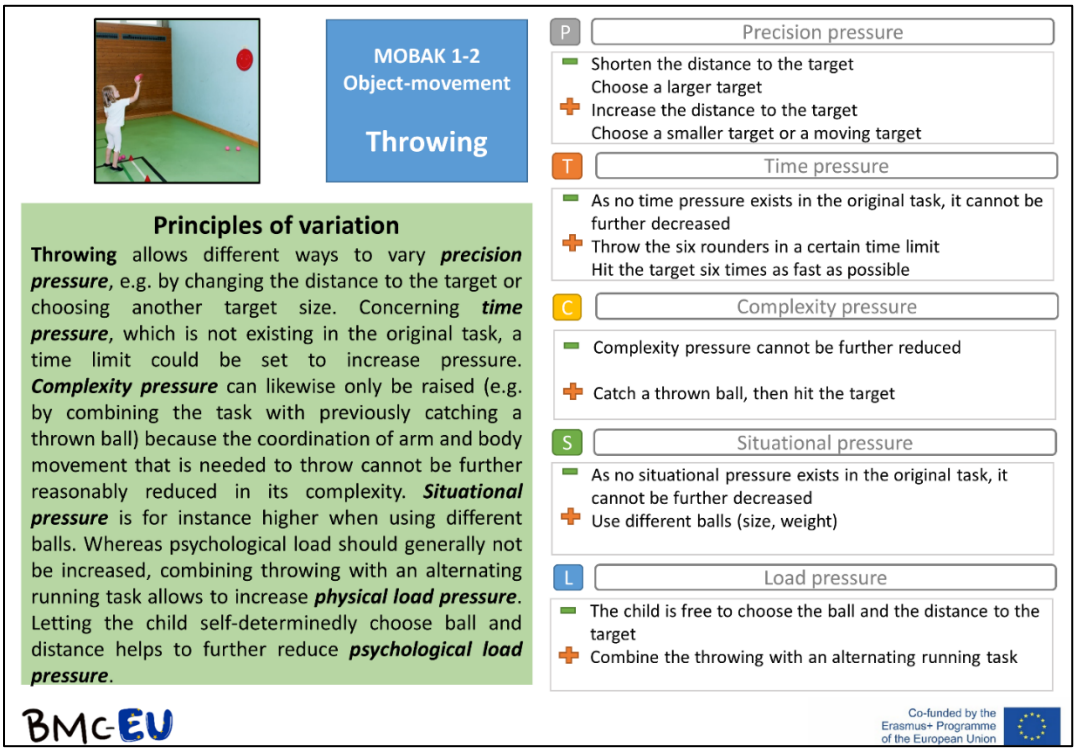


Figure 8. MOBAK task description card (backside): Principles of variation, here "throwing"

Based on this information, which is given for every of the sixteen MOBAK-1-2 and MOBAK-3-4 test tasks, further *activity cards* with examples of learning tasks are developed and show concrete contents for future physical education lessons (figures 9 and 10). Each card provides the following structured information on the front side (figure 9):

- The relation to a certain MOBAK test task (here *object movement* and *throwing*) and the difficulty level of the task, in the blue box on the upper left. The difficulty level of the initial task is indicated in white color, whereas the difficulty level of the suggested variations based on the change of the pressure conditions is in grey color.
- The name of the task (here *Throw off 1*), in the white box.
- The task type (here *competence acquisition*), in the green box on the upper right.
- The particular pressure condition that is in the focus within this task (here *precision pressure*), in the red box on the upper right.
- The needed materials (in the yellow box), one or more pictures (in the center) and the task description (in the orange box).

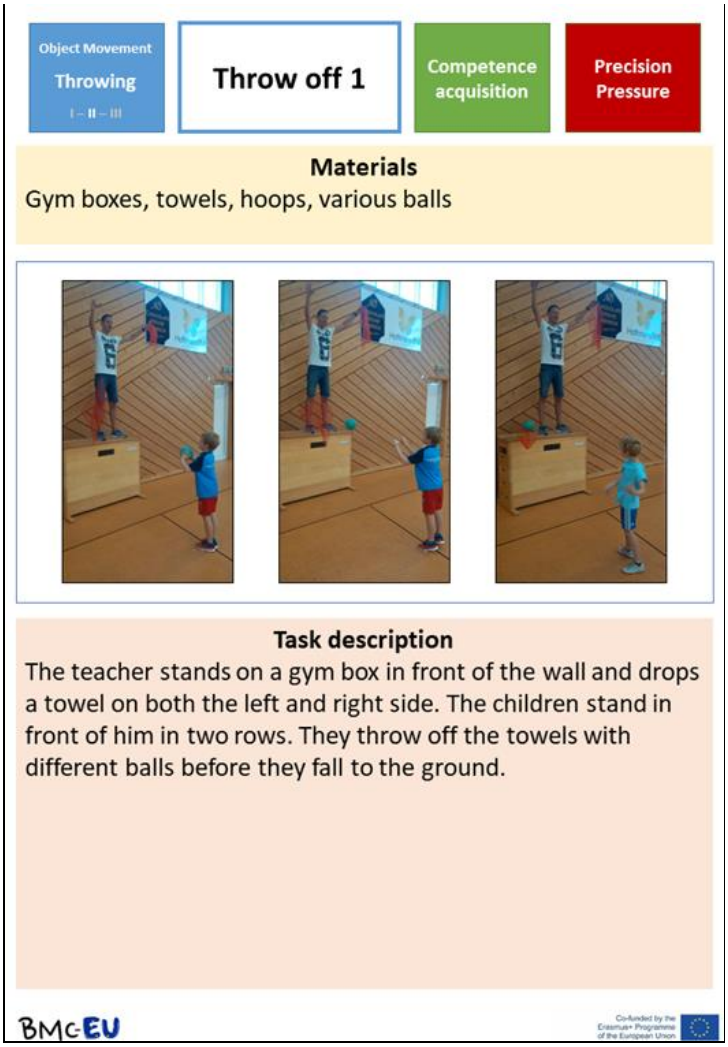


Figure 9. Activity card (front side): Example "Throw off"

On the backside of the card, the following information is given:

- The same information on the relation to a certain MOBAK test task as on the front side, in the blue box on the upper left.
- The name of the task (here *Throw off 1*), in the white box.
- The task type(s) described on this side of the card (here *learning reflection* and *application*), in the green box on the upper right.
- The particular pressure conditions that are in the focus of the variations suggested on this side (here *different pressure conditions*), in the red box on the upper right.
- Suggested variations of the initial task, providing information about the respective pressure condition(s) concerned (in this case *precision*, *complexity*, *situational* and *time pressure*), in the light green box. Furthermore, a ✚ or ▬ provide an indication about the potential of increasing or decreasing the respective pressure condition.
- Examples for the three different task types *competence acquisition*, *learning reflection* and *application*, in light blue color.

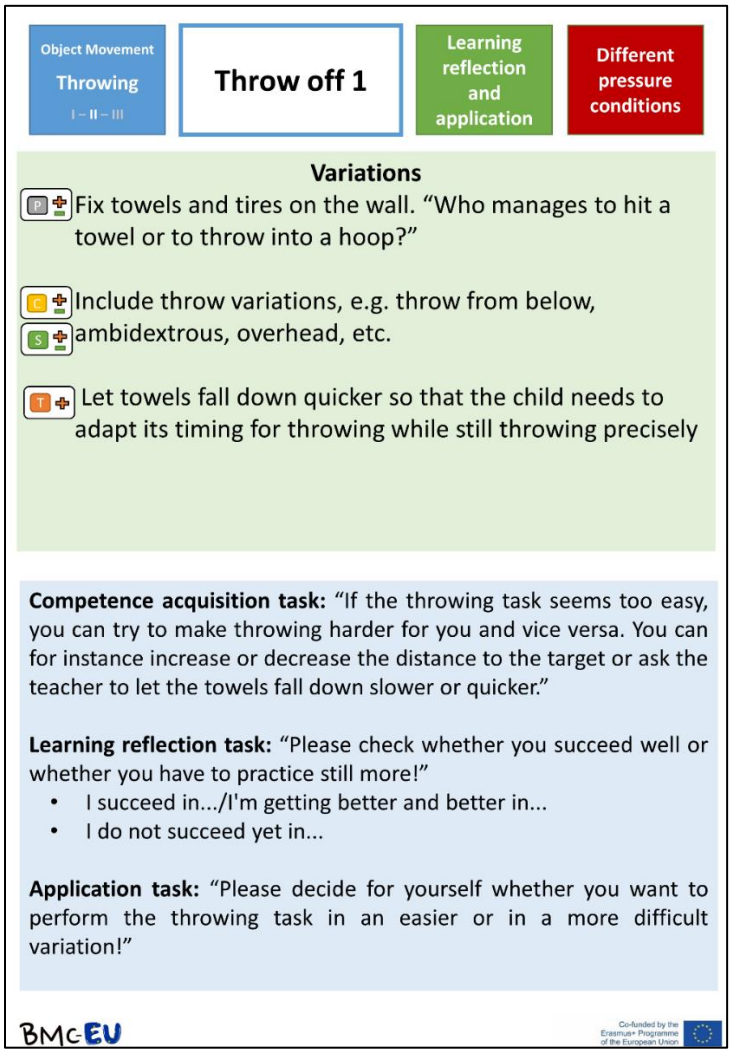


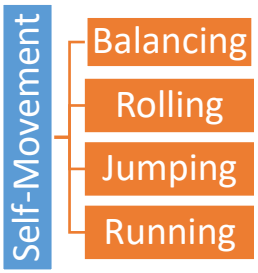
Figure 10. Activity card (backside): Example "Throw off"

2.2.2.5 Planning a teaching unit and sequence

Both the knowledge about the children's basic motor competence level and about the possibility of adapting pressure conditions can be used to plan a single lesson and/or a teaching sequence of several lessons. Whereas from a long-term perspective the test division into *self-movement* and *object movement* can help to concentrate on one of the two motor competence areas, in a single lesson one or several basic motor qualifications ("balancing", "throwing" etc.) can be addressed.

To make sure that every lesson serves to reach an overall goal, it should be clear which general function the lesson has in this context. Generally, the frame of the teaching sequence is built by the initial MOBAK test and a possible re-test (figure 11). Referring to the division taken in 2.1.1 – *competence acquisition*, *learning reflection* and *application tasks* – one of these can respectively be in the focus of the teaching sequence, which follows the initial test. The teacher can for instance choose to first concentrate on competence acquisition within a series of lessons and thereafter on learning reflection and/or application. Alternatively, they can aim at addressing all three tasks within one lesson while focusing for instance on a single basic motor qualification. The last option rather follows a children-centered principle, as it allows the pupils to self-evaluate their performance and accordingly to choose the task variation by themselves (cp. backside of the activity cards). This choice surely depends on the respective situation in the learning group and on the preferences of both the teacher and the pupils. The same is true for the number of lessons spent on the support and improvement of a chosen task: the teacher can of course decide, depending on the level of his/her class and its different students, to increase or decrease the proposed length of the series of lessons. The further didactical and methodical decisions remain likewise in the hands of each teacher (and possibly depend on his/her readiness to include the pupils' opinion into the decision process). This concerns for instance the question whether the shown further task variations (figure 10) are organized in the frame of a series of different movement stations where children rotate to, or whether different tasks follow each other subsequently and are thus first practiced by the whole class before a new task is introduced.

In the following, one example for the competence area *self-movement* is given to demonstrate how a teaching sequence that includes the implementation of the MOBAK test and the further constructive work with the MOBAK test results could be structured. The example can be likewise transferred to the area of *object movement* and shall be considered just as one possible way to use the MOBAK test results as a starting point for a related series of physical education lessons.



	Main objective	Learning tasks
Test lesson	Implementation of the MOBAK test ("status quo")	diagnostic tasks
Series of lessons	Based on the result of the MOBAK test, choice of one or more basic motor qualifications which need support • Use of *activity card*s to improve the competence level • pupils' self-analyzing competencies ("I can-checklist") • pupils' self-reliance (choice of suitable task variations)	competence acquisition, learning reflection, application tasks
Re-test lesson	Implementation of the MOBAK test ("possible improvement")	diagnostic tasks

Figure 11. Improvement of the self-movement competence in a class of 7-years-old children – example for a teaching sequence

In the last section, explanatory material is provided. This includes the definition of different terms that correspond to and are therefore directly derived from the tasks. The definitions are presented in the form of a glossary with short definitions and explanations.

2.3 EXPLANATORY MATERIALS

2.3.1 Glossary

In the following, explanations and definitions for the most relevant terms used in the support toolkit are compiled in a glossary (table 3).

Table 3. Glossary

Term	Definition	References
Application tasks	***Application tasks*** shall initiate and/or foster the students' self-reliance and self-determination. This can for instance be reached by letting the pupils choose by themselves the kind of variation and thereby the level of difficulty and/or additional support for a respective task. On the activity cards provided in the frame of the MOBAK Support Framework respectively examples for an ***application task*** are given.	
Basic motor competencies	***Basic motor competencies*** are defined in accordance with the definition of competence in educational psychology (Weinert, 2001; for an overview, see Kettenis, 2014). Against the backdrop of theoretical considerations on competence in this field (e.g., Klieme & Hartig, 2007; Weinert, 2001), ***basic motor competencies*** may be understood as performance dispositions that develop from the demands of specific situations. They help students to meet concrete demands in the culture of movement, sport and exercise and can be learned and retained in the long term and take into account previous experiences; are explicitly context-independent and refer to situation-specific demands in the culture of sport and exercise; are functional performance dispositions that manifest themselves in behavior that is oriented toward mastery (Herrmann et al., 2016). Accordingly, it is not (just) the performance behavior itself that is necessary to accomplish particular tasks, but the underlying general performance dispositions (Herrmann & Seelig, 2017a, pp. 110f).	Herrmann, C., & Seelig, H. (2017a). Basic motor competencies of fifth graders. Construct validity of the MOBAK-5 test instrument and determinants. *German Journal of Exercise and Sport Research, 47*(2), 110–121. doi:10.1007/s12662-016-0430-3 Further cited literature: Herrmann, C., Gerlach, E., & Seelig, H. (2016). Motorische Basiskompetenzen in der Grundschule. Begründung, Erfassung und empirische Überprüfung eines Messinstruments [Basic motor competencies in primary school. Rationale, assessment and empirical testing of a measurement instrument]. *Sportwissenschaft, 46*(2), 60–73. doi:10.1007/s12662-015-0378-8

Kettenis, L. (2014). Sportlehrerkompetenzen [PE teacher competencies]. Dissertation. Retrieved from http://d-nb.info/1054056080/ 34.

Klieme, E., & Hartig, J. (2007). Kompetenz-konzepte in den Sozialwissenschaften und im erziehungswissenschaftlichen Diskurs [The concept of competence in social and educational sciences]. In M. Prenzel, I. Gogolin, & H.-H. Krüger (Eds.), *Kompetenzdiagnostik Zeitschrift für Erziehungswissenschaft*, special issue (vol. 8, pp. 11–29). Wiesbaden: VS.

Weinert, F. E. (2001). Vergleichende Leistungsmessung in Schulen – Eine umstrittene Selbstverständlichkeit. In F. E. Weinert (Ed.), *Leistungsmessungen in Schulen* (pp. 17–31). Weinheim u. Basel.

Basic motor qualifications	The performance behavior itself, consisting of the observable performances of sport- and exercise-related activity, is what we refer to as ***basic motor qualifications*** (in German: Motorische Basisqualifikationen; MOBAQ). They can be formulated as can-do statements (e.g., “can throw,” “can catch”) and form the basis for basic motor competencies, which are not directly observable (Herrmann & Seelig, 2017a, p. 111).	Herrmann, C., & Seelig, H. (2017a). Basic motor competencies of fifth graders. Construct validity of the MOBAK-5 test instrument and determinants. *German Journal of Exercise and Sport Research, 47*(2), 110–121. doi: 10.1007/s12662-016-0430-3.
Competence(s)	***Competences*** are the cognitive abilities and skills available to individuals to learn to solve certain problems, and the associated motivational, volitional and social readiness and ability to	Weinert, F. E. (2001). Vergleichende Leistungsmessung in Schulen – Eine umstrittene Selbstverständlichkeit. In F.

	successfully and responsibly use the solutions to solve problems in variable situations (Weinert, 2001, pp. 27f). From a sport-pedagogical perspective: Sport and movement-cultural ***competence*** refers to the ability to explore, develop, arrange and judge the physical, social, material and intentional relations of one's own sport-related action, as well as the knowledge of action gained through the use of other, including physically and motor-based, performance dispositions in order to be able to act self-determined and responsible in the area of sport and movement (Gogoll, 2014).	E. Weinert (Ed.), *Leistungsmessungen in Schulen* (pp. 17–31). Weinheim u. Basel. Gogoll, A. (2014). Das Modell der sport- und bewegungskulturellen Kompetenz und seine Implikationen für die Aufgabenkultur im Sportunterricht. In M. Pfitzner (Ed.), *Aufgabenkultur im Sportunterricht: Konzepte und Befunde zur Methodendiskussion für eine neue Lernkultur* (pp. 93–110). Wiesbaden: Springer Fachmedien.
Competence acquisition tasks	***Competence acquisition tasks*** aim at an acquisition and/or improvement of competences. This can be for instance reached by implementing an easier or harder variation of a particular task. On the activity cards provided in the frame of the MOBAK Support Framework respectively examples for a variation of the given task are given including one concrete verbal indication that the teacher can give to the pupils in order to address ***competence acquisition***.	
Competence orientation / Competence-oriented teaching	***Competence-oriented teaching*** ideally suggests the consideration and development of various functions of tasks: diagnostic tasks, competence-acquisition tasks, learning reflection tasks and application tasks. With the help of these functional tasks, the acquisition of competences should be initiated, started, reflected and tested (Neumann, 2014, p. 176). Consequently, the role of the teacher in physical education is to create learning situations with movement-oriented problems that need to be solved. These learning situations should help the students to develop the knowledge and experience to find adapted	Neumann, P. (2014). Aufgabenentwicklung im kompetenzorientierten Sportunterricht der Grundschule. *Sportunterricht, 63*(6), 175–180. Schröder, M. (2015). *Competence-oriented study programmes.* FIBAA Consult Factory.

	measures to solve particular problems or related issues in the future. A concentration on the learning outcome, a student-centered approach and the development of competencies are thus central principles in ***competence-oriented teaching*** (Schröder, 2015, p. 2).	
Complexity pressure	***Complexity pressure*** is based on requirements related to the simultaneous and/or successive parts of the movement as well as to the scope of the muscle groups involved (Neumaier, 2016, pp. 101–115)	Neumaier, A. (2016). *Koordinatives Anforderungsprofil und Koordinations-training: Grundlagen-Analyse-Methodik* (Reihe Training der Bewegungskoordi-nation, Band 1). Hellenthal: Strauß.
Conditional motor abilities	By physical condition in movement, sport and exercise we generally mean the weighted sum of the ***conditional motor abilities*** (or physical/bodily abilities) endurance, strength, speed, agility and their realization through movement skills/techniques and through personality characteristics (e.g. will, motivation). As a result, this 'sum' of all abilities consists of individual elements that are known to play different weighted roles in different sports. The sum of these abilities usually also marks the training state.	Grosser, M., Starischka, S., & Zimmermann, E. (2012). *Das neue Konditionstraining: Grundlagen, Methoden, Leistungssteuerung, Übungen, Trainingsprogramme.* BLV-Taschenbuch.
Coordination request controller	The ***Coordination request controller*** (CRC; from the German "Koordinations-Anforderungs-Regler") is a model to record requirements for coordinative demands of motor tasks. It furthermore allows deriving content for a coordination-oriented promotion of motor competences. Thus, the CRC breaks away from the approaches of the traditional "coordinative skills" and evolves into a more practice-oriented model that focuses on the coordinative demands of motor tasks. The CRC is based on a variation of pressure-conditions and thereby helps to concentrate	Neumaier, A. (2016). *Koordinatives Anforderungsprofil und Koordinations-training: Grundlagen-Analyse-Methodik* (Reihe Training der Bewegungskoordi-nation, Band 1). Hellenthal: Strauß.

	on performance requirements of motor tasks and their possible promotion (Neumaier, 2016, p. 125).	
Coordinative motor abilities	According to Meinel and Schnabel, ***coordination*** is the harmonious interaction of sensory organs, peripheral and central nervous system (CNS) and skeletal muscle. ***Coordinative motor abilities*** cause the impulses within a sequence of movements to be coordinated in terms of time, strength and scope and to reach the corresponding muscles. It should be remembered that a single ***coordinative motor ability*** does not determine athletic performance in isolation. Rather, the relationship structure of the ***coordinative motor abilities*** must be seen in the respective movement or sport. Often there is also a connection to the conditional abilities. Meinel & Schnabel distinguish seven basic coordinative abilities: Kinesthetic differentiation ability: ability to achieve a high degree of fine-tuning of individual movement phases and part body movements, which is expressed in great precision of movement and movement economy; Responsiveness: ability to quickly initiate and perform appropriate motor actions on signals; Coupling capacity: ability to spatially, temporally and dynamically coordinate partial body movements with regard to a specific action goal; Orientation ability: ability to determine and target change in the position and movement of the body in space; Balance ability: ability to keep the whole body in equilibrium, or to maintain or restore that state during and after extensive body shifts; Adjustment ability: ability to adjust the action program to changed environmental conditions during the course of action or possibly to start a completely new and adequate action program;	Dober, R. (2019). *Coordinative abilities*. Retrieved from http://www.sportunterricht. de/lksport/kofae1.html Further cited literature: Meinel, K., & Schnabel, G. (2007). *Bewegungslehre Sportmotorik: Abriss einer Theorie der sportlichen Motorik unter pädagogischem Aspekt*. Aachen: Meyer & Meyer.

	Rhythmic ability: ability to capture an externally given rhythm and to implement it motorically. In addition, the ability to realize an internalized rhythm of a movement in one's own movement activity.	
Differentiation	In contemporary education, ***differentiation*** is delineated as a technique for facilitating learners as unique individuals, providing the opportunity for optimal learning (Petty, 2004). On the other hand, Terwell (2005) refers to ***differentiation*** as streaming, tracking or grouping students based on ability.	Petty, G., (2004). *Differentiation – What and How*. Retrieved from geoffpetty.com/wp-content/uploads/2012/12/0DIFFERENTIATIONwhatandhow2.doc Terwel, J. (2005). Curriculum differentiation: multiple perspectives and developments in education. *Journal of Curriculum Studies*, *37*(6), 653–670.
Learning reflection tasks	***Learning reflection tasks*** shall initiate and/or foster the students' reflection about their competences. This can for instance be reached by implementing the use of an "I-can-checklist" which allows the pupil to note down in which task he/she succeeds in, is getting better in and/or does not succeed yet in. On the activity cards provided in the frame of the MOBAK Support Framework respectively examples for a ***learning reflection task*** are given.	
Load pressure	***Load pressure*** is based on requirements regarding the physical-conditional and/or mental stress conditions (Neumaier, 2016, pp. 101–115).	Neumaier, A. (2016). *Koordinatives Anforderungsprofil und Koordinations-training: Grundlagen-Analyse-Methodik* (Reihe Training der Bewegungskoordi-nation, Band 1). Hellenthal: Strauß.

Motor abilities

From a sports science perspective, ***motor abilities*** are relevant for a range of different tasks and situations and are frequently equated with the physiological components of physical fitness (Stodden, Langendorfer, & Roberton, 2009). In contrast to basic motor competencies, they are explicitly defined as context-free performance dispositions and may be regarded as trainable, but not as learnable (Herrmann, & Seelig, 2017b, p. 327). Furthermore, ***motor abilities*** can be differentiated into conditional abilities (e.g. strength, endurance, speed) and coordinative abilities (e.g. balance, orientation) (Scheuer, Herrmann, & Bund, 2019).

Herrmann, C., & Seelig, H. (2017b). "I can dribble!" On the relationship between children's motor competencies and corresponding self-perceptions. *German Journal of Exercise and Sport Research, 4,* 324–334.

Scheuer, C., Herrmann, C., & Bund, A. (2019). Motor tests for primary school aged children: A systematic review. *Journal of Sports Sciences, 37*(10), 1097–1112. doi: 10.1080/02640414.2018.1544535

Further cited literature:

Stodden, D., Langendorfer, S., & Roberton, M. A. (2009). The association between motor skill competence and physical fitness in young adults. *Research Quarterly for Exercise and Sport, 80*(2), 223–229. doi: 02701367.2009.10599556.

Motor competence

The concept of ***motor competence*** is currently receiving special attention in educational and health sciences contexts. Robinson et al. (2015, p. 1274) describe ***motor competence*** as "an individual's capacity to coordinate and control their center of mass and extremities in a gravity-based environment." According to this health sciences perspective, motor competence is understood as a collective name for a variety of motor performance dispositions (i. e., motor proficiency, motor performance, fundamental motor skills) (Herrmann, & Seelig, 2017a).

Herrmann, C., & Seelig, H. (2017a). Basic motor competencies of fifth graders. Construct validity of the MOBAK-5 test instrument and determinants. *German Journal of Exercise and Sport Research, 47*(2), 110–121. doi: 10.1007/s12662-016-0430-3.

Robinson, L. E., Stodden, D. F., Barnett, L. M., Lopes, V. P., Logan, S. W., Rodrigues, L. P., & D'Hondt, E. (2015). Motor Competence and its Effect on Positive

		Developmental Trajectories of Health. *Sports Medicine, 45*(9), 1273–1284. doi: 10.1007/s40279-015-0351-6.
Motor skills	***Motor skills*** are specific individual movements (e.g. throwing a ball, running), which generally can be differentiated into various domains of fine or gross motor skills (e.g. manual dexterity, ball skills, locomotion, object control). In the sports sciences, motor skills are commonly defined with reference to specific sports and in relation to particular movements (Herrmann, & Seelig, 2017b; Scheuer, Herrmann, & Bund, 2019).	Herrmann, C., & Seelig, H. (2017b). "I can dribble!" On the relationship between children's motor competencies and corresponding self-perceptions. *German Journal of Exercise and Sport Research, 4,* 324–334. Scheuer, C., Herrmann, C., & Bund, A. (2019). Motor tests for primary school aged children: A systematic review. *Journal of Sports Sciences, 37*(10), 1097–1112. doi: 10.1080/02640414. 2018.1544535
Movement instruction	***Movement instruction*** requires the learners to follow a certain, given movement form.	Neuber, N. (2002). Die Furcht vor der Aufgabe. Anmerkungen zur Unterrichtssteuerung in der Bewegungserziehung. *sportpädagogik, 26*(5), 41–43.
Movement stimulation	A ***movement stimulation*** requires learners to engage in exploratory motor action that is usually based on collective thinking and decision-making.	Neuber, N. (2002). Die Furcht vor der Aufgabe. Anmerkungen zur Unterrichtssteuerung in der Bewegungserziehung. *sportpädagogik, 26*(5), 41–43.

Movement tasks for discovering learning	***Movement tasks for discovering learning*** require from the learner the motor coping with a given or self-raised movement problem. For the solution of such movement problems, there are in principle various possible solutions which can be discovered by the pupils and – depending on the task – can be considered and assessed according to specific criteria (Neumann, 2014, p. 177).	Neumann, P. (2014). Aufgabenentwicklung im kompetenzorientierten Sportunterricht der Grundschule. *Sportunterricht, 63*(6), 175–180.
Movement tasks for guided learning	***Movement tasks for guided learning*** require from the learner the motor coping with a given or self-raised movement problem. For the solution of such movement problems, there are in principle different possible solutions that are pre-structured, prefaced or planned by the teacher (Neumann, 2014, p. 177).	Neumann, P. (2014). Aufgabenentwicklung im kompetenzorientierten Sportunterricht der Grundschule. *Sportunterricht, 63*(6), 175–180.
Object movement	***Object movement*** is a motor competence resp. a category of the MOBAK concept resp. test. It embraces the four motor qualifications resp. test items throwing, catching, bouncing, and dribbling.	
Precision pressure	***Precision pressure*** is based on requirements with regard to the movement accuracy (process/result accuracy (Neumaier, 2016, pp. 101–115).	Neumaier, A. (2016). *Koordinatives Anforderungsprofil und Koordinations-training: Grundlagen-Analyse-Methodik* (Reihe Training der Bewegungskoordi-nation, Band 1). Hellenthal: Strauß.
Pressure conditions	Each exercise can be individually adjusted according to the children's respective performance level and situation. Different motor tasks require different coordinative requests: a penalty kick in football requires different coordinative abilities than crawling or a smash in badminton. Neumaier (2016, pp. 101–115) differentiates the ***pressure conditions*** into five categories under which coordinative tasks have to be fulfilled:	Neumaier, A. (2016). *Koordinatives Anforderungsprofil und Koordinations-training: Grundlagen-Analyse-Methodik* (Reihe Training der Bewegungskoordi-nation, Band 1). Hellenthal: Strauß.

	Complexity pressure Load pressure Precision pressure Situational pressure Time pressure	
Self-movement	***Self-movement*** is a motor competence resp. a movement category of the MOBAK concept resp. test. It embraces the four motor qualifications resp. test items balancing, rolling, jumping, and running.	
Situational pressure	***Situational pressure*** is based on requirements regarding the variability and complexity of the environmental and situational conditions (Neumaier, 2016, pp. 101–115).	Neumaier, A. (2016). *Koordinatives Anforderungsprofil und Koordinations-training: Grundlagen-Analyse-Methodik* (Reihe Training der Bewegungskoordi-nation, Band 1). Hellenthal: Strauß.
Task formats	The ***task format*** can be open or closed, meaning that a distinction between movement tasks for guided and for discovery learning seems adequate: A movement task for guided learning requires from the learner the motor coping with a given or self-raised movement problem. For the solution of such movement problems, there are in principle different possible solutions that are pre-structured, prefaced or planned by the teacher. A movement task for discovering learning requires from the learner the motor coping with a given or self-raised movement problem. For the solution of such movement problems, there are in principle various possible solutions which can be discovered by the pupils and – depending on the task – can be considered and assessed according to specific criteria (Neumann, 2014, pp. 176f).	Neumann, P. (2014). Aufgabenentwicklung im kompetenzorientierten Sportunterricht der Grundschule. *Sportunterricht, 63*(6), 175–180.

Tasks for learning

Tasks for learning focus on compiling and practicing, on the problem-oriented examination of the learning object (Neuber, 2014, p. 42).

They can be understood as an arrangement of "meaningful, content-related and with regard to the requirements coordinated ***tasks for learning***" (Pfitzner & Aschenbrock, 2013, p. 3). Ultimately, this should allow a "different" content-related learning, in which the learners deal intensively with the learning object.

Tasks for learning are

Characterized by a high level of cognitive activation;

Student- or subject-oriented;

Social interaction within a ***learning task*** is considered very important;

Should have potential for differentiation;

Should leave open the "possibility to develop several alternative solutions and not to reach the goal via a narrow, pre-determined path" (Hößle & Jahnke, 2010, p. 168);

Should build a learning attitude in the learner by addressing his/her area of interest;

Should have a life-world reference, be contextual and situational significant (Pfitzner, Schlechter, & Sibbing, 2013, pp. 101ff).

Neuber, N. (2014). In M. Pfitzner (Ed.), *Aufgabenkultur im Sportunterricht. Konzepte und Befunde zur Methodendiskussion für eine neue Lernkultur* (pp. 41–64). Wiesbaden: Springer.

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Pfitzner, M., & Aschebrock, H. (2013). Aufgabenkultur: Voraussetzungen und Merkmale eines kompetenzorientierten Unterrichts. *Sportpädagogik, 37*(5), 2–6.

Pfitzner, M., Schlechter, E., & Sibbing, W. (2013). *Lernaufgaben für einen individuell förderlichen Sportunterricht.* In N. Neuber & M. Pfitzner (Eds.). *Individuelle Förderung im Sport: pädagogische Grundlagen und didaktisch-methodische Konzepte* (pp. 97–122). Fachtagung „Individuelle Förderung durch Bewegung, Spiel und Sport". Münster, 25.09.2010.

Tasks for performing	***Tasks for performing*** focus on diagnosing and testing school performances (Neuber, 2014, p. 42).	Neuber, N. (2014). In M. Pfitzner (Ed.), *Aufgabenkultur im Sportunterricht. Konzepte und Befunde zur Methodendiskussion für eine neue Lernkultur* (pp. 41–64). Wiesbaden: Springer.
Task types	A competence orientation in primary school physical education ideally suggests the consideration and development of different functions of tasks ***(task types)***: diagnostic tasks, competence acquisition tasks, learning reflection tasks and application tasks (Neumann, 2014, p. 176).	Neumann, P. (2014). Aufgabenentwicklung im kompetenzorientierten Sportunterricht der Grundschule. *Sportunterricht*, *63*(6), 175–180.
Teaching sequence	A ***teaching sequence*** is a sequence of different teaching units (can last for instance several weeks).	
Teaching unit	A ***teaching unit*** is a single teaching lesson.	
Time pressure	***Time pressure*** is based on requirements regarding the available movement time and/or the speed of movement to be achieved (Neumaier, 2016, pp. 101–115).	Neumaier, A. (2016). *Koordinatives Anforderungsprofil und Koordinations-training: Grundlagen-Analyse-Methodik* (Reihe Training der Bewegungskoordi-nation, Band 1). Hellenthal: Strauß.

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Herrmann, C., Gerlach, E., & Seelig, H. (2016). Motorische Basiskompetenzen in der Grundschule. Begründung, Erfassung und empirische Überprüfung eines Messinstruments [Basic motor competences in primary school. Rationale, assessment and empirical testing of a measurement instrument]. *Sportwissenschaft, 46*(2), 60-73. https://doi.org/10.1007/s12662-015-0378-8

Herrmann, C., & Seelig, H. (2017a). Basic motor competencies of fifth graders. Construct validity of the MOBAK-5 test instrument and determinants. *German Journal of Exercise and Sport Research, 47*(2), 110-121. https://doi.org/10.1007/s12662-016-0430-3

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4 ANNEXES

4.1 MOBAK TASK DESCRIPTION CARDS

The MOBAK task description cards are made available for download separately. Please follow this link to download the cards: http://mobak.info/bmc-eu/

4.2 ACTIVITY CARDS WITH LEARNING TASKS

The activity cards with learning tasks are made available for download separately. Please follow this link to download the cards: http://mobak.info/bmc-eu/