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## Supporting physical literacy: a case study of preservice classroom teachers' perceptions

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### Abstract:

Physical literacy precedes and influences the physically active lifestyle, which is a key element of physical education. Especially, primary school physical education has an important task in the formation of the physically active lifestyle because it reaches all age cohorts. Classroom teachers are mainly in charge of implementing the curriculum in the primary schools. Thus, it is important to know more about their perceptions on physical literacy. Our research question was: How do classroom teacher students perceive the ways of supporting physical literacy? The data of this case study consists of four semi-structured interviews, which were analysed using content analysis. The concept of physical literacy, developed by Whitehead (1993), was used to categorize the data. Furthermore, the answers in the categories were combined in themes that the result of responses to the research question. As a key result of this study, it was found that classroom student teachers perceive the ways of supporting physical literacy as follows: 1) *Motivation* can be supported by atmosphere, teaching methods, contents and learning environments; (2) *Physical competence and self-confidence* is supported by experiences of success, developmentally appropriate physical activities and motor skills and 3) *Knowledge and understanding* can be supported by creating meanings and adjusted objectives, evaluation and individualization. Our results suggest that future classroom teachers have a quite broad understanding of supporting physical literacy, which is in line with their broad educational duties that differ from those of subject teachers. The results of our research are especially useful for classroom teachers. An approach that emphasizes personal potential can be one solution to challenges of immobility. In the future, it is important to study what kind of pedagogical practices based on physical literacy could lead to the development of teaching in physical education in primary schools.

**Key Words:** physical literacy, physical education, physical activity, physically active lifestyle, classroom teacher, primary school

### Introduction

The purpose of this research is to study classroom teacher students' perceptions of ways to support the development of physical literacy (PL). PL can be considered as a factor that precedes and influences physical activity. Adequate physical activity has been found to have many positive effects to children's health (Janssen & LeBlanc 2010), mental and social well-being (Bangsbo et al. 2016) and academic performance (Marques et al. 2018). Immobility, in turn, has been found to have opposite effects (see, e.g., Carson et al. 2016; Stiglic & Viner 2019). Therefore, global concerns about the decline in physical activity, increase in sitting time and people who are overweight have been raised (Castelli et al. 2015; WHO 2018).

Whitehead bases PL on three philosophical principles: monism, existentialism and phenomenology. In monism, the mind and body are seen as an inseparable whole. In essentialism, individuals create themselves as they live and interact with the world around them (Whitehead, 2001). According to phenomenology, an individual builds perceptions based on previous experiences. Thus, philosophically, physical literacy develops from childhood to adulthood and old age. (Whitehead 2010.) Half of the PL study rely on monistic/holistic ontology and phenomenological epistemology (Edwards et al. 2017). All three of Whitehead's philosophical doctrines appear in only a small portion of PL research (Martins et al. 2021). However, studies have highlighted PL's links to health, physical activity and academic performance (Edwards et al. 2017) and recent publications have shaped them more clearly into areas of physical, psychological, cognitive and social learning (Martins et al. 2021), which are quite commonly used as objective areas of physical education. This study adheres to the definition of international physical literacy association (IPLA, 2017), in which PL is described as an individual's motivation, self-confidence, physical competence, knowledge and understanding to value and take responsibility for maintaining physical activity throughout life. Therefore, PL is not narrowly committed to motor skills or physical education in schools, although their role is significant. Interest in physical literacy has recently increased sharply and has been utilized worldwide to improve the health of the population. (Whitehead 2010; Pot et al. 2018). Furthermore, as an example the United Kingdom, Canada and the United States have incorporated physical literacy goals into national standards and local curricula (Silverman & Mercier 2015).

Physical literacy contains elements that have been found to be central in physical education. According to Deci and Ryan (2000), in their theory of self-determination, *motivation* is formed through the satisfaction of the individual's three basic psychological needs: autonomy, competence and relatedness. Internal motivation increases when an individual experiences autonomy, has the opportunity to influence actions, experiences relatedness and has a self-perception of competence (Stuntz & Weiss 2010). *Physical competence*, in turn, is considered a prerequisite for participation in physical activity in several studies (Whitehead 2010; Pot et al. 2018). Physical competence is typically seen as adequate mastery of motor skills according to the needs of the individual. *Self-confidence* is linked to physical competence that reflects an individual's confidence in competence, which is a subjective experience and in relation to the individual's goals and values. Thus, an individual may experience physical competence without being particularly physically fit, although the experience of physical competence is typically associated with higher levels of physical activity. Perceived competence has also been found to predict high motivation for physical activity (Chen 2015; Durden-Myers et al. 2018). *Knowledge and understanding* are relevant, as the development of PL is a cognitive process that requires the individual's judgment, reflection and decision-making ability to take advantage of opportunities and overcome barriers to movement. These require the individual to have knowledge and understanding, in order to function in a way that promotes their own well-being (Durden-Myers et al. 2018). Individuals continuously gather information about their past exercise experiences, their current exercise environment and future exercise opportunities, thereby forming different meanings for exercise (Pot et al. 2018). Koski et al. stated that the more children and young people find relevant factors in the social events of physical activity, the more physically active they are. Perceived barriers, on the other hand, have the opposite effect. (Koski et al. 2022.) This poses a clear challenge for teachers to provide pupils with physical activity and knowledge that contribute to the emergence of encouraging meanings.

Exploring perceptions is important because they guide one's actions and choices (Uljen 1989), whether they are scientifically proven or subjective. Classroom student teachers are an important object of research, because as implementers of the physical education curriculum in the future, they influence the physical activity of all primary school children (grades 1–6, ages 7–12 years). In Finland, the national curriculum (2014) defines the goals, content, value base and underlying learning concept of physical education teaching. Physical literacy is not mentioned in the national curriculum but the areas defined in the IPLA (2017) are included in the content and assessment criteria for physical education. More precisely, the objectives are physical, mental and social well-being and the formation of a positive body image. (NCCBE 2014, 273.) Physical education in the primary schools is mainly taught by classroom teachers with a master's degree, and there is an average of 90 minutes of physical education per week. Although the aim of the national curriculum is to guarantee educational equality, it also gives the teacher room to implement various pedagogical solutions. It is good to notice, that even if teachers are aware of the concept of PL, their perceptions of it may be narrow, regardless of teacher education, age or work experience (Essiet et al. 2021). According to Yildizer and Munustrular (2021), physical education training for classroom teachers is insufficient to develop student awareness of the importance of PL for child development. The research question was: How do classroom teacher students perceive the ways of supporting physical literacy? Teachers' perceptions related to physical education have developed through life experiences and formal teacher education and affect their ways of teaching. According to Yildizer and Munustrular (2021), physical education in classroom teacher education is insufficient to develop student awareness of the importance of PL for child development. This study examines the perceptions of students in the final stages of their studies, which can be considered a relatively rarely studied area. Research data will guide the conduct of broader research in the field and later the development of classroom teacher training, curriculum and local practices.

### Material & methods

The e-mail invitation to participate this study was addressed to a group of classroom teacher education students at a university in Southern Finland. Eight students volunteered to be interviewed, and eventually four of them formed the research group. The subjects ranged in age from 21 to 25 years. At the time of the interview, they were at the end of their studies and most (3/4) of them had completed studies specializing in physical education. Their physical exercise backgrounds ranged from casual recreational sports to competitive sports. All interviewees felt that they were currently physically active.

The research material consists of four semi-structured thematic interviews conducted using a remote ZOOM connection, due to the Covid-19 pandemic. The body of the interview consisted of their background information, experiences of physical education lessons' impact on PL and perceptions of supporting PL in physical education. The body of the interview was pre-tested and modified. In the interview situation, the concept of PL was introduced to the interviewees as part of a physically active lifestyle and physical education. The analysis was a theory-based content analysis, in which the material was classified into three categories formed on the basis of the IPLA's (2017) definition of physical literacy. Physical competence and self-confidence were combined and the two other categories were motivation and knowledge and understanding. The analysis of the material was begun with a careful familiarization with the material and subsequent transcribing, which was carried out immediately after the interviews. The degree of accuracy of the spelling was determined, omitting the repetition of words as well as additional filler words, which sought clarity and informativeness for

the data. There was a total of 7 hours and 57 minutes of recorded interviews. Next, the concepts that fell into the categories of the classification framework were extracted from the text. The saturation point of the study was achieved from the perspectives of four students. In the third stage, the concepts in each category were combined thematically. The resulting themes answered the research question, representing the interviewees' perceptions of supporting physical literacy in primary school physical education.

This study has been conducted as a qualitative case study and the research approach is phenomenographic, which provides an opportunity to study individuals' perceptions and experiences of various educational phenomena. According to Uljens (1989), for individuals, reality is always experienced and is made up of human perceptions. Phenomenography can be seen as an approach that addresses issues relevant to an individual's learning and understanding in education environment (Marton 1988).

## Results

The purpose of the study was to discover classroom teacher students' perceptions on supporting children's physical literacy in primary school physical education. Support for PL was examined using a three-part classification framework based on the definition of physical literacy made by the IPLA (2017). The classification body and the interviewees' perceptions are presented in Figure 1.

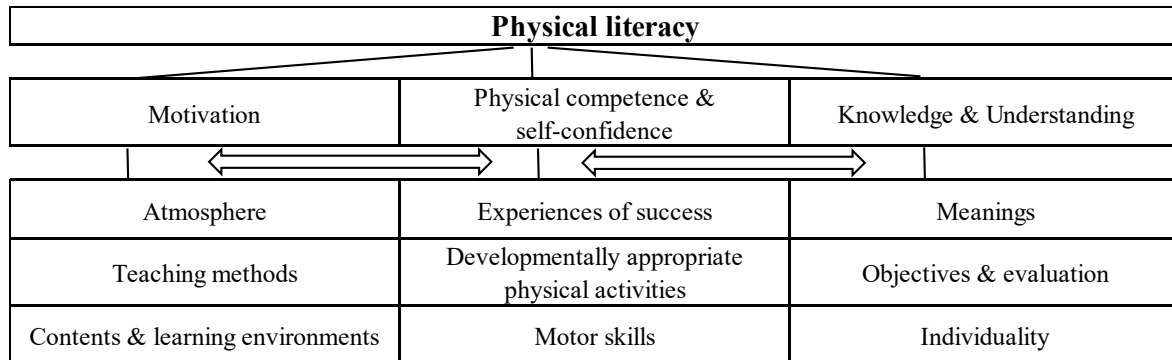


Figure 1. Ways of supporting physical literacy perceived by preservice classroom teachers

### Motivation

Based on the interview material, three subcategories were formed: *Atmosphere*, *teaching methods* and *contents and learning environments*. The interviewees perceived that these are effective ways to promote the formation of positive motivation. Half of the respondents specifically mentioned the importance of promoting intrinsic motivation.

All interviewees considered that the formation of a *positive atmosphere* is influenced by promoting social cohesion. They connected positive atmosphere to the increase of children's perseverance and willingness to strive to learn. However, variation was observed between interviewees' perceptions of the connections of social cohesion. Some of the interviewees associated social cohesion with a safe atmosphere, some with social support and an encouraging atmosphere. The importance of competitiveness as a creator of the atmosphere is twofold. Half of the interviewees cited it as both a positive and a negative factor depending on the individual differences of the pupils.

According to the interviews, versatile *teaching methods* enable meaningful lessons. Teacher-centred teaching methods were seen to enable a sense of security, while pupil-centred teaching methods were perceived to support autonomy and inclusion. Furthermore, pupil-centred teaching methods were found to be important in enabling individualization of teaching. The importance of the feedback proved to be a significant factor influencing motivation. According to the data, the feedback given to pupils should focus on activities instead of the pupils' external nature. Particularly encouraging feedback was seen to be important in creating motivation. According to the interviewees, constructive and specific feedback guides the pupils to develop their own skills and increases their attempts to progress.

*Contents & learning environments* (3/4) were seen as important starting points for motivation. Based on the interview material, the content of the teaching should be based on diversity and it should meet pupils' interests. This is how the physical activities can be connected to the pupil's own world of experience. According to the perceptions of the research group, this would be a way to make the physical activities relevant to the pupils. Ploughing through lots of different kinds of sports was perceived to decrease motivation. Instead, maintaining playfulness and the joy of physical activities in physical education were considered important.

### Physical competence and self-confidence

Based on the interview material, three subcategories of supporting physical competence and self-confidence, were formed: *Experiences of success*, *developmentally appropriate physical activities* and *motor skills*.

*Experiences of success and developmentally appropriate activities* were highlighted in each interview, although their emphases varied slightly. Experiences of success can be achieved through developmentally appropriate and individualized physical activities and teaching methods. If pupils succeed in physical activities, their self-confidence and self-assurance will increase and encourage them to continue participating in the activities. The respondents emphasized the value of vertical differentiation, because tasks that are too easy do not provide students with enough challenge while tasks that are too difficult can easily lead to failure, frustration and fear. Both extremes probably decrease pupils' enthusiasm for that kind of physical activity and weaken their physical and self-confidence.

*Motor skills* were considered very important in supporting physical competence. They were classified as balance skills, locomotor skills and ball skills. According to the interviewees, motor skills enable pupils to participate in everyday physical activities that require mobility and abilities to move safely in different kinds of environments. According to the interview material, sufficient motor skills can guarantee a wide range of physical activities in adulthood.

#### Knowledge and understanding

Three subcategories supporting knowledge and understanding were formed: *meanings, objectives & assessment and individualization*.

The subcategory of *meanings* was constructed by the enjoyment in physical activities, integration of physical activities with other subjects and by benefits produced by the physical activities. According to the data, the benefits and experiences of exercise should be discussed with pupils, considering their age and level of development. According to the interviewees, teacher's task is to verbalize the pupils' development and to bring out the positive meanings of physical activity. Enjoyment was considered important for the continuity of being physically active. On the contrary, a concentration on motor skills of different sports was not felt to provide enough positive meanings for pupils.

*Objectives & assessment* can be used to support knowledge and understanding by setting goals together with the pupils and increasing the diversity and clarity of assessment. According to the data, the assessment should be formative and not be based solely on motor skills and fitness.

*Individuality*, According to the data, physical education should consist of different types of physical activities. It would be important to emphasize that a physically active lifestyle does not require participating in competitive sports. Instead, sufficient every day and incidental physical activities that suit themselves is good enough. According to the interviewees' perceptions, when the content of teaching is sufficiently diverse, the pupils are offered options for finding a meaningful and personally suitable form of being physically active. According to the data, finding and supporting pupils' personal strengths can increase the pupil's understanding of maintaining physical activity.

#### Discussion

The main findings of the study (Figure 1) were:

1. The factors influencing the formation of motivation were *atmosphere, teaching method and contents and learning environments*.
2. Physical competence and self-confidence were supported by *experiences of success, developmentally appropriate physical activities and motor skills*.
3. The ways of supporting knowledge and understanding were *meanings, objectives & evaluation and individualization*.

Researchers are aware of the interactivity of the concepts, as indicated by the arrows in the figure. This also emerges from the monistic premise presented by Whitehead (2010) in which the mind and body are seen as an inseparable whole.

The importance of the atmosphere supporting the motivation of the pupils was highlighted in all interviews. Social cohesion emphasized a safe and encouraging atmosphere. The importance of the atmosphere was also highlighted in an extensive Finnish LIITU study (2019) in which pupils considered the fun and good atmosphere of physical education classes to be important (Lyyra et al. 2019). A safe atmosphere allows pupils to participate in the physical education lessons from their own needs and starting points. In physical education, attention should be paid to grouping and building a positive atmosphere. When incorporating competitiveness into teaching, the results suggest that the teacher should consider the pupils' different levels and abilities. For some pupils, competition increases motivation and enthusiasm to improve performance, while for others or for those who are physically less competent, competition may lead to shameful feelings of incompetence (see Duncan & Kern 2022). Between PL and interscholastic sport intention have been found a significant positive connection (Farren et al. 2021). Pupils should be guided to find intrinsic motivation in physical activity that would give them a genuine desire to be physically active and try their best. According to the results, motivation can also be supported through diverse teaching methods, content and learning environments. According to Castell et al. (2015), the use of a variety of teaching methods leads to diverse experiences and gives pupils time to practise skills. In particular, pupil-centred teaching methods can support pupil autonomy (Chen 2015), which,

according to Deci and Ryan (2000), is a key factor in supporting motivation. Diverse content and learning environments increase pupils' interest and provide an environment in which pupils can succeed.

When supporting physical competence and self-confidence, the importance of successful experiences, developmentally appropriate physical activities and motor skills were emphasized. These three elements appeared to be strongly intertwined in the study. Experiences of success improve an individuals' self-confidence and strengthen their commitment to a physically active lifestyle (Durden-Myers et al. 2018) and strengthen self-confidence in their own abilities and qualities (Robinson & Randall 2017).

When physical education includes experiences of success and meaningful experiences, pupils can be inspired to develop their own skills. In addition, when physical education is based on differentiation, success experiences can be more easily achieved, which explains why the interviewees emphasized its value. It is interesting that physical fitness was not mentioned in the study, although it is considered an integral part of physical competence. Adequate physical activity has been found to have many positive effects on a child's health (Janssen & LeBlanc 2010). Instead of physical fitness, the interviewees strongly highlighted the importance of motor skills, which can be considered a significant observation. Previous studies also support the role of motor skills in maintaining physical activity (Stodden et al. 2008; Lubans et al. 2010). The value of adequate motor skills is important because it enables the individual to have diverse opportunities to be physically active through the whole span of the life.

The data highlighted meanings, objectives, evaluation and individualization. The perceptions of the ways how knowledge and understanding support the development of physical literacy differed among the interviews. This may be explained by the individuality of the cognitive process that guides physical literacy. According to Koski (2017), the meanings of physical activity are key to how pupils react and adopt it as a way of life. According to the results, goal setting and a clear, continuous and comprehensive assessment based on evidence, can support physical literacy and encourage pupils to be physically active. According to Robinson and Randall (2017), knowledge and understanding are based on an individual's consciousness to reflect, describe, evaluate and develop their own movement. It would be important for children to increase their knowledge of different forms of physical activities so that every pupil can find a meaningful way to be physically active. The provision of diverse forms of physical activity has also been found in previous studies to increase pupils' interest in physical activity and to offer a creative opportunity for a variety of physical activities in adulthood (see, for example, Rink & Hall 2008).

When assessing the reliability of a study, the discretion and homogeneity of the study group should be considered. Most of the interviewees specialized in primary school physical education. However, on average, only one in ten students in Finland, completes specialization studies in physical education each year. Furthermore, they are particularly interested in physical education and have an active sports background. Naturally, students' views are influenced by their background, national curriculum and teacher education. On the other hand, the key concepts of research are relatively global. The analysis of the data also proved to be challenging, as the perceptions described by the research group were strongly related to several aspects of physical literacy. On the other hand, Whitehead (2010) emphasizes that the components of motivation, physical competence, self-confidence, knowledge and understanding are strongly interrelated, and a detailed distinction between them is not necessary. Although the size of the study group was small, it allowed for a more detailed examination of the results. Despite the small study group, 62 pages of the document in Times New Roman font, 12 font size, 1.5 line spacing were obtained after transcription. However, the results cannot be generalized to classroom teachers but nonetheless are indicative.

## Conclusions

Physical literacy is not limited to the life stage of childhood; instead, it compasses the whole life cycle. It is an individual's personal journey that is constantly evolving and thus cannot be fully achieved (Robinson & Randall 2017). Physical literacy can be seen as providing a new way to approach the promotion of children's physical lifestyles from their own points of view. The results of the study suggest that cultivating a physical lifestyle requires classroom teachers to understand the totality of physical education literacy. As the contemporary concept of learning emphasizes pupil-centeredness, inclusive teaching and consideration for individuality, it naturally sets the same challenges for physical education. Physical education needs to face the pupils' individual, affective, physical and cognitive needs. In other words, the pupils must be seen as holistic individuals.

The results of the research are especially useful for classroom teachers, who, thanks to their broad pedagogical education and duties, have the prerequisites and potential to pay comprehensive attention to pupils. The results of this study suggest that the concepts and theories underlying physical literacy correspond to the ways in which younger generations learn and live. Indeed, it can be seen as a solution to the challenges of today's immobility as it promotes an individual's personal potential, desire and interest in maintaining physical activity. As physical literacy is still a rarely used concept in Finland to describe the process of supporting a physically active lifestyle, further research is needed, especially in the context of primary schools.

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