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Norwegian upper secondary students' experiences of their teachers' assessment of and for learning in physical education: examining how assessment is interpreted by students of different physical abilities

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Abstract

Teachers' assessment enhances students' learning in many situations in physical education (PE). The present study aims to examine the issue of potential unequal assessment of students due to their different physical fitness in PE in upper secondary school, where the research question is: What experiences do students with high or low levels of physical fitness have of their PE teacher's assessment of and for learning? Individual interviews were conducted with thirteen boys and thirteen girls in the second year in upper secondary school to answer the question. Respondents were recruited on the basis of scores on physical fitness tests (measurement of oxygen uptake). Thirteen respondents scored on the lowest level and thirteen on the highest level of the fitness scale. Two main themes emerged from the analysis, revealing an unequal assessment *of* learning given to the students in the two groups, but a shared, equal experience of assessment *for* learning. Unfortunately, assessment for learning was experienced "rarely or never", and the unequal assessment of learning did not favour the students with low physical fitness, who perhaps need more assessment than the students with high physical fitness. The study contributes new insight into students' experience of assessment due to unequal conditions for learning. The analysis revealed elements that were lacking in the PE teaching and assessment, especially for the students with low physical fitness. Another finding is that few students experienced that they owned their learning process, even though some students experienced to be in a learning environment, wherein the teacher gave them learning-promoting assessment. The study reinforces the finding in earlier research to integrate assessment for learning in theories of teaching in PE, and from this perspective we support further exploration of assessment for learning as well as the concept of assessment literacy.

Keywords: Physical education, assessment of learning, assessment for learning, physical fitness, assessment literacy, upper secondary school, students' experience

Introduction

The significance of assessment in physical education (PE) has been increasingly recognised in PE pedagogies in recent decades (Hay & Penney, 2013). For this reason there has been a corresponding call to investigate students' learning outcome in relation to the teacher's assessment (Leirhaug, 2016). Hay and Penney (2013) define assessment in PE as any action of information collection within educational settings that is initiated for the purpose of making some interpretive judgements about students. The important features in this definition are collecting information and making interpretations. Implicit in these two foundational elements are the assumptions that the information will be collected in educational settings through various methods and that the information collected will be interpreted in different ways depending upon the purpose for collecting the information. It has also been suggested to examine the understandings that students possess of assessment in general and in practice in the framework of assessment literacy (Hay & Penney, 2013). According to Hay and Penney (2013), assessment literacy embraces comprehension, application, interpretation and critical engagement with assessment and refers to capacities of teachers - and students - to engage with and utilise assessment practices and outcomes in a way that optimises learning possibilities.

Scholars, such as Hay and Penney (2013) and Leirhaug (2016), point to assessment of learning and assessment for learning as key concepts in PE assessment, in the same way as scholars point to the same concepts in other school subjects, for example Smith (2007) and Hattie (2012). Assessment of learning is based on information given to the student about

learning that has already taken place, whilst assessment for learning is based on information given to the student about the process for future learning in relation to an analysis of earlier learning (Smith, 2007). This study examines both forms of assessment, especially in reference to students in upper secondary school with high or low physical fitness and their experiences of assessment in PE.

Findings from previous research in PE indicate that school students do not get feedback that is needed to progress effectively in their learning process in PE (Leirhaug & Annerstedt, 2015; Vinje, 2008). For example, using a questionnaire sent to 1486 PE students in upper secondary school in Norway, Leirhaug and Annerstedt (2015) found that approximately half of the students experienced that their teacher did not inform them about the relevant learning goals, which indicates that students perceive unclear criteria in the teacher's assessment, for example when setting grades. Moreover, Sandvik and Bueland (2014) found that PE teachers do not reflect on whether assessment in PE is well integrated in their teaching. Leirhaug (2016) found that teachers may use principles of assessment for learning in their teaching, but their understanding of the concept of assessment for learning is infiltrated by the traditional assessment of learning procedures and grading. Attempts to activate students in self-evaluation processes, for example, were related to assessment of learning and grading more than to promotion of the students' learning processes. Leirhaug and MacPhail (2015) claim that that teachers pay more attention to formulating learning goals and documenting students' goal attainment on the basis of the national curriculum than to using information about the students to give feedback that promotes learning. On the other hand, Leirhaug (2016) argues that teachers need time and support if they are to develop a good understanding of the concept of assessment for learning and its potential significance for learning. To help, PE-specific examples of assessment for learning should be developed. These exemplars could include learning goal descriptors and be provided as part of the pedagogical content knowledge in the

subject, Leirhaug suggests. Moreover, Leirhaug, MacPhail and Annerstedt (2016) found that teachers could discuss and explore the use of assessment literacy in their teaching, but at the same time the teachers' discussion did not reflect the key aspects of assessment literacy (comprehension, application, interpretation and critical engagement). A previous study of PE students in upper secondary school, who are in fact the same students as in the present study, showed that the students with a low physical fitness experienced being rarely 'seen' by their teacher in PE, in contrast to the students with a high fitness, who reported being 'seen' more often (Author et al., 2019). In relation to both assessment of and for learning in PE, Author et al.'s study indicates a difference that favours the students with high physical fitness when it comes to the quantity, timing and quality of the assessment.

A potentially unequal assessment, which is indicated in the study on being 'seen' in PE (Author, 2019), can have unfortunate consequences for learning, especially for the students with low physical fitness. The PE teacher has an important role in acknowledging all students, in seeing them as individuals and supporting their learning processes. Even though it must be pointed out that there might not always be a connection between what the students perceive as assessment and what the teachers say they give as assessment (Nicaise et al., 2006), it is relevant to look deeper into the problem of a potentially unequal assessment, especially when focusing on students with low physical fitness. If high physical fitness are prerequisites for receiving constructive assessment, it will have an impact on many students' learning processes and learning outcome in PE. It is also interesting to look deeper into the problem of unequal assessment from a perspective of an assessment-literate student (Hay & Penney, 2013), who understands how assessment may contribute to learning, engages with the outcomes of the assessment in a manner commensurate with this understanding and becomes owner of his or her learning process. Our study explores the issue of a potentially unequal assessment of students due to their differing physical fitness conditions for learning in PE. To do this, we will

examine the following question: What experiences do students with high or low levels of physical fitness have of their PE teacher's assessment of and for learning?

In the following section, the theory behind the framework adopted for this study will be outlined. In the study, assessment of and for learning is not only related to a potentially unequal experience of assessment, which is indicated in the study on being 'seen' in PE (Author et al., 2019), but related to the terms quantity and quality of assessment in PE (Hattie, 2012). The two aspects of assessment in the study are also related to Pygmalion and Galatea effects in the PE assessment (Rosenthal & Jakobsen, 1968; Hancock et al., 2013). We will also clarify how we define learning in PE in our study. Then the method to collect data from students in an upper secondary school in Norway will be explained followed by a discussion of the two main themes that emerged from the data in relation to assessment.

Theory framework

In previous research on assessment in school scholars argue that by using assessment of and for learning the teacher can ascertain where the students are at any particular point time in their learning process, where they should go and how they can progress (Black & William, 1998; Dysthe, 2008; Hattie, 2013; Slemmen, 2010; Smith, 2007). According to Black and William (1998), assessment of and for learning will engage the students in the activity and increase their motivation to learn, thereby improving learning outcomes. Key elements in assessment strategies are the promotion of the student's understanding of learning intentions and criteria for success, and activating the student as the owner of her or his own learning. Slemmen (2010) claims that expert and relevant assessment from the teacher is an important factor in the

student's learning process, and that students need information about their learning process in relation to specific learning goals. Hattie (2012) argues that teachers must be capable of showing their students that they can 'see' their learning situation and give them feedback so the students will perceive the assessment constructively. Hattie argues, furthermore, that both the quantity and quality of the teacher's assessment are crucial elements in the learning process for the student. He promotes the term 'excellent teaching' in relation to assessment, in which the quantity and quality of the assessment are important factors that will promote the student's learning. In the assessment of and for learning, the teacher has the possibility to give the students information on how they are doing, and to help them to progress towards learning goals.

Hattie and Timperley (2007) claim that the aim of assessment is to reduce the gap between the student's present understanding of a phenomenon in a school subject and the goals the student is expected to achieve in the subject. According to Hattie (2012), there is also an important link between a challenge in a school subject – or the tasks to be solved in for example PE – and the student's perception of his or her own knowledge and skills. Indeed, the more difficult the challenge is, the more likely assessment from the teacher is needed. At the same time, Hattie and Timperley (2007) point out that students who do not grasp what is required to make progress, need more assessment than others in the same learning process.

Learning in PE in this study is defined on the basis of learning goals in the second year of upper secondary school in the Norwegian PE curriculum (The Norwegian Directorate for Education and Training, 2015). Many of the PE learning goals in the national curriculum make it difficult for students with low physical fitness to work effectively and attain the goals compared with students with high physical fitness. Physical fitness in itself is not a PE goal in upper secondary school, but the students with low physical fitness will not have the same physical fitness 'tools' as the students with high physical fitness to attain the learning goals.

For example, one learning goal aims at practicing training methods to promote technique and tactics in team sports and skills in individual sports. Here, physical fitness is a useful ‘tool’ for participation in the classes and may have a positive impact on the learning activity related to training methods. Another goal aims at using basic principles for training of endurance and strength. A third goal is to plan, carry out and evaluate training to develop physical fitness and promote the students’ health. It is also a PE goal to use the nature for training activities. We will argue that high physical fitness will be beneficial for the students when working to attain these learning goals, even though the student will also be able to attain the learning goals without having high physical fitness.

Pygmalion and Galatea effects in the PE assessment

According to Hattie (2012), the quantity and quality of the teacher’s assessment are important factors that will promote learning for the student. However, some special effects in the assessment due to students’ different physical abilities, which we have named the Pygmalion and Galatea effects – may influence on the teacher’s assessment in PE. In this section, we will outline briefly these effects in the PE assessment.

The teachers’ expectations of the students’ learning in PE classes can influence the teacher’s assessment of and for learning. For example, if a teacher expects that a student will not be very physically active or participative in the PE class due to low physical fitness, then the teacher will tend to assess the student’s achievement of learning goals (for example to practice training methods) accordingly low. This effect, which can be called a Pygmalion effect in the PE assessment (Rosenthal & Jakobsen, 1968), means that students with unequal conditions for attaining the learning goals in PE will be perceived, assessed – and also treated – differently

due to their different physical abilities. For example, students with low physical fitness in PE classes may be assessed and treated differently compared to students with high physical fitness when the students are working towards the goal of practicing training methods, as the teacher expects more from students with high physical fitness than students with low physical fitness. As a consequence of the Pygmalion effect, the teacher's assessment for learning may be provided differently to students with low physical fitness compared with the students with high physical fitness.

Here, it is important to mention that previous research has shown that physical fitness and sport performance are measured, ranked and viewed as important skills in PE (Kirk, 2010; Hill, 2015; Tischler & McCaughtry, 2011), even though the PE goals cover more areas than just physical fitness and sport performance. The students' physical fitness and sport skills may then be key factors in the teacher's assessment. The assessment may thus reflect that a high value is placed on physical fitness, and due to this, it will be to the students' disadvantage to show low physical fitness. On the other hand, if PE teaching focuses only on physical fitness and sport performance, the teaching will neglect other learning goals, for example goals related to insight and understanding of training and health.

Students may also act according to their teacher's expectations, and therefore act in ways that lead to self-fulfilling prophecies in the teacher's assessment. This can be described as a Galatea effect in the PE assessment (Hancock et al., 2013). The Galatea effect will lead to student performances that correspond with the aspirations they have in PE and that are also in line with their expectations of how the teacher will likely assess their performances. For example, the students with low physical fitness may adjust their activity and effort to learn training methods according to what they think the teacher expects of them. These students may assume that the teacher expects them to be on a level below the students with high physical fitness. From a pedagogical perspective, the students with low physical fitness will not do

themselves any favours if they regulate their aspirations downward in PE and adjust their activity and effort in the PE lessons to a low level because they think the teacher does not expect more from them. Additionally, it will be unfortunate if students with low physical fitness feel they are not seen by their teacher, as was revealed in the above-mentioned upper secondary school study (Author et al, 2019), which found that the same students with a low physical fitness reported being rarely 'seen' in PE. Students with a higher level of fitness, on the other hand, reported being 'seen' more often and adequately.

The theory of quantity and quality of the teacher's assessment (Hattie, 2012), the Pygmalion and Galatea effects in the assessment, and the indication of a difference that favours the students with high physical fitness when it comes to the quantity, timing and quality of the assessment of and for learning (Author et al., 2019), inform our study and the analysis of the interviews we conducted in our study. We began to explore the issue of a potentially unequal assessment experience of the students due to their differing physical fitness conditions for learning in PE. The next section will present the method of the study.

Method

Respondents

The respondents in the study were twenty-six Norwegian school students who were at the end of their second of three years in upper secondary education. They had previously participated in a research project supplying us with data on the oxygen uptake ($\text{ml} \cdot \text{min}^{-1} \cdot \text{kg}^{-1}$) of sixty-nine

students. The oxygen uptake was measured at the end of their first year in the school (Author, 2017). Oxygen uptake is seen as being the best measure of physical fitness (Åstrand et al., 2003). The sample comprised thirteen students (seven girls and six boys) with a low level of fitness ($42.6 \text{ ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$, $SD = 8.5$), and thirteen students (seven boys and six girls) with a high level of fitness ($56.4 \text{ ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$, $SD = 7.9$). The students in these two groups had significantly different levels of oxygen uptake ($t = -4.28$, $p = .000$). Among the girls with low levels of physical fitness, the average oxygen uptake was $36.7 \text{ ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$, $SD = 6.1$, whilst among the girls with higher levels of fitness it was $50.9 \text{ ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$, $SD = 4.8$. In the group of boys, the average figures were $49.6 \text{ ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$, $SD = 4.6$ for those with low levels of fitness, and $61.1 \text{ ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$, $SD = 7.1$ among those with higher levels of fitness. Compared to the data from the Norwegian Young-HUNT study (Nes et al., 2013), our selected group of students included both 'low' and 'high' levels of physical fitness.

The difference between the two groups was also revealed in the students' self-reports from physical activity. The students with a high level of physical fitness reported participation in high-intensity activities most days of the week, whereas those with a low level of physical fitness reported participation in such activities less than once a week. There was, however, no difference between the groups when it came to whether they were attending academically specialised courses or work training courses in upper secondary school, even though two-thirds of them were in the academically specialised courses.

Data collection

A semi-structured interview guide was developed for purpose of the individual interviews. Questions were constructed in the interview guide about the PE teachers' assessment of and for

learning and what significance these two approaches had for the students. Information was provided about what was intended with assessment of learning, which was explained to the respondents as assessment on what the student had done and the learning that had taken place in the PE subject. For example, the respondents were asked: Have you experienced getting feedback about where you are in your learning process towards learning goals in the subject, and if so, how often and in which situations? They were also asked how they received assessment of learning, for example during or after PE classes. Information was also provided about what was intended with assessment for learning, which was explained to be about what the student should do to improve and continue towards learning goals in the subject. The questions were about the assessment from the teacher to progress in the learning process. For example, the respondents were asked: In what way have you received any feedback that may help to improve in the next step in the learning process? They were also asked about how they received the assessment for learning, for example feedback in the classes or in the meetings they had in connection with grading. The interview guide also included other questions, such as the students' relationship to their PE teacher, their relationship to physical activity and their social connections within the class, which could also inform about the students' experience of assessment of and for learning in PE.

The interview guide was pre-tested on two other students at the same school. The interviews were conducted where it was convenient for the student (most often at school or in the student's home), and each interview lasted between 45 and 60 minutes. Each student was interviewed once. Follow-up questions were used in the interviews, for example to dig deeper into the students' experiences of the teachers' assessment for learning. Here, the students were asked about characteristics of the 'perfect' teacher in PE and how assessment for learning potentially could have anything to do with the term 'perfect' PE teacher. The term 'perfect' was related to the teacher's choice of learning activities, use of teaching methods and assessment practice. It

was also related to the teacher's communication skills and ability to 'see' and recognize the student. The study was approved by the data protection office (NSD) and by the regional ethics committee in mid-Norway, and all of the students agreed to participate in the study.

Data analysis

The interviews were transcribed and analysed using QSR NVivo software as a tool to process, categorize and record the data and findings. The analysis was based on a scientific approach where the students' experiences were viewed as 'subjectively true' (Armour & Griffiths, 2012). The process of analysis followed the steps of content analysis of interviews (Kvale & Brinkmann, 2009), which in brief means that the various statements and reflections from the respondents were coded and categorised into themes that emerged from the material in relation to the research question in the study. The data were transformed into themes by means of taking quotations and short extracts and placing them first in two analytic units entitled 'assessment of learning' and 'assessment for learning' and then in the second step in the themes entitled 'quantity', 'timing' and 'quality' of the assessment. In relation to the research question, nuances in the data relating to students with low or high levels of physical fitness were deeply examined and extracted. The transcripts were read several times and themes were formed through an interpretation process of the students' statements and reflections (Hastie & Glotova, 2012). In the second step of the analysis, we also used the theory of Pygmalion and Galatea as 'glasses' in our readings of the transcripts. The Pygmalion and Galatea 'glasses' led us into a deeper analysis with eyes on especially the the students with low physical fitness and their experiences of their teachers' assessment practice.

In the third step, we reflected further on the themes ‘quantity’, ‘timing’ and ‘quality’ in the context of Pygmalion and Galatea effects and also of the findings from the previous study of the students’ experience of being ‘seen’ by their PE teacher (Author, 2019). In addition, we related the analysis to an overall discussion about assessment for learning and assessment literacy in the research literature (Leirhaug & Annerstedt, 2015; Leirhaug, 2016; Tolgfors, 2018). When we then looked deeper in the data that created the themes ‘quantity’, ‘timing’ and ‘quality’, we revealed an interesting pattern across the three themes, which problematized an issue of equity (or more precisely, a lack of equity), and a shared and equal experience of the assessment. We assessed that this interpretation of the data produced useful insight of the students’ experiences of the assessment, and we decided to work with this interpretation especially in relation to an ongoing discussion in the research literature about assessment for learning and assessment literacy. We also decided to relate our analysis to a discussion of assessment as an integrated element in theory of PE teaching (Hay & Penney, 2013; Leirhaug, 2016).

The analysis and interpretation also followed hermeneutic principles, which means that the analysis led to an understanding of the statements in the interviews on the basis of an interchange between complete understandings and partial understandings, and of understandings which were without contradictions (or inconsistencies) and logical flaws (Kvale, 1983). The interpretation of the two main themes that emerged from the data developed over time, and this interpretation was examined against partial understandings that could argue against the interpretation. We examined if the interpretation had any logical inconsistencies, which we did not find. All four authors took part in the data analysis, and different interpretations were discussed. This contributed to an intersubjective consensus in the analysis and strengthened the reliability of the categorization of the data (Kvale & Brinkmann, 2009). In the discussion of the two themes from the interviews, students with a low level of physical

fitness have fictitious, short names (with four or less letters), whilst the students with a high physical fitness have fictitious names with five or more letters to make it easier for the reader to distinguish between students with high or low physical fitness.

Findings and discussion

The analysis led us to two main themes relating to the students' experiences of assessment in PE: 1) an unequal quantity and timing of assessment *of* learning for students with low or high physical fitness, but 2) a shared, equal experience of assessment *for* learning. Unfortunately, there was rarely or never any assessment for learning experiences, and the unequal assessment of learning was in disfavour of the students with low physical fitness. The analysis will be presented and discussed in more detail below.

Unequal quantity and timing of assessment of learning for students with low or high physical fitness

The analysis revealed that all the students with high physical fitness, in contrast to the students with low physical fitness, experienced that they received much assessment of learning from their PE teacher. "Very frequently", "maybe every lesson," "it happens the whole time", answered, for example, Hannah, Aurora and Ismael. According to the respondents, the PE teachers paid more attention to the students with a high level of physical fitness compared to

the students with low physical fitness. Most of the students with a low level of fitness experienced little assessment of learning from their PE teacher. Expressions such as: “We get a little along the way”, “In fact, I haven’t had much response this year”, and “I can’t say that I have got that much feedback”, from Mia, Ivy and Finn, illustrate this finding. One student with low physical fitness (Lisa) reported having received no assessment of learning at all. Another difference was that the students with high physical fitness received assessment of learning in the PE lessons, whereas the students with low physical fitness mainly received it during their half-year assessment meetings. When asked about the quantity of assessment of learning, Paal answered that “it’s just assessment of learning right at the end of the schoolyear and in connection with grading”.

All the students get grades at the end of the schoolyear, and many of the students reported about assessment of learning from the teacher in connection with grading. The analysis revealed that students with a low level of physical fitness felt they were not the teachers’ priority – or focus of attention – in the assessment. According to many scholars, for example Black and William (1998), Hattie (2012), Hattie and Timperley (2007), Hartberg, Dobson and Gran (2013), and Hay and Penney (2013), this finding may reflect a teaching problem. Several years ago, Black and William (1998) pointed out that much of the relevant research had reached the conclusion that the provision of systematic assessment in the classroom is especially helpful for students with the poorest learning conditions, so it was found necessary to strengthen the assessment for this groups of students. Hattie and Timperley (2007) have claimed that if these students do not receive assessment, they will likely reduce their efforts to learn and will be less motivated.

Moreover, the finding of an unequal quantity of assessment of learning indicates the presence of Pygmalion and Galatea effects in the assessment, especially in relation to the students with low physical fitness. The indication of a Pygmalion effect in the assessment can

be related to Hattie (2012), who argues that teachers tend to take their preconceptions of the students with them into the classroom. If the teacher tends to give students with high physical fitness more attention and assessment of learning than students with low physical fitness, it will be beneficial for the students with high physical fitness, but a disadvantage for the students with low physical fitness. According to the Galatea effect, the analysis indicates that students with low physical fitness may regulate their aspirations downward in PE and adjust their activity to a low level because they think the teacher does not expect more from them. As one of the students (Eva) illustrated in the interview: “Why should I show a lot of effort in the PE classes when the teacher doesn’t see me at all? The students will act in ways that lead to self-fulfilling prophecies in the teacher’s assessment. Our analysis revealed that students with low physical fitness tend to perform in PE classes on levels which correspond with the learning aspirations they have and which are also in line with their expectations of how the teacher will likely assess their performances.

On the other hand, the findings illustrate that the students with high physical fitness receive assessment of learning that helps them to answer a question that is important in the learning process: Where am I (the student) in the learning process now? (Hattie 2012). The findings thus indicate that the students with high physical fitness found themselves to be in a learning environment, wherein the teacher distributed (good) assessment of and for learning to them. Some of the students with high physical fitness underlined that the assessment from the PE teacher encouraged them to make progress. An example of this is from Amy, who pointed out the significance of assessment in this way:

“The feeling I have when I get that kind of assessment [...] it can be in the class when you’ve done something well, and perhaps you get a comment like: Next time you could try to do such and such... [...] I think it’s good that you can use it to make progress.”

However, we point out that, all in all, only a few informants reflected that they received assessment for learning and thereby could answer the following question properly: How do I progress in my learning process? This issue of assessment for learning will be elucidated in the next section.

Rarely or never assessment for learning

Almost all the informants stated that they rarely or never received assessment *for* learning. Cedrik's statement reflects this: "No, only rarely. We don't often get feedback on what we've done, what we're going to do and how we should do it to be better. I would like to see more of that". On the same question, Aurora answered: "It's very rarely given". The answers from Ben and Ada illustrate that they experienced very little assessment for learning: "No, once a month maybe" and "rarely", they answered. This appears to be a perspective that is shared by other students, among them Markus: "If we get some assessment for learning, then most often you take it in and try to use it [...] But we get it so infrequently [...]". Amelia argued that it would be better if the assessment for learning came before the activity in the classes so that they would have the opportunity to work according to it: "The assessment comes too late, so you have no chance to improve. And, so, it doesn't matter what's said."

Our analysis corresponds with research by Leirhaug (2016), who found that assessment for learning is not integrated in PE teaching, even though teachers may think it is. While our analysis also corresponds with the findings in the study by Sandvik and Bueland (2014), who found that students received little assessment for learning compared with assessment of learning, it contrasts, on the other hand, with Hattie's (2012) assumption of excellent teaching.

Hattie claims that excellent teaching arises when assessment for learning is offered and requested. Using both assessment of and for learning enables the teacher to give the students information on how they are doing that can help them to progress towards the learning goals.

Another perspective from the data is that few informants experienced that they owned their learning process. According to both Hay and Penney (2013) and Hattie (2012), the aim of the teaching and assessment should be to make the students active in their learning process to the point where they reach the stage of becoming their 'own teacher' by means of self-observation, self-evaluation and self-teaching. To reach this point, the students must first train to be independent in their own learning process and, in this way, develop an understanding of how to progress. Active participation requires that students know and understand the clear and challenging goals of the lessons, and also that they grasp the connection between the level of the learning activity at the present time and the learning goals. In this way, they can assess what they know and can do, and it is easier to find out what is needed to achieve the learning goals. Hattie points out that the students are dependent on the assessment they receive 'at exactly the right time' in this process to ensure that they move effectively in the direction of the learning goals.

The findings in relation to assessment as integrated in theory of PE teaching

Out of the interview material two main themes emerged that revealed an unequal quantity and timing of assessment of learning for the students with low or high physical fitness, but a shared, equal experience of rarely or never receiving assessment for learning. Unfortunately, the equal experience referred to a lack of assessment for learning. The analysis revealed elements that were lacking in the PE teaching and assessment, especially for the students with low physical

fitness. Moreover, the finding of an unequal assessment indicates Pygmalion and Galatea effects in the assessment, especially when considering the low physical fitness students' experiences of assessment in PE. The analysis also revealed that even though some students with high physical fitness reported that they were in a learning environment, few students experienced being the owners of their learning process.

Hattie (2012) claims that the quantity and quality of the assessment are crucial to the students' learning process. He argues that there should be many and appropriate instances of assessment from the teachers in all school subjects. In this study, our analysis has shown elements that are lacking in the PE teaching and assessment, especially for one group of the students. This finding underlines the need for further research and exploration of useful assessment procedures that promote good learning outcome and enhance learning for students with poor conditions for learning, such as having low physical fitness.

The study also contributes to the discussion on assessment for learning as an integrated element in theories of PE teaching (Hay & Penney, 2013; Leirhaug, 2016). The findings show that nearly all students received assessment for learning only rarely or never. This finding is thought-provoking, but on the other hand not surprising in light of findings from earlier research. Previous research has revealed that even though many PE teachers have started to use assessment for learning strategies, there is still a lack of critical engagement in its possible benefits and consequences (Tolgfors, 2018). Thus, it is vital to improve assessment for learning among practitioners, Tolgfors argues. In connection with this issue, Leirhaug (2016) points out that the time is ripe to take a special look into the teachers' critical attitudes to and reflections on well-entrenched assessment practice in their teaching. This critical attitude and self-reflection will touch on both how the students' background, culture and social differences can affect the assessment work, and how the need to develop a common didactic concept that is suited to assessment in PE can be actualized. Hay and Penney (2013) argue that assessment for

learning must be incorporated in a holistic pedagogic context and must be connected to the subject curriculum (the subject's values, objectives and distinct qualities), as well as to didactic choices and methods in the teaching, including differentiated learning. We support these viewpoints, and add that good local work on the subject curriculum is required to adapt assessment for learning to the teaching strategies and methods in a good way to achieve the important goal of providing assessment in PE that promotes learning. Good local work on the subject curriculum should formulate clear goals for what is to be learned, choose learning activities that are relevant for reaching the learning goals, use teaching methods that promote goal attainment and provide grade descriptors for attainment of the various learning activities in the teaching.

However, it is crucial to avoid a reduction of learning goals to merely performing sport skills, training methods or other practical skills, which often may happen, as this will lead to a list of grade descriptors for goal attainment that comprise only the students' actions. The list will not comprise insight and understanding of for example physical activity, training and health, which are important PE goals in upper secondary school in Norway. The local work on the curriculum should also involve making precise descriptions of the assessment work process, which, for example, will distinguish between assessment of and for learning.

Leirhaug (2016) also maintains that the teacher must be able to interpret collected information about the students in a meaningful way, pass it on to them and participate in an ongoing dialogue on the assessment practice to counteract, for example, social unfairness and potential negative consequences for some students. We agree with these viewpoints, and we will add at the same time that the teachers must see their students in the teaching and make them aware of the learning processes in PE and of the criteria for goal attainment under the subject curriculum. If the students understand the information on the goals for the learning and are aware of what is required to attain them, they will have a stronger focus on the learning

outcome. They will also be less insecure and understand better the assessment of and for learning. However, the teachers have to incorporate this in their teaching practice in a good way. This means, for example, setting aside enough time for informing about and drawing attention to the learning goals. In agreement with Leirhaug (2016), we also see the need to develop PE-specific examples of assessment for learning with learning goal descriptors as part of the pedagogical content knowledge in the subject, and the need to explore the connection between the teachers' assessment practices and the students' learning outcome in well-planned studies.

It should also be addressed that it is not obvious that a student understands and sees his or her's own learning process in PE, nor that the teacher's assessment is fair in all situations. We have no reason to believe that the respondents in our interviews told us false experiences about their teachers' assessment, but a student's interpretation of a teacher's assessment may be based in theory on false premises. No interpretation is without a pre-understanding, and therefore, and even if the experience is the student's property and indisputable, his or her interpretation of the teacher's assessment may be affected by misconceptions about what occurs between the teacher and the student. Previous experience, such as not being seen or being ignored by the teacher, for example, may have an impact on the interpretation of the teacher's words and assessment (Author et al. 2019), and the interpretation process may lead to further misconceptions about the teacher's assessment. An erroneous perception may also be created if the student listens to negative rumours about the teacher, acquires a biased understanding of the teacher based on this and places him- or herself in a difficult position in the social communication with the teacher. Then the foundation for a good communication on assessment and learning may be weaker, and the threshold for misinterpreting the teacher's assessment will be lower.

Finally, we argue in line with Tolgfors (2018) that it will be fruitful to improve assessment literacy amongst practitioners. Although assessment literacy is still an undeveloped idea and

concept (Leirhaug, 2016), it has the potential to support the notion of the teacher's capacity to implement assessment and interpret the outcomes of assessment in a manner that is critically aware and that optimises the value of assessment for all students, also the students with low physical fitness. However, it is important to have clarified learning goals of practical knowledge as well as insight and understandings to promote assessment literacy, as we have mentioned. We will argue that the teacher needs to teach towards all learning goals, not merely practical knowledge and sport performance. Here, it will be important with criteria for goal attainment under a local subject curriculum that correspond with the national, upper secondary PE goals, which are about practice, but also insight and understanding.

All in all, our study contributes new insight into students' experience of assessment due to unequal conditions for attaining learning goals in PE, and our findings illuminate a lack of elements in the PE teaching and assessment especially for the students with low physical fitness. According to Hay and Penney (2013), the teacher skills in their work with assessment require that teachers possess technical capacities for conducting assessment as well as a broader understanding of sociocultural conditions that have impact on students learning in PE classes. Different sociocultural conditions can explain why some students have high physical capacity and fitness - and thus good conditions for attaining the learning goals in PE in upper secondary school - while other students have low capacity and fitness and thus poorer conditions for attaining these learning goals.

Conclusion

In the study, we have examined assessment of and for learning especially with our focus on students with high or low physical fitness. By utilising high or low physical fitness as analytical

tools we found that students with high physical fitness, who perhaps do not need assessment as much as the students with poorer conditions for attaining learning goals (low physical fitness), received more assessment of learning than the other group of students. The findings from the study reinforce the need to integrate assessment for learning in theories of teaching in PE. The thought provoking finding of a lack of assessment for learning corresponds with findings in previous research on assessment in PE, but on the other hand, the finding calls for more research in the field of teaching strategies and assessment procedures in PE. Teachers' development of their understanding of assessment for learning should be examined thoroughly and given more support. There is also a need to develop PE-specific examples of assessment for learning with learning goal descriptors to support and give impulses to teachers, for example about the student's self-evaluation processes as part of the assessment-for-learning strategies. At the same time, further research should explore the connection between the teacher's assessment practices and the students' learning outcome. Finally, we support the idea of further - but critical - exploration of the interesting concept of assessment literacy, and to engage in further research on the concept from the perspective of PE students with poor conditions for participation and learning.

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