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Practical epistemologies in physical education practice

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With a point of departure in a transactional understanding of epistemology, the purpose of this paper is to explore practical epistemologies in physical education (PE) by investigating how knowledge is produced and reproduced in students’ and teachers’ actions in PE practices posted as clips on the user-generated video-sharing website YouTube. YouTube can be understood as a disordered public video archive of (in this case) ongoing PE practices created by both students and teachers. With a transactional understanding, knowing, and in consequence questions of epistemology, can be conceived of as something we do, something practical. In this paper, practical epistemologies in PE are investigated by exploring ends-in-view and habits-of-action in students’ and teachers’ actions in PE practice. The practical epistemologies identified in the study are as follows: (i) knowing by doing correct movements; (ii) knowing by trying; (iii) knowing by imitating; (iv) knowing by praising and cheering; (v) knowing by cooperating; (vi) knowing by creating; (vii) knowing by being changed into gym clothes; (viii) knowing by acting in a certain locality; and (ix) knowing by resisting. The categories represent different ways of how knowledge is produced and reproduced in PE practice, and describe the functions that different actions and actors have in how knowledge is produced and reproduced as well as in the direction this takes.

Keywords: Habit; Ends-in-view; Knowing; Learning; Knowledge; YouTube

Introduction

Several scholars of school physical education (PE) argue that neither students nor teachers seem to have a developed and explicit idea about issues of knowledge and what students are supposed to learn in PE beyond the ‘busy, happy and good’ agenda (Placek, 1983; Siedentop, 2002; Tinning, 2002; Larsson & Redelius, 2008; Quennerstedt et al., 2008). Hence, the conclusion that knowledge and learning are irrelevant parts of the daily practice of PE is sometimes simplistically drawn. However, it can be argued that the claim that knowledge is not part of the practice of PE implies an idea of knowledge and learning that is restricted to the processing of information, concept development and processes of the mind (Rovegno & Kirk, 1995; Sfard, 1998; Macdonald, 2004; Quennerstedt et al., 2011).

At the same time, there has been an extensive critique of how issues of learning are attended to in the practice of PE, where, for example, critical pedagogy, complexity
learning theory or situated learning theories have been put forward as alternative pedagogies in order to deal with the lack of attention paid to knowledge and learning (Wright et al., 2004; Light, 2008; Kirk, 2009; Jess et al., 2011). In this critique, different pedagogical ideas and theories of learning are discussed as tools that can be used in PE to clarify and enhance students’ learning opportunities in PE practice.

In order to go beyond the idea of knowledge restricted to information processing, this paper draws on John Dewey’s re-understanding of knowledge and epistemology and also on his transactional methodology in which he rejects ultimate, universal truths or absolute knowledge (Dewey & Bentley, 1949/1991). Instead, knowledge is regarded as something practical, something that ‘we use in order to live, work and act in the world’ (Biesta & Burbules, 2003, p. 69). In relation to PE, the transactional perspective can be used as a framework to understand how knowledge is developed in PE practice through teachers’ and students’ actions in PE practice. In this way, different knowledge and various types of knowledge can be regarded as valid, useful or ‘true’ in PE because students and teachers act as though it is true. In this vein, Wickman (2004) reminds us that ‘the meaning people make is always imbedded in a practice with its aims and the socially shared meanings needed for participating’ (Wickman, 2004, p. 327). Consequently, through teachers’ and students’ actions a practical epistemology that can be seen as an assemblage of individuals participating in socially shared practices takes shape (Wickman, 2004). In a transactional understanding of epistemology, knowing is accordingly not exclusively something within the minds of human beings, but is instead something practical, something that we do (Wickman & Östman, 2002)—hence the term practical epistemologies.

In this paper, practical epistemologies in PE are explored using video clips on the public video-sharing website YouTube. YouTube is the largest user-generated social network site where different kind of video content is visibly reflected in a public arena (Cha et al., 2007) and can be understood as a practice in which users publicly create and negotiate different social networks (Lange, 2008; Quennerstedt, 2010). With a point of departure in a transactional understanding of epistemology, the purpose of this paper is accordingly to explore practical epistemologies in PE by investigating how knowledge is produced and reproduced in students’ and teachers’ actions in PE practices posted as clips on YouTube.

**Practical epistemologies in PE**

Traditionally, epistemology has dealt with questions about what knowledge is and how knowledge is developed. Questions to be addressed have often been related to the acquisition of knowledge as gaining ownership of a self-sustained external reality (Sfard, 1998), for example, what students in PE learn about the anatomy of the body or about techniques in sport (Macdonald, 2004).

Wickman (2006) discusses this as a dualistic pursuit of how we can get reality right in terms of a limited cognitive view that is mainly concerned with claims of truth. This pursuit is based on a metaphysical division between an inner mind and an outer
reality (Dewey, 1916, 1929), and in consequence, also a metaphysical division of mind and body. Dewey (1928) argues that:

The trouble is that instead of taking the act in its entirety we cite the multitude of relevant facts only as evidence of influence of mind on body and of body on mind, thus starting from and perpetuating the idea of their independence and separation even when dealing with their connection. (p. 7)

Dewey’s transactional perspective of knowledge stems from a critique of predetermined metaphysical dualisms. According to Dewey (1916), it is in these divisions that the epistemological problem of individuals’ capacity to have a cognitive relation with the world occurs. The consequence of this so-called spectator theory of knowledge (Dewey, 1929) is that knowledge, in order to be considered as knowledge, corresponds to a true picture of reality that is only accessible from a position outside language—a ‘God’s eye view’ (Rorty, 1991). Dewey argues that:

Wondering at how something, in experience could be asserted to correspond to something by definition outside experience, which it is, upon the basis of epistemological doctrine, the sole means of ‘knowing,’ is what originally made me suspicious of the whole epistemological industry. (Dewey, 1941, pp. 179–180)

Instead, Biesta (2007) argues that:

The most important aspect of Dewey’s theory of knowing lies in the fact that it is not premised on the dualism between immaterial mind and material world—a dualism that has been the framework for modern epistemology at least since René Descartes divides reality into res cogitans (the knowing ‘stuff’) and res extensa (the ‘stuff’ that occupies space). (p. 12)

With a transactional understanding, epistemology can be seen as both a part of and a consequence of human practices (Rorty, 1991): practices where knowledge and truth is produced and reproduced. In this way, knowledge, the knower and the environment are mutually dependent, in what Dewey and Bentley (1949)/1991) refer to as the transactions of ‘organism-in-environment-as-a-whole’ (p. 103). Knowing, and in consequence knowledge and epistemology, is accordingly something that we do, something practical (Biesta & Burbules, 2003), or as Sfard (1998) argues that the idea of knowledge as acquisition of concepts as self sustained entities, as private possessions, can be replaced with ‘the noun knowing, which indicates action’ (p. 6). In this sense, knowledge is not about getting reality right, but instead a question of acquiring habits-of-action for coping with different aspects of real (Rorty, 1991). As Rorty (1999) acknowledges, ‘on this view, to say a belief is, as far as we know, true, is to say that no alternate belief is, as far as we know, a better habit of action’ (p. xxv).

Following Dewey (1938, 1941), in this paper, habits-of-action are understood as teachers’ and students’ manners or dispositions to act in one way rather than another in terms of assemblages of spoken and embodied iterations in PE practice. An example of habits-of-action in PE could be how students start playing a game of basketball with its rules, lines, baskets and techniques and also assume the ‘right’
moves and postures, without further instruction from the teacher and simply because basketballs are provided in the gym.

With Dewey’s transactional perspective, truth is not dealt with in a universal sense but as part of our actions, and what is true in one situation is defined by individuals’ participation in that sociocultural practice. For example, the meaning that a teacher, a student, an athlete, a parent, a politician or a researcher assigns to sport as a practice may be very different. In this perspective, truth is always contextual and temporal and something that is temporarily stable: what Dewey (1938) calls a stable outcome of inquiry. For Dewey (1938, 1941), this inquiry begins in an indeterminate situation, a disruption of habit, and is resolved, settled or rendered determinate by a specific set of operations. ‘The resolution of an indeterminate situation is the end, in the sense in which “end” means end-in-view and in the sense in which it means close’ (Dewey, 1941, p. 180), and in the process of inquiry both the knower and the known are constituted.

According to Dewey (1938, 1958), ends-in-view can be seen as plans of action that direct and redirect further action and allow participants in a certain event to act intelligibly. In consequence, ends-in-view shape the course of the event, or as Garrison (1999) states that ‘ends-in-view allow us to see where we are going’ (p. 293).

If our experiences of a certain event are confirmed and not overturned by further experience, and if inquiry is no longer necessary, the situation is satisfactory because it is stable through our habits-of-action (Brandom, 1976; Haack, 1976). In this way, things are made true in the functions they have in a certain practice. This can be exemplified by how students unhesitatingly relate to scientific biophysical knowledge about the human body as true knowledge in PE when talking about movement and also when asked what a certain activity feels like (see Öhman, 2010).

In this paper the ambition is not to explore individual students or individual teachers, but rather teachers’ and students’ collective actions in PE practice. In cognitivist studies actions are, as a contrast, often investigated to explain what is going on in the mind. However, in using Dewey’s transactional methodology, theory is not used to explain intentions or mental structures of the students in PE practice. Instead, the results of the analysis are described and categorised from the functions the actions constitute in the investigated event (Quennerstedt et al., 2011).

**Method**

With a transactional understanding, knowing, and in consequence questions of epistemology, can thus be conceived of as something we do, something practical (Dewey & Bentley, 1949/1991). One way of exploring important aspects of knowing is to pay attention to what students know by investigating their habits-of-action (Almqvist & Östman, 2006; Semetsky, 2008). This includes analysing what is taken for granted in PE practice and how habits are upheld in relation to the purposes the participants enact or ascribe to the event as ends-in-view. In this paper, practical
epistemologies in PE are, in line with Dewey (1938, 1941), investigated by exploring ends-in-view and habits-of-action in students’ and teachers’ actions in PE practice as they appear in clips on YouTube. Practical epistemologies in this sense become an amalgamation of how and what.2

Methodological considerations

YouTube is the largest user-generated video-sharing website, where different video content is presented on the Internet and constitutes what Burgess and Green (2009) call a co-created site of participatory culture (see also Jenkins, 2006; Fernback, 2007; Kendall, 2008; Lange, 2008). Drawing on Burgess and Green (2009), Quennerstedt (2010) argues that YouTube can be understood as a disordered public video archive of (in this case) ongoing PE practices created by both students and teachers.

This study is part of a larger project with a selection of clips based on a search of YouTube in October and November 2009 using English and Swedish search terms (Quennerstedt, 2010). The search terms used were ‘physical education’, ‘physical education lesson’, ‘physical education class’, ‘pe class’, ‘phys ed’, ‘idrott och hälsa’, ‘idrott skola’, ‘idrottslektion’ and ‘gympa’. The basic idea was to obtain a diverse sample of video clips of ongoing PE practices. The searches gave over 8000 hits in total, and the principles of selection for the sample were that the searches for each term be sorted for relevance and that the first 200 clips of each term be viewed. Clips that were commercials for schools, clips showing before and after the PE lessons, clips showing students ‘funny videos’ about PE and instructional videos for teachers were not selected, since the idea was to include videos that said something about an ongoing PE practice. Finally, video clips of less than 20 seconds and clips of poor visual quality were not included in the sample.

The sample used in the larger project consisted of video clips from 285 PE lessons from 27 different countries. Students posted 219 of the clips and teachers 66. The total viewing time of the video clips was approximately 12 hours. In this more in-depth study, however, a smaller sample was used. In this analysis, YouTube clips from 50 of the PE lessons from 12 countries were employed.3 The criteria used for selecting the clips from the larger sample included audio and visual quality and length. However, the smaller sample can also be seen as representative in relation to the larger sample in terms of geographical spread and main activities4 (Quennerstedt, 2010).

Burgess and Green (2009) argue that YouTube can make sense when it is understood as something that people use in daily life as a way to actively communicate (cf. Jenkins, 2006; Kendall, 2008). As an empirical data source for exploring PE practice, YouTube can, in line with Beer (2008) and boyd and Ellison (2008), be seen as a site where teachers and students share video clips mainly with pre-existing social networks. Lange (2008) further argues that young people’s sharing of clips on YouTube is mainly directed towards friends and relatives, distant
or close, as a way of showing something about what is happening in their lives at the moment.

In this study YouTube was used as a ‘disordered public archive’ of PE practices, which means that the context of the clips is of essence in order to establish credibility and quality of the data. In the study the ‘user channel’ on which each clip was posted was identified and reviewed, and revealed that most teacher-posted clips in the sample were clips directed either towards other PE teachers as illustrations of PE lessons or towards their own students. The student clips, supporting Lange’s (2008) argument, were mainly ‘diary entries’ in terms of my-typical-day-in-school clips, displaying an event in school important enough for the students to film and important enough to post on their user channel.

The web-specific criteria used to establish the credibility of the clips was firstly to review the description and the tags of the clip and the comments posted in relation to the clip. Secondly, the context of the clip on the ‘user channel’ where the clip was posted was reviewed in order to determine whether the clip was posted as a diary entry together with other similar my-day-in-school clips, or whether the clip was posted in connection with clips of, for example, a more ‘humourist’ kind. Thirdly, the clips were reviewed if a teacher was present and/or teaching in the clip, as well as regarding the reasonability of the activity in the clip in relation to previous research within the field. In this way, the video clips used in this study, posted by both students and teachers, can be seen as credible reports of ongoing PE practices displaying similarities to that of participatory visual research saying something about people’s everyday experiences and practices (Kindon, 2003; Pink, 2007; Lorenz & Kolb, 2009).

Using YouTube for data collection involves particular ethical issues related to privacy, confidentiality and informed consent (Frankel & Siang, 1999; Ess, 2007; Burnett et al., 2009). Some scholars argue that data derived from the Internet is public and can therefore be used in research without acquiring informed consent (NESH, 2003). On the other hand, Elgesem (2002) and Lange (2008) remind us that in Internet research there is a blurred distinction between the public and the private sphere, particularly challenging when the clips reveal vulnerable information and when researchers record ephemeral information. The Association of Internet Researchers’ Ethics Working Committee (2002) in this matter argues that ‘the greater the acknowledged publicity of the venue, the less obligation there may be to protect individual privacy, confidentiality, right to informed consent etc.’ (p. 5).

The ambition in this study is not to explore individual students or individual teachers, but rather teachers’ and students’ collective actions in PE practice. Consequently, the events studied in the video clips can be regarded as a public display on YouTube of an already public practice, namely PE. The practice studied is also an everyday practice that most students are used to, where vulnerable information linked to individual students is seldom exposed, at least not in the clips included in this project (see Quennerstedt, 2010).
Data analysis

The analysis of the YouTube video clips has been conducted in three steps. The first step is to explore ends-in-view in terms of what stands out as the purpose of the event in the investigated video clips in the actions of the participants. This is explored by analysing the direction of teachers’ and students’ actions and by focusing on that which seems to be taken for granted and shapes the course of the event. This can sometimes be the purpose of the lesson, such as learning a specific sport, but can also be how students act in relation to purposes originating outside the institutionalised practice, for example, body ideals in society, or physical movement in music videos.

In the second step of the study the focus is on habits-of-action in terms of how students and teachers act in ongoing PE practices to establish and maintain habits in relation to the ends-in-view in the certain event. According to Dewey (1958), habits are transactional, ‘... always of, from, toward situations and things’ (p. 238). The habits-of-action in the study are attended to as iterated manners of action that are taken for granted in the investigated clips (cf. Almqvist & Östman, 2006). As already indicated, an example of this is how students start playing a game of basketball, with its rules, lines, baskets, techniques and the ‘right’ moves and postures, without further instruction from the teacher, simply because basketballs are provided in the gym.

Through the exploration of how students and teachers act in ongoing PE practices in terms of ends-in-view and habits-of-action, the third analytical step explores and describes practical epistemologies in PE practice. The results of steps 1 and 2 can be regarded as part of and the result of individuals participating in socially shared practices. Hence, the relation between how and what makes the description of practical epistemologies in PE practice, presented in the Results section of the paper, possible.

Results

The practical epistemologies identified in the study are the following: (i) knowing by doing correct movements; (ii) knowing by trying; (iii) knowing by imitating; (iv) knowing by praising and cheering; (v) knowing by cooperating; (vi) knowing by creating; (vii) knowing by being changed into gym clothes; (viii) knowing by acting in a certain locality; and (ix) knowing by resisting. The categories represent different ways of how knowledge is produced and reproduced in PE practice, and describe the functions that different actions and actors have in how knowledge is produced and reproduced as well as in the direction this takes.

Presenting the practical epistemologies separated in this way can indicate that there is only one end in view or a certain habit of action in each lesson or video clip. Instead it is the complete opposite. The different ways of how knowledge is produced and reproduced are in many ways layered and complex. Rather, the different ways are intimately connected and intertwined with each other.
Each practical epistemology is further identified on the basis of several clips, and the transcripts from the data are presented in terms of illustrative stories from the YouTube clips in order to offer reasonable illustrations of the analysis of the entire data-set.

**Knowing by doing correct movements**

Knowing by doing correct movements is about movement according to a correct norm for how the movement is to be carried out. In the studied events, the end in view in terms of correct norms relates to sport, motor development, fitness training or dance through knowledge in and of specific movements, knowledge in and about physical training, knowledge in and about sport, and knowledge in specific activities. In the study, knowing correct movement is performed in students’ and teachers’ actions through correction, following rules and demonstration.

In several of the clips teachers correct and help students to pay attention to the ways in which they are supposed to move:

Students are doing different fitness exercises in a circuit-training course. In one segment the teacher is instructing two students how to stand with good balance and their feet wide apart when throwing a medicine ball to each other. After that the teacher corrects two students how to lift ergonomically correctly when they lift each other in turn so that one student sits on the other student’s shoulders. (Sweden)

In this lesson the teacher corrects the students to perform the exercises more effectively or more safely with regard to the purpose of fitness training and knowing lifting ergonomics. Another example is a UK lesson in which the teacher watches students doing leapfrogs over a vaulting horse. In the clip the teacher corrects and helps the students to do a correct jump. In this context the learning of a specific gymnastics exercise is the end in view.

Furthermore, students sometimes correct each other. In a clip from a school in Singapore, students work in pairs doing weightlifting and correct each other’s way of lifting in relation to how weightlifting as a sport is supposed to be executed:

Student one is doing a power clean lift with a barbell. Student two is standing in front of student one, watching, correcting, instructing and showing student one how to improve his lifting. After the correcting instruction, student one changes his way of lifting and improving his technique in relation to weightlifting as norm. After a couple of minutes the students change places and student two lifts and student one corrects.

In other clips, the *following of rules* of specific activities, often in terms of the specific rules and techniques of a certain sport, is performing certain knowledge. Following rules is something that students do as a habit of action, here illustrated by Japanese children playing volleyball with balloons:

Students aged 7–8 years are playing ‘volley ball’ 3 on 3 with balloons on a badminton court. The students hit the ball 2-3 times within the team before hitting
it over the net. They are using correct volleyball techniques, even if this is not necessary when playing with balloons.

If the balloon has not crossed the net after three strikes, or if the same student hits the balloon twice, the game stops. Also, when the balloon is about to land outside one of the badminton lines on the floor, the students let the balloon go.

In a particular event the balloon is about to land outside the court, but since a balloon is a balloon this is hard for the student in question to predict and the balloon lands inside the court. The student then demonstrates disappointment at not ‘saving’ the balloon.

In this illustration it is clear that the rules of volleyball apply, even if the activity in itself is school-adapted. In this way, the rules of the activity become the end in view for the students and thus regulate the correct way of acting. At the same time, rules and techniques from competitive activities seem to be taken for granted, as is proficiency in volleyball. This is also visible in play and games in terms of when one is eliminated, or in students’ movement patterns, gestures and ideas about a specific game. The same applies to certain forms of movement, where techniques and exercises in, for example, athletics or gymnastics become the regulating norm. It is thus not experiences of jumping or rotating as a basic movement quality that is on the agenda, but rather doing a correct somersault or a correct long jump in relation to an end in view of learning and being good at exercises in gymnastics or athletics.

Another way of producing and reproducing a correct way of moving is to demonstrate the movement as a teacher or asking an able student to show the correct way of doing the movement. In the following UK clip, students are jumping over a vaulting horse using a springboard:

The teacher is helping the students over the vaulting horse, instructing them as they jump and cheering them on. The students do not seem to understand the instructions.

Student 1: Show us how you do it (...) you do it
Student 2: We can keep on filming
Teacher: (hesitantly and inaudibly)

The teacher again hesitates, but eventually demonstrates a leap frog, and all the students cheer.

In this clip the students urge the teacher to show them how to do the jump correctly. They seem to expect that there is a correct way, and the end in view is to try to perform the move in the correct way. In other clips the teacher also uses herself or himself as a role model during the event to demonstrate correct ways of performing a certain movement in, for example, fitness training or ball games.

Through correction, following rules and demonstration, the ways of conducting movements and performing the different activities are habitually accomplished in the clips with knowing sports, training fitness and developing motor ability as the end in view. In the clips there are accordingly correct and incorrect ways of moving. In addition, there is a norm to be valued against in terms of good/bad, able/unable, knowledgeable/unknowledgeable or skilled/unskilled. Certain ways of moving thus become privileged and taken for granted, and the students are guided towards certain patterns for how to move.
Knowing by trying

Knowing by trying is about experiencing different activities on offer in PE practice as ends-in-view without any explicit requirement of skill, ability or learning. Knowing about the activity is in focus here, rather than knowledge in the activity, i.e. familiarity rather than knowledge. In the clips this is particularly obvious in sporting activities and in various ‘odd’ activities. Trying lacrosse, shot-put, handball, self-defence and golf is as reasonable a purpose in PE practice as trying paintball, roller skating, square dance, excergames or climbing trees.

In the clips, trying different activities in a kind of smorgasbord approach appears as a habit of action. This is visible in the many different activities offered that students ‘just do it’ and in the attention that teachers give to trying rather than performing, knowing or learning the activity:

In the gym, high jump equipment is set out with the addition of cones on the floor to help students run in a semi-circle in the run-up to the landing bed. This looks like sport (high jump) for real, although the arrangement of the equipment restrains the jump because it reduces students’ running speeds. In the way they are arranged the cones make the students miss the landing bed. When the students jump they do so, but with little resemblance to an actual high jump, and the teacher evaluates the students as they try, not if they clear the bar or for any form of technical ability, but because they are trying.

Teacher: Ready... one – two – three

The student runs towards the bar and jumps with both feet together and throws herself at the bar and lands on her stomach on the landing bed.

Teacher: Gooooooood! (UK)

In many of the clips there is a correct way of doing thing, for example, a high jump, a specific dance or a somersault. The students are not corrected or instructed in relation to this norm, however, but are instead commended for trying.

Another illustration of this is a lesson with golf as the activity:

Several students are on the golf range hitting golf balls. Some students are very good golfers. One male student especially is using an excellent golf swing, while others students are busy trying to hit the ball, quite unsuccessfully, with, from a golfing perspective, poor technique. (Sweden)

In this clip it is obvious that the students have not been given any instructions about how to hold a golf club, stand or swing the club. Instead the students are ‘just’ trying golf and trying to hit the ball. Doing things properly, or skilfully, does not seem important. What counts is that they try. The students who perform the activity successfully already seem to have the necessary skills. In these instances it is not about learning or knowing the activity, but rather to do with experiencing and being acquainted with the activity through multi-activity programmes. Trying and experiencing different activities in this way becomes the end in view in PE practice.
Knowing by imitating

In the investigated YouTube clips, it appears that imitating movements and ways of moving is a reasonable way of establishing and upholding habits in PE practice. In the data, the teacher instructs and demonstrates and the students habitually try to imitate the movements the teacher demonstrates. This is most obvious in relation to learning a specific dance or athletics, or in doing fitness training, aerobics and occasionally ball games as the end in view:

The teacher is demonstrating step up/aerobics. The teacher begins a certain move, like stepping up and down on the step up board while using the arms in different ways. It is obvious that this is the first time the students have seen this as they initially don’t know what to do. One after the other the students start to follow the teacher’s moves, and when most students can imitate the move the teacher continues with the next exercise. A couple of the students in the background are not able to see what the teacher is doing, but the teacher doesn’t notice or take notice of this. After a couple of minutes the students at the back start to fool around, dance, giggle and randomly walk up and down the step up board without the teacher reacting. (UK)

In several clips the teacher acts rather like an entertainer, as a role model of how to move, while the students act as passive imitators. The students listen to instructions, watch the teacher and try to copy the teacher’s demonstration of the specific movements they are expected to learn in that specific context:

Lacrosse is played and the teacher is playing in one of the teams. He is running, helping, passing, encouraging both teams, shouts pass the ball to NN, and is centre stage as a role model of an active, co-operative, positive player. The students seem to imitate the teachers’ ways of acting on the field, and passing the ball around is privileged over winning the game. (Sweden)

In another lesson the students are supposed to sit still on individual dots on the floor, while the teacher demonstrates approximately 20 different fitness exercises in a circuit-training course. After that the students start to imitate the different exercises and try to copy the teacher’s demonstration in order to fulfil the purpose of doing the course effectively in terms of fitness training.

Knowing by praising and cheering

Praise from teachers and cheering from fellow students are also ways in which students’ actions are directed towards specific ends-in-view in PE practice. Praise shows the students what is important, which actions are good and valued in PE practice, and also which knowledge to pay attention to. In the investigated clips, teachers praise students if they do movements correctly, for example, in relation to learning dance or specific gymnastics exercises, if they improve their performance, or if they put effort into the activities during the lesson in relation to giving their best as the end in view. In a US lesson, the teacher praises the 8- to 10-year-old students in
different ways during a fitness and motor development workout in which students work in pairs doing different exercises with and without equipment:

During the fitness exercises the teacher shouts great job, great job. He supports and helps students struggling with the exercises. He calls out cheerfully and pats them on the back. The teacher ends the lesson by doing high fives with all students.

In this clip the teacher, through praise, guides the students towards seeing the importance of putting some effort into the different fitness exercises. It is not the students’ abilities that are in focus here, but rather their physical effort in relation to their individual abilities.

On the other hand, in a gymnastics lesson in which students are doing different jumps on a springboard, the teacher also shouts ‘Yeeees, Very good. Very good’ or something similar either when the students do the jump correctly or if the student improves the jump from one jump to the next in relation to knowing a specific gymnastics exercise. Here the teacher’s praise guides the students in relation to their improved performance in a specific gymnastics exercise.

The cheering often comes from other students in terms of encouragement, appeals, pep ups, applause and comments. In clips in which cheering occurs, it is mostly in relation to efforts and performances in sport, for example, scoring in soccer or running towards a base or catching in softball. Here the actions show the importance of performance and ability in sport, and the end in view becomes competing in and winning the game. In some cases there is also pepping and cheering from other students in relation to physical effort during fitness training.

Knowing by cooperating

The analysis shows that knowing how to cooperate seems to be a relevant part of PE practice. Cooperation in this case is students working together to attain a common goal. One common goal in several of the lessons in the larger data-set (Quennerstedt, 2010) is working together to defeat another team as the end in view in, for example, relays. An illustration of this comes from a Swedish PE lesson:

Two teams are competing. One person in each team holds a ball between her/his knees. In this position the students jump ahead and are supposed to hand the ball over without the use of their hands. The students try different techniques in handing over the ball, while students standing on the sidelines make comments. The relay starts with the teacher shouting ready-steady-go, and the students cheer and discuss how to do the handing over more quickly in order to beat the other team.

Student 1: It must be easier to put your leg the other way.

Student 2: But you can’t do it like that. What is he doing? It looks weird.

During the relay the students also try different ways of handing over the ball more effectively.

Working together to attain a common goal is also obvious in dance assignments, especially if the students are to do a dance display in front of an audience as the end in view. Here the activity is directed towards creating and displaying dance or
movement activity to music in a group. The displays demonstrate well-rehearsed, choreographed and well-synchronised performances to music, and performing the actions with synchronicity seems to be more imperative than the quality, precision or creativity of the individual moves. The formation of the commonly created and rehearsed display in this way indicates cooperation in the preparation stages of the studied event.

However, knowing by cooperating is not necessarily involved in all the activities in which students do things together. For example, in ball games it is not the cooperation aspect of the game that is observable as the end in view in most of the clips, but rather individual technical efforts. The end in view is show rather than team performance, and attitude and expression rather than results. However, in one clip the common goal of cooperation is also obvious in a ball games lesson in which the teacher joins in a game of lacrosse together with the students. The teacher here acts as a role model for how to act in relation to teammates:

Lacrosse is played and the teacher participates and tries to create a ‘good’ game by passing several students, encouraging and moving to help students make easy passes. In the game the passing becomes privileged over the aim of winning the game. In one event a student stands right in front of the goal with no-one from the other team between her and the goal. She then chooses to pass the ball back to a team-mate instead of scoring a goal. (Sweden)

This illustrates how working together to attain a common goal of playing together as the end in view produces and reproduces knowledge in and about sport in a different way than sport performance and winning the game.

Knowing by creating

In the studied YouTube clips there is only a limited display of experiential and creative aspects within PE practice. However, in dance assignments and displays these aspects can be identified to some extent. Judging from the larger data-set, dance displays are a relevant part of PE practice and are mainly directed towards creating a dance or movement activity to music, often in groups, and performing the creation in front of an audience composed of other students and the teacher. The actions of the performing students as well as those of the onlooking teacher and students are in line with ‘a show’—a stage, audience, cheering and applause (Quennerstedt, 2010). Here, the finished show becomes the end in view.

The creative aspect of knowledge production and reproduction lies in the creation of the programme from which the students habitually gain inspiration for movements such as the salsa, hip hop or martial arts or for re-actualising styles of movements and specific moves from the world of music or from films, for example, Michael Jackson, ‘boy bands’, Rocky or Pulp fiction. Under the heading ‘This is an assignment we did for PE. Do your own dance. Well ... see what happened’, four boys perform individually first of all and then as a group:
The first boy performs free moves to modern pop music. After that a boy does boxing moves with clear inspiration and music from the movie Rocky. The third boy attempts Michael Jackson inspired moves to ‘Billy Jean’, and finally there is an imitation of a song and dance act American-idol-style. In the final part of the display the four boys are involved in synchronized, sweeping movement boy-band style with a lot of feelings involved. (Sweden)

How the creation process leading up to the display is carried out cannot be identified in most of the clips. The direction of the creative process, however, is obvious. In those clips in which the process is visible, the creative aspect lies in the rehearsing of the final product, the show. In their creations the actions of the students are for the most part well-rehearsed, choreographed and well-synchronised. The movements are often composed of simple gross motor steps in time to the music. Performing the actions with synchronicity seems to be more imperative than the quality, precision or creativity of the individual moves. This is visible in the communication between the students during the display in that they often look at each other to confirm their movements in terms of coordination and synchronicity. In the clips, the students’ creativity seems to lie in the formation of the common display as the end in view.

Knowing by being changed into gym clothes

An important part of PE practice and participation in PE seems to be the changing from ordinary clothes into gym clothes. There also seems to be certain norms for what kind of gym clothes the students put on, most often clothes that are suitable for sport or physical exertion. This changing of clothes and the type of clothing the students put on produce and reproduce knowledge in the activities offered. The taken-for-granted end in view thus becomes the sweaty student, and this performs what students are expected to do and how they are supposed to do it—with intensity and with physical exertion.

In several of the clips in the larger data-set (Quennerstedt, 2010) and in some of the clips in this analysis, students are excluded from the lesson (they have to sit on the sidelines) if they have not changed clothes. This is noticeable in the comments that students make during the films as well as those they post on YouTube in connection with the clip.

It is also visible in comments in a video clip related to why the teacher did not react when the students walked around the track:

... as we have tracksuits and trainers on (US)

The habit of changing clothes before doing PE and the knowing that the changing performs is particularly evident in events where the activities offered or the ways in which other students are doing the activities do not involve physical exertion. In several of the clips this is most obvious when most students are standing still, for example, when listening to instructions about shot-put or trying the video game ‘dance, dance revolution’. In other clips students do not act in ways that include
physical exertion, even if it is on the agenda. Here the exclusion is reasonable only if we consider the expectation of physical activity in PE.

In the investigated clips, the changing of clothes stands out as a mechanism that performs physical effort and that also conducts how, when and where to be physically active. In another clip this mechanism is evident in that students are playing cricket in shorts, T-shirt and trainers, while students in school clothes (trousers and shirt) are sidelined, even though this type of clothing would be more reasonable from the perspective of cricket as a sport. This indicates how the production and reproduction of the expected sweaty student is constituted. In the clips it is presupposed that students change their clothes. The establishment of a habit to change clothes when doing movement activities accordingly becomes the end in view.

Knowing by acting in a certain locality

Non-human participants can also be explored by using a transactional approach (Quennerstedt et al., in press). In this way, the material aspects used in the event that shape the course of the event can be taken into consideration.

In the studied YouTube clips it is obvious that the equipment, locality and artefacts point to ends-in-view that perform movements in particular ways and the students are guided towards certain patterns of where and how to move. In knowing sport as an end in view, the use of, for example, balls, goals and a certain colour of lines on the floor guide the students towards a certain way of performing that particular sport, just by being in that locality. This is obvious, for example, when students play basketball and when knowing basketball is the end in view. In some clips the game is organised as elite adult basketball with the appropriate ball size, hoop height, pitch size and floor lines. The students act habitually in this setting by performing the correct moves, postures and ways of running on the basketball pitch. Also in gymnastics, the use of equipment such as springboards, vaulting horses or horizontal bars habitually privileges certain correct ways of moving in both students and teachers.

Furthermore, in fitness training the localities with rowing machines, exercise bikes and strength-training machines conduct students’ actions:

A group of girls are in a room with exercise bikes and rowing machines. It is noisy and there is a lot of shouting and laughter. Everybody seems to know what to do. A student says: Miss, can you put on the music again. The PE teacher goes and puts the music on, modern dance music with a strong beat. The students immediately start to move to the music on the bikes and do the right moves in line with training fitness on an exercise bike. Not necessarily with great effort, but habitually with the correct movements. (UK)

In this clip the students seem to know how to act in the fitness training room with exercise bikes and rowing machines, and why. They know how the machines work and how to use them. In their movements, and also with the music, they habitually follow the logics of fitness training, spinning, etc. In this way, knowing sports and physical activity can be said to be produced and reproduced in a specific way because
it is organised and executed in a certain place, at a certain time and with certain kinds of equipment. Habits are then established to pursue sport and fitness training in certain localities with certain equipment.

**Knowing by resisting**

Knowing by resisting is when students, in an obvious way through their actions, resist the offered institutionalised practice or purpose in terms of a laid-back attitude or an obvious resistance strategy in relation to what is expected:

The PE lesson with teenage girls takes place in a room with treadmills, exercise bikes and rowing machines. The girls are active on the machines, but are active somewhat at random. Some are walking, rowing and biking. Others are fooling around.

Student 1: do some moves on the treadmill.

Student 2 starts to dance.

Student 1: Do some disco dancing.

Student 2 starts dancing with ‘Saturday night fever’ type of moves.

A little later student 1 shouts to student 2: read that sign

A sign on the wall beside the treadmill says, ‘The treadmill is the best spot to leave your gut behind. It takes an average of 14 mins to burn 200 calories compared with 21 on the rower and 27 on the bike (Men’s health).’

Student 1: I don’t know what it (the sign) is doing in this video. (UK)

In this clip it is obvious that the purpose of the lesson is fitness training. At the same time, these students act in a habitual way that is not about training fitness. They film, talk, dance and fool around while being around and on the treadmill. Although they seem to know what to do on the treadmill, their actions also indicate that they are resisting the taken-for-granted offered content.

In several of the clips it appears as though the students know what is expected of them in terms of purposes of fitness training or sport, although at the same time they act differently. For example, in a clip from a Swedish PE lesson, the students are sent out to run five kilometres. Two girls film each other while walking and talking. In the clip they discuss how to take a short cut over a wheat field and whether they should steal the horse they see in an enclosed pasture for fun. They also, as a joke, discuss and demonstrate how fast they have to run to get a higher grade in PE:

Student 1: Okey (…) this is PE.

Student 2: PE (…) and here we are working really hard.

The students walk slowly and sometimes do short ‘silly’ runs.

Student 1: We have to run five kilometres (…) and as you see we run very fast.

Both students laugh.

Student 2: Let’s see now how you do things in PE (…) how well you work and how many high grades you get.

Student 1: I am going to take a short cut.

Student 2: A short cut (…) oops! (…) that is tempting.

Student 1: Then we are going to destroy their field.
Student 2: Then they will be angry (...) Show me your ‘Passed with special distinction’.
Student 1 runs fast and silly on the spot.
Student 2: That is ‘Passed with special distinction’ plus, plus.
Student 1: Then I will run the five kilometres. I promise you that.

In this clip it is obvious that the students know what is expected of them in terms of running. At the same time they clearly, as a habit of action, resist the taken-for-granted expectation.

Knowing by resisting can also be understood in terms of positioning yourself as a student in relation to, or rather in opposition to, a purpose of performing sport. In this UK PE lesson the purpose is, according to the tag on the clip, a throwing competition. Several girls throw small balls on a large grass field with cones every 10 metres or so:

Teacher: Go
Student 1 throws the ball
Student 2 (filming): Where did it go, I can’t see it
Teacher: Go and put your cone down where it bounces
Student 3: My turn.
Student 3 throws the ball
Student 2: I can’t see it. It’s over there somewhere.
Student 3 runs out into the field to put the cone where the ball landed. She doesn’t seem to know exactly where so she puts it where she thinks it landed.
Student 4 starts to sing a pop song into the camera
Student 2 (to student 4): Sorry you’re not the centre of attention any more babe.
Student 2: Where did it go?
Student 5: Where is my cone?
Student 5 throws the cone out into the field

Nobody seems to pay any attention to where the balls are actually bouncing (as instructed by the teacher), and accordingly nobody puts their cone where the ball lands because no one saw exactly where this was.

Teacher: Who’s next (...) Sandra?
Student 6 (who has been wandering around during the throwing): I’m not throwing
Teacher: Why not?
Student 6: Because I am busy being an artist
Teacher (after a brief hesitation): Sue, what a good throw

In this clip the students resist the competitive aspect of sport in several different ways. The clip illustrates the habitual way of not taking measuring, or rather measuring exactly and comparatively fairly, seriously by not paying attention to where the ball bounces. They just put their cones where they think it landed. It does not matter. The other way is refusing to throw at all and showing that you do not belong in a sport performance discourse in the first place. In this clip, the institutionalised practice and purpose of competition in sport, and in consequence
knowing sport, becomes something that is not disputed by the students or the teacher.

In a similar way, in some of the clips students also habitually seem to resist assuming the identity of the sweaty student. If we look at the treadmill transcript above, or the transcript related to knowing by acting in a certain locality, the students are not very physically active. In these clips it seems as though the students are not taking the offered activity of fitness training seriously, and in consequence not identifying themselves with an end in view of being sporty or with doing fitness training. They seem to know what to do but show, through their resistance, that they do not belong there.

The production and reproduction of knowledge in physical education practice—some concluding thoughts

The results of this study concur with several other studies of knowledge production in PE (cf. Rovegno, 2006; Rovegno & Dolly, 2006), as well as with studies of ongoing learning processes in PE practice (e.g. Rønholt, 2002; Verscheure & Amade-Escot, 2007; Wright & Forrest, 2007; Öhman & Quennerstedt, 2008). However, this study adds to the knowledge base of PE practice by showing how knowing, in terms of habits-of-action, is upheld and established in PE practice in terms of practical epistemologies.

In addressing the epistemological question of what knowledge is and how knowledge is developed in PE from a transactional point of view, knowing, and in consequence the questions of knowledge and epistemology, is understood and explored as something that we do, something practical. Returning to Dewey, I would like to point out that a metaphysical split between mind and body results in, as Dewey (1928) argues, explorations of influences of ‘mind on body’ or ‘body on mind’. In a similar manner Grosz (1994) reminds us that a dualistic perspective on body/mind ‘hierarchizes and ranks the two polarised terms so that one becomes the privileged term and the other its suppressed, subordinated, oppressed counterpart’ (p. 3). However, using a transactional perspective, the body/mind dualism, as Dewey reminds us, is not taken as a metaphysically pre-given dualism. The dualism is consequently ‘dissolved’ as a precondition, where Dewey also cautions us not just to position ourselves on the other side of the dualist coin (Dewey & Bentley, 1949/1991).

In a body–mind dualistic perspective, knowledge production takes place in the minds of human beings, and is correspondingly concealed from direct observation. However, using a transactional approach, this paper tries to avoid perpetuating the separation of mind and body and instead explore, and in the results describe, assemblages of spoken and embodied iterations. In this way knowing as observable in the actions of human beings is investigated. This does not imply that knowledge is restricted to non-verbal actions or habits or that all knowing is observable. Instead, the study strives to make empirically based distinctions when describing knowledge.
and knowledge production. What I have tried to do in the analysis is, as Dewey also reminds us, not to take holism or the unprivileged part of the dualism as a ‘new’ metaphysical condition. Instead I am trying to make empirically based distinctions when describing knowledge and knowledge production, taking both spoken and embodied actions into account. In concrete terms this involves exploring how spoken actions, embodied actions, re-actualised experiences, material aspects of the event, etc. (Quennerstedt et al., 2011), can be observed and analysed in the clips. If it is more embodied actions standing out in the data, the descriptions of the themes will reflect this, and in the analysis this has been the case.

Wickman (2004) compellingly argues that learning is dependent on the epistemologies used in a specific practice and that students as well as teachers learn how to privilege a certain practical epistemology in terms of how knowledge is produced and reproduced as well as in what direction this takes. With that in mind, this paper has shown that knowledge is produced and reproduced in students’ and teachers’ actions in PE practices in many different ways. As the study shows, knowing is produced and reproduced through students’ and teachers’ habits-of-action by doing correct movements, by trying, by imitating, by praising and cheering, by cooperating, by creating, by the changing of clothes, by acting in a certain locality and by resisting. These different ways of producing and reproducing knowledge in the practice of PE is of course often entangled, layered or antagonistic with each other, and form productive alliances as well as discursive struggles (Öhman & Quennerstedt, 2008). Several of the practical epistemologies described in the Results section can be at play in the same lesson and even in the same video clip. For example, there can be different ends-in-view at play in the same event of, for example, basketball, where knowing by doing correct movements, knowing by praising and cheering, and knowing by imitating are entangled in each other and where different goals, purposes, actions and habits go hand in hand in a productive alliance in the activity. On the other hand, different ends-in-view can, within the same lesson, clash as students’ different experiences are re-actualised in relation to the offered content and in relation to the circumstances of the event, experiences affected by social class, gender, ethnicity, etc.

The focus on actions-in-context in this perspective further resembles the ways in which PE teachers assess students’ abilities, skills and learning in PE practice in terms of, for example, how they participate in or how they proceed with their learning. In these processes students relate to what Dewey (1938) calls a stable outcome of inquiry and learn as they proceed, make new relations and resolve indeterminate situations. Drawing on Dewey’s concept of habit, Sullivan (2001) also argue that:

Educating the young does not mean teaching them particular things (…) they must or must not body. To cast the issue this way is to fail to acknowledge habit as the mechanism by which change occurs. Educating instead means helping the young to form the habits of questioning, rethinking, and rebodying their own and their cultures’ (…) habits. (p. 104)
I would like to argue that if PE is to be a school subject for knowledge, knowing and learning, PE policy, practice and research need to pay attention to what counts as knowledge in PE practice and also how this knowledge is developed. In relation to the results presented in this paper, it can be argued that in both PE research and PE practice we should pay attention to questions such as what do PE teachers praise? What do students cheer at? What do PE teachers correct? What equipment do PE teachers use? What activities are used in PE and to what purpose? What kind of role model are PE teachers? These questions and many others need to be asked if we are to take the practical epistemologies and questions of how knowledge is produced and reproduced in PE practice seriously. In this way, the iterability of bodily habits and the possibility of helping students bodying habits differently as well as broadening students’ focus of attention in terms of different ends-in-view must be placed on the critical agenda, not the least in relation to issues of social class, gender, ethnicity and sexuality.

Notes
1. For a discussion in relation to PE, see Quennerstedt (2008) and Quennerstedt et al. (2011).
2. This study of practical epistemologies in PE resonates theoretically and methodologically with the practical epistemology analysis that has been carried out in science education and education for sustainable development using video-recorded lessons as data (e.g. Wickman & Östman, 2002; Lidar et al., 2006; Lidar et al., 2010; Lundqvist et al., 2009; Rudsberg & Öhman, 2010), and in sports participation using different texts (Maiversdotter & Wickman, in press). These studies are based on four methodological concepts: stand fast, relations, gaps and encounters. In this study, however, the empirical material is different in terms of the number of lessons used, the brief nature of the video clips and the limited use of verbal communication. The data are also different in that PE is a school subject that is more oriented towards establishing habits rather than critical inquiry and problem-solving (Wright et al., 2004). Hence, other concepts—and habits-of-action—have been set in motion in this study in order to explore practical epistemologies in PE.
3. UK: n = 15; USA: n = 13; Sweden: n = 10; China: n = 3; Singapore: n = 2; Australia, Canada, Germany, Indonesia, Japan, Philippines and Sri Lanka: n = 1.
4. The main activities in the selected clips are the following—ballgames: n = 13; fitness training: n = 10; warm-ups: n = 6; gymnastics: n = 4; athletics: n = 4; dance: n = 4; odd activities: n = 3; relays: n = 2; and racket games: n = 1.
5. However, in a few clips in the larger data-set students wear ordinary clothes or school uniform when using exercise bikes and rowing machines. Also, in some clips younger students participate in play, motor development exercises and dance in PE in ordinary clothes (Quennerstedt, 2010).
6. In Internet research criticised by, for example, Gunkel (1998).

References


