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Abstract

This article aims to appraise insights from participationist approaches to learning for understanding students' knowledge acquisition. The first part explicates the concepts of positioning, recognition, and identity through presenting a common ground for participationists and discussing different views on 1) The relationship between learning the content domain and positioning, recognition, and identity negotiation, 2) Dynamicity of situativity, 3) Relation of moment-to-moment situativity to long-term interaction patterns, 4) Awareness of positioning, recognition and identity. This allows an appraisal in the article's second part of a claim inherent to participationist views: It is necessary to adopt a system's view on learning opportunities presented to students in class because of the way positioning, recognition and identity negotiation influence students' engagement with curricular content. A fifth issue emerges concerning the nature of this influence. Theoretical considerations and empirical evidence combine to support the conclusion that the claim holds some, not all of the time.

In 1998, Sfard drew a picture of educational research at the time as led by two incommensurable metaphors of learning; the *acquisition metaphor* and the *participation metaphor* (Sfard, 1998).

Within the first, the term learning denotes the process of acquiring something (knowledge, concepts and/or skills). Within the second, learning refers to the process of becoming a participant in a community – “becoming a part of a greater whole,” in Sfard's words (p. 6). Inherent in participationist approaches is a system's view of individuals and individuals' actions, as parts making up an organic whole. A central focus area is the individual's development, through social

interaction, of an identity as part of the system: “[T]he identity of an individual, like an identity of a living organ, is a function of his or her being (or becoming) a part of a greater entity” (ibid.)

My point of departure for this article is that of an acquisitionist who during the years since Sfard’s article has become convinced that significant insights are to be found within the participationist approach. These insights concern the role of identity, as understood by the participationist, and its development through positioning and negotiation in social interaction. I now believe it is necessary to take these insights into account to understand students’ different approaches to knowledge acquisition and how they engage with curricular content. The relevant theories are, however, often phrased in very abstract terminology which tends to make them inaccessible to the interested reader not already versed in the field. The aims of this article are (a) to explicate participationist insights in more accessible terminology, in order to (b) appraise their significance for understanding students’ knowledge acquisition. More specifically, I aim to appraise the following claim inherent to participationist views:

- It is necessary to adopt a system’s view on the learning opportunities presented to students in class because of the way positioning, recognition and identity negotiation influence students’ engagement with curricular content.

The first two thirds of the article explain the significance of the participationist concepts of identity, positioning, and recognition in order to show that this claim holds at least *some of the time*. The argument will be that there are classroom incidents and differences in students’ approaches to knowledge acquisition which cannot be explained from an individualist point of view, but require such a system’s view. This argument is unfolded through first presenting a common ground for participationists and then discussing three participationist views in relation to four issues: *The relationship between learning the content domain and issues of positioning, recognition, and identity negotiation* (Issue 1). *Degree of dynamicity of situativity* (Issue 2). *Relation of moment-to-*

moment situativity to long-term interaction patterns (Issue 3). *Awareness of positioning, recognition and identity* (Issue 4). These issues are important because different answers to them suggest different ways of understanding and supporting students' learning in practice.

Throughout this part, I contrast the participationist approaches with a number of individualist motivation theories because these theories come closest within the general acquisitionist approach to formulating insights similar to the participationist ones. In particular, they hold alternative conceptualizations of the term *identity* and provide accounts of how interaction with others may stimulate motivation. Explicating the differences will help show what the participationist view has to offer educational psychology. Where relevant, I contrast also more generally with the acquisitionist approach.

In the last third of the article I then turn the tables on the participationist view and argue that the claim above does not hold *all the time*. In some instances an individualist point of view is necessary to understand student approaches to knowledge acquisition. The argument proceeds through discussing a fifth issue on which participationists disagree: *The nature of the relationship between knowledge acquisition and positioning, recognition, and negotiation of identity* (Issue 5). A fourth participationist view is considered and argued against. I conclude that an approach to knowledge acquisition is needed which allows researcher and practitioner in each empirical instance to ask how acquisitionist and participationist concerns intertwine.

The concepts of identity, positioning, and recognition within participationist theories

In the following, I clarify the central participationist notions of *positioning, recognition, and identity* through three examples, the last of which is an educational case described by von Glasersfeld (2001).

My first example is the rather crude analogy of the game of chess. In chess, the *identity* of each piece is given by its relationship to the *system* as defined by the aim and the rules of the game. There is no “being a bishop” in isolation from chess as a game. There is also nothing essential about the appearance of the piece in itself that makes it a bishop. What is essential is that it be *recognized* and treated as the bishop, i.e. as an expendable servant in the attack on the opponent’s king and in the defense of one’s own, nonexpendable, king; capable of certain moves and with a certain numerical value. However, what the bishop can actually do during a game depends crucially on how it is *positioned* on the board. This, in turn, is decided by the placement of the bishop relative to the other pieces. What it is *positioned to do* will change, both if it itself is moved and if other pieces are. The positioning of a piece is thus a *dynamic* characteristic, and it is a characteristic of the *system* and the competences which the system’s pieces are recognized to have in relation to each other within the system.

As I said, the example is crude. It is also misleading as an analogy to social interaction. For one thing, though the positioning of the chess pieces is dynamic, their identities and “competences” are not. The rules of chess define once and for all the identity and the competences of each piece. In contrast, the identities and competences of persons in interaction are not given on beforehand, nor are they static. For another thing, positioning and recognition are not undertaken outside of social action; they are dynamic phenomena which take place between persons in interaction.

A further example will help clarify these issues. Consider the case of jazz musicians improvising together in a jam session. The music they are making together is a dynamic system which at any point in time *positions* each instrument (and thereby each musician) in relation to each other and to the music as a whole. At one point, for instance, the sax may be positioned as “playing a solo.” This is not something the sax player can decide by herself. She has to follow the music and let it (as a system) lead up to the solo; otherwise her take-over will be disruptive. Similarly, it is

disruptive if she is positioned by the music to play a solo but does not take up the afforded position by actually doing so. In allowing the music to lead up to a sax solo, the other musicians *recognize* her as solo player. This recognition is not one of words, it is one manifested through the way the musicians play together. It need not hinge on how technically proficient the sax player is. The others might for instance find her too self-promoting and thus recognize her as “trying to take the lead all the time” rather than as “an able solo player.” In this case, the others may *negotiate* her as “having to stay in the background.” Over time, as the musicians play together on several occasions, patterns in their interaction will tend to emerge. The *identity* of each musician in relation to the others will be constituted by the way she takes up and enacts her part in the patterns. Thus, if the sax player accepts the position as “background player,” this will be her identity in the group. If she repeatedly negotiates (in the way she plays) her role as background player, her identity might instead be “the background player keen to take the lead.” As time evolves, positioning and identities will continuously be negotiated. Notably, new positionings of the sax will necessarily involve new ways of positioning the other instruments, too. Therefore, as new positionings lead to new identities, the identities of the other musicians will change, too. Thus, by participants attuning to – or accommodating ways of acting within – the system, the system itself changes.

These two non-educational examples illustrate the following propositions which I believe to be common to all participationist approaches, though as I shall show later on they diverge on how they elaborate the propositions: People in activity may be viewed as a *co-constituting, dynamic, interactional system*. The activity – and therefore the system – can be characterized by its aims or objectives, but such aims need not be very precise or specific. “Making music together” or “getting through the workday in good spirits” are examples of non-specific aims. The system affords certain opportunities and constraints on action which determine what a participant is expected to do, what she can acceptably do and what significance any breach of acceptability will have. The system will

have different *positions* which allow different forms of action. What the system affords for a participant at any given time is what she is *positioned* to do. Participants will in general be positioned differently, i.e. the system does not pose the same action possibilities for all participants. *Positioning* is the process by which participants are positioned. It takes place in the interaction between participants: they continuously *negotiate* their own position and that of others. Negotiation may involve explicit discourse, but may also proceed more indirectly as implicit significations of what is done or said. Over time, patterns of interactions between participants will emerge in the system. A person's *identity* in the system is the way she takes up and enacts her part in the patterns within the overall aim of the system. Participants mutually *recognize* each other as having certain identities in the system. This recognition is decisive for how they interact to position one another and for how they view their own relationship to the person within the system, i.e. how they see their respective roles in the system and the way these roles interact and co-constitute one another. *Recognition* thus is ascription to others of an identity in the system – with a relation to one's own identity here – and of characteristics which are considered significant (positively or negatively) within it. The term *recognition* here does not imply *appreciative evaluation*; it only signifies *identification*. The system and its participants' identities evolve dynamically and interrelatedly as a result of the participants' interaction with each other within the opportunities and constraints afforded by the system.

To illustrate the significance of the participationist approach within educational settings, consider the following example of facilitating students' conceptual change in classical mechanics, reported by von Glasersfeld (2001) (see also Nokes-Malach & Mestre, 2013): Students were presented with two tracks, each with a steel ball. Track 1 had a short decline after which it was flat. Track 2 had a short decline, a short flat section, a long v-shaped slope, and a final level section at the same height as the final section of the other track. The students predicted which ball would

reach the finish first if released simultaneously. Their predictions (and their arguments for them) were nearly always wrong. They were then prompted by the teachers to describe the balls' movements. von Glasersfeld reports the following as typical of the subsequent discussions:

“Some of the students then begin to suspect that ball 2 rolls faster than ball 1 throughout the journey from A to C. The lead it gains more than compensates for the different lengths of the two journeys and, consequently, it reaches the finishing line first. Of course, not all the students are immediately convinced. But those who have glimpsed the solution are usually indefatigable when it comes to explaining it to the others.” (ibid., p. 171).

From the acquisitionist point of view, the example is a paradigmatic instance of students' acquiring a new conceptualization of a physics phenomenon to replace a misguided one. For the participationist, this construal neglects the significance of the classroom, viewed as a dynamic system. Now, analogous to the jazz example, positioning, recognition, and identity negotiation take place in moment-to-moment interaction. Because detailed information on this interaction is lacking in von Glasersfeld's example, my participationist account will inevitably be somewhat speculative. The first thing to note is that the teacher is setting up an experiment and asking questions to which he knows the answers but on which he is counting on the students to make false predictions. This line of action inherently positions the students as unequal conversation partners whose answers do not carry cognitive significance for the teacher – he will not learn anything from what the students say – whereas they may learn from his answers and questions. His anticipation of their wrong predictions amounts to a recognition of them as “non-knowers.” As some of the students advance the correct explanation of why the balls move as they do, this positions them as “the bright ones who got the teacher's point first.” No wonder, one might say, that they are “indefatigable” in explaining the phenomenon to the other students: Hereby they are negotiating further their position as “the ones who have understood the teacher's physics lesson,” in conjunction, perhaps, with the

position as “the ones who dare speak up in class” or even “the ones taking the lead at the expense of the others.” The students being explained to, on the other hand, are being positioned as “the not-so-fast students,” “the ones who need it spelled out,” and so on.

The next time the teacher asks a question in class, the students who did the explaining will be initially positioned as “expected to provide an answer,” whereas the others will have the initial position of “probably not going to answer.” The former will thus be positioned to “speak up” more easily than the latter. In effect, this will amount to being afforded greater opportunities for learning, not only in the participationist sense of participating more fully, but in the acquisitionist sense, too, of having more opportunities of testing and therefore of correcting and developing one’s acquired understanding. Over time, if the same students keep taking the lead they will be negotiating identities as “the bright ones,” “the self-confident physicists-to-be who dare speak up in class,” or perhaps as “the careerists striving to please the teacher.” Others may be negotiating identities as less bright and/or as “laid back,” “shy,” “quiet,” or even “the ones not so keen on their studies,” who “have other priorities than physics.”¹

Von Glasersfeld’s depiction of the example ended: “Eventually, most of them understand how, as ‘physicists’, they should conceptualize the situation.” (ibid. p. 10). From the participationist perspective, this statement is too crude, verging on being misleading. The students are *not* positioned as physicists in the example, but as students-learning-physics. Though they arguably end up conceptualizing the balls’ movements similarly to how their physicist teachers do, this understanding will intertwine for them with the display in the situation of how *far* from being

¹ I do not mean to say that every instance of inquiry based teaching will lead to negative forms of positioning and identity negotiation. There are examples in the literature, e.g. Greeno and van de Sande (2007), which show more positive forms. However, the fact that the teacher has *prima facie* authority over the students, as concerns both subject matter and choice of activities, constitutes a fundamental asymmetric power relation in the classroom. When this is ignored (as it seems to be in von Glasersfeld’s example), the risk of negative positioning is high (cf. e.g. Hand, 2010, to be discussed below; Packer & Goicoechea, 2000). The asymmetric power relation can, however, be made positive use of, if e.g. students are positioned as providers of valuable suggestions, not yet thought of by the teacher (Greeno & van de Sande, 2007).

physicists they really are. For many of the students, the primary significance of the learning experience may well be a serious decline in identifying themselves as physicists-to-be.

At this point, it is helpful to contrast the participationist approach with motivation theories. As Oyserman, Elmore and Smith noted (neglecting participationist views), “Self and identity theories converge in asserting that self and identity are mental constructs, that is, something represented in memory” (Oyserman, Elmore, & Smith, 2012, p. 75). Many motivation theorists concur. Eccles (2009) characterized identity in terms of self perceptions. Renninger (2009) and La Guardia (2009) wrote of it as self-representation or self-representations. Morf and Mischel described the self as “a motivated, goal-directed self-regulatory system that is proactive and agentic” (Morf & Mischel, 2012, p. 28). Central is the conceptualization of identity as an *individual* phenomenon; something the individual *has*, and which is located *inside* the individual. Traditionally, identity has been viewed as a relatively stable phenomenon, enduring across social situations. Over the last decades, however, motivation and identity theorists alike have increasingly accepted the significance of social contexts for the development of the individual’s identity, to the extent that Oyserman et al. stated that “Self and identity theories converge in grounding self and identity in social context.” (Oyserman et al., 2012, p. 76). Crucially, however, this grounding is understood as a process of outside influences affecting an inner phenomenon. It is typically described in terms of “social influences” (e.g. Eccles, 2009; La Guardia, 2009), “contextual effects on the self” (Oyserman et al., 2012) or “social stimuli acquir[ing] their personal cognitive and affective meanings [in the self-construction process]” (Morf & Mischel, 2012, p. 33). Even social identity theorists, concerned with group membership, depersonalization, stereotyping, and group and intergroup behavior understand identity as an individual mental phenomenon, inside the person, as evidenced by the definition of social identity as “the individual’s knowledge that he belongs to certain social groups together with some emotional and value significance to him of his group membership” (Tajfel, cited in Hogg,

2012; Tajfel, 1972). This contrasts with the participationist view, where identity is not an inner phenomenon, affected by outer circumstances, but is the individual's enactment of her part in social interaction. Being "the physicist-to-be who dares speak up in class" in the example above is not an inner state, but a role taken up by students in class. The specific interaction taking place between students and between students and teacher is required for the role to exist. On the other hand, the individual's enactment of her part in the interaction patterns explains the contributions she makes as well as her long-term choices as regards pursuing a physics career or perhaps dropping out.

The strength of the participationist perspective as compared to the individualist motivation theory one is that it can account for incidents in classroom interaction which the latter cannot. Returning for a moment to the jazz example above: from the point of view of motivation theory the sax player who wants to play a solo is motivated, has a high level of self-efficacy, is highly competent, has the self-representation of herself as "soloist" and behaves in ways so as to initiate a lead. Her goal-directness may be so great that she does not care whether the others get angry or do not like her. From this individually focused viewpoint it is not really possible to explain why she then does not play a solo. From the systems point of view, on the other hand, it is quite easy to explain: She does not, because the music as a system doesn't position her to, which means that if she took the lead it would not be a solo, it would be a break-up of the music.

In analogy with the jazz example, the participationist view can explain why students who (in motivation theory terms) have high self-efficacy, competence, and motivation to contribute still may end up not contributing to class discussions. Or if they do, it explains why they are not listened to by their classmates or accorded the time by their teacher which their content knowledge warrants. During my 20 years of university teaching, I have experienced a number of students to whom this characterization applied. In the classroom interaction these students were positioned as "somewhat annoying, always pushing themselves forward and taking up too much of the time with their

comments,” no matter how relevant and to the point their comments were. More formally documented examples are provided in Hansen (2000) (the case of a girl brilliant in mathematics, but not recognized as such in the social negotiation of identity within the classroom), Thrysøe (2011) (student nurses not accorded the position as knowledgeable contributors in ward discussions during their internship, despite their content knowledge and self-efficacy) and Wortham (2004) (to be discussed below). The point, missed by individualist motivation theories, is that the way classroom interaction positions students is not a direct function of their individual psychological traits and competences. It is a function of the dynamic system of the classroom, where students and teacher continuously negotiate their positions, their identities, and their recognition of one another’s identities.

In the preceding sections I have explained and exemplified what I believe to be common ground between participationist views concerning the concepts of positioning, recognition, and identity. However, for the concepts to be really useful for understanding and designing educational practice, four issues need to be elucidated.

Issue 1: The relationship between learning the content domain and issues of positioning, recognition, and identity negotiation. As described above, positioning and identity negotiation seem to only concern a person’s role in particular social interactions, with negligible reference to discipline or subject. Could positioning also be at a domain-specific level, such as “the student who always gets his geometry problems right?”

Issue 2: Degree of dynamicity of situativity. Positioning, recognition, and negotiation have been described as moment-to-moment phenomena (sax player being positioned to play a solo). They have also been described as having seemingly longer-term structural properties, such as ongoing power relations (characterization of von Glasersfeld’s teacher as inherently positing

students as non-knowers). These are two different characterizations of what one might term the *situativity* of interaction. Are they both viable and, if yes, how do they relate?

Issue 3: *Relation of moment-to-moment situativity to long-term interaction patterns*. If *situativity* is viably characterized as a moment-to-moment phenomenon (Issue 2), then how does this situativity relate to long-term patterns of acting? More specifically: How does positioning affect identity development and vice versa?

Issue 4: *Awareness of positioning, recognition and identity*. This issue concerns the degree of awareness and self-direction which persons have of positionings, recognition, and identity negotiation. Can these processes take place “behind our back” so that we may position ourselves and others in ways we are unaware of? Can we have an implicit understanding of who we are without necessarily being able to explicitly formulate it?

Participationists diverge somewhat in their views on these issues. The issues are important because different answers to them hold very different implications for educational practice, ranging from (at one end of a continuum) advice to heed closely to what students say and do to each other in specific classroom interactions to (at the other end) working at a general structural level to establish well-reflected and supportive power relations in class. This is, however, still rather abstractly formulated. In line with my overall aim of explicating the abstract terminology of participationist approaches, I shall therefore discuss three views. The first two views, *identity as figurative and positional self-understanding* and *identity as narrative*, differ primarily on Issue 1. I present them first and then draw on empirical evidence from the literature to adjudicate between them. After that I present the third view, *identity as patterns of participation*, which differs from the others on issues 2, 3, and 4, and evaluate this view against the empirical evidence. This line of argumentation allows me to further clarify the concepts in a way which illustrates more concretely what participationist views have to offer educational psychology in comparison with individualist motivation theories. In the

last part of the article where I turn the tables on the participationist approach (cf. Introduction), I shall identify and discuss yet a fifth issue on which participationists diverge.

Identity as figurative and positional self-understanding

Within participationist theories, the view propounded by Holland, Lachicotte Jr, Skinner, and Cain (1998) is a common starting point for discussions of identity. As concerns the four questions raised above, its stances are that situativity is moment-to-moment (Issue 2), *not* in relation to specific content domains (Issue 1), but in relation to more stable so-called *figured worlds* which guide interaction and long-term patterns herein (Issue 3). They define identity as an understanding of self that we can and do make explicit:

“People tell others who they are, but even more important, they tell themselves and then try to act as though they are who they say they are. These self-understandings, especially those with strong emotional resonance for the teller, are what we refer to as identities. (p. 3).

In the course of their book, Holland et al. diverge somewhat from this definition, introducing a concept of *lived identity* which corresponds more to the third view to be presented below, *identity as patterns of participation*, which allows that positioning, recognition and identity negotiation may take place without awareness. There is thus some ambiguity in Holland et al.’s views on Issue 4. I shall not press this point here, though, but will return to it when I discuss the third participationist view of identity.

The *telling of who one is* (henceforth *self-telling*) carries directive implications for how one should act to “live up to” being who one has said one is. The student who is first to explain the movements of the balls in von Glasersfeld’s example may tell himself on the basis of the experience “I am really a quite bright physics student” or “Ha, I get the points in class though I don’t study at home! I’m not the mediocre have-to-work-hard-to-get-results type, I’m the intelligent spur-of-the-moment-person.” Self-tellings such as these point out ways for him to act in the future. A “bright

student” will speak up in class and perhaps commit himself to studying harder to do justice to his brightness, to better his chances of becoming a PhD student – or to convince the teacher how bright he is.

Thus far, there may not seem to be much difference between this view and individualist motivation theories’ views of identity. The implications for future behavior carried by self-tellings could be explained as goal-directed planning (with some of the goals being of debatable value). However, it is no accident that Holland et al. defined identity in terms of *telling*, not mental representations as do individualist motivation theorists. In accordance with the *common ground* for participationist views, they do not view identity as an inner phenomenon affected by social interaction, but instead as something negotiated in social interaction. *Tellings* indicate this fundamental social locus of identities as well as their contextual and dynamic character: The act of telling takes place in concrete situations, inspired by what others say and have said, and may change if the situation changes.

Further, if one’s self-understanding in the situation is that one is a bright student, then this overall understanding requires one to behave in certain ways in future specific situations in order for there to be coherence between overall understanding and specific instances of its enactments. But no mental or verbal representation in the form of goals and action plans need be made; an overall, implicit, sense of who one is will be enough. In general, and contrary to what motivation theorists believe, the fact that people will formulate goals and action plans if asked about them does not imply that such goals and action plans are salient to them when *not* asked for. The very asking for them might actually lead to their production.

Holland et al. claimed that “identities are improvised – in the flow of activity within specific social situations – from the cultural resources at hand” (Holland et al., 1998, p. 4). These cultural resources are the *figured worlds* in which we live, *generic figures* inherent to them, typical actions

and activities, and narratives and figures of speech used to make sense of the actions, *figured worlds* and *generic figures*. *Figured worlds* are defined as “collectively realized ‘as if’ realms” (p. 49). Roughly speaking, a figured world is a significance structuring of human life within a certain domain, in terms of which social roles are determined. The social roles take generic, prototypical forms in the understanding of the people who live in the *figured world*. These prototypical forms are the *generic figures* or *cultural figures* as I shall henceforth call them to stress their cultural specificity.

A crude analogy would again be the game of chess. The game is a *figured world*--i.e. a domain which delimits certain distinct figures (bishop, king, rook, queen, etc.) and relationships between figures. Examples provided by Holland et al. included “the figured world of school” (p. 132), “the figured world of romance” (p. 98) and “the figured world of alcoholism” (p. 83). “The authoritative teacher,” “the autonomy-supporting teacher,” “the hard-working student,” “the lazy student,” and “the student who defied his socio-economic background and rose to shine” are examples of *cultural figures* within the first *figured world*. Cultural figures are not specific persons as models within social cognitive theory are (Bandura, 1986; Schunk & Zimmerman, 1997) They are, instead, generic types and narratives which delineate actions and desires to pursue (e.g. “pursuing knowledge for its own sake,” “pursuing material wealth”). Figures are not so much modelled (“I am like him”) as appropriated and given concrete existence in one’s own being (“this is me”). Appropriation takes place, not only by way of rational cognitive conceptualization, but in the broader way of “sensing it to be me.” Persons will thus orient themselves, their self-tellings, and their actions from the available cultural figures. In this sense, their identities have *figurative aspects*.

The research of Ogbu and Fordham on African American students’ views on education (Fordham & Ogbu, 1986; Ogbu, 1987) offers an example of the significance of *figured worlds* and

cultural figures within education. At the time of their study, Ogbu and Fordham found a tendency among African American students to distance themselves from their peers who worked hard to do well in school because they perceived these peers as “acting white.” The students thus understood the pursuit of academic goals as adhering to the prototypical cultural figure of a white person. They could not identify with this cultural figure, but identified instead with what they saw as an opposing cultural figure of a black person. This influenced their motivation for engaging in school activities and led them to disapprove of their peers’ appropriation of the former figure.

Similarly, the approach of Holland et al. explains why the students in the studies mentioned above (Hansen, 2000; Thrysøe, 2011) were not positioned as knowledgeable contributors, despite their content knowledge: In the business school setting of Hansen’s study, the cultural figure of “girl brilliant in mathematics” was not available – it was not a legitimate position in the *figured world*. Likewise, in the study by Thrysøe, the *figured world* of the ward did not include the cultural figure of “knowledgably contributing student nurse.” These examples of non-contribution are the result of interaction patterns at the system level of the social systems of school and ward and therefore cannot be accounted for by purely individualist motivation theories.

In addition to the figurative aspects, Holland et al. argued that identity has positional aspects. They specified that such aspects concern relations of power, entitlement, social affiliation, and social place. As compared to the *common ground* of participationist views presented above, Holland et al. thus understood *positions* less dynamically. Positions are limited in the system to those it is possible to take, given one’s social status. In the classroom system, the teacher is in general entitled – has the position – to interrupt students without raising her hand, but not the other way around. A person’s self-understanding will relate to both figurative and positional aspects and not least to their interaction. In von Glasersfeld’s example, the student who has gained the social position among his

peers of being the one to “speak up in class” will more naturally relate to the cultural figure of “the keen student” than the students who have the positions of “always keeping quiet.”

Holland’s fleshing out of the participationist view helps explain why students who seemingly have the same learning opportunities (e.g., the chance to develop their conceptual understanding in von Glasersfeld’s example) and who are seemingly on par intellectually still may be positioned and thus behave very differently. Such differences are not explained with reference to psychological attributes such as preferred learning strategies (Levin & Pressley, 1983; McKeachie, Pintrich, & Lin, 1985), extrinsic/intrinsic motivation (Ryan & Deci, 2000), and so on. Instead, as in the Hansen and Thrysøe examples discussed above (Hansen, 2000; Thrysøe, 2011), differences are explained with reference to the social positions and cultural figures which make sense for the students. The approach therefore recommends a somewhat different path for educators who, for instance, wish to encourage “passive” students to participate more: They should focus not on addressing different learning strategies, on building self-efficacy, or on supporting development of intrinsic motivation, but on contributing in class to the negotiation of certain cultural figures which the students can relate to and appropriate in their self-tellings. To some extent, this advice is similar to the one which social cognitivists focused on the significance of modelling would give (Bandura, 1986; Schunk & Zimmerman, 1997), as they would suggest finding appropriate role models for students to relate to. However, as stressed above, cultural figures are not specific persons as models are. This means that it is possible (at least in principle) in class to envision and negotiate the credibility of a cultural figure, even if no specific person matches as role model. This is possible because of

...people’s collective ability to imagine themselves in worlds that may yet be scarcely realized, and ... the modest ability of humans to manage their own behavior through signs directed at themselves. These important aspects of human agency... enable the creation of

new worlds and new identities and make us appreciate how figured (objectified) identities become important tools with which individuals and groups seek to manage one another and their own behavior. (Holland et al., 1998, p. 281)

Further, potential role model candidates may go unnoticed if an appropriate cultural figure does not exist (Hansen's case). Therefore, negotiation of cultural figures is more important than the existence or not of a role model.

The merit of the approach of Holland et al., as I see it, is that they are able to account for identity, positioning, and recognition as social relational phenomena in a way which makes clear the significance of cultural figures for the individual's sensemaking opportunities while equally stressing the agent's active, improvisational role in taking up positions and forming identity. However, their examples of cultural figures and narratives are all articulated at a fairly general level without reference to specific educational content domains. For instance, they discussed "women in college" instead of students struggling to learn geometry or algebra. As concerns Issue 1 above, *the relationship between learning the content domain and issues of positioning, recognition and identity negotiation*, Holland et al. accorded rather little attention to educational content domains; they understood positioning, recognition, and identity primarily in relation to cultural resources which cut across them. Though I have used their approach to account for Hansen's math example, in general, they focused not at the level of distinct subjects or disciplines, but at the more encompassing "figured world of school" (Holland et al., 1998, p. 132). The figurative aspects of a person's identity on their view seem generic to the school setting as such (e.g. "the hardworking student," "the gifted, but lazy, happy-go-lucky student"). Learners in school learn to act and think and see themselves as students and to value school activities as such in certain ways, irrespective of specific disciplines.

On the face of it, this generality might seem somewhat implausible. It cannot account for mundane teacher experiences of students who work hard in some subjects and act happy-go-lucky in others. In the same vein, at this level of generality, Holland et al. cannot do full justice to Mischel's extensive findings that people's behavior varies systematically across situations of much more specificity (Mischel, 1973; Mischel & Shoda, 1995). Their position certainly contrasts with individualist motivation theory approaches, which typically focus on students' motivation and interest within specific curricular domains. In the next section I therefore present another participationist approach which accords more significance to the educational domain. After that, I evaluate between the two approaches by taking a closer look at how well they accommodate empirical research findings.

Identity as narrative

This approach is articulated by Sfard and Prusak (Sfard & Prusak, 2005). As regards the four issues mentioned above, they viewed the content domain as important in identity negotiations (Issue 1) and accepted moment-to-moment situativity (Issue 2). They stressed, however, that the significance of situativity for a person must be understood in the light of what they call that person's *designated* identity, i.e. the *story* she would tell of who she is going to be in the future. In this sense, the person's view of longer-term interaction patterns is regulative of moment-to-moment situativity (Issue 3). Like most other participationists discussing identity, Sfard and Prusak referred to the definition of identity proposed by Holland et al. of identity as tellings of who we are. They dissolved the ambiguity noted in the view of Holland et al. concerning Issue 4, by radicalizing the latter's definition of identity, in order to present one that is "more explicit and fully operational... while following the theoretical consequences of this use all way down" (p. 14). This radicalization involves a view of positioning, recognition, and identity negotiation as processes of which people are aware (Issue 4).

Thus, Sfard and Prusak defined identities as “stories about persons” (p. 14), more specifically those stories about individuals “that are reifying, endorsable, and significant” (p. 16). They are *reifying* in the sense that a person is said to durably *be* in a certain way. They are *endorsable* in that the person telling the story “when asked, would say that it faithfully reflects the state of affairs in the world” (ibid.). They are *significant* in that that we are emotionally involved. Sfard and Prusak stressed that stories on their view do not depict an extra-discursive entity. Stories are not descriptions of identities; they *are* identities. In stark contrast to an individualist motivation theory approach, there is no inner self that the stories are about or represent. Arguing for their view in contrast to Holland et al.’s and others, they warn against expressing identity in terms of “who one is” or “being a kind of person”:

Through its very syntax, the expression [“being a kind of person”] implies that one’s present status is, in a sense, extra-discursive and independent of ... one’s actions. Sentences built around the idea of “being a kind of person” sound timeless and agentless. As such, these sentences seem to be saying that there is a thing beyond one’s actions that stays the same when the actions occur, and also that there is a thing beyond discourse that remains unchanged, whoever is talking about it. Such an essentialist vision of identity is as untenable as it is harmful. (Sfard & Prusak, 2005, p. 16)

Sfard and Prusak’s denial of an inner self (which stories should be about) is what makes their definition “fully operational” – and much more so than definitions found within individualist motivation theory approaches. The latter have the methodological problem of how to “get at” people’s inner, mental self-concepts, and there is always the risk that what is represented in words does not fully correspond to the mental representation of the person. Sfard and Prusak, on the other hand, need only ask people to say who they are. The answer, if sincere, will be the identity.

Because identities are stories, they change with what we say about ourselves and others. At any one moment, multiple, often incompatible, identities exist for a person: What one will sincerely say about oneself will differ according to the audience. Similarly, what people say about themselves may differ significantly from what others will say both *to* them and *about* them to a third party. Von Glasersfeld may, for example, say sincerely that he is a learning-theoretically informed teacher supportive of his students; I might say sincerely that he takes on the identity of the expert teacher consolidating students' roles as non-experts. If talking to him face to face, I would perhaps phrase the point less bluntly but not less sincerely. It is in this sense that Sfard and Prusak accept a moment-to-moment situativity (Issue 2 above). "Identity-making ... [is] a communicational practice," as they put it (Sfard & Prusak, 2005, p. 16).

Sfard and Prusak did not explicitly discuss the terms *positioning* and *recognition*, but their implicit view is indicated in their rejection of an extra-discursive entity to which stories refer. The act of telling who you are *is* a positioning of yourself, and telling someone else's identity is at once a positioning and a recognition of them. Utilizing their own examples (cf. below), if students say that they are immigrants to Israeli society, they position themselves as newcomers who do not necessarily share the values of the natives (but perhaps might bring new perspectives). If native Israeli students say of these students that they are immigrants, they likewise position and recognize them as newcomers, perhaps with the implication that they do not fully understand "what is going on." If the immigrant Israeli students were instead to tell their identities with reference to plans for the future, they would be positioning themselves quite differently. If they were to say that they view the mastery of math as an integral part of becoming an educated person, they would be positioning themselves as ambitious students, rather than as newcomers.

According to Sfard and Prusak, we do not only tell *actual identities*, we also tell *designated identities*. That is, we say how we wish to be in the future, what we currently work to become, and

what we fear we might be forced to do. The physics student who is first to speak up in class might not only tell himself, “I am a bright student,” but also, “I hope to be a physics researcher one day, but I fear I might be forced to get a job in the industry to earn my keep.” This fact, that we tell designated identities, is what makes learning significant for Sfard and Prusak. Learning, they contended, “is our primary means for making reality in the image of fantasies” (p. 19)--that is, of closing the gap between actual and designated identities. We engage in learning activities and see the significance of the content domains in relation to what we wish and fear for the future. This is the sense in which the longer-term identities regulate moment-to-moment situativity (Issue 3).² Like Holland et al., Sfard and Prusak do not understand such regulation as instrumental means-goals thinking: The student seeing himself as a bright student and a future physics professor commits himself to studying hard, not just because this is necessary for “realizing his plans,” but because here and now his self-understanding of who he is going to be in the future would be incoherent if he did not. It is a matter of interpretational consistency in self-understanding.³

Sfard and Prusak further claimed that identity is the missing link between learning and sociocultural context: We not only tell designated identities for ourselves; often we also say for others how we imagine their lives will evolve. This in turn influences how they see their future—and how they see us. The designated identities we tell for ourselves and for others depend on our sociocultural background and possibilities – on what we see as possible futures. Sfard and Prusak did not use the term *figures* introduced by Holland et al., but the point appears to be similar, although the figures are less generalized for Sfard and Prusak than for Holland et al.: Depending on sociocultural background, different cultural figures will be salient for us as one’s we can see

²On the face of it, Sfard and Prusak’s concept of designated identities is similar to the concept of *possible future selves* advocated by Markus and Nurius (1986). They, too, stress that ‘possible selves’ are incentives for future behavior as well as a point of reference for evaluating one’s current self. However, unlike Sfard and Prusak, Markus and Nurius take the individualist approach to self and identity, elaborated on above, and understand self (both current and possible ones) as inner phenomena; more specifically as mental representations.

³ This is not to say that the student will never act in ways contradictory to this self-understanding. The point is just that he would then be acting in ways implicated by another identity, such as ‘I am a youth like all the others,’ leading him to forsake studying one night to party with his classmates.

ourselves and others as appropriating. Becoming headmaster of a school is more easily seen as an available future for oneself and others if one comes from a family of teachers than if one comes from a family of high school dropouts. Similarly, the designated identities one will tell for others depend on one's perception of *their* sociocultural background. Narratives are “incessant[ly] co-molding, ... [in] dialectic interaction with people's deeds, ... [in] flow from one generation to another, and ... [in] back-and-forth movement between the community and individual levels” (p. 21).

That cultural figures and, correspondingly, people's identities are articulated at a much less general level than for Holland et al. (Issue 1) is shown by the empirical examples given by Sfard and Prusak. They referred to Prusak's study of the difference in learning processes for native and immigrant Israeli students (called OldTimers and NewComers, respectively) in an 11th grade advanced mathematics class. The OldTimers had non-specific wishes for the future such as “being happy.” These wishes include being allowed to study the subject they want to—even if they have not as yet made up their mind as to which subject that is going to be. Good grades in advanced mathematics are seen as a way of securing access to future studies. Mathematical fluency, in Sfard and Prusak's words, is for the OldTimers “something to be shown upon request, like an entrance ticket that could be thrown away after use, having no value of its own.” (p. 20). A math certificate is thus identified by the OldTimers as conducive (perhaps necessary) for closing the gap between their actual identities and their designated ones. Their participation in math activities--i.e., the way they go about learning math (their learning strategies in cognitivist terminology)—is determined by this approach: They learn for the certificate, making sure to do all auxiliary tasks specified by the teacher and, not least, to document their work so that the teacher will know that they have “studied hard.” In contrast, specific educational subjects enter into the NewComers designated identities. They have much more specific wishes for the future such as “becoming a medical doctor.”

Mathematical fluency is seen as necessary for becoming “a fully fledged human being” (p. 20). It is thus not just viewed instrumentally as a set of skills necessary for a doctor to have, but in a wider sense as part of being an educated “whole” person per se – which the NewComers strive to be. Math itself (not just the certificate) is therefore seen as required for closing the gap between designated and actual identities. For this reason, the NewComers learn it “for its own sake.” In individualist motivation theoretical terms, NewComers pose mastery goals for their math learning whereas OldTimers pose performance goals (Ames, 1992; Ames & Archer, 1988). However, for Sfard and Prusak, these mastery goals will not be inner states which provide reasons for actions. Instead, they will be dynamically evolving interactionist statements, implicated by their identity as narratively formed in conversation with others.

As this example shows, Sfard and Prusak offer to educational psychology a perspective which can account not only for different ways of participating in classroom interaction (a participationist concern) but also for differences between students which are significant on acquisitionist counts. Specifically, their view allows an explanation of why students have different learning strategies, why they pose mastery or performance goals, and why some students are intrinsically motivated for a subject and others only extrinsically motivated (Ryan & Deci, 2000). Prusak’s study shows (a) *why* the NewComers were intrinsically motivated for learning math and why the OldTimers were not, relating this to (b) why there was a cultural difference between NewComers and OldTimers as well as (c) what difference this motivational difference made for learning math. Most individualist motivation theories could only account for (c).

Summing up, for Sfard and Prusak identity is an explicitly expressed understanding of a person (oneself or someone else) (Issue 4), articulated in concrete situations to a concrete audience (which may be oneself) (Issue 2). Positions are taken up and attributed to others in the telling of identities, and the identities we tell influence what we do and are influenced in turn by our perception of what

we have done. Identities draw on sociocultural background and resources, as does our approach to and involvement with the significant content domains within the practices we partake in (Issue 1). We have multiple incompatible identities across time and at any given moment in time, but on the other hand, “Stories once told tend to acquire a life of their own” (p. 18): Despite being momentarily expressed, designated identities are overarching understandings which shape our long-term patterns of action as well as other people’s perception of our possibilities and inadequacies (Issue 3). We can direct who we become through learning – actually, in our current, fluid society, Sfard and Prusak contended, it is a question of insufficient imagination if we tell too down-to-earth stories about who we are (p. 19).

Empirical assessment of the view of Holland et al. versus Sfard and Prusak’s:

Issue 1

The preceding analysis points to theoretical differences in the approaches of Sfard & Prusak and of Holland et al. concerning especially Issue 1, the *relationship between learning the content domain and issues of positioning, recognition and identity negotiation*. The *figured worlds* postulated by Holland et al. encompass large realms of experience, and thus the figurative aspects of student identities on their view are seemingly generic to the school setting. In contrast, Sfard and Prusak are concerned with student identities at a much more specific level and with the question of how students’ self-tellings integrate and determine views on specific disciplines. In this section I discuss empirical research findings which combine to show that Sfard and Prusak’s view is better empirically corroborated. Several of these findings can also be accounted for within the framework of individualist motivation theories.

First, since learning for Sfard and Prusak is the primary means a person has for closing the gap between her designated and her actual identity, their view can accommodate findings within expectancy-value theory of the significance of attainment value and utility value for predicting

choice of courses to enroll in (e.g. Durik, Vida, & Eccles, 2006; Eccles, 2005): A person's designated identity will point out subjects significant for her in their own right (math for the Israeli NewComers) as well as subjects useful for closing the gap (math for the Israeli OldTimers). For the same reason, their view can also incorporate the findings of self-determination theory that intrinsic motivation and integrated regulation foster cognitive engagement and learning to a larger extent than external regulation and introjection (Ryan & Deci, 2000). As discussed above, their view cannot be equated with either of these motivation theories. Still, because they can accommodate their findings, the empirical evidence for the latter speaks in favor of their view in comparison with the approach of Holland et al. The view of Holland et al. cannot accommodate the findings to the same extent because of its focus on identity as negotiated here and now and lack of a concept like the designated identity.

Likewise, empirical evidence supports the need to take the content domain into consideration when investigating the significance of students' positioning, recognition, and identity negotiation. Prusak's study referenced above supplies one case in question. Further evidence is found in Wortham's (2004) study of how a student's identity in a primary language class changed over the course of a school year from "good student performing according to expectations" to "disruptive student". Though these identities may in one sense be generic across subjects, the actual negotiation of them in the class studied by Wortham was crucially bound up with the specific content treated in the lessons: The student in question was increasingly positioned by herself, the teachers and the other students as disruptive and intellectually unproductive through specific content-related comments, including the use of curricular concepts such as Aristotle's concept of an "outcast." Similarly, Nolen's (2007) study of the socially mediated development of motivation to read and write in Grades 1-3 clearly showed that the specific ways in which content was engaged by teachers and students was decisive for triggering and sustaining students' interest and for their development

of identities as readers and writers. These identities further clearly differed from one another due to domain-specific differences. As Nolen pointed out, a central component of the identity as writer is the interest in expressing one's feelings, ideas, and perceptions, which is not similarly the case for reading. Both identities on the other hand are much more specific than the identity of e.g. "well-performing student" and "struggling student" which is the level of explanation of Holland et al.

Hannover and Kessels have studied the prototypes which students associate with specific school-subjects (Hannover & Kessels, 2004; Kessels, 2005). Their studies documented that students associate masculinity with math and science and see a prototypical science student as one with masculine traits. Their studies further showed that students prefer subjects where their self-image matches the associated prototype. They used these findings as explanations for why math and science are not popular high school subjects. Again, in the terminology of Holland et al. and Sfard & Prusak, this line of research documents that the content-domain itself is significant in the way students tell who they are. On the other hand, the specific involvement which students get to have with the content area through the design of concrete instructional activities may moderate their views: Hoffman and Häussler reported how designing a seventh-grade physics curriculum to fit girls' interests, (e.g. by illustrating the working of a pump with the heart instead of with an oil pump) led to a significant increase in their interest in physics (Hoffmann, 2002; Hoffmann & Häussler, 1998). In Renninger's words: "the girls (and boys) of this study may have had the impact of existing physics prototypes offset by meaningful lessons designed to trigger their interest" (Renninger, 2009, p. 114). Conversely, it is reasonable to expect that the prototypes may evolve over time if sufficiently many physics lessons were designed in similarly meaningful ways.

Finally, Yackel and Cobb's study of the establishment over time of sociomathematical norms in a second-grade classroom clearly demonstrated the key significance of discipline-specific rationales for determining what counts as appropriate argumentation. It is not enough that students challenge

others' thinking and justify their own; they have to do it in mathematically suitable ways (Yackel & Cobb, 1996). Though these authors did not couch their discussion in the terms of positioning and identity negotiation, their examples quite clearly showed how tightly interwoven the content domain is with the positioning and recognition of students as providers of appropriate argumentation and as intellectually autonomous. The students were not negotiated as “arguers or “critical reasoners” per se, but as *mathematical* reasoners, i.e. as persons who supply mathematical rationales rather than authority- or status-based ones.

Now, it might be objected that the differences between Holland et al. and Sfard & Prusak are due to differences in research focus: Holland et al. did not aim to contribute to our understanding of student involvement with school curricula whereas Sfard & Prusak did. And other authors have extrapolated the concepts of Holland et al. in investigations of a specific classroom as a “figured world” (e.g. Boaler & Greeno, 2000; Kasworm, 2005) or “social world” (Nolen, 2007) to investigate the social mediation of the views students develop on for instance math, reading and writing. This objection points out a vagueness in Holland et al.’s notion of figured worlds: It is not clear how specific figured worlds and corresponding figurative aspects of a person’s identity are. Sfard and Prusak’s operational concept of identity as what we actually tell, on the other hand, does not suffer from ambiguity and can incorporate both tellings involving content domain (e.g. Nolen, 2007; Wortham, 2004) and tellings relating to more general cultural figures (Fordham & Ogbu, 1986; Holland et al., 1998; Ogbu, 1987).

The operational merit of Sfard and Prusak’s approach comes at the price of some immediate problems, however. First, as mentioned above, they explicitly defined identities as the stories that are endorsable, i.e., which the teller “when asked, would say... faithfully reflects the state of affairs in the world” (p. 16)⁴. Thus, though Sfard and Prusak claimed that identity is a social construction,

⁴ For designated identities, this means that the persons see themselves as describing what is really the case about what they desire and fear concerning who they and others are going to be in the future.

referring to no extra-discursive entity, *this* point cannot be recognized by the agents themselves. *They* have to understand the stories they tell as describing extra-discursive entities. This is pragmatically incoherent, if not directly inconsistent.

Second, the approach leaves no theoretical space for a concept of self-delusion. If there is no “fact of the matter” about who we are apart from what we say, then it is not possible to question the adequacy of our self-understandings. Other people may offer alternative stories about us which may lead us to change our self-understandings, but it is not possible on Sfard and Prusak’s approach to ask which story is really true. As noted earlier, von Glasersfeld might say about himself that he is “a learning-theoretically informed teacher who supports students’ conceptual change.” I have suggested an alternate interpretation. Now, obviously, my interpretation is not necessarily a presentation of the “fact of the matter,” either. But the point is that it makes sense to discuss if either or none of the interpretations capture essential aspects of his teacher identity. Discussing this presupposes that there *is* a fact of the matter, and that this “fact of the matter” is independent of what each of us claims to be the case. This is precisely what Sfard and Prusak deny when they “reject the notion of identities as extra-discursive entities that one merely ‘represents’ or ‘describes’ while talking” (p. 16). One should not confound (a) the fact that any *assessment* of potential self-delusion will always be made by a given person with (b) the question of whether someone actually suffers from self-delusion⁵.

Actually, I think it is vital that we as teachers and educationalists acknowledge that we may be unaware of some aspects of what we do and who we are, but which may still have profound influence on student learning. If my interpretation of von Glasersfeld’s example is right, then his

⁵ This is not to deny that there are many aspects of who we are which are established in social negotiation. One aspect would be the example provided by Holland et al., of whether a girl is “really pretty” or not (Holland et al., 1998, p. 145). However, there are also fairly clear-cut examples of aspects where this is not the case. For instance, if the blind people in Brueghel’s painting *The Parable of the Blind* (or *The blind leading the blind*) all expressed understandings of themselves and the others as ‘persons with exceptionally clear sight’, they would all be in delusion, regardless of the fact that none of them expressed this opinion. Of course, the *verdict* that this is so depends on there being a viewer to see the painting. But the fact itself does not.

positioning of the students as “non-physicists” will have significance for the way they take up future learning opportunities, no matter how he and his students told his identity as a teacher. Interactions between people are real; they are not just the sum or intersection of the way people represent them in thought or discourse, even though such representations may of course enter into and influence the interactions. The analogy, again, is the jam session where the musicians let the music decide their relative positions without consciously focusing on taking up these positions. Evidence for these claims from within the field of educational psychology will be adduced after the next section.

Summing up, I have articulated two views which differ on Issue 1 above, the *relationship between learning the content domain and issues of positioning, recognition and identity negotiation*, and have established the view held by Sfard and Prusak as more viable. I turn now to the explication and evaluation of Issues 2, 3, and 4. To that end, I present yet a third view of positioning, recognition and identity which provides different answers to these issues.

Identity as patterns of participation

This third approach, articulated e.g. in Greeno and Gresalfi (2008) and Gresalfi (2009), agrees with Sfard and Prusak in according significance to the content domain (Issue 1) and is thus supported by the empirical evidence in this regard. It builds even more directly on the systems view introduced above as the common ground than the approaches of Holland et al. and Sfard and Prusak do and postulates a moment-to-moment situativity (Issue 2) which determines the development of longer-term interaction patterns (Issue 3), rather than the other way around as in Holland et al. and Sfard and Prusak. On this third approach, positioning, recognition and identity negotiation may take place without our awareness (Issue 4).

Greeno and Gresalfi (2008) explicitly described positioning and opportunities to learn as characteristics of *activity systems*. With this term, they anchor their view in activity theory

(Engeström, 1987, 2001; Hutchins & Klausen, 1996; Leont'ev, 1978, 1981; Vygotsky, 1978; Wertsch, 1998). Accordingly, the focus of their systems view is not only on the persons interacting, but quite as much on the material and informational resources of the given setting and the way the agents interact with them. In von Glasersfeld's example, they would thus count the track with balls as part of the system, along with the physical layout of the room, including information resources such as blackboards and screens etc., and the way students had placed themselves in the room. The rationale is that what students will do and how they interact with one another is inherently dependent on these resources. The combination of physical layout and placement of the students would for example determine differences in *informational access* for the students. Furthermore, the way students place themselves in the classroom will depend on their social interaction and vice versa: Stepping up in front to get a good view may position the student as "trying to get ahead" or "inconsiderate." Conversely, students may stay back where they cannot see very well, thereby avoiding negative positioning. And they may do so without necessarily being aware of this as a reason, but just because in their overall sense of themselves in the situation, this placement "feels right"⁶.

Greeno and Gresalfi referred to Holland et al. (1998) and Sfard and Prusak (2005) as inspirations for their understanding of identity (p. 184). Their concrete formulations however indicated that they do not understand identity as constituted by explicit tellings. They defined positioning and identity in the following way:

Positioning focuses on aspects of the organized activity system; it refers to ways in which aspects of the system afford opportunities for different individuals to contribute differently.

⁶ Analogous examples of this are reported in Solvoll and Heggen (2003) and Thrysøe (2011): Student nurses and newly qualified nurses, respectively, who had a marginalized position in the professional dialogue in the ward, were observed by the researchers to place themselves (and be placed by their colleagues) in peripheral physical positions at the table, both during meetings and during breaks.

Identity refers to patterns in the ways individual students take up opportunities to learn that are presented to them. (Greeno & Gresalfi, 2008, p. 182).

This definition does not entail that agents are explicitly aware of the way they are positioned in a given situation or of the interaction patterns constituting their identities (Issue 4). Rather, it ascribes positioning directly to the system and emphasizes that the opportunities students have for participating differ whether they are aware of it or not.

What this view offers to educational psychology is: (a) a more detailed, moment-to-moment perspective on classroom interactions, which allows explanations of why and how students do or do not engage with content domains; (b) an acknowledgement that participants' *awareness* of classroom opportunities to learn need not correspond to the *actual* opportunities in the classroom system; and (c) a demonstration of how the material and informational setting in which the interaction takes place contributes to establishing what the possible positions in the classroom interaction system are.

Greeno and Gresalfi's reported on a classroom occurrence may at once serve to illustrate the approach and to empirically corroborate it. In their example, students have been given back a math test and have been asked to revise their answers in groups. The resulting interaction in one of the groups leads to the positioning of two students (Jacob and Elise) as experts and the other two students (Monica and Fathia) as confused. The "expert" students did not explicitly *say* "I am an expert," but they took the lead in group discussions with the self-assurance of the expert. Jacob, for instance, banged on the table to start the explanation, saying "OK, for the first one" (p. 183). Similarly, the "confused" students did not say "I am completely confused when it comes to math," but the way they interacted in the group discussion positioned them as such, while simultaneously further positioning the "experts" as experts. One student kept quiet, the other one made statements such as "Um, this is what I did, could you tell me what's WRONG with it?" (p. 183). The

background to this positioning included both previous classroom interactions and the specific results of each student on the test.

The students' comments to one another, as they worked through the math problems, indicated that they conceptualized Jacob and Elise as "helpful" and "fast to understand" and Monica and Fathia as "grateful for being helped" and "understanding with difficulty." These conceptualizations would be the mental representations of self and others that individualist motivation theorists would try to uncover. They are also, in the terms of Holland et al. and Sfard and Prusak, the identities the students might tell if asked. Further, the students' conscious understanding may well have been that they all participated and tried to make sense of the math problem. However, in the system analysis of Greeno and Gresalfi, what actually happened in the interaction was that Jacob and Elise, being positioned as "experts," were the only ones to engage in explaining and thus to do mathematical conceptualization. The other two only wrote down the mathematical procedures which the experts showed them. Though the explicit awareness of all concerned (teachers, too) may have been that all students had the same opportunities to learn in this revise-in-groups-after-the-test activity, Greeno and Gresalfi's analysis showed how the moment-to-moment positioning and negotiation of identity developed in such a way that this was not the case.

A similar analysis is not possible from the individualist motivation theorist perspective. First, the positions of "expert" and "confused" need not coincide with the students' feelings of expertise/confusion nor with their self-efficacy (Bandura, 1986, 1997). At the end of the session, Monica and Fathia may not have felt confused anymore because of Jacob's and Elise's explanations, and the latter may well have been models for them who heightened their self-efficacy (Bandura, 1986; Schunk & Zimmerman, 1997). But whether they *felt* confused or not, the positions they had in this interaction would form the background for future interactions so that they would be initially positioned as "confused" and "to be explained to," if they later collaborate with Jacob and

Elise again. Second, if one concentrates narrowly on the issue of knowledge acquisition at the individual level, then it appears that Monica and Fathia are being helped by Jacob and Elise to conceptualize mathematically. Only within the system's view is it clear that, as the dialogue develops, Monica and Fathia are increasingly positioned as passive (though they do a lot of writing) and that therefore they do not entertain the same learning opportunities as Jacob and Elise.

The example illustrates the appropriateness of understanding positioning and recognition as processes which may take place without us being fully aware of it: This approach allows us to discover differences in learning opportunities that come about in the very interaction between people (moment-to-moment situativity, Issue 2) without anyone necessarily intending it or even realizing that this is the case (awareness, Issue 4). It can thus provide explanations of otherwise inexplicable differences in what students learn and in the attitudes which these moment-to-moment interactions over time lead them to develop to learning in general and to specific curricular subjects (relation of moment-to-moment situativity to longer-term patterns, Issue 3). These attitudes will be bound up with the patterns of participation which develop for the students over time, as a group (i.e. the patterns noticeable in the system, e.g. group dialogues structured as "experts" explaining to "the confused") and individually (i.e. the patterns noticeable in the behavior of individual students as integral parts of the system, e.g. banging the table with the authority of the expert). Gresalfi describes the development of long-term interaction patterns out of moment-to-moment situativity (Issue 3) as follows, referring to another study:

...one sees students start to be treated as certain kinds of people through the emergent participant framework ... of a classroom that shapes the ways in which students are expected, obligated, and entitled to participate with content and with others in the classroom. (Gresalfi, 2009, p. 331)

In the example of Greeno and Gresalfi, the *participant framework* consists of the repeated positioning in recurring group work of Jacob and Elise as experts and Monica and Fathia as “confused.” The *ways to participate* are that Jacob and Elise initiated and took the lead in revision and explaining and that Monica and Fathia wrote down mathematical procedures. These ways of participating will be shaped by developing implicit norms such as “experts explain, confused are explained to;” “confused may ask questions to explanations by experts X number of times before being treated with impatience.” Such norms will not be articulated – indeed, the students might well deny them if they were – but they develop as rules of practice that the students comply with in their interaction.

The participation framework is made up of the patterns of participation of the system. The students as part of the system correspondingly develop patterns in the way they participate. These patterns correspond to their identities in the system; their *participatory identities*. Identity formation thus is emergent, at once resulting from and shaping the ongoing moment-to-moment processes of positioning and recognition. It need not be intentional on the part of the agents and they may not even be conscious of it. Greeno and Gresalfi formulated the point in this way: “Identity formation, as we understand it, is a two-way process between the individual and what he or she brings to an interaction and the resources and consequent opportunities of a particular activity setting” (Greeno & Gresalfi, 2008, p. 182) and “we operationalize participatory identity by considering the emerging patterns in the opportunities that an individual takes up...” (ibid). When Jacob bangs his hand to highlight his explanation, he takes up the opportunity to explain in accordance with an emerging identity as “math expert” (presuming here that this way of acting is in accordance with the class’ prior interaction patterns). Mischel’s research showing that people’s behavior vary systematically across situations may be reinterpreted and cited here as evidence of the existence of such patterns of participation developing in social interaction (Mischel, 1973; Mischel & Shoda, 1995).

As indicated, the approach of Greeno et al. concurs with that of Sfard and Prusak in assuming an intimate relation between engaging with content domain and the positioning of participants (Issue 1). Detailed analyses of concrete interactions among students and between students and teachers (cf. e.g. Greeno & Gresalfi, 2008; Greeno & van de Sande, 2007; Gresalfi, 2009; Hand, 2010) show the importance of allowing the students to interact with the given content domain in authentic and empowering ways. They also show that the question whether this happens or not cannot be accounted for solely in terms of individual student motivation and teacher intentions, because it is the actual interaction between them which determines whether students are positioned as seriously contributing or not (Hand, 2010). The empirical evidence for this claim is discussed in further detail in the next section.

In the words of Greeno and van de Sande, through treating learners in empowering ways in relation to the central content domains, “learners can become positioned with greater authority, accountability, and conceptual agency in their group or community of practice” (Greeno & van de Sande, 2007, p. 21). This, in turn, supports the students in developing “productive dispositions toward learning” (Gresalfi, 2009, p. 366), which may carry over into other settings. Their approach thus adds a perspective to educational psychology, as compared both to the acquisitionist approach and to the other participationist views discussed here: Much more clearly than the latter, the view held by Greeno et al. shows how the positioning of students in relation to classroom tasks and the identities they develop over time may be decisive for their chances of engaging conceptually with the specific content domains of their learning tasks. At the same time, by showing this, they also – vis-à-vis the acquisitionist – provide a detailed rendering of how students’ knowledge acquisition is inherently bound up with the dynamic evolvment of the social system of the classroom.

Empirical assessment of the view of Greeno et al. versus Sfard and Prusak's:

Issues 2, 3 and 4

The point of introducing the approach of Greeno et al. was to clarify and evaluate issues 2, 3, and 4, on which it differs from the approach of Sfard and Prusak. In this section, I look at evidence in addition to the evidence discussed earlier to show that positioning, recognition and identity can take place in moment-to-moment interaction without us being fully aware of it.

Proponents of the *identity as patterns of participation* approach have provided numerous empirical documentations of classroom interactions which can only be accounted for if it is acknowledged that positioning and identity negotiation can take place “behind our backs” (i.e., that there is a “fact of the matter” beyond what we say). Hand (2010) studied how student opposition developed as a pattern of participation in a math class over the course of a school year . In one of the reported incidents (p. 109), the teacher invited students to suggest patterns in a table of numbers, and he verbally acknowledged their contributions as important. This amounts to an explicit positioning of them as contributors-to-math-conceptualizations. However, at the same time he checked the accuracy of their ideas in front of the class. Thus, he implicitly positioned himself as the real arbitrator and their contributions as “only significant because he declared them to be,” in contradiction to what he explicitly said. Through her article, Hand showed how this pattern of participation⁷ “that the teacher established *how* the students could participate in mathematical activity, and *whether or not* their participation mattered” (p. 109) developed in practice without anyone explicitly articulating it. She argued convincingly that it was an important element in the co-construction between teacher and students of a culture of opposition in the class. Notably, oppositional behavior was minimal at the beginning of the school year, but escalated during the year. A negative spiral developed in which the teacher increasingly did not engage the students in

⁷ “Participation structure” in Hand’s words.

solving the problems in front of the class, but did most of the explaining himself. According to Hand (2010), he chose this strategy to minimize the significance of the noise (due to oppositional behavior) in the classroom. In effect, it only led to increased oppositional behavior. Again, what the teacher explicitly said and what implicitly was happening were at odds with each other. The specific incident reported above as well as the long-term development of the negative spiral and the culture of opposition cannot be accounted for if only explicit tellings are accepted as that which constitutes positioning, recognition and identity. Of course, the teacher and the students might have articulated the discrepancy in other settings, not witnessed or reported by Hand. But it is equally possible that they never acknowledged it to themselves or others because they did not experience it as a discrepancy. The point is that this very question corroborates the necessity of postulating a “fact of the matter” (the existence or not of a discrepancy to be noticed or neglected). Similarly, Hand’s study corroborates the appropriateness of investigating identity as a phenomenon that develops through interaction instead of only focusing on what agents explicitly say (Issue 4). At the same time it provides a detailed study of how the dynamic moment-to-moment negotiation of positioning and recognition leads to long-term co-construction of student and teacher identities in the classroom (Issues 2 and 3).

Similar evidence supporting the view of Greeno et al. on Issues 2, 3, and 4 over the one of Sfard and Prusak may be found in Gresalfi’s comparative study of opportunities to learn in two mathematics classrooms (Gresalfi, 2009); in Greeno and van de Sande’s study of conceptual growth in interaction (Greeno & van de Sande, 2007); in Packer’s study of the development of participation patterns in a project-based science class (Packer & Goicoechea, 2000); in Postareff’s documentation of divergence between teachers’ self-reports of teaching practice and the researcher’s observations (Postareff, 2010); and, more broadly, in Bourdieu’s analyses of the “logic in practice” in Kabylia (Bourdieu, 1977, 1990).

As indicated, there is some ambiguity concerning Issue 4 in the view of Holland et al. Accordingly, they provided an example which is at odds with the way they defined *identity* in the opening lines of their book (cited above) and in favor of the Greeno et al. approach. This is the example of Kondo, a Japanese American who had grown up in the United States and went to Japan to do fieldwork (Holland et al., 1998, pp. 138-139). After a period of fieldwork, Kondo one day saw her reflection in a mirror and, according to Holland et al., suddenly realized that she “had acquired the dress, posture, and habits of a young Japanese housewife” (p. 139). Holland et al. asserted that this process had taken place

...simply by [Kondo] immersing herself in social activity from the position that her gender and her associates assigned her. Her acquisition of the dispositions that marked a particular, gendered identity had occurred without her awareness... (p. 139.)

That is, Holland et al. asserted that “behind her back” the interactions that Kondo had taken part in had implicitly negotiated a new identity for her. With this example, they illustrated that there is indeed a “fact of the matter” beyond our explicit tellings of how we are positioned and recognized in interaction.

Finally, Nolen’s study of the development of reading and writing motivation provides a clear example of unintentional positioning on the part of the teacher as the result of the formulation and adherence to specific rules in class. Thus, in one of the classes, the teacher effected the policy that the students should all finish reading before going to recess. In effect, this positioned the slower students as “obstructions to pleasure” for the other children. As indicated by interview statements, the slower students themselves were aware of this negotiated identity, but the teacher was not (prior to Nolen’s study) (Nolen, 2007, p. 246).

The significance of identity issues for knowledge acquisition

In the preceding sections I have argued that students take up learning opportunities in a given classroom situation according to their position in the classroom's dynamic system and that their continued academic performance will depend on how their student identity is negotiated in interaction. I have also pointed out that participationist views may provide better explanations of classroom phenomena than individualist motivation theories do. As regards the participationist claim which I set out to appraise in this article (cf. Introduction), my arguments this far therefore substantiate that *sometimes* at least we need to take a system's view on the learning opportunities presented to students in class if we want to understand the way they engage with curricular content.

However, the points made until now have been argued first and foremost as part of explaining the identity concepts within participationist views and demonstrating *that* participationist identity concerns are relevant to acquisitionist concerns about learning. *How* the relevance plays out has to some extent been glossed over. Herein lies the fifth issue on which participationist views disagree:

Issue 5: *The nature of the relationship between knowledge acquisition and positioning, recognition, and negotiation of identity.*

Spelling out the disagreement here will allow me to appraise the remaining part of the Introduction's participationist claim: Do we *always*, not only sometimes, need to take a system's view on learning opportunities? In the course of appraising this, I shall give back some ground to acquisitionists in general and individual motivation theorists in particular.

Sfard and Prusak (2005) argued quite strongly that identity issues are decisive for knowledge acquisition issues: students engage with mathematics on the basis of the identities they designate for themselves and their perceptions of gaps between these designated identities and their actual identities. In contrast, Greeno, Gresalfi, van de Sande, and Hand contended that the relationship is one of intertwinement, not one-way determination of the one by the other. In Greeno and Gresalfi's

example, Jacob's being negotiated as expert is supported by and itself supports his approach of engaging in mathematical conceptualizations (as opposed to Fathia who is negotiated to take the approach of "being explained to"). Gresalfi explicitly stressed that her study shows that classroom practices (i.e. patterns of participation) *shape* but do not *determine* dispositions for engaging with content (i.e. "learning strategies" in the terminology of cognitive learning theories) (Gresalfi, 2009). The difference between Greeno et al. and Sfard & Prusak here is influenced by but does not hinge on their different understandings of what identity is. It is quite possible to hold a view of identity as patterns of participation and still accord issues of identity, positioning, and recognition determinacy over knowledge acquisition issues. This view is taken by one strand within the *patterns of participation* approach, which may be termed "the ontological approach."⁸ For demonstrative purposes it is helpful to consider this strand in order both to illustrate further what is at issue for participationists in comparison with individualist motivation theories and to help arbitrate between the determinacy (ontological approach) and the intertwinement (Greeno and collaborators) views in order to appraise the participationist claim set forth in the Introduction.

A radical view: The "ontological" approach

The ontological approach understands identity in the vein of Greeno and collaborators, i.e. as patterns of participation which are enacted and negotiated in practice without the agents necessarily being consciously aware of it (Issue 4). However, like Sfard & Prusak, it claims that identity issues are decisive for *what* we engage with in practice (e.g. which knowledge domains we try to master) and *how* we do so (e.g. interestedly, with performance goals, defiantly, etc.). The strand has been most forcefully argued for by Packer, alone (Packer, 2001) and in collaboration with Goicoechea

⁸ In the terminology of the strand, issues of who we are and strive to become are 'ontological' issues as compared to issues of what knowledge is and how knowledge is acquired which are termed 'epistemological'. This terminology is not quite in accordance with the way the terms ontology and epistemology are defined and used within philosophy, but this is of minor significance here and I shall not discuss the terminology further.

(Packer & Goicoechea, 2000)⁹ and with Lave (Lave & Packer, 2008). It is further represented in the writings of Lave (1997), Wenger (1998), Tanggaard (2006), and Nielsen and Kvale (2006), among others. The claim is that identity negotiations and positioning in interaction fundamentally frame how we engage in practice and therefore, more specifically, in knowledge tasks. As Wenger puts it: “Knowing is a matter of participating in the pursuit of [valued] enterprises” where “Participation ... refers... to a[n] ... encompassing process of being active participants in the *practices* of social communities and constructing *identities* in relation to these communities” (Wenger, 1998, p. 4, emphasis in original). Or in the even stronger words of Packer and Goicoechea:

“ [K]nowing is not an end in itself, but a means to the ends of recognition and identity. The search for these ends is what leads people to “participate in communities in many different ways” [this phrase is a citation from Greeno & TMSMTAPG, 1998, p. 10] ... and occasions of what might seem a failure to learn can be reinterpreted as a struggle for identity.” (Packer & Goicoechea, 2000, p. 235).

Long-term interaction patterns – or rather attempts at negotiating these – thus determine how people engage in moment-to-moment interaction (Issue 3). In the von Glasersfeld example, the claim would be that the question whether a given student tried to understand the ball’s movement should not be answered in terms of abilities in physics *per se* but in terms of who he or she was negotiating to be (“bright student,” “oppositional student,” “someone just taking physics until something better shows up” etc.). Only given an understanding of the latter will it be possible to understand the way the student participates in the classroom interaction.

The above formulations could almost mislead one to the conclusion that Packer and collaborators take an individualist stand towards knowledge and identity construction. This is not

⁹ Packer and Goicoechea claim that the view they are articulating is incipient in sociocultural theories of learning in general. To my mind, this claim neglects important differences within the overall sociocultural approach. Research in distributed cognition (e.g. Hutchins & Klausen, 1996), for instance, is centrally focused on the functioning of a cognitive system and has no obvious bearing on identity issues. The claim also neglects the more specific divergences within participationist views discussed in the preceding section.

the case. The claim is rather that individuals negotiate who they are in relation to the social systems they partake in and that *this* negotiation has priority over the way they approach questions of knowledge *within* the systems and across systems. This corresponds to claiming, in the jazz example, that the negotiation of one's role in the jazz group (e.g., as soloist or "background keeper of rhythmic cohesion") will always, for every jazz musician, have priority over the specific music played and over learning to play it well. Moreover, this will determine the musicians' valuation of the music and their approach to learning to play it (e.g., positive versus negative; rigorous practice versus opportunistic tagging along). As Packer writes in an article with Lave, on their view we need as theorists to

"address questions of learning and knowing first of all as social ontological matters [i.e. matters of positioning and identity negotiation, NBD], and only secondarily and in a derivative manner as epistemological ones [i.e. matters concerned with acquiring skills and knowledge, NBD]." (Lave & Packer, 2008, p. 28)

That is, to understand what goes on when students learn, we must first understand their social relationships and how they evolve through positioning and identity negotiation. Only through understanding this will we be able to understand more specific questions such as why Jacob understands and Fathia does not – and why he is keen to engage in math conceptualization, whereas she is content with having problems explained to her.

Social relationships and identity negotiation are overarching and integral to the way knowledge is understood and appropriated, according to Packer. This leads him to the further claim that acquiring knowledge always involves transformation of the person as well as of the social world. As he has put it together with Goicoechea:

What constructivists call learning is only part of a larger process of human change and transformation, the process called learning by socioculturalists. Whether one attaches the

label “learning” to the part or to the whole, acquiring knowledge and expertise always entails participation in relationship and community and transformation both of the person and of the social world. (Packer & Goicoechea, 2000, p. 239).

Taken together, the presented quotes articulate a strong version of the Introduction’s participationist claim. Not only do we need a system’s view on learning opportunities to understand knowledge acquisition (accepted by all participationists); according to Packer et al., knowledge acquisition, person and social world co-constitute one another.

The claim is, however, put very much in the abstract. Taking up some concrete examples will provide clarification. The examples will also, I think, show that Packer and followers go too far when they assert that issues of identity, positioning, and recognition always determine knowledge acquisition issues. Consider the following examples:

- googling information about when Jimmy Carter became president of the United States;
- being told that the Danish word for “friendship” is “venskab”;
- finding out how to turn a new type of door-handle which one has not encountered before
- tasting a new fruit, say honeydew melon, for the first time

The question is what it means to say that, in these examples, person and social world are transformed and that they are all embarked on as a means to the ends of identity and recognition. At face value, these claims do not seem plausible. In the first example, I might be googling Carter in a fit of boredom and care very little about the finding that he was inaugurated in 1977. It is hard to see why I, let alone the social world, should have been transformed in the process. Likewise for the other examples.

One option here is to say¹⁰ that in examples such as these, people are not acquiring knowledge at all but (only) information, precisely because its significance for us is negligible. The problem

¹⁰ As Wenger has done, personal communication.

with this response is the risk of tautology. If the researcher restricts the term knowledge to refer only to that which is significant for a person's pursuit of identity, then the claim made in the Packer and Goicoechea quote above is empty. Furthermore, this restriction would mean that a number of situations and experiences which would usually be considered examples of knowledge acquisition in educational psychology literature – as well as in everyday parlance – are declared not to be knowledge at all. This is a legitimate move for a theory, especially if it is made explicitly and justified. But in this case it means that the significance and thought-provoking character of the claims asserted by Packer and collaborators are diminished considerably. They seem thought-provoking precisely because they appear to say something about what educational psychologists and laypersons usually call knowledge.¹¹

An alternative option is to insist that the claims of Packer and collaborators also apply to situations like the ones in the list above. This would mean asserting that, even though I am not aware of it, googling Carter in a fit of boredom *is* in fact led by my (in this case implicit) search for recognition and identity (as a knowledgeable person, a Trivial Pursuit master etc.). It *does* transform me and the social world (in a very small way) in that it allows me new ways of participating, i.e. makes it possible for me to take on new positions in the system.

Above, I argued--in agreement with Greeno and his colleagues--that positioning and negotiations of identity may take place without our conscious awareness. Therefore, the suggested interpretation of the Carter-googling incidence cannot be ruled out. But it is, I would claim, an empirical question what spurs the Carter-googling. It is also an empirical question whether I shall ever be in a situation where my knowledge of his inauguration year will play a role in social interaction and thus whether this piece of knowledge has in point of fact transformed me and the social world. The problem with the Packer-view is that it stipulates on beforehand that (a) only

¹¹ As Jackson puts the problem, a bit pointedly: "*It is always open to us to stipulate the situations covered by the various descriptive terms, in which case we address subjects of our stipulation rather than the subjects the titles of our books and papers might naturally lead others to expect us to be addressing*" (Jackson, 1998, p. 42).

certain kinds of explanations of knowledge acquisition are acknowledged *as* explanations and (b) that these explanations must for their part be given for *every* instance of knowledge acquisition.

This is the general point where I think Packer and collaborators go too far: They determine by analytical decree what matters most to people in practice instead of investigating it empirically. In doing this they bar themselves from asking interesting questions about how the relationship between identity issues and issues of knowledge acquisition play out in empirical practice. In the following I illustrate this point and its consequences through discussion of a case of a young boy who taught himself to read in social systems not very supportive of his efforts. I have been involved with the case, not as a researcher, but as participant in the settings in question. For this reason, the empirical data I can produce are of an overall, interpretive kind, not observation notes or interview statements. To expand on this, I shall also refer to research studies which corroborate the reasonableness of my interpretation on the significant points.

Until recently, children in Danish pre-schools have been explicitly encouraged to engage in letter- and reading-learning activities only to a limited degree¹². A preschool would typically have some toys involving letters as well as a number of books for adults to read aloud. If the children showed an interest in playing with letters, they would be supported to some extent. However, this support was in the context of a general understanding that other activities and competences were more important for this age group (e.g., role-playing with other children, physical fitness, social skills, increased mastery of the spoken language, and various motor skills).

This general understanding showed up in practice as a difference in the amount of time which different activities were accorded. It was also repeatedly articulated in words. In casual remarks:

¹² This has been changing over the last years, but the values and practices discussed here have been dominant in Danish preschools for decades. The empirical claims put forward in this example are based on informal conversations with a number of pre-school practitioners and on many years of informal observation of pre-school practices in several institutions. They are supported by numerous pedagogical discussions with pre-school staff of the goals ideally and practically to be set for pre-schools and pre-school children. These discussions were held over several years in the context of participation in pre-school boards.

“Oh, there you are with your letters.” In directions: “That’s enough letter playing for now – now it’s time to go outside.” And in explicit articulation: “You have to stop playing with your letters now. It is important that you get some exercise and play with the other children.”

This ambiguous support amounted to a positioning of the children and their attempts at intellectual skill acquisition as somewhat problematic and different from “normal.” In effect, it meant negotiating that it is inappropriate for children at this age to pursue the identity of “intellectually engaged child.” Despite this, some children persevered in engaging in letter- and reading-learning activities. In one particular case, a four-year old boy, Peter (a pseudonym), basically taught himself how to read through activities such as playing pre-reader computer games, playing with physical letter objects, and patiently piecing letters together in books which he had heard read aloud many times already. He engaged in such activities both in pre-school and at home, to such an extent that it repeatedly interfered with other plans and activities in both settings. Peter’s persistence often led to his being scolded because he did not stop when he was told to. Thus, he was often positioned in both the social system of the pre-school and the one at home as “oppositional,” “inconsiderate,” “too self-centered and stubborn,” and, at least in the pre-school, even as “having a social skills problem.”

On the view of Packer and collaborators, Peter’s efforts in learning to read must be understood as means to the ends of identity and recognition, e.g. as seeking to get the pre-school teachers’ attention through opposing them (though Peter probably was not explicitly aware of it). The letter-playing on this view was the more or less contingent domain for pursuing this end. Alternatively, because his parents did value his reading activities, Peter might be interpreted as seeking to develop the identity of “intellectually advanced child” in accordance with his parent’s values.

An alternative hypothesis – *pace* Packer and collaborators – is that Peter found it fun to learn the letters and to decipher words with this knowledge. He tried to learn to read because he wanted

to *read*, not because he wanted to *be* someone or be viewed by pre-school teachers and parents as someone. In other words, knowledge acquisition was an end in itself. In the Nolen (2007) study referred to above, several of the children said that they liked to read because it was “fun.” The teachers’ attitudes to reading were much more supportive in Nolen’s cases than in Peter’s, so her results are not directly transferable. But they do indicate that the suggested interpretation of Peter’s reading efforts is at least reasonable. On the Packer view, it is ruled out by fiat on beforehand.

The suggested interpretation will not surprise, of course, the individualist motivation theorist. The large body of research focused on intrinsic interest and motivation (e.g. Deci, 1992; Eccles, 2005; Hidi, 1990; Ryan & Deci, 2000) and development of individual interest (e.g. Bergin, 1999; Hidi & Renninger, 2006; Krapp, 2005; Schiefele, 1991; Schraw & Lehman, 2001; Urdan & Turner, 2005) are all based on the premise that interest in a topic or knowledge domain is a prime reason for engaging with it and to learn about it. Further concrete examples from the literature may be adduced as evidence against the Packer approach to corroborate that in some instances the pursuit of knowledge is an end in itself for the person in question. Examples include Krapp’s description of a boy who combined his “two highly preferred activities” of playing with “Fischer-Technik” (physical construction set) and developing computer programs, into an interest in robotics building and programming (Krapp, 2002). Krapp does not discuss the social settings in which the boy participated so no definitive judgement can be passed on the significance of identity issues for the boy’s interest in pursuing knowledge within the combined domain. Still, it would seem a reasonable hypothesis that he was intrigued by the combination itself of the two domains, given that he already engaged with these two domains (for whatever reasons). Azevedo (2013) provided a similar example of a grown-up who “marries” his interest in photography to his newly started practice of amateur astronomy to create an idiosyncratic *astrophotography* practice. Likewise, Resnick’s work on facilitating student understanding of science through creation of personalized scientific

instruments offers several examples of students whose efforts are led by their attempts to gain knowledge, not by positioning, recognition, and identity issues (Resnick, Berg, & Eisenberg, 2000). One student wanted to enter a self-built “marble machine” (made out of school at a Science Museum design workshop) into her school’s science fair. As reported by Resnick et al., her excitement about her project and her confidence that it fitted the science requirements led her interaction with the teacher (who was of a different opinion), not issues of positioning and recognition.

The cited research does not counter the participationist challenge to individualist motivation theories, inherent in the claim set forth in the Introduction, namely that interest development and knowledge pursuit cannot be understood in isolation from issues of identity negotiation and recognition. Most of the literature does not supply sufficient information about the social setting, and the texts that do (such as Nolen’s and Azevedo’s) support the claim that, in general, issues of interest and knowledge acquisition intertwine with identity issues. What the empirical research literature does, however, is render plausible the claims – contrary to the Packer view – that

- A. in some instances knowledge is sought as an end in itself, though probably with consequences for positioning and recognition (as in the Resnick example). A participationist approach cannot in every case reduce individualist theoretical notions of self-determinacy and interest to negotiation of position in social systems.
- B. in any given case (including the case of Peter teaching himself to read) it will be an empirical question what leads what and how.

The empirical evidence as well as theoretical considerations thus arbitrate in favor of the intertwinement view (Greeno and collaborators) over the determinacy view (Packer and collaborators) in relation to the fifth set of issues on which participationists disagree, i.e. *the nature*

of the relationship between knowledge acquisition and positioning, recognition and negotiation of identity.

The implications of points A and B for individualist motivational theories should also be pointed out: On the one hand, it means (point A) that individualist constructs such as self-determinacy and interest in some cases do have significant roles to play in accounting for knowledge acquisition. On the other hand, however, it is *not* to be known on beforehand in which cases these constructs are of importance – this is a matter for empirical investigation (point B). Just as Packer et al. cannot determine by analytical decree that identity negotiations matter most (or at all) to people, one cannot determine by analytical decree that intrinsic motivation or interest does.

Accepting the intertwinement view, the question arises whether and how over time there will be shifts in the way identity issues influence knowledge acquisition and vice versa. To illustrate again with the case of Peter: Even on the hypothesis that he learned to read because he wanted to read (i.e. as an end in itself), his skill acquisition activities definitely had consequences for the way he was positioned in the social systems he partook in, both in preschool and later on in life. His letter-playing activities involved repeated negotiation of him as in opposition to the pre-school teachers, even if this was not the reason for learning to read but rather a result of it. This in turn influenced his identity development in relation to the other children (as “different”). Upon enrollment in school, his reading skills at once positioned him differently than the other students, as “the boy who could already read on the first day of school” and “a very young reader.” Positionings such as these then greatly influenced his way through school, socially and intellectually. Over time his identity was negotiated by himself, classmates, teachers, parents etc. as “the different, clever boy” expected to do well academically. This had consequences for the goals he set himself, for his interest development, and for the degree of self-determination and self-efficacy with which he pursued his

goals. Over the years, the ends of identity and knowledge pursuit seem to have shifted repeatedly for him, though it would have required a detailed ethnographic study to determine precisely how.

Examples in the research literature confirm that such shifts in the prioritizing between knowledge acquisition and identity issues take place over time. Azevedo's description of the hobby astronomy practices of his main informant, Mitchell, moves back and forth between a focus on the pursuit of knowledge goals and of recognition and identity. An instance of the former is Mitchell's aim to refine his skill of *seeing*, i.e. spotting the stars. An instance of the latter is the way his negotiation of an identity as "really serious amateur astronomer" influences his choice of certain observational targets (Azevedo, 2013). Nolen documented that "ego concerns" in Grade 1 are almost absent in students' articulations of their views on reading. That is, students do not articulate concerns about how their reading performance compares to that of other students and what the differences mean for their status in the social group. Their conscious awareness of positioning and identity negotiation is therefore very low (as articulated in interviews and the social interactions in the situations observed by Nolen). This does not mean that such issues are insignificant in Grade 1 since consciousness of positioning and identity negotiation is not necessary for them to have effects. It is, however, interesting that students started articulating ego concerns during Grades 2 and 3 in both the schools studied, though the salience of ego concerns rises more in the high socio-economic status (SES) school than in the low-to-middle SES school (Nolen, 2007). This is at least an indication of a shift towards increased priority of these issues in later grades.

Arguably, the data in the study by Wortham (2004) mentioned above not only corroborate his claim that the negotiation of a given student's identity changed from "good student" to "disruptive student" over the course of a year. The data also point at a shift in the given student's prioritizing of knowledge acquisition and identity negotiation. In the beginning of the year, the comments she offered in class seemed aimed at dealing with the topic of the class (though she did not always

succeed in doing so in an academically appropriate, on-topic way). As time passed and her identity was negotiated as disruptive, she ended up increasingly pursuing this identity as a goal itself, to the point of articulating herself as a “disruptive outcast” (Wortham, 2004). On the other hand, Gresalfi’s study of opportunities to learn in two mathematics classrooms on the other hand might be interpreted as showing a shift in the opposite direction, with some students initially taken up with positioning and identity negotiation issues but over time developing lasting interests in math (Gresalfi, 2009).

Summing up, in this section I have provided arguments and corroborating evidence for the intertwinement view over the determinacy view as concerns the fifth issue on which participationist theorists disagree, *the nature of the relationship between knowledge acquisition and positioning, recognition and negotiation of identity*. I have argued that it is an empirical question how the intertwinement plays out and that in some instances the actual intertwinement may not take place: I may acquire a new piece of knowledge without it affecting me as a person or the social systems in which I partake.

These considerations allow me to appraise the latter part of the participationist claim set forth in the Introduction. I have established earlier that we *sometimes* need to take a system’s view on learning opportunities. The Peter example and the corroborating studies I discussed show that we do not *always* have to do so. Interest and dispositions for engaging in a content domain need not only be the *result* of social interaction over time, but sometimes will be part of the explanation *of* it. In the case of Jacob and Fathia, an important question for educational practice is to which extent their respective initial interests in math were part of the reason why the social interaction played out as it did. Here, I part company with participationists, even those like Greeno and collaborators who do ask acquisitionist questions, but only as articulated within a participationist framework. Instead, I advocate the inquiry of how acquisitionist and participationist issues interact in practice.

In conclusion

The overall aim of this article has been to give participationist approaches their due. No more, no less. To this end, I have on the one hand explained the concepts of identity, positioning, and recognition and have illustrated how the system's view inherent to participationist approaches is in some instances necessary to understand classroom interactions and individual students' engagements with curricular domains. By doing this, I hope to have rendered evident the virtues of the participationist position to acquisitionists. On the other hand, I have argued that the system's view is not always adequate to understand knowledge acquisition because sometimes we need to take individualist notions of self-determinacy and interest into account as explanatory forces. By doing this, I hope to have rendered evident some deficiencies in the participationist position to both participationists and acquisitionists. We need an approach to knowledge acquisition which allows researcher and practitioner in each empirical instance to ask how individualist acquisitionist issues and participationist ones intertwine.

By way of conclusion, I shall point out the significance of these arguments for educational practice:

- Classroom interactions involve positioning of participants as knowledgeable contributors (or not) to varying degrees. This positioning is decisive for the actual opportunities to learn which students have. Student and teacher motivation and intentions are not enough to account for the positioning of individual students. To understand why students engage in learning activities in different ways, the teacher needs to analyze the classroom as a dynamic social system.
- The analysis will be complicated by the facts that (a) teachers themselves are part of the system, and (b) people are not always aware of the positioning and recognition taking place in interaction. Teachers may think that they are negotiating their students as knowledgeable

contributors when in fact they are not (as in the case described by Hand (2010), 2010), and the classroom interaction may play out in ways which result in positionings that differ from what was consciously believed. Third-party observations of classroom interaction may be necessary to offer additional input to the analysis.

- Moment-to-moment interactions lead to patterns of participation among students, and their individual ways of enacting these patterns constitute their participatory identities. Student interest (or not) in curricular subjects and dispositions for engaging with content develop intertwined with the development of their participatory identities. It is an empirical question as to what leads what for a given student at a point in time--i.e., to which degree they engage (or not) in learning tasks because of interest and self-determination and to which degree they do so (or not) as part of negotiating who they are. What leads what may change repeatedly during schooling. Teachers can support constructive co-development of interest, dispositions for engaging with content, and identity through consciously working at the moment-to-moment basis to position students as knowledgeable persons with regard to the content domain. For instance, they can initiate activities in the classroom in which students participate in developing conceptual understanding and teachers are careful to actively recognize their contributions.
- All things equal, it is easier to support the positioning of students as knowledgeable contributors by implementing learning activities which accord initiative and responsibility to them (such as problem-based learning and project work). It tends to be more difficult if one uses instruction-centered activities. The former are therefore to be recommended. Likewise, course activities and educational programs which are organized to allow students to participate e.g. in out-of-school practices as knowledgeable contributors offer *prima facie* opportunities for them to negotiate constructive identities. However, one should be aware

that if educational activities are designed to allow students' authentic engagement, but they are then *not* taken seriously as knowledgeable contributors in the moment-to-moment interaction, this will act to position them in *less* empowering ways than educational activities which do not support students' active engagement in the first place. This is what happened in the cases described by Hand (2010) and Packer & Goicoechea (2000).

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References

- Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of educational psychology, 84*(3), 261-271.
- Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of educational psychology, 80*(3), 260-267.
- Azevedo, F. S. (2013). The Tailored Practice of Hobbies and Its Implication for the Design of Interest-Driven Learning Environments. *The Journal of the learning sciences, 22*(3), 462-510.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bergin, D. A. (1999). Influences on classroom interest. *Educational Psychologist, 34*(2), 87 - 98.
- Boaler, J., & Greeno, J. G. (2000). Identity, agency, and knowing in mathematics worlds. In J. Boaler (Ed.), *Multiple perspectives on mathematics teaching and learning* (pp. 171-200). Westport, CT: Greenwood Publishing Group.
- Bourdieu, P. (1977). *Outline of a Theory of Practice" translated by R. Nice*: Cambridge.
- Bourdieu, P. (1990). *The logic of practice*: Stanford University Press.
- Deci, E. E. (1992). The relation of interest to the motivation of behavior: A self-determination theory perspective. In K. A. Renninger, S. Hidi, & A. Krapp (Eds.), *The role of interest in learning and development* (pp. 43-70). Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc. .
- Durik, A. M., Vida, M., & Eccles, J. S. (2006). Task values and ability beliefs as predictors of high school literacy choices: A developmental analysis. *Journal of educational psychology, 98*(2), 382-393.
- Eccles, J. S. (2005). Subjective task value and the Eccles et al. model of achievement-related choices. In A. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 105-121). New York: Guilford Press.
- Eccles, J. S. (2009). Who Am I and What Am I Going to Do With My Life? Personal and Collective Identities as Motivators of Action. *Educational Psychologist, 44*(2), 78-89.
- Engeström, Y. (1987). *Learning by Expanding: An Activity-Theoretical Approach to Developmental Research*. Helsinki: Orienta-Konsultit.
- Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical reconceptualization. *Journal of education and work, 14*(1), 133-156.
- Fordham, S., & Ogbu, J. U. (1986). Black students' school success: Coping with the "burden of 'acting white'". *The Urban Review, 18*(3), 176-206.
- Greeno, J. G., & Gresalfi, M. S. (2008). Opportunities to learn in practice and identity. In P. A. Moss, D. C. Pullin, J. P. Gee, E. H. Haertel, & L. J. Young (Eds.), *Assessment, equity, and opportunity to learn* (pp. 170-199). New York: Cambridge University Press.
- Greeno, J. G., & van de Sande, C. (2007). Perspectival understanding of conceptions and conceptual growth in interaction. *Educational Psychologist, 42*(1), 9-23.
- Gresalfi, M. S. (2009). Taking up opportunities to learn: Constructing dispositions in mathematics classrooms. *The Journal of the learning sciences, 18*(3), 327-369.
- Hand, V. M. (2010). The co-construction of opposition in a low-track mathematics classroom. *American Educational Research Journal, 47*(1), 97-132.
- Hannover, B., & Kessels, U. (2004). Self-to-prototype matching as a strategy for making academic choices. Why high school students do not like math and science. *Learning and Instruction, 14*(1), 51-67.

- Hansen, K. G. (2000). Situeret læring i klasserummet. In K. Illeris (Ed.), *Tekster om læring* (pp. 206-223). Frederiksberg: Roskilde Universitetsforlag.
- Hidi, S. (1990). Interest and its contribution as a mental resource for learning. *Review of Educational Research*, 60(4), 549-571.
- Hidi, S., & Renninger, K. A. (2006). The four-phase model of interest development. *Educational Psychologist*, 41(2), 111-127.
- Hoffmann, L. (2002). Promoting girls' interest and achievement in physics classes for beginners. *Learning and Instruction*, 12(4), 447-465.
- Hoffmann, L., & Häussler, P. (1998). *An intervention project promoting girls' and boys' interest in physics*. Paper presented at the Interest and learning: Proceedings of the Seon conference on interest and gender.
- Hogg, M. A. (2012). Social identity and the psychology of groups. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of Self and Identity, Second Edition* (pp. 502-519). New York: Guilford Press.
- Holland, D., Lachicotte Jr, W., Skinner, D., & Cain, C. (1998). *Identity and agency in cultural worlds*. Cambridge Massachusetts: Harvard University Press.
- Hutchins, E., & Klausen, T. (1996). Distributed cognition in an airline cockpit. In Y. Engeström & D. Middleton (Eds.), *Cognition and communication at work* (pp. 15-34). New York: Cambridge University Press.
- Jackson, F. (1998). *From metaphysics to ethics: A defence of conceptual analysis*. Oxford: Clarendon Press.
- Kasworm, C. (2005). Adult Student Identity in an Intergenerational Community College Classroom. *Adult Education Quarterly*, 56(1), 3-20.
- Kessels, U. (2005). Fitting into the stereotype: How gender-stereotyped perceptions of prototypic peers relate to liking for school subjects. *European Journal of Psychology of Education*, 20(3), 309-323.
- Krapp, A. (2002). Structural and dynamic aspects of interest development: theoretical considerations from an ontogenetic perspective. *Learning and Instruction*, 12(4), 383-409.
- Krapp, A. (2005). Basic needs and the development of interest and intrinsic motivational orientations. *Learning and Instruction*, 15(5), 381-395.
- La Guardia, J. G. (2009). Developing Who I Am: A Self-Determination Theory Approach to the Establishment of Healthy Identities. *Educational Psychologist*, 44(2), 90-104.
- Lave, J. (1997). Learning, apprenticeship, social practice. *Nordisk pedagogik*, 17(3), 140-151.
- Lave, J., & Packer, M. (2008). Towards a social ontology of learning. In K. Nielsen, S. Brinkmann, C. Elmholt, L. Tanggaard, P. Musaeus, & G. Kraft (Eds.), *A Qualitative Stance* (pp. 17-46). Aarhus: Aarhus University Press.
- Leont'ev, A. N. (1978). *Activity, Consciousness, and Personality*. Upper Saddle River, New Jersey: Prentice-Hall.
- Leont'ev, A. N. (1981). The problem of activity in psychology. In J. V. Wertsch (Ed.), *The Concept of Activity in Soviet Psychology*. Armonk, NY: M.E. Sharpe.
- Levin, J. R., & Pressley, M. (1983). *Cognitive strategy research: Psychological foundations*. New York: Springer.
- Markus, H., & Nurius, P. (1986). Possible selves. *American psychologist*, 41(9), 954-969.
- McKeachie, W. J., Pintrich, P. R., & Lin, Y.-G. (1985). Teaching Learning Strategies. *Educational Psychologist*, 20(3), 153-160.
- Mischel, W. (1973). Toward a cognitive social learning reconceptualization of personality. *Psychological Review*, 80(4), 252-283.

- Mischel, W., & Shoda, Y. (1995). A cognitive-affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review*, 102(2), 246-268.
- Morf, C. C., & Mischel, W. (2012). The self as a psycho-social dynamic processing system: toward a converging science of selfhood. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of Self, and Identity* (pp. 21-49). New York: Guilford Press.
- Nielsen, K., & Kvale, S. (2006). The workplace – a landscape of learning. In E. Antonacopoulou, P. Jarvis, V. Andersen, B. Elkjær, & S. H. Pedersen (Eds.), *Learning, Working and Living* (pp. 119-135). Houndmills, Hampshire: Palgrave Macmillan.
- Nokes-Malach, T. J., & Mestre, J. P. (2013). Toward a Model of Transfer as Sense-Making. *Educational Psychologist*, 48(3), 184-207.
- Nolen, S. B. (2007). Young children's motivation to read and write: Development in social contexts. *Cognition and instruction*, 25(2-3), 219-270.
- Ogbu, J. U. (1987). Variability in Minority School Performance: A Problem in Search of an Explanation. *Anthropology & Education Quarterly*, 18(4), 312-334.
- Oyserman, D., Elmore, K., & Smith, G. (2012). Self, self-concept, and identity. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of Self and Identity, Second Edition* (pp. 69-104). New York: Guilford Press.
- Packer, M. J. (2001). The problem of transfer, and the sociocultural critique of schooling. *The Journal of the learning sciences*, 10(4), 493-514.
- Packer, M. J., & Goicoechea, J. (2000). Sociocultural and constructivist theories of learning: Ontology, not just epistemology. *Educational Psychologist*, 35(4), 227-241.
- Postareff, L. (2010). *How do teachers' self-reports of their teaching correspond with their teaching practices?* Paper presented at the International Coinstorium for Educational Development, Barcelona.
- Renninger, K. A. (2009). Interest and Identity Development in Instruction: An Inductive Model. *Educational Psychologist*, 44(2), 105-118.
- Resnick, M., Berg, R., & Eisenberg, M. (2000). Beyond Black Boxes: Bringing Transparency and Aesthetics Back to Scientific Investigation. *Journal of the Learning Sciences*, 9(1), 7-30.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology*, 25(1), 54-67.
- Schiefele, U. (1991). Interest, Learning, and Motivation. *Educational Psychologist*, 26(3), 299 - 323.
- Schraw, G., & Lehman, S. (2001). Situational Interest: A Review of the Literature and Directions for Future Research. *Educational Psychology Review*, 13, 23-52.
- Schunk, D. H., & Zimmerman, B. J. (1997). Social origins of self-regulatory competence. *Educational Psychologist*, 32(4), 195-208.
- Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational researcher*, 27(2), 4-13.
- Sfard, A., & Prusak, A. (2005). Telling identities: In search of an analytic tool for investigating learning as a culturally shaped activity. *Educational researcher*, 34(4), 14-22.
- Solvoll, B. A., & Heggen, K. (2003). Læring i sykepleiepraksis. In M. S. Bjerknes & I. T. Bjørk (Eds.), *Å lære i praksis – en veiviser for studenten*. Oslo: Universitetsforlaget.
- Tajfel, H. (1972). La catégorisation sociale. In S. Moscovici (Ed.), *Introduction à la psychologie sociale* (pp. 272-302). Paris: Larousse.
- Tanggaard, L. (2006). Situating gendered learning in the workplace. *Journal of Workplace Learning*, 18(4), 220-234.

- Thrysoe, L. (2011). *At blive og at være sygeplejerske: En undersøgelse af oplevelsen ved at være næsten færdiguddannet og nyuddannet sygeplejerske og interaktionens betydning for deltagelse i praksisfællesskabet. Ph.D. dissertation.* Odense: Research Unit of Nursing, University of Southern Denmark.
- Urdu, T., & Turner, J. C. (2005). Competence motivation in the classroom. In A. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 297-317). New York: Guilford Publications.
- von Glasersfeld, E. (2001). Radical constructivism and teaching. *Prospects*, 31(2), 161-173.
- Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes.* Harvard: Harvard University Press.
- Wenger, E. (1998). *Communities of Practice.* New York: Cambridge University Press.
- Wertsch, J. V. (1998). *Mind as action.* New York: Oxford University Press.
- Wortham, S. (2004). From Good Student to Outcast: The Emergence of a Classroom Identity. *Ethos*, 32(2), 164-187.
- Yackel, E., & Cobb, P. (1996). Sociomathematical norms, argumentation, and autonomy in mathematics. *Journal for research in mathematics education*, 458-477.