Complementary education in classrooms and afterschool programs

Paper presented at the TA, Teachers Approach Conference, 2014. Riga, Latvia.

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Abstract

This paper analyzes how afterschool teachers and caretakers meet the demands for cognitive and creative development of students. Observations of lessons and sessions in afterschools (‘*fritidshem’*) for grade K-3 and staff interviews were used. The questions guiding the analysis concern what criteria are important when teaching thinking and creativity to students, how these are planned and represented in the activities, and how the results compare to the school analysis.

Teaching thinking and creativity presupposes that the teacher plans, assesses, chooses activities and tools, and arranges the setting carefully, with focus on fostering students’ habits of mind. The contextual and communicational interactions play a vital part of support. Evidence of the anticipated criteria was difficult to ascertain in the observed classrooms and afterschools. However, a few teachers present successful models, and some schools present school and afterschool interaction to improve students’ thinking and creativity.

Key words: thinking, creativity, cognitive development, lesson planning, afterschools (*fritidshem*)

Introduction

Swedish schools, as well as several school systems in other European countries, are facing a drop of results of student performances in international tests (PISA 2012, PIRLS 2011, TIMMS 2011, Skolverket, 2014a). The world is experiencing rapid societal changes – fast progress of technical development, the globalization of communication, markets, and ideas, and the demand for equal education for different groups. Meeting these challenges requires good educational practice, focused on teaching thinking and creativity to students, as well as democratic skills.

In the overall project of which this paper is a part, the results, focusing schoolteachers, have been previously analyzed and presented (Pihlgren, 2013a). The results show that the grey marked positions (see Table 1) in Bloom’s revised taxonomy were met in most of the observed classrooms. Contrary to what Anderson & Krathwohl (2001) state, qualitative differences were found in the taxonomy positions, some being more advanced, at least when it comes to thinking and creative activities in the classroom. Only some schoolteachers reached these higher thinking levels, depending on a productive praxis theory affecting how they taught and planned activities and context.

The anticipated criteria were hard to reach in most of the observed classrooms. Though most teachers showed an understanding of what would develop the students cognitively, they lacked the understanding to translate this knowledge into practice. The schoolteachers tended to plan focusing what should be taught rather than students’ cognition. Without understanding the difference, teachers seemed to accept methods and structures mechanically.

Table 1. *Frequency of markings for schoolteachers in positions of Bloom's revised taxonomy in percentage of the total material of marks.*

THE KNOWLEDGE DIMENSION	THE COGNITIVE PROCESS DIMENSION					
	1. Remember	2. Understand	3. Apply	4. Analyze	5. Evaluate	6. Create
A. Factual knowledge	12	11	10	4	4	2
B. Conceptual knowledge	7	6	6	2	1	0
C. Procedural knowledge	8	8	11	2	1	>1
D. Meta-cognitive knowledge	2	1	1	<0	<0	0

Most of the observed classes were thoroughly planned and well performed. The analysis revealed four teaching styles: the common, the student investigative, the scaffolding, and the moralistic teaching style. Their didactic consequences are displayed in figure 1: Position A. *Didactic position* where the intention is to plan both product and process, B. *Process oriented position*, where the intention is to plan the process but not the product, C. *Maturity position*, where the outcome, product, is planned, but not the process, and D. *Chaotic creative position*, where neither is planned by the teacher. The four teaching styles will be presented more closely in 'Theoretical base' below and the fifth in 'Conclusions'.

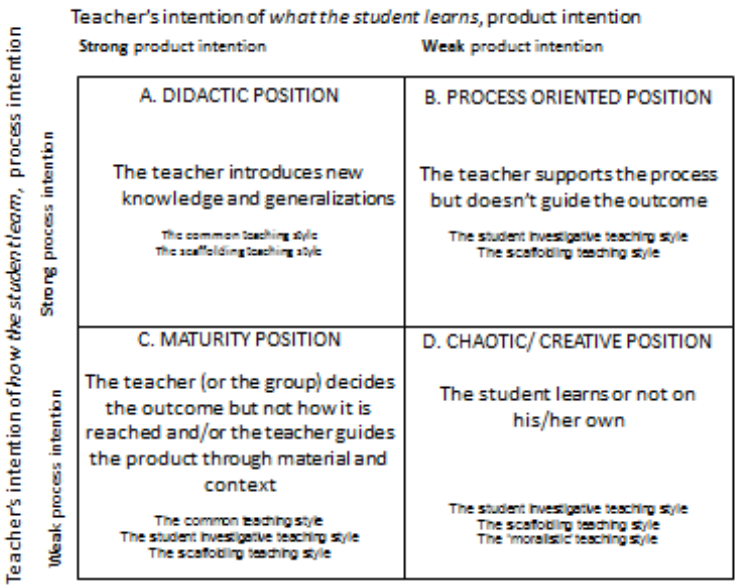

Figure 1. Didactic analysis of five different educational planning styles.

Specific methods, e.g. thematic subject integration, didn't automatically lead to cognitive effects. Depending on how they were structured, they gave different cognitive results. Changing between the different didactic positions A, B, C, and occasionally D, in figure 1, interacting between planning either the product or the process or both, seems to promote the desired process. The students here addressed situations where they were to reach a specific goal, where they could explore their own goal, where the method was specified, and where they could choose their own method.

This paper will focus on how the observed afterschool teachers coped with some of the challenges of supporting the students to reach the cognitive curriculum goals. Swedish afterschool programs, *fritidshem*[1], are attended by most children age 6-9 years, and are, although subject to parents' choice, part of the Swedish school system (Skolverket, 2014b). The staff is mainly of two categories: afterschool teachers, with a university degree, and caretakers, most often with a secondary school degree, but not necessarily in child care. Historically, afterschools represent a different pedagogical tradition from schools, having been highly dependent on the governmental idea of what social problem they were intended to solve. This has differed over time and so has their pedagogical undertaking (Pihlgren & Rohlin, 2013). Traditionally play, creative, and leisure activities have been part of the afterschool agenda. However, since 2010 the Swedish school law (*SFS 2010:800*), and the curriculum for compulsory school (*Lgr 11*) are changed to explicitly include the afterschools, expanding the afterschool mission to include supporting the teaching and goals of the curriculum for compulsory school. This has increased the need for cooperation between school and afterschool teachers to reach the goals and to change the decline in results of the Swedish students.

In the classroom intellectual activities and conventions compete – it is hard to reach high cognitive quality and keep all students active at the same time (Carlgren in Jensen, 2011). Students' performance depends highly on their ability to interpret codes and their willingness to adapt and change their own social code to that of school (Lindström et al, 2003; Rosvall, 2012; Virtanen & Kourelahti, 2011). The afterschool context differs from the traditional school context. The activities are part of the student's leisure-time, and learning is seen as informal and experimental, 'caught in flight', compared to the formal and structured teaching in the classroom (Hansen Orwehag in Pihlgren, 2013c). However, recent year's national assessments (Skolinspektionen, 2010, Skolverket, 2014b) show a lack of university educated afterschool teachers and, as a consequence, an uncertainty among staff about the goals and few structured pedagogical activities.

How the plans and activities of the observed afterschool teachers match the didactic positions in figure 1 and the cognitive/knowledge dimensions in table 1 were hard to predict on beforehand, and will be investigated in this paper. The paper analyzes how education in Swedish afterschools meets the demands for cognitive development, particularly critical thinking and creativity of students, and

[1] The literal translation of the Swedish concept *fritidshem* is 'leisure-time home'. In official documents by the Swedish National Agency for Education (*Skolverket*) the English translation is 'leisure-time center' (Skolverket, 2007). I will use the term *afterschool* in this text. I will use the term *afterschool teacher* for the university educated staff, 'fritidspedagoger', 'fritidslärare', and *caretaker* for the staff with other education, 'barnskötare'. *Afterschool staff* includes both categories. A university educated teacher, working mainly in school, is in the text called *schoolteacher*. When the term *teacher* is used, all university educated teachers are included, regardless of where they work.

how this compares to what was found among schoolteachers. Research literature and previous results are compared with results from observations, teacher interviews and presentations.

Questions, theoretical base, and method

The questions guiding the analysis have been[2]:

- *What criteria, according to research literature, are important when teaching thinking and creativity to enhance students' cognitive development?*
- *How do the afterschool teachers describe the considerations they make when planning and how are these represented in the observed afterschool activities?*
- *What differences (if any) can be found when comparing these results to the analyzed schoolteachers?*

Theoretical base

All teachers act in their everyday practice from a more or less explicit pedagogical 'praxis theory' (Pihlgren, 2013b). This is often a concoction of their practical experiences, teacher training, examples from others, and in time expertise. At least three main groups of theories affect practice in today's teaching (Pihlgren, 2011a): the behaviorist, the maturity, and the interactive. The interactive theory (cf. the tradition of Vygotsky) and the maturity theory (cf. Fröbel, Montessori, Steiner) see the learner as active (Pihlgren, 2011b), as opposed to the behaviorist view that individuals will learn when tempted by rewards or in fear of punishment (cf. Pavlov, Skinner). In the behaviorist tradition, learning and maturing are more or less considered to be the same process (Carlgren in Carlgren, 1999). In the maturity tradition learning is taking place as an effect of the student maturing. In the interactive theory base, the student will learn in interaction and thereby mature and develop.

Previous analysis (Pihlgren, 2013a) showed that depending on how theories were interpreted they either supported the teacher's intentions to teach students to think, or not. Four teaching styles were found:

The *common teaching style* means controlling the content of what is to be learned by planning the student process closely, by using several different tasks and methods, most commonly lecturing (position A in figure 1). During group discussion, task, and home assignment, the choice of process is up to the students (C). The knowledge and cognitive processes initiated are concentrated within the grey area of Bloom's taxonomy (table 1). The dialogue is controlled by the teacher, and questions are focused on evaluating the students' knowledge. This plan is closely related to behaviorist theories (cf. Hunter, M. *Instructional Theory in Practice*).

The *student investigative teaching style* is more common in classes for younger children, or in practical-aesthetic subjects. The lesson starts in position C by introducing new material that will help the students to develop. The activities continue there, or go on to position D - the students explore their own areas of interest in whatever way they choose. The students have time to apply and create factual and procedural knowledge, but analyzing, evaluating, or meta-cognitive reflection are not addressed. The planning style is related to theories about learning as maturity.

[2] The first question was the same as in the previous analysis (cf. Pihlgren, 2013a).

The *scaffolding teaching style* was observed in a small group of teachers, planning what was to be taught and how in ways leading to higher order thinking in class. Analytic, evaluating, and meta-cognitive questions and analysis addressed position B, guided experiments and tasks addressed position C, lectures A, and exploratory and creative elements D. This style addressed more cognitive and knowledge targets than any of the other planning styles, and is connected to interactive theories.

The *'moralistic' teaching style* was observed in some of the lessons, or parts of lessons, facing position D: neither the product nor the process seemed planned towards a cognitive goal. The teacher seemed occupied with something else, presumably teaching the students how to behave.

Method

Observations for 1-3 hours and staff interviews were recorded during three years in six schools with 30 sessions of afterschool activities,[3] (*'fritidshem'*), for grade K-3. The observations included teachers and caretakers. Additional staff presentations were observed and assessed. Each staff member or team met with the researcher for a one hour interview, where feedback on the observation notes was given and discussed. Written notes on these discussions were recorded after the meetings. The observed staff members were during the three years part of a development program and were observed the first time before they entered the program.

Observation notes were taken using a chart where every new sequence in the observed activity was recorded, stating time, actions, and observed outcomes. Contextual information was noted. The cognitive content in each sequence was assessed, using Bloom's revised taxonomy for learning, teaching, and assessing (Anderson & Krathwohl, 2001), see table 1. In contrast to Bloom's (1956) classic 'Taxonomy of Educational Objectives' the revised taxonomy analyzes the content from two dimensions: A *knowledge dimension*, highlighting what type of knowledge is being focused on: factual, conceptual, procedural, and meta-cognitive; and a *cognitive process dimension,* displaying the thinking operations asked for: remember, understand, apply, analyze, evaluate, and create. The two dimensions result in twenty-four positions. The work was limited to the staff's choices connected to students' thinking and creativity, not investigating the cognitive processes within each student.

The result was analyzed from criteria from the literature section and the theoretical base and conclusions were made about consequences of teacher praxis theory on planning and teaching actions, and structure, control, and intellectual challenge.

All staff members consented to participate and could at any time refrain from participation. The observations and feedback sessions, and the additional presentations, were part of the participating school's development program, and the schools were given an overall report on their results, but individual staff were not specified. In this paper, all names of individuals and afterschools have been changed to guarantee anonymity.

[3] Some of the material has been presented in other forms in Pihlgren 2011a & b, 2013b. This paper is part of a research project and the results focusing on schoolteachers, and some of this text, are presented in Pihlgren 2013a. The results focusing on afterschool teachers are unique to this paper. The upcoming segment in the series will focus on the staff development program.

Marking the taxonomy meant making choices and interpretations. Important material might have been lost. All the same, interesting results have been highlighted. The participating staff were aware that the observations were evaluative. Keeping this in mind, the result will probably show what they were capable of doing at best. The result cannot presume to be valid in all schools. However, the material is extensive and points to important trends to investigate further.

Literature

Intelligence and creativity seem to be the result of an individual combination of unique biological dispositions that can be developed and refined by education (Gardner, 1999; Csikszentmihaly, 1996). From previous research we know that teachers state that they actively try to promote students' thinking. But a closer look at the practice in European classrooms shows that teachers rather require that students remember or reason from previous experiences (Sokol, 2012).

The brain uses two systems to solve problems and to learn (Björklund, 2008; Kahneman, 2011). An explicit system helps us to analyze information and remember things while we work or solve problems (Klingberg, 2011). An implicit system stores data from experiences on a subconscious level (Björklund, 2008). People tend to use the more impulsive and intuitive implicit system to avoid the effort of using the explicit system when confronted with tasks demanding logical thinking (Kahneman, 2011). However, the implicit memory is more sustainable and will be reliable if the bank of implicit memories is large (Björklund, 2008). Complex learning takes longer and requires incubation, pauses from learning.

Research on good thinkers, creators, or experts within their field, for example scientists and artists shows that experts have a rich experience and understanding of their subject and its established knowledge base (Björklund, 2008; Willingham, 2009). Critical thinking includes elements of creativity and independence or it would not be possible to make the connections needed to make evaluating and analyzing conclusions (*Uppsala University*). Creativity does not seem to be possible without a base of knowledge (Csikszentmihaly, 1996; Lindström, 2006), nor without a systematic and conscious approach (de Bono, 1998).

The student will learn to think productively and creatively by being given the opportunity to attain and practice good habits of mind (Gardner, 2009; Pihlgren, 2008). Good thinking supports learning and good thinking needs to be practiced and trained systematically during the whole school period. The system the teacher uses has to be visible to the students if they are to learn actively (Andersson, 2012). An unclear system building on students' self-control might be beneficial for the students who can decode the system, but not to others (Bernstein & Lundgren, 1983, Stensmo, 2000). Responsibility will enhance students' self-motivation, and the ability to accept intellectual challenges (Hattie, 2012).

The role of the teacher

The teacher's ability is vital to students' success (cf. Chetty et al, 2011; Hattie, 2009; Jensen, 2005; McKinsey & Co, 2007). Teaching is a cognitive ability, acquiring extensive experience (Willingham, 2009). Not all teachers reach the level of expertise. To succeed helping all students, the teacher will have to take responsibility for the subject content, the activities, the results, and for the social relations in class (Kindeberg, 2011). When teachers prioritize activating the students, or their wellbeing, the school class shows poor learning outcomes (Marshall, 1988). Teachers who act as intellectual role models, use intellectual concepts, display their subject's intellectual qualities, and

arrange equipment show improved student results (Alawad, 2010; Ritchhart, 2002). The successful teacher works systematically with students' ongoing relational processes (Tholander, 2002; Wretlander Bliding, 2007) to create a community of learners, where all participants see themselves as partners in enhancing learning and understanding.

Students learn from experiences, storing implicit memories and everyday concepts, connected to context and situation (Arevik & Hartzell, 2007; Björklund, 2008; Hattie, 2012; Jensen, 2005). It is important that students experience the same specific learning object from a variety of angles (Marton, 2006) and that the teacher goes beyond the practical experimenting to analysis and higher level generalization, to force the students to think explicitly about their experiences using advanced concepts (Arevik & Hartzell, 2007; Dewey, 1997). This means engaging the students in challenging and hard cognitive work, and in thinking meta-cognitively (Hattie, 2012; McGregor, 2007). Students are often unable to transfer knowledge from one area to another (Willingham, 2009), but meta-cognition will help them (Hattie, 2012). Students develop and improve their thinking process by being made conscious of how they think (Hattie & Timperley, 2007; McGregor, 2007). Working with thinking-charts, where the task is sequenced with recurrent meta-cognitive questions, or portfolio, where student products are collected during the processes, gives the students the opportunity to experiment, get feedback, and learn from experiences, with good effects on learning and creativity (Kimbell & Stables, 2008; Lindström et al., 1999; Willingham, 2009).

The pedagogical dialogue

The ideal pedagogical dialogue is an activity directed towards discovery, new understanding, and learning, and is held in a non-authoritarian fashion, with many participators (Burbules, 1993; Dysthe, 1996). Open ended questions are particularly important when fostering intellectual abilities (Billings & Pihlgren, 2009). The more concepts the student can use to describe the process of thinking and the core of the subject, the more he/she will develop knowledge and abilities within the area (Perkins, 1992; Ritchhart, 2002).

This reflective dialogue differs from traditional classroom communication. It takes time for the teacher and the students to adapt and the roles of the traditional classroom will remain at the beginning (Billings & Fitzgeralds, 2002; Liljestrand, 2002). However, if reflective dialogue is used systematically, the dialogue will promote intellectual and social development (Pihlgren, 2008). When students interact with a mutual goal at hand, they learn more effectively (Björklund, 2008; Jensen, 2011), if their levels of development don't differ too much (Williams, 2001).

Planning and assessing

Factual knowledge is seldom remembered, instead interactional and thinking patterns help sorting out unimportant information (Gärdenfors, 2010). Complex and authentic problems will therefore promote learning more than simplified tasks, as will thematic subject integrated education (Noori, 2011). It is important that the teacher focuses on questions that the students don't know the answer to (Sokol, 2012). To be challenged on an appropriate level has shown to be more important to students' motivation and learning than tasks within their interest areas (Noori, 2011; Willingham, 2009). To be able to develop creativity, students should be given time to deepen their knowledge and have the opportunity to examine, explore, experiment, revise, and reflect on their work (Csikszentmihalyi, 1996; Hetland et al., 2007).

The teacher will have to change from planning what facts to teach to a more elaborate way of focusing on what concepts the students will have to acquire to think abstractly (Gardner, 2009). Facts and concepts are interrelated (Erickson, 2007), but facts can be taught without advanced thinking, whereas abilities and understanding cannot develop without systematic cognitive training (Ritchhart, 2002). Starting the planning by focusing on an area, central to human conditions, and on what should be the result of the taught area, will make it easier to choose central concepts, abilities, facts, and activities that will be appropriate to gain the desirable results (Wiggins & McTighe, 2011). Integrating thinking routines in everyday work to make thinking visible is more effective than using designated thinking lessons (*Visible thinking*, 2012). Different tools – brainstorming (*Visible thinking*, 2012), mind-mapping (Buzan, 2006), lateral thinking (de Bono, 1998), story-lining (Willingham, 2009) – help the students to visualize, group and regroup, construct, and design. Activities where conflicting materials are interconnected have shown to be effective when helping the brain to remember (Jensen, 2005; Willingham, 2009).

Using formative assessment, where the student gets feedback on the present level of knowledge, the goal, and the way to get there, has high impact on students' learning (Hattie, 2011). However, not all feedback is effective. Teachers often use student assessment to foster proper student behavior, with no or little cognitive results (Granath, 2008; Hofvendahl, 2006; Mårell-Olsson, 2012). Feedback on personality, or as test scores, show little effect – the grade is seen as the goal and directs the student's attention to their own (lack of) ability and away from the task (Hattie & Timberley, 2007). Feedback on process has the greatest learning impact (Hattie, 2009). The more challenging the task is, the more the student will seek and welcome the feedback. The student will learn to assess by systematically meeting a variety of methods, where the teacher gradually introduces the student to what are important criteria and how assessment is done (Hetland et al., 2007; Lindström, 2006). This includes teacher giving feedback, self-assessment, peer-assessment, and discussion of assessment in class. Assessment has to be taught – even university students have difficulties assessing their work or interpreting the teacher's assessment without support (Bek, 2012).

Conclusions from literature

Students should have time to make implicit experiences from a variety of angles, gradually taking them to generalized knowledge by challenging explicit cognitive work, training them in analysis, meta-cognition, and formative assessment. Teachers' planning should start in identifying central areas and desired results. Open dialogue and goal focused student interaction affect the cognitive outcome positively. Actions should focus on thinking and helping the students to uncover thinking patterns by presenting complex and authentic problems where the answer is not self-evident. Using thinking routines and contextual mediation will help the teacher to promote thinking and creativity. The teacher has to take responsibility for all activities going on in the classroom to create a 'community of learners'.

Results

The results are presented from three angles: knowledge and cognitive dimensions, dialogue, and the plan and structure.

Knowledge and cognitive dimensions

Overall in the afterschool observations, 405 sequences were noted, resulting in more than 4 500 marks in Bloom's revised taxonomy (cf. Anderson & Krathwohl, 2001). Table 2 shows the percentage of markings made in the total material of marks.

Table 2. *Frequency of markings for afterschool teachers in positions of Bloom's revised taxonomy in percentage of the total material of marks. The schoolteacher results are included in parenthesis for comparison.*

THE KNOWLEDGE DIMENSION	**THE COGNITIVE PROCESS DIMENSION**					
	1. Remember	**2. Understand**	**3. Apply**	**4. Analyze**	**5. Evaluate**	**6. Create**
A. Factual knowledge	10 (12)	8 (11)	12 (10)	3 (4)	3(4)	4 (2)
B. Conceptual knowledge	3 (7)	>1 (6)	3 (6)	1 (2)	>1 (1)	0 (0)
C. Procedural knowledge	15 (8)	12 (8)	15 (11)	1 (2)	1 (1)	4 (>1)
D. Meta-cognitive knowledge	2 (2)	1 (1)	1 (1)	<0 (<0)	<0 (<0)	0 (0)

Remember, understand, and apply factual and procedural knowledge are the most frequent activities, with a stress on procedural knowledge. These six grey marked positions were activated in all 30 observations. Some differences compared to the schoolteacher observations (within parenthesis in table 2) can be seen: the afterschool staff stress procedural knowledge, and creative approaches are more common (and allowed) than in the school context. An example is this baking session, led by caretaker Benny:

Excerpt 1[4]. *Caretaker Benny hosts a baking session as an after school activity.*

The girls have started at one table to read the recipe for baking a sponge cake. They have some problems, as they have to divide the ingredients in two. Caretaker Benny sits down with the group of boys at another table and encourages them to read the recipe. He then moves between the groups and check their actions. The girls are whisking the batter, but the boys are not getting started.
1 Amanda: You should stir the butter!
2 Victor: We don't even have butter.
3 Caretaker Benny: Do you want some help to read? */sits down by Victor and helps him to read the text/*
4 Caretaker Benny */to the girls/* If you are all done you can clean up some.
5 Mary: We've already done some washing up. The boys ought to do some too.
/Three of the four boys have lingered into the next door room and Benny fetches them back. Victor is still mixing the batter, but seems to have forgotten some of the ingredients/
6 Caretaker Benny: */laughs/* You seem to have created a totally new recipe! */to the girls:/* Do you want to microwave it?
7 Mary: No it's too sticky, let's eat the batter instead.
8 Girls: /*laugh* and *fetch some spoons and start to eat. The boys soon join them, all eating together from both of the pots/*
9 Caretaker Benny: So what have we learnt from doing this? How can you improve your baking next time?

[4] The excerpts have been shortened and/or summarized to facilitate the reader's understanding. They are translations from the Swedish original field notes.

10 Amanda: We must have missed something in the counting.
11 Caretaker Benny: OK, so you'll do it better next time, right?
12 Amanda: Maybe.

The students were asked to remember and understand factual knowledge, applying this to reading the recipe, counting, and baking the cake. Few concepts were discussed or introduced, and the students are actually not succeeding in making the cakes. Caretaker Benny starts a metacognitive sequence (asking what they can improve, line 9-12) but doesn´t follow it up or encourage the students to think deeper. On the other hand, caretaker Benny is open to unexpected outcomes. He acts encouraging and not bothered when the boys don't succeed (line 6) and he allows the students to eat the batter instead of baking the cake.

In the material there are fewer hits in the conceptual knowledge dimension than the school activities showed, even though everyday and advanced conceptual knowledge equally make marks in the conceptual column. One of the exceptions is afterschool teacher Bitte, who also hosts a baking session as an afterschool activity:

Excerpt 2. *Afterschool teacher Bitte hosts a baking session as an afterschool activity.*

The baking session has started, seven students and teacher Bitte are standing around a square table, where all ingredients and utilities are gathered. All students have chosen different responsibilities. Jim is the designated recipe-reader.
Jim: Look, it says 400 g of butter.
1 Anna: But we only have 250 g */everyone looks at the butter/*
2 Teacher Bitte: OK, so how will we solve this problem?
3 Evald: Let's do half the recipe, we'll need 200 g then.
4 Teacher Bitte: How did you make that out?
5 Evald: 'Cause half of 4 is 2.
6 Teacher Bitte: And it will be the same if it's 400, right? That was clever. But if we want to use the remaining 50 g? Do you have an idea how, Liza?
7 Liza: Uhm, I don't know */pause/* Could we use it to buttering the cake tin?
8 Evald: Right, give it to me, I'm the butterer */laughs/*
9 Teacher Bitte: Do you think all is needed?
10 Evald: */gets the 50 g butter lump from Anna/* Let's see, maybe not. There will be some left.
11 Teacher Bitte: OK, so shall we leave it for another time or use it?
12 Anna: Let's leave it. My mum says that you have to stick to the recipe when you bake cakes, otherwise the cake might not come out all right.
13 Jim: Why is that?
14 Anna: I don't know, she just says so.
15 Teacher Bitte: Does anyone know? */heads shaking/* It's chemistry you know. All the ingredients work together for the cake to rise and bake, so we have to be careful. What's next in the recipe, Jim?
16 Jim: It says "Take ½ l. of flour".
17 Mimmi: O-oh, there's some more problems, we don't have a liter measure!
18 Teacher Bitte. Now how can this problem be solved, what ideas do you get? What is a liter?
19 Stefan: Maybe we could take a milk carton and use, that's a liter */starts running to the refrigerator as he is talking/*
20 Kirsty: */shouts to Stefan, while swinging a deciliter measure in her hand/* Or use this!
21 Teacher Bitte: Right, so how could that be used?

Afterschool teacher Bitte hits all the positions in the taxonomy except create and evaluate conceptual and meta-cognitive knowledge. Most of the talking was done by the students, teacher Bitte worked almost entirely by posing questions, except for some short factual information (line 15). She is inviting them to participate and cooperate. The approach differs quite a lot from caretaker Benny's, even though both are involving the students in baking. Bitte's session is structured and prepared, and at the same time she uses the upcoming situations to deepen the students' understanding of mathematics, conceptual and meta-cognitive thinking and problem solving. Benny's session also includes cognition and knowledge, but the situations are not unveiled or elaborated, and the students are left to make their own conclusions.

As with the schoolteachers, there are very few examples in the material of notes in the meta-cognitive knowledge dimension, and exceptionally few in analyze, evaluate, and create meta-cognitively, all notes there were taken in four of the 30 observations, all with afterschool teachers like Bitte, and not with caretakers. Generally, there is a quality difference in the material when the sessions are led by an afterschool teacher, where more cognitive and knowledge dimensions are hit, compared to sessions led by caretakers. The material doesn't include enough differentiated material to make these results entirely reliable. However, at the end of the observed baking session, led by teacher Bitte, something occurs to illustrate the difference in understanding of the students' learning process and what makes it come about. Bitte is called away by a parent arriving, and Annika, a newly hired caretaker, volunteers to take Bitte's place at the baking table. Annika has been observing the baking activity. She has during other parts of the observation shown a caring hand and interest in the students and seems well liked by them:

Excerpt 3. *Caretaker Annika takes teacher Bitte's role at the baking session.*

Caretaker Annika: OK, it says here that you should whisk the batter, that's your job, right? */turns to Mimmi/*
Mimmi: Right */starts whisking/*
Evald: Are we ready now? My task is done!
Caretaker Annika: You can take these and put them in the dish-washer, please.
Anna: Can I lick the bowl?
Caretaker Annika: I don't think so, there isn't enough for everyone. Why don't you pour the batter into the form, Mimmi.
Jim: Can we go now?
Caretaker Annika: Clear up the table first.

The cognitive and knowledge content lessens to a minimum when Bitte is replaced by Annika. Even though Annika is friendly and seems to care for the students, she lacks the vital understanding needed to make the baking activity a learning opportunity. The students gradually lose interest, maybe because the activity is closing, but plausibly because they are not engaged in challenging cognitive activities anymore.

As with the schoolteachers, the afterschool teachers could state the knowledge they had aimed at, even though the actual outcome often targeted more or other aspects too. Most caretakers, especially in the early observations, had difficulties to explain what they had aimed at and their sessions often displayed different knowledge aspects than they stated. When asked to explain what cognitive processes they had planned few of the schoolteachers, afterschool teachers and caretakers could answer, even when helped by the taxonomy and the interviewer. They showed a great interest in the analysis and often commented that the feedback was helpful and interesting.

Dialogue

Contrary to most school observations, in the afterschool observations students were doing most of the talking. These situations consists mostly of students playing with each other, occasionally with the staff present or participating, as in this excerpt from a two hour observation in the playground:

Excerpt 4. *The playground at Mountain Valley afterschool.*

Around 90 students are playing in different constellations. Caretaker Liz is in charge of distributing the snack from a table to students waiting in line. Caretaker Ernie has a list, marking the students that are fetched by their parents. Assistant Ben plays the guitar at the same table and a few students are seated around him, eating their snack. A group of ten students are playing football with caretaker Hansel. Six students are collecting tadpoles with afterschool teacher Miranda by the pond, with nets and buckets. The majority of students are playing two or three together, and some on their own, mainly in the swings or other play units, and in huts in the shrubbery. Three caretakers are at the beginning of the observation wandering around the ground, looking at the students, occasionally saying something or answering a question, but as the observation continues they end up by the guitar player. At the end, there are six staff members and two students by the table.

Caretaker Liz */arriving from the snack distribution to her colleagues, looking at the observer/*: We should circulate.

The staff dialogue in most of these activities has basic or no cognitive content. The students might be challenged cognitively in their smaller constellations, but it's hard to tell whether this supports thinking and creativity, or whether the students learn intended things or things counterproductive to the curriculum. There are two exceptions: By the pond afterschool teacher Miriam is engaging the students to collect tadpoles hitting the grey areas in the taxonomy (table 2). Football playing caretaker Hansel is concerned with getting the group to cooperate while playing and stops the game frequently to take time to discuss the rules and how to act towards other players. His dialogue hits the grey areas in the taxonomy (table 2) and analyzes and evaluates factual and procedural knowledge. Similar examples in the material, where more areas are hit in the taxonomy, show a higher amount of teacher/caretaker talk, estimated to be half of the talk time or more.

As in the schoolteacher analysis, the positions marked were highly connected to the quality of questions. When the teacher/caretaker introduced open-ended or scaffolding questions, encouraging the student to analyze, interpret or value, the following activities would hit positions outside the grey areas. Meta-cognitive questions were exceptionally rare, used by only a few afterschool teachers systematically (cf. excerpt 2). Several staff members seemed at a loss on how they could or should engage in pedagogical dialogue with the students, particularly during the play activities. This uncertainty also seemed connected to the educational level, as became evident in this observation from an afterschool for students with learning disabilities:

Excerpt 5. *Snacks at Ladybird afterschool for students with learning disabilities.*

Eight students arrive from their classes with their personal escorts, one afterschool teacher, one preschool teacher and 6 caretakers. They are seated, and the staff starts feeding most of the students, three eat by themselves with a staff member by their side. Most of the eating is done in silence, except for some sounds made by students and talk from the two teachers.
Afterschool teacher Ida */talking to Otto/*: Did you like your bathing session today? There was a lot of water, right? */short silence/* and when Matti poured the water over your head! That was fun */sound from Otto who makes a sign/* Did you like that? I did!
Preschool teacher Marge */talking to Mia/*: How's your little cat? */short silence/* Good? Is she playing with you? I bet she is very soft. */Mia makes a meowing sound/* Right, that's how she sounds! Meow.
Mia: MEOW!
Preschool teacher Marge: That's a big cat, almost a tiger!
Afterschool teacher Ida: Here's some more */Sound from Otto who turns away the spoon with his hand/* Don't you want any more? Are you satisfied? Let's go on to the toilet then.
Preschool teacher Marge: Look, Otto is leaving. Are you finished too?

In the feedback and interview after the observation the caretakers were surprised when they realized that the teachers actively were supporting the thinking of the students by denominating what the students might be experiencing. The teachers were equally surprised, because they hadn't realized that they did something different than the caretakers. The caretakers explained that they often felt silly when trying to engage in a pedagogical dialogue, because it didn't feel like a natural interlocution.

Some activities where the teacher/caretaker intended a certain answer, or piloted the student towards a certain idea would be noted in the grey areas (cf. excerpt 3). This was often connected to activities resembling conventional lessons in schools, highly structured activities, or circle time.

The plan and structure

In eight of the observations, school and afterschool staff worked together in some activity, most often in the classroom:

Excerpt 6. *Caretaker Bo participates in school teacher Susanne's lesson in grade 1.*

Schoolteacher Susanne peeps out from the classroom at the line of students outside. Caretaker Bo is waiting outside with the students.
Schoolteacher Susanne: Is it a straight line? Then you can come in. Bo, would you check that everyone is here.
/Bo silently turns around and goes out into the school yard. The students enter and sit down/
Schoolteacher Susanne: What letter did we start doing this week?
Amanda: B
Schoolteacher Susanne: Could you say some words that start with B?
/Students say different words and Susanne writes them on whiteboard. Bo enters with a student and takes him to his desk/

Schoolteacher Susanne obviously sees the lesson as her responsibility and caretaker Bo is reduced to her assistant, rather than being another pedagogical resource in the classroom. However, in three of these observed occasions, the activity was co-planned as a joint activity, and using specific pedagogical roles to enrich the situation. Here schoolteacher Ursula is leading the activity, using the ideas of the students to create a mindmap of the concept 'play', while afterschool teacher Helly is focused on putting meta-cognitive and challenging questions to enhance students´ thinking, and later supporting them in the play activity:

Excerpt 7. *Team Yellow uses the student's interest to enhance cognition and creativity in grade K-1.*

The students are seated in a circle on the floor, with schoolteacher Ursula at the whiteboard on a chair and afterschool teacher Helly at the floor in the circle.
Schoolteacher Ursula: What do you think about when I say 'play'? /short silence/
Love: Friends – like Jonas! */Ursula writes on the white-board and the students' suggestions are gradually systematized in a mind-map/*
Kim: It's fun!
Schoolteacher Ursula: Why is it fun, Kim? */This goes on for a couple of minutes, Ursula is leading the dialogue and addressing every student in the circle/*
Afterschool teacher Helly: Many of you mentioned names? Why is that, do you think?
Anne: Because we play together!
Carl: Yes, your best friend is the one you play with.
Ninni: I love playing with Beth */smiles and looks at Beth who smiles back/*
Afterschool teacher Helly: So, does that mean you can't play on your own? Is that not 'play' then?
Kim: Sure it is, you can play on your own too. I do that when I'm at home.
Schoolteacher Ursula: So what does that tell us about play? What should we add to the mind-map?
They continue to discuss and build the mind-map for some more minutes, concentrating on how good playing is done. After this Ursula informs where they can play today. The students form groups and start playing. The teachers circulate. Most students are engaged in role-playing. Helly stops by a boy sitting by a table with his mathematics book.
Afterschool teacher Helly: What are you playing, Ali?
Ali: I'm playing 'school'.
Afterschool teacher Helly: Oh, I see. Is this something to play on your own or can I join?
Ali: You can join, but you have to sit quietly and work. */Helly fetches a book and starts to work besides Joe/*
Helly: Is this the way to do it? */Ali makes a positive sound/*
Emelie: I'd like to play school too. Can I join?
Ali: Sure, if you're a good student. */Emelie joins the school and Ali and Emelie chit-chat while working. Helly eventually continues to another group/*

Plan and structure after two years of development program

These afterschool teachers planned their activities more closely and took into account the curricular goals, both cognitive and social, whether or not they cooperated with the schoolteacher, and they had done so even before the development program and before the new educative afterschool mission was vested.

The interviews show that afterschool staff in general pointed out the importance of students playing to learn but few could explain why this was important or how it worked cognitively. At the beginning of the development program, very few, including most afterschool teachers, used any kind of planning where goals and learning objects were stated. Many expressed resentment towards

planning their activities, and meant that planning and addressing goals would make the afterschool activities too much like school. The interviews showed that most afterschool staff connected school activities with the *common teaching style*. As the program continued and they understood how to plan and describe afterschool activities, including informal learning activities, interviewees changed their attitude and also in some cases invited school to co-plan activities:

Excerpt 8. *The Wind's afterschool staff plans for Winter Olympics.*

The staff team of the Wind's afterschool planned for a four week thematic unit focusing Winter Olympics. The curriculum goals in target were mainly cooperative and social, and included supporting goals from subject areas like sports, social science, and art. Activities included trying out different sports (real and invented), building the Olympic village as an arts project, and cultural knowledge by groups following the results from different countries. While planning for the thematic unit at afterschool, staff contacted their school colleagues to invite them to participate during school time. This resulted in the mathematics teacher letting students score different nations' medals in diagrams, and the language teacher using one of the essay assignments to let students' write about the Olympics.

The third year observations made with caretakers show a higher quality in learning activities, as well as improvements in parent/student ratings in evaluations (cf. *Enkät i fritidshem 2014*). Other ways to support curriculum based learning were now represented: Offering students play-boxes with material concerning areas that were addressed in school at the period (historic clothes and tools; seeds, pots and tools for planting; clothes and gear for playing police, doctor, shop, and spa), optional games and activity-sheets connected to different subject areas, organizing thematic activities where students could experiment or play, using the knowledge that they had learnt in lessons, like building and playing in a stone-age village.

Conclusions

The literature shows some important criteria that promote thinking and creative cognitive work. Some concerns conscious teacher planning and teaching actions: time for students to explore and analyze, formative and meta-cognitive training, exploring and analyzing dialogue, help student's form thinking patterns by making thinking visible. Other criteria concern structure, control, and intellectual challenges: actions and context focused on learning, challenging work, an open curriculum creating a community of learners. These criteria were used when analyzing the results.

The material shows big differences between afterschools. Even when they use the same term to denominate an activity, like 'baking' in excerpt 1 and 2, the outcome is completely different when it comes to the cognitive content. In some afterschools, cognitive content was found in all observations (cf. Team Yellow, excerpt 7), even if advanced cognitive content was rare. Other afterschools showed very little cognitive content (cf. Mountain Valley, excerpt 4), even if the caring and the atmosphere most often was allowing and open. Within most afterschools, differences in the ability to understand and meet the demand for learning activities seemed to be connected to the educational level of the staff (cf. Bitte and Annika, excerpt 2, 3, and Ladybird staff, excerpt 5). Afterschool teachers generally engaged students more in cognitive activities, and so did caretakers, after having participated in the three year development program (cf. Wind staff, excerpt 8).

Previous research shows that students in classrooms with a high amount of student talk are more likely to reach higher cognitive levels, compared to when the schoolteacher talk dominates. The results in this study points at other important factors: When students dominate the talk, higher cognitive levels are hardly reached. However, higher levels seem to be reached if the amount of talk time is shared between afterschool teacher and students and, even more importantly, if the teacher uses high quality questions, engaging the students in challenging and meta-cognitive work.

Consequences of praxis theory on planning and teaching actions

The analysis shows that all the four teaching styles from classrooms were found in afterschools, but their frequency differed, and a fifth teaching style was found: the *laissez-fair teaching style*.

The *common teaching style* and structure was hardly ever found in the afterschool observations. In some observations afterschool staff was working as schoolteachers and would use the common teaching style, or they would work with a schoolteacher in the classroom, and the schoolteacher would use the common teaching style. The afterschool staff would in those classrooms take a passive role as school assistants rather than as pedagogical resources (cf. excerpt 6).

The *student investigative teaching style* was found more frequent, in one third of the afterschool observations. The staff introduced material or activities to choose from and students went on to explore whatever they had chosen. The staff was often, but not always, present during the activity. Most observed activities were of leisure or hobby character: making necklaces, playing computer games, drawing, or baking. Most of these activities address the grey areas in the taxonomy (cf. excerpt 1, Miranda in 4).

However, some of the same activities are used by afterschool staff to address higher cognitive goals, displaying a *scaffolding teaching style.* This was done almost solely by afterschool teachers, and was planned in two fashions. Either the afterschool teacher would use the opportunities that presented themselves in the activity to promote higher order thinking (cf. excerpt 2) or plan them as thematic units, in the same order that the scaffolding schoolteachers used, and so addressing different didactic positions in figure 1 at different times (cf. excerpt 7).

The *'moralistic' teaching style* was observed in very few sequences of afterschool observations, once concerning conflict solving, once during circle-time, and once in a drama activity.

There also seems to be a fifth teaching style represented in almost half of the afterschool observations, a *laissez-fair teaching* style, where the staff seems to lack pedagogical intention (cf. excerpt 3, 6, and parts of 4), didactically almost solely ending up in square D in figure 1. This teaching style resembles two of the other styles: The *'moralistic' teaching style* showing no or little cognitive content, but in this style seems to aim at teaching student morals. The *laissez-fair style* seems to leave the decisions to the student. In that way it resembles *the student investigative style* and at some points even the *scaffolding teaching style*. But these two styles presuppose a close control of the context for students to learn what is intended. The *laissez-fair style* seems to lack an intention or plan and leaves what happens entirely to the students.

This might be one of the keys to the differences in abilities between afterschool staff members. The teachers are educated to see the quality differences between the *laissez-fair teaching style* and the two others, the *student investigative*, and the *scaffolding*. To a person with little or no pedagogical schooling the styles might look alike, and the activities might be the same (cf. excerpt 1, 2, 3). As was pointed out by the caretakers at Ladybird afterschool (cf. excerpt 5), performing the activities that reach higher cognitive levels can feel uncomfortable or artificial to others than the pedagogically schooled staff. The fear of ending up in the teacher dominative and less creative *common teaching style* might be discouraging, if the alternative teaching styles are not made visible.

Structure, control, and intellectual challenge

Many of the *laissez-fair style* activities met no problems when it came to disorder – as the activities were open to each student to choose or not. However, if students were to take intellectual risks and engage in challenging tasks, the social climate had to feel safe. If this was the case was sometimes uncertain because of the lack of control (cf. 4). However, during structured activities, like circle time or snack distribution, some of the staff either used the '*moralistic' style* or the *common style* to create order, with no or little cognitive challenge for the students. In many cases (cf. extract 3) the lost student interest could be explained by lack of intellectual challenge. The more open the staff was with the expectations, the more students were able and willing to participate in and take responsibility for challenging intellectual work (cf. excerpts 2, 7). To develop students' self-control and their intellectual and creative abilities the staff had to systematically uncover the system to the students and gradually leave them more and more responsibility. This also coincided with scoring more advanced cognitive areas in the taxonomy. Work discipline was hence connected to the students' opportunity to develop deeper cognitive abilities (cf. the difference in cognitive content in excerpt 1 and 2).

Consequences for the cooperation between school-afterschool

Though most school- and afterschool teachers showed an understanding of what would develop the students cognitively and creatively, they lacked the understanding to translate this knowledge into practice. In afterschool, there were differences in the pedagogical comprehension of the two staff categories, afterschool teachers and caretakers.

The anticipated cognitive criteria were hard to reach in most of the observed classrooms and afterschools, although for different reasons. Classrooms and afterschools met the marked positions in Blooms revised taxonomy, table 2, but school activities most often marked a greater cognitive area, table 1, whereas afterschool activities addressed more creative areas.

However, more advanced thinking and creative activities were reached by some teachers in schools and afterschools, revealing a similar and productive way of planning. A group of teachers was involved in cooperative teamwork, including school and afterschool activities. Where co-planning was practiced, the cognitive quality of activities was reinforced, if a *scaffolding teaching style* was used. When a *common teaching style* was used, the schoolteacher often took command and the afterschool staff was reduced to an assistant.

The *scaffolding teaching style* presupposes that all positions in figure 1 are used and in a certain order to guarantee an high cognitive outcome: Starting in position C will help the students to be motivated and relate to their own experience, B will then make them analyze, generalize, and desire new knowledge (A), giving tools to explore on their own (D). When concluding this paper, it strikes me that the material shows that school- and afterschool teachers actually are skilled in different aspects in figure 1: Schoolteachers most often masters the didactic position (A), and afterschool teachers more frequently the maturity position (C). Afterschool staff in general also seems more apt to cope with the more chaotic/creative position (D). Some teachers and some afterschool teachers also use the process oriented position (D). A cooperative work where these different competences are used would probably enhance students' learning, thinking and creativity. However, most of the interviewed and observed teachers and caretakers in school and afterschool lack understanding of the differences between the positions and how to use them. This lack of understanding should

probably be addressed on a practical methodical level, unveiling the micro-processes of questioning and planning structure, rather than presenting more theories, if we want to change cooperative practice. The upcoming segment in this research project will focus on effects of the staff development programs.

References

Alawad, A. (2010). *What Art Classroom and Social Factors Influence Perceptions of Creative Thinking and Practices of Adolescent Girls in Saudi Arabia?* D. diss. Northumbria University.

Andersson, H. (2012). *Childhood and Self-Regulation, Academic Achievement and Occupational Attainment.* D. diss. Stockholm University.

Anderson, L. W. & Krathwohl, D. R. (ed.) (2001). *A Taxonomy for Learning, Teaching, and Assessing. A Revision of Bloom's Taxonomy of Educational Objectives.* New York: Pearson Education.

Arevik, S. & Hartzell, O. (2007). *Att göra tänkande synligt. En bok om begreppsbaserad undervisning. [Making thinking visible. A book about concept based education]* Didactica 11. Stockholms universitets förlag.

Bek, A. (2012). *Undervisning och reflektion. Om undervisning och förutsättningar för studenters reflektion mot bakgrund av teorier om erfarenhetslärande. [Education and reflection. About education and the premises for students' reflection considering theories about experienced learning]* D. diss. Umeå University.

Bernstein, B. & Lundgren, U. P. (1983). *Makt, kontroll och pedagogik. Studier av den kulturella reproduktionen. [Power, control, and pedagogy. Studies of cultural reproduction]* Stockholm: Liber.

Billings, L. & Fitzgerald, J (2002). Dialogic Discussion and the Paideia Seminar. *American Educational Research Journal*, 39(4), pp. 907–941.

Billings, L. & Pihlgren, A. S. (2009). Socio-cognitive Analysis of Socratic Dialogue: a blend of theories. *Proceedings of the 14th Conference on Thinking.* Kuala Lumpur: Universiti Putra Malysia, pp. 294–310.

Björklund, L-E. (2008). *Från novis till expert: förtrogenhetskunskap i kognitiv och didaktisk belysning. [From Novis to Expert: Experienced Knowledge in a Cognitive and Didactic Light]* D.diss. Linköpings University.

Bloom, B. S. (ed.). (1956). *The Taxonomy of Educational Objectives. The Classification of Educational Goals.* Handbook 1: Cognitive Domain. New York: David McKay Company.

de Bono, E. (1998). *Simplicity.* New York: The Penguin Press.

Burbules, N. C. (1993). *Dialogue in Teaching. Theory and practice. Advances in contemporary educational thought.* New York: Teacher Collage Press.

Buzan, T. (2006). *The Mind Map Book.* Essex: BBC Active.

Carlgren, I. (ed.) (1999). *Miljöer för lärande. [Contexts for learning]* Lund: Studentlitteratur.

Chetty, R., Friedman, J. N. & Rockoff, J. E. (2011). The Long-Term Impact of Teachers: Teacher Value-Added and Student Outcomes in Adulthood. *National Bureau of Economic Research Working Paper* No 1. 176999.

Csikszentmihaly, M. (1996). *Creativity, Flow and the Psychology of Discovery and Invention*. New York: Harper Collins.

Dewey, J. (1997). *How We Think.* New York: Dover Publications.

Dysthe, O. (1996). *Det flerstämmiga klassrummet. [The Multi- Voiced Classroom]* Lund: Studentlitteratur.

Enkät i fritidshem 2014 [Survey in Afterschools 2014] Undersökning genomförd våren 2014 i fritidshem, Stockholm, Sjuling 1. Stockholms stad.

Erickson, H. L. (2007). *Concept-Based Curriculum and Instruction for the Thinking Classroom.* Thousand Oaks: Carwin Press.

Gärdenfors, P. (2000). *How Homo Became Sapiens: On the Evolution of Thinking*. Oxford: Oxford University Press.

Gardner, H. (2009). *Five Minds for the Future.* Massachusetts: Harvard Business School Publishing.

Gardner, H. (1999). *Intelligence reframed. Multiple Intelligences for the 21st Century.* New York: Basic Books.

Granath, G. (2008). *Milda makter! Utvecklingssamtal och loggböcker som disciplineringstekniker. [Mild powers! Development dialogues and log-books as disciplining techniques]* D. diss. Göteborg: Acta Universitatis Gothoburgensis, Gothenburg University.

Hargreaves, A. (1998). *Changing Teachers, Changing Times: Teacher's work and culture in the postmodern age.* London: Cassell.

Hattie, J. (2009). *Visible Learning.* London: Routledge.

Hattie, J. (2012). *Visible Learning for Teachers. Maximizing Impact on Learning.* London: Routledge.

Hattie, J. & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77, pp. 81-112.

Hetland, L., Winner, E., Veenema, S. & Sheridan, K.M. (2007). *Studio Thinking. The Real Benifits of Visual Arts Education.* New York: Teachers College Press.

Hofvendahl, J. (2006). *Riskabla samtal – en analys av potentiella faror i skolans kvarts- och utvecklingssamtal. [Dialogue at risk – an analysis of the dangers in development conferences in school]* D. diss. Linköping University.

Hunter. M. *Instructional Theory in Practice* ITEP model for direct instruction. www.hope.edu/academic/education, 2011-06-01.

Jensen, E. (2005). *Teaching with the Brain in Mind.* Alexandria: ASCD.

Jensen, M. (ed.) (2011). *Lärandets grunder – teorier och perspektiv. [The Fundamentals of Learning – theories and perspectives]* Lund: Studentlitteratur.

Kahneman, D. (2011). *Thinking, Fast and Slow.* New York: Farrar, Straus and Giroux.

Kimbell, R. & Stables, K. (2008). *Research Design Learning: Issues and Findings from Two Decades of Research and Development.* London: Springer Science.

Kindeberg, T. (2011). *Pedagogisk retorik – den muntliga relationen i undervisningen. [Pedagogical rhetoric –the oral relation in education]* Stockholm: Natur och Kultur.

Klingberg, T. (2011). *Den lärande hjärnan. Om barns minne och utveckling. [The learning brain. About children's memory and development.]* Stockholm: Natur & Kultur.

Lgr 11, Läroplan för grundskolan, förskoleklassen och fritidshemmet 2011. [Curriculum for compulsory school, pre-school, and leaisure-time center] Stockholm: Utbildningsdepartementet.

Liljestrand, J. (2002). *Klassrummet som diskussionsarena*. *[The Classroom as an arena for discussion*] D. diss. Örebro University.

Lindström, L. (2006). Creativity: What Is It? Can You Assess It? Can It Be Taught? *Jade 25.1 Artwork* 9/2/06, pp. 53-67.

Lindström, L., Arnegård, J.& Ulriksson, L. (2003). Tonåringars upplevelse och prestation i skolan – en fråga om klassbakgrund? [Teenagers experiences and performances in school – a question of social background?] In: A. Persson (ed.): *Skolkulturer*. Lund: Studentlitteratur, pp. 71 – 100.

Lindström, L., Ulriksson, L. & Elsner, C. (1999). *Portföljutvärdering av elevers skapande i bild. [Portfolio assessment of students' creativity in art* education] Stockholm: Skolverket/Liber distribution.

Mårell-Olsson, E. (2012). *Att göra lärandet synligt. Individuella utvecklingsplaner och digital dokumentation*. [Making learning visible. Individual development plans and digital documentation] D. diss. Umeå University.

Marshall, H. H. (1988). In pursuit of learning-oriented classrooms. *Teaching and Teacher Education*, 4(2), pp. 85-98.

Marton, F. (2006). Sameness and Difference in Transfer. *The Journal Of The Learning Sciences*, 15(4), pp. 501–537.

McGregor, D. (2007). *Developing Thinking Developing Learning. A Guide to Thinking Skills in Education.* Maidenhead: Open University Press.

McKinsey & Company (2007). *How the world's best-performing school systems come out on top.* http://www.mckinseyonsociety.com. 2014-05-24.

Noori, A. (2011). Why and how neurosciences can inform curriculum theory and practice. *Paper presented at the 15th International Conference on Thinking*, ICOT 2011 Belfast, Ireland.

Perkins, D. (1992). *Smart Schools. From Training Memories to Educating Minds.* New York: Free Press.

Pihlgren, A. S. (2011b). Att finna en fritidshemmets didaktik. [Finding the didactics of leisure-time pedagogy] *Paper presented at the Nordic Subject Didactic Conference* NOFA 3 2011, Karlstad University, Sweden. www.igniteresearch.org, 2014-06-24.

Pihlgren, A. S. (2013b). *Det tänkande klassrummet. [The thinking classroom]* Stockholm: Liber.

Pihlgren, A. S. (ed.) (2013c). *Fritidshemmets didaktik. [The didactics of the leisure-time center]* Lund: Studentlitteratur.

Pihlgren, A. S. (2013a). *Planning for Thinking and Cognitive Development of Students.* Paper presented at the 5th International Conference of Cognitive Science ICCS 2013 in Tehran, Iran.

Pihlgren, A. S. (2008). *Socrates in the Classroom. Rationales and effects of philosophizing with children*. D.diss. Pedagogical institution, Stockholm University.

Pihlgren, A. S. (2011a). Thoughtful Dialogue in Relation to Other Instructional Methods. *Paper presented at the 15th International Conference on Thinking,* ICOT 2011, Belfast, Ireland. www.kunskapskallan.com 2013-03-25.

Pihlgren, Ann S, Rohlin, Malin (2013). The ”Free” Child – Organized After School Activities as the Upbringing of a Community In: B. Boufoy-Bastick (ed.) *The International Handbook of Cultures of Educational Policy*. *Comparative International Issues in Policy-Outcome Relationships. Volume one. Achievement with Family & Community Involvement.* Strasbourg: Analytrics, pp. 437-477.

PIRLS 2011: Läsförmågan hos svenska elever i årskurs 4 i ett internationellt perspektiv. [Reading ability among Swedish students in grade 4 in an international perspective] Stockholm: Skolverket.

PISA 2012 results: What Students Know and Can Do: Student Performance in Mathematics, Reading and Science (Volume I). Paris: OECD.

Ritchhart, R. (2002). *Intellectual Character. What it is, why it matters, and how to get it*. San Francisco: Jossey-Bass.

Rosvall, P-Å. (2012). *”…det vore bättre om man kunde vara med och bestämma hur det skulle göras…”: En etnografisk studie om elevinflytande i gymnasieskolan. […it would be better if one could participate in decision-making about how things should be done. A ethnographic study of student influence in the gymnasium]* D. diss. Umeå University.

SFS 2010:800. *Skollag*. *[School law]* Stockholm: Utbildningsdepartementet.

Skolinspektionen [National School Inspection] (2010). *Kvalitet i fritidshem, Kvalitetsgranskning. [Quality in leisure-time centers. Quality assessment]* Rapport 2010:3, Stockholm.

Skolverket [Swedish National Agency for Education] (2007). *Kvalitet i fritidshem, Allmänna råd och kommentarer. [Quality in leisure-time centers, General advise and comments]* www.skolverket.se, 2014-06-24.

Skolverket [Swedish National Agency for Education] (2014a). *Grundskolan i internationella kunskapsmätningar – kunskap, skolmiljö och attityder till lärande. [Compulsory school in international*

knowledge assessment – knowledge, school kontext, and attitudes towards learning] www.skolverket.se, 2014-06-14.

Skolverket [Swedish National Agency for Education] (2014b). *Elever och personal i fritidshem hösten 2013. [Students and staff in after school activities autumn 2013]* www.skolverket.se, 2014-06-22.

Sokol, A. (2012). Towards Helping Teachers Introduce Thinking in the Classroom. *Presentation at TA, Teachers Approach Conference* 14-15 September, 2012: *Bringing Creativity and Thinking Skills into the Education Process.* Riga, Lettland.

Stensmo, C. (2000). *Ledarstilar i klassrummet*. *[Leadership styles in the classroom]* Lund: Studentlitteratur.

TIMMS 2011. Svenska grundskoleelevers kunskaper i matematik och naturvetenskap i ett internationellt perspektiv.[Swedish compulsory students' knowledge of mathematics and natural science in an international perspective] Rapport 380. Stockholm: Skolverket.

Tholander, M. (2002). *Doing Morality in School. Teasing, Gossiping, and Subteaching as Collaborative Action.* D. diss. Linköping University.

Uppsala University, The Department of University Education Development, www.pu.uu.se 2012-03-14.

Wiggins, G., McTighe, J. (2011). *The Understanding by Design Guide to Creating High-Quality Units.* Alexandria: ASCD.

Williams, P. (2001). *Barn lär av varandra, Samlärande i förskola och skola. [Children Learn from Each 0ther. Cooperative learning in pre-school and school]* Göteborg Studies in Educational Sciences 163.

Willingham, D. T. (2009). *Why don't Students Like School? A cognitive scientist answers questions about how the mind works and what it means for the classroom.* San Francisco: Jossey-Bass.

Virtanen, T. & Kourelahti, M. (2011). Truants in Finland? Disengaged students' school experiences and characteristics. *Paper presented at The ECER 2011 Conference* in Berlin, Germany.

Visible Thinking, Harvard Project Zero, www.pz.harvard.edu/vt/VisibleThinking 2014-06-24.

Wretlander Bliding, M. (2007). *Inneslutning och uteslutning – barns relationsarbete i skolan. [Inclusion or exclusion – Children's relational work in school]* Lund: Studentlitteratur.