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IT'S AN ART TO SUSTAIN YOUR BODY IN SCHOOL

Learning about your body moving in classroom practice

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Abstract

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- Purpose:** The study is about learning body movements in classroom praxis. The aim is to analyse the so-called "micro-movements" in a classroom practise, by how pupils use and acquire body, bodily movement, positions and positioning in the classroom. The study is hence specifically set on pupils' somatic interactions in the classroom and how a group of pupils interacts and defines (themselves and others) using their explicit bodily senses.
- Theory:** The study's theoretical stance emphasizes the interaction between space and bodily movement as elementary for learning and at any moment present. By that it is placed in the field of *somatics*, originally initiated by Hanna (1973) and building on theory of Husserl and phenomenological, holistic concepts as well as embodied cognition. A body that *is*, always present, whether we are aware of its role or not.
- Method:** Methodologically it is designed as a critical discourse investigation It uses observations of classroom practice during five different lessons in four different classrooms in three different schools. The analysis builds than on cartographic maps and takes a position of being *both opposite and complementary* to structures that generate hierarchy orders as well as impersonal communication.
- Results:** The results show how pupil and teacher positions are produced in the ways teachers constantly create and need control and surveillance. This seems to form the very core of the 'ruling' arrangements in the classroom, in which movement as well as sensory inter-activity is understood, defined and spatially ordered, predestining pupils' somatic learning. Pupils respond to given tasks and create movement to find their individual position in classroom practice. In conclusion the results show a possible misconception of classroom practice, where demands for quietness create the ideal of being still.

Preface

*How shall I learn to sense again what is
always present but neglected, perceived in its importance when not understood any more*

Is there poetry for the poor?

I want to say thank you to my family the daily conversations with my wife and all the teachers, pupils and students I've met during my study for all their help, to Glenna and Jessamy for correcting my English, but especially to my supervisor Petra, without her skilfully tuition, you wouldn't have this paper in your hand.

Thank you!

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Introduction

This study, *It's an art to sustain your body in school*¹ is about the micro movements that take place among pupils in an ordinary school classroom. This interest has developed through years of my own work as a teacher in theatre, through my own bodily performances with e.g. physical theatre, ropewalking and juggling as well as in using teaching methods such as the Alexander Technique. In education my ambition has been to constantly try to understand how bodily movements function as a part of a learning context, how physical expression interact with perceptive awareness, consciousness and space. This study aims at putting some of these issues to rest, but also to open up for a discussion on what makes pupils learn. The learning environment constitutes an always-present frame factor in the learning situation. The classroom is therefore, seen as a arrangement, an important setting where movements, postures, interactions just as discourses are shared and developed.

In times of technical advancements, discourses on new learning do not necessarily depend on sophisticated bodily, physical skills. For our survival we need no longer to climb up a tree for seeking protection or food. In a post- human proposition we find liberation from the physical space, materially and bodily limitations by using computers and computer technology (Ottemo, 2015). Computers demand no motoric skill or muscular strength and with a perspective where we as human compare and ally ourselves with machines, we develop new ways of understanding body-physicality. In school, children write no longer only by holding a pencil in their hand, moving fingers, arm and body. They tap, with fixed arms, often with one finger only, on a screen or keyboard (and in future they might with digital devices inside their body, just touch their own skin). Children do no longer have to learn how to tie shoelaces. They make of use velcro fastener instead, which requires a simpler movement-pattern and goes much quicker. A while ago I had a conversation with a friend that gave me a description of how the child of the family, who was attending pre-school, was preparing for just going outside. The children had not only to put on a reflective vest and to hold one to a long rope they also had to wear helmets, just in case someone could fall². The school must of course be a safe place, but continuously safeguarding to diminish eventual future accidents brings risk for regulating and positioning the body, which can hinder sensing and experiencing movement. If parents or teachers are afraid of children falling and hurting themselves, a theoretical reasoning on the base of safe-guarding insuring organising will inferentially form the schools new standard. Meanwhile, does such a systematic use of a cause- and expected-effect reasoning hamper space for exploring new movement? Movement is crucial in preschool, where children are placed into already from the age of one. These small children

¹ The title, "*It's an art to sustain your body in school*" is a statement of a last year upper secondary degree pupil, about his striving to stay sensible and moveable in school

² We know that manual dexterity as well as climbing skill is promoting and increasing learning (Eriksson, 2003, Tidén, 2016, Gottwald, 2016) but in preschool practice it is often out of insurance and safety reason not allowed to climb on a tree. We might get hurt if we fall.

do need to develop their *somatics*, their senso-motoric abilities, need to walk, run, jump, roll, crawl...

In another conversation, with a preschool teacher, we talked about children that cannot crawl on all fours but find other ways of shuffling forwards. She asked me: *“What's so dangerous about that? Can you tell me what the children will miss? And if they really would miss something important in their development, what can we do to train and exercise this ability?”* These examples illustrate how new ways of bodily conceptions emerge and challenge live evolving processes. As human beings, we can and have to move. We do have potential movement patterns evolutionary within us and develop our moveability through the experience of sensory interactivity. Even today we might not be able to fully understand and explain how and why we learn to balance first on four and than on to two legs in our human wish to stand upright. I wonder therefore how we possible can predict other outcomes in human development or other matters we do not yet fully understand.

This study wants to emphasize an understanding of bodily movement as fundamental for life and all learning, as well as open for new ways, ideas and conceptions. It aims at articulating how movements through increased consciousness and variation not only change meaning but also affect our self-esteem, behavior and mood. By elaborating with bodily regulation through space and social interaction my intention is to deepen the debate on how pupils bodies are acting in the classroom and by that creating better understanding how sensorial or somatic learning is taking place, i.e. in how they acquire postural control and develop bodily positions in somatic classroom practice. Somatic practice meaning the experience, perception and use of our moving body (Batson, 2014, Behnke, 2009, Dragon, 2008, Eddy, 2017, Johnson, 1995). Sustainability in this practice is found through *“the awareness of our internal milieu, our external milieu and the reciprocal action between the two, including the belief that our body and planet share the same living process (both need oxygen, water, etc)”* (Fortin, 2017). Hence, the classroom is an important space for learning, but we need thorough observations and analysis in order not only to understand the general idea of ‘learning’ but to see what interactions/ movements take place and how.

The school - an educational space and interaction

The school, as institution in our society is often described through its functional and instrumental role. In its function the school determinates what is considered important to learn, what knowledge, subject or technical know-how. In its instrumental function school is an institution where formalization of learning is governed by society's structure and values (Richardsson, 2004). Historically not everybody had the chance to learn in school, but in connection with the enlargement of the right to vote in 1919 everyone in Sweden gained the right to go to school. This was and still is considered to create the prerequisite for a properly functioning democracy and a key to abolish class in society (Richardsson, 2004). With its functional and instrumental intention school is, in its regulation, controlled by the national government through law and, in its execution, through the directives from the National Agency for Education, in the form of a stipulated curriculum that provides the frame for every school and teacher to follow. For our society functional important knowledge is here defined in form of aims and target orientated results (Skolverket, 2011). This constitutes the ground for all the practical work in school. The school as institution and building represents the space for fulfilling this assignment



Schools are, like other buildings, regarding the educational historian Catherine Burke, products of social behaviour. In their materiality they are not only capsules in which education is located, where teachers and pupils perform, they are also created spaces that project a system of values (Burke and Grosvenor, 2008). Research of schools materiality and its physical environment is by that not only part of the educational science, but also represented among others in sociology, psychology and architecture (Jedeskog, 2007). The school building, as static structural learning space, is difficult to adapt to changing relationship between pedagogical ideas, childhood and building design as well as the progress in these matters. I.e. Classrooms, that were not originally designed with computers in mind, have today often become cluttered, over-heated spaces (Burke and Grosvenor, 2008). The classroom, as the room where children are taught, can be seen as a behavioural setting, composed of segments that surround and regulate behaviour. Classrooms could also be described as settings to promote children's development (Weinstein and Doyle in Jedeskog, 2007).

The traditional upfront teaching, where students have to focus on teacher and whiteboard, is demanding classroom furnishing in lines and constitutes today actually still a fundamental part in teaching (Jedeskog, 2007). Their design is affecting several factors regarding the school's tasks towards the pupils, i.e. their inspiration, interaction, motivation and learning. Research about schools environment concentrate however often on work environmental problems regarding the ventilation or noise. Though one part being directed towards the psychosocial environment and relating to the importance for relation and meeting, to stress, power and participation (Jedeskog, 2007).

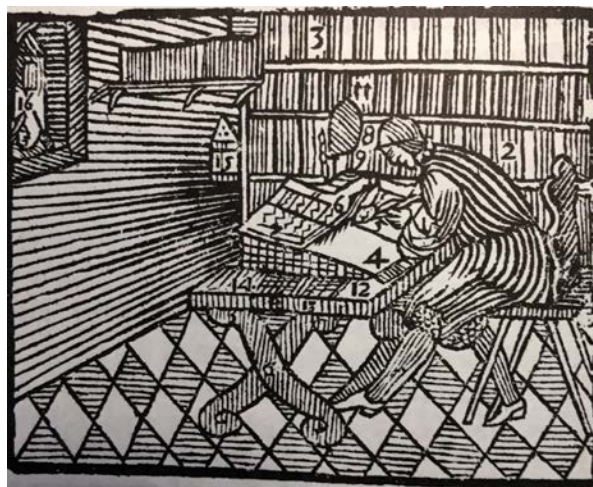
The historic instrumental intention from 1919 of educating all people included not only the learning space, the going to school, but also a physical learning format, of how knowledge should be conveyed. The official mission that all teachers traditionally had, was to teach students to obey the adults, to follow the impersonal rules that governed the everyday life of the school and, in the long run, to accept the order that society utterly rests on. To accomplish this assignment orders were created in the classroom with principles like "everything has its place". Time was structured and the body disciplined. The children had to sit still and at the same time obey the principle "a healthy soul in a healthy body". (There was consensus about transferring middle-class values and educate students this way, as a collective value system, even though the school's instrumental thought aimed at changing the social climate and bridging old social gaps) (Johanson and Florin, 1996).

The change from a rule controlled management to a aim and targeting curriculum, has today definitely changed the school system (Bergström, 2003). It led to increased focus on student relations and to teaching that increasingly demanded achievements and results, which created a double-sided demand for teachers (Hultqvist, 2011). Students must achieve their goals and the teaching must take place in a safe environment. Everyone should be included and teachers needed to take more care of the students, which means that learning not longer consists of a traditional knowledge-giving and receiving knowledge. Pupils learning does not just mean acquiring facts and subject knowledge. They should be involved in taking responsibility for the work and learn to experience. Learning consists of perceiving and understanding so that the learner can distinguish parts and totals, aspects and relationships. This is how knowledge develops in school (Carlgren and Marton, 2000)

Some of the educational research is therefore particularly directed to investigate the interactive learning process and establishes also connections to bodily movement (Nuthall, 2009). The focus on this research is however mostly on the social interaction, not necessarily regarding bodily movement as valuable physical activities as such. Known and well-used physical learning activity exists today, as before, of sitting and listening, watching, writing or reading. The format or required discipline of sitting still and being silent is maybe less strict that it was a hundred years ago, but the demand of discipline in classroom is also today depended on the need of a group cooperating in one collective learning activity, i.e. a discussion, listening to a lecture or doing a questionnaire. Even in individual work, where children are often are free to move and choose space, the expressions allowed have to fit in

the specific set up. Talking loudly, impulsive reactions, running or even moving fast is for the teacher difficult to allow and relate to while at the same time creating a space and holding focus on a specific learning activity for every pupil. *The allowance for bodily movements is by that still governed by the existing spatial set up*, but seldom spoken of. As an implication from the change of a traditional knowledge giving/taking to an interactive and individual learning new bodily movement can happen. We seldom speak of these bodily movements, as the meaning of these movements as such might not be accommodated (or just neglected) in current common views or research.

Historically school has encompassed meaning into bodily movements while learning, since the time of Comenius (1657), where every thing had its place. In the classical picture of the study-chamber you can see clearly the ideas and design of space and learning in relation to bodily movement of that time (Comenius, 2006).



(Every number explains even explicit meaningful action, Comenius, 2006)

With changing materials and methods in school today, follow different activities and expressions in or outside the classroom. Traditional learning activities as sitting and reading a book or writing with a pencil are still part of daily school, but the increased use of digital devices today demand different movement pattern. The motoric pattern of handwriting and handling a book conveys to isolated finger movements of tapping and sliding. Impact analysis and research investigating into effects of these new patterns are being produced in countries like Germany or Switzerland before commissioning large scale use of digital devices to develop media competence (Stadt Wil, 2012). Challenging new bodily movements can appear i.e. in classes teaching typewriting. By better understanding of bodily movement in learning, the spatial use can be acknowledged and seen as a physical interactive process.

Question, Purpose and Aim

The aim of this study is to analyse the so-called "micro-movements" in a classroom practise. Focus is especially on how pupils use and acquire body, bodily movement, positions and positioning in the classroom. The study is hence specifically set on pupils' somatic interactions in the classroom and how a group of pupils interacts and defines (themselves and others) using their explicit bodily senses.

The questions explored are:

- *How are pupils using body and bodily interactions in classroom practice?*
- *How are bodily movements, space restricted, challenged or controlled?*
- *What are possible effects or impacts of these restrictions on movement?*

The focus on pupil's physical movements involves an understanding of the relationship between body and space, expressions of body and bodily senses under inwardly and outwardly directed interaction. An additional ambition with this study is to challenge conceptions of seeing pupils as sitting still, as well as to open up for debate concerning how bodily movements are part of every learning environment and of how pupils learn.

Theory on body and movement

In my theoretical stance I emphasize the interaction between space and bodily movement as elementary for learning and at any moment present. This way of understanding movement is inspired by Aristotle's view, where movement is seen as an immanent ability, defined as development in the realization of the potential of existing (Swedish National encyclopedia, 2015). This includes all continuous change regarding quality, quantity or position. In this process we are relying on sensory stimuli and reaction in a continuous interaction with the space around us. This study forms with its theoretical position (of emphasizing the interaction between space and bodily movement as fundamental for learning and at any moment present) a connection to somatic processes. It promotes the perspective to acknowledge the individual body as a space of sensorial responsiveness (Weiser, 2015), which is central for embodied practices in *somatics*, laying claim to be one of many bodily conceptions.

Educational models, emphasising the relationship between space and bodily movement as i.e. the model of *educare* were already developed in the first half of the twentieth century. The intention was to create modern schools by understanding the development and growth of the individual through their movement in relation to the material environment required to nurture that growth (Burke and Grosvenor, 2008, Burke & Cunningham, 2011, Kozlovsky, 2010). Collaboration between architects, town planners and social reformers formed at that time an alliance to promote healthy growth and social development, including education and regulation of the body and were part of shaping and reshaping physical and social environments for teaching and learning (Burke and Grosvenor, 2008, Burke, Cunningham & Grosvenor, 2010). By seeing the body included into educational ideas the need to theoretically define the "body" emerged.

Body and bodily conceptions

Education of the body was historically not included in the school as subject. Subjects as physical or aesthetic education entered the school in Sweden first later (in the 19th century), with the purpose of enhancing theoretical learning (Lundgren, 2014). A view of theory and practice emerged that was based on a differentiation between body and thought. All actions and practice are preceded by thought and the quality of this thought determined the quality of the action (Björklund, 2008). This existing mind body separation makes it also possible to objectify bodily movements. It allows perspectives of treating and fixing bodies, acknowledging its physics or seeing the body as a sexual object. It permits seeing the body as a machine or robot that has to carry out actions. It is through this dualistic body/mind separation, the education of the body still holds a subordinate role in school learning today.

When educational research developed in Sweden in the late nineteenth century the body was mostly understood from the perspective of applied psychology. It was supported by (natur)science inspired psychology, which was physiologic, experimental and quantitative in its approach (Bengtsson, 1997). In the beginning of the twentieth century a new direction developed through the influence of behaviorism. It represented a naturalistic body image, including the spirit, but with an understanding of educational phenomenon as a result of stimuli and response only. Bodily expressions were explained as a result of stimuli and response in the strict causal understanding of cause and effect, like in classic physics. Under the seventies a major change occurred in psychology as well as in education as the interest in cognitive approaches grew. Out of disappointing shortcomings and insufficiencies in physiological and naturalistic ways of studying phenomena, these old approaches became replaced with cognitivist approaches. The connection to the body was now not included and related to, as the implicit ontology these cognitivist approaches build on, do not take notice of the body (Bengtsson, 1997) By that, the body was no longer part of education and education became a cognitive project, with specific interest in mental and inner processes, rather than physical movement. In educational research instead of turning back to the biological body, the body becomes now a matter within social constructivism. This made it possible to create different bodies, i.e. an individual, social or political body. (Foucault, 1979).

I view myself as individual learner in classroom with all my lived experience within my body-self... What kind of body does society want and need?... How do we use the body as a tool for shapening roles?
(Schepper- Hughes and Lock, 1987 in Davidsson, 2004).

This construction becomes often clear through a question or positioning statement. As shown in these examples. These concepts allow now new relations, but are accompanied with difficulties in distinguishing ontologic truth within or behind a text. However, to understand the underlying construction of different bodily concepts, one has to understand its philosophical origin. Within these philosophical concepts we can find theories that place the body also in a perspective of the subject as well as the object as i.e. the phenomenological concept of the living body does (Merleau Ponty, 1945). Here all experience is connected to our own experiencing living body, meaning that experience is not objective and needs to be seen in relation to bodily perception within and around us (Bengtsson, 2013). This concept of the body is within educational science represented in the assembled field of practical knowledge. Important to distinguish here is that the individual bodily act and experience is connected with the subject of knowledge, which allows us to examine individual distinguished, subjective acts in relation to esteemed knowledge (Polany, 1966, Molander, 1993, Bornemark & Svenaeus, 2009).

The concept of ‘somatics’

Somatics or somatic education is often, in educational research within performing arts, related to the awareness of the process of living inside the human body. “*A soma is any individual embodiment of a process...*” (Hanna, 1986/87). The body is, as in phenomenology, seen from a perspective of individual experience of the living body. Above all, the living body is a moving body. Research studies are usually deriving from a first-hand perspective (Hanna, 1973, Eddy, 2017), a kind of subjective perspective that originates from the researchers experience and thorough understanding of their own embodied praxis. This understanding of the body includes physiology of the body as well with all sensorial processes, with the intention to frame the somatic bodily concept as a holistic or embodied bodyconcept. Dragon (2008) defines it:

*She is embodied as she articulates the movement means (here), she is actively engaging
BodyMindSpiritEmotions in creative processes as she articulates the movement. (Dragon, 2008,s.74)*

Beside of the relation to phenomenology and with philosophers as i.e. Merleau Ponty (1945) or Husserl (1980), the somatic bodily concept relates to education and learning through traditional educators like Pestalozzi. Pestalozzi’s holistic concept of “Head, hand, heart” (Burman, 2014), is acquainted with muse-ical learning in educational research in the aesthetic field of knowledge (Grahn, 2005). For consolidating this idea of trinity further, somatic body concepts refer to philosophy deriving from Thomas of Aquinas (Sjöström, 2007), which built on Aristotles philosophy (Lundgren, 2014).

Research based on somatic theory can build on quantitative studies, i.e. measuring the effect of motoric function and development (Batson, 2008, 2009). Research in somatic theory also applies to social constructivism, where a situational perspective explains embodied movement from a socio-cultural perspective (Behnke 1991, Dragon 2003, Horton Fraleigh 1996, Green 2000 and Mangione 1993, in Dragon 2008). With a socio-cultural somatic knowledge perspective, the conclusion is that somatic knowledge differs from culture to culture (Fontin, in Dragon 2008).

There are other conceptions as well that see cultural and linguistic knowledge as limited while regarding somatic knowledge as even more fundamental. This perspective claims that human universals or norms could have somatic knowing as one of their foundations (Brockman, 2008) by referring to Sheets-Johnstone (1992) view that “*Something far deeper than culture also informs our lives.*” This study considers somatic bodily understanding being related to the researchers experience and thorough understanding of his own embodied praxis. It forms the ground in the ethnographic interpretation/analysis of bodily movement and somatic learning in classroom practice. Within Somatics exists however another vital principle important for pedagogic and learning. It is explained below, as simple and concise as possible, for sake of purpose and space of this study. It is related to concepts of learning and advocates the bodily inseparability of thought and action, body and mind.

Bodily movement in education

As suggested above the historical body and mind separation created a foundation for how we also today understand education (Lundgren, 2014, Björklund, 2008). This model still fortifies the idea that a previous thought process, involving bodily movement first as a transformation of previous thinking, is controlling action and movement. Hence, in spite of other theories where movement, action, experience and learning are included in both theoretical and practical processes (Bengtsson, 2013). My experience from school is that this process is very complex, as learning tends to also involve the teacher focus on task and result. This appears to set a pattern of thinking first to proceed and perform towards this pre-planned goal.

The most frequent educational learning theories that teachers base or have based their concept of learning on are coming out of behaviorism, cognitive traditions, pragmatism and the socio-cultural perspective (Säljö, 2014). In behaviorism, behavior is obtained and man is considered a body to be controlled and conditioned to new behaviors. Learning is done by controlling the body towards a pre-intended and desired behavior. The pragmatic and socio-cultural perspectives, which end up in many ways close to each other, emphasize interaction. Knowledge grows from the interaction between students and between students and teachers. Knowledge is not something that is transmitted between people, but something that people participate in (Säljö, 2014). These learning theories want to avoid a dualistic approach of thought controlling action by imagining the process as more interactive. Thinking is considered a mental function and a tool for action. It is placed after stimulus, but before the response or the action, illustrated in Vygotsky's triangle (Vygotsky, 1978). From the theories within the cognitive traditions, Piaget's developmental psychology had a strong progress in the educational context. It builds on a rationalistic approach and a dualism can be seen in the thought-handling structure which is focusing on a theoretical cognitivist understanding first (Säljö, 2014).

Some of today's educational learning theories in the field of practical knowledge, that are related to educational science, have through a clear focus on the practical act, established a relation to bodily movement (Bornemark & Svenaeus, 2009). These theories can see bodily movement as a kind of practical knowledge, as always part of an act, and with a phenomenological perspective, as participation (Carlgren, 2015). Here Wittgenstein's philosophy forms a starting point, where rules are followed without thinking. Also Ryle's idea of evolving intelligent actions through acknowledged and changed experience as well as Schön's perspective where knowledge is embedded in the action, as an invisible aspect of the action, are all part in developing practical knowledge (Carlgren, 2015). One in this field often mentioned concept is Polanyi's theory of silent or tacit knowledge. However, looking closer at the cognitive principles behind, also here, a dualistic model within the learning process appears, where separated conscious states (bodily subsidiary/focal consciousness) switch inbetween and by that exclude each other (Carlgren, 2015). Within somatic concepts of bodily movement bodily processes do not exclude, but interact with each other and can be found in learning models for embodied bodily movement (Dragon, 2008, Eddy, 2017, Johnston, 1995)

Embodied cognition and bodily movement as somatic practice

Theories of embodied cognition have during the past two decades offered a radical shift in explanations of the human mind, from traditional computationalism which considers cognition in terms of internal symbolic representations and computational processes, to emphasizing the way cognition is shaped by the body and its sensorimotor interaction with the surrounding social and material world (Lindblom, 2007)

This quotation refers to the difficulties in using rationalistic models in order to understand physiological and behavioural reactions or interferences of the physical body. Also, research on artificial intelligence created a need in cognitive science to look for new non-dualist theories. The basic idea of a body based/*embodied cognitive* theory is that bodily actions and processes resulting in function, are also cognitive processes. In this way, there is basically no distinction between them. I can i.e. direct my thought to sense the temperature of the surface my hands are touching or I can let the sensation of temperature arise to consciousness and then decide if I want to move my hand, which happens when you put your hand on a warm plate. A present pointing gesture can this way be regarded as a cognitive activity, and not as the motor performance of an internal cognitive command (McNeill, 2005 in Lindblom & Ziemke, 2012). The brain is seen as an organ of action, not as an organ of representation. By that, the difference between intention and action disappears as the recognition that perception itself contains a correlation rooted in action. When you receive information about your mind, you are already acting (Berthoz & Petit, 2006.). Communication as action needs to be both physiological and phenomenological (Berthoz & Petit, 2006). The interest from the educational science to investigate into neuro-science, can i.e. already be seen in Dewey's collaboration with Myrtle McGraw and her experimental studies of child development in 1930, which further on led to Dewey's concept of logic (Dalton & Bergenn, 1996). The ability to plan our actions is the inevitable foundation of reaching our goals and the interest of tying together prospective and executive function with using the concept of embodied cognition is of present research interest in infant development (Gottwald, 2016). Infant spatial perceptions and cognitions are assumed to be intimately tied to movement. Relevant for this study is here the idea that recognition of movement is seen as the generative source of spatial concepts (Sheets-Johnstone, 2010).

Theories of embodied cognition offer through that learning concepts for somatic learning: A body that is always *present*, whether we are aware of its role or not. It means, in a simple way, that body and mind constitute two sides of the same thing when it interacts with its material and environment (Clark, 1997; Varela et al., 1991 i Lindblom och Ziemke 2012). This bodily concept started to become scientifically established already in the late 1960s. A key figure in this research perspective was the biologist, immunologist and cognitive neuroscientist Francisco Varela, who coined the terms embodied cognition and *embodied mind* (1991). He developed, together with his colleague Maturana a construct that often is referred to as biology of consciousness and cognition called *autopoiesis*. Autopoiesis is based on the assumption that reality is not preordained. Living organisms *enact*, meaning, perceiving kinesthetic and proprioceptive sensations. As you are i.e. sitting and reading you can sense the contact of your body to the sitting surface and the floor, register an airflow on

your chin or notice a multitude of sounds. You are just attending to sensory of shifts in pressure, temperature and movement. When enacting the conception of movement becomes cognitive as it arises from the dynamic sensorimotor coupling between organism and environment. Both body and brain are needed in the co-creation of reality. Cognitive research should therefore be based on experience, as reality cannot exist independently from the organism and lived experience foundational to consciousness, mind and thought (Batson, 2014).

According to Varela (1991) the lived experience is, as in phenomenology, built on first-person experience, which should be the starting point for understanding cognition. This can also be related to Jakob von Uexküll (1864-1944) describing subjective perception, where subjective perception of the outside world, the so-called "Umwelt", is influenced by the body's sensomotor interactions (Lindblom and Ziemke, 2012). This first-person perception also prevails a fundamental concept of somatic learning. It is essential here to understand that we have 2 different ways of perceiving information. When we look into a mirror a human soma sees a body, a third person, objective structure. The experience and sensorial information perceived by looking at the same body from an internal and somatic experience is called a first person's viewpoint and often different from the third person's perspective. The underlying somatic process as such is described as continuous exchange between sensing and moving. It is an interlocking process where sensing is actively productive and self-moving, a regulative process of somatic self-organisation and adaptation (Hanna, 1986/87). For everyone, but especially for performers the look into the mirror becomes a vital issue, when we wish to match these 2 different perceptions. Instead of disregarding one as right and one as wrong the somatic theory accredits the soma to have the ability to possess two modes of perceptions, first-person and third person perception. Here the externalized "body", seen by a third person observer is regarded as the living product of continuous somatic process, self-sensing and self-moving (Hanna, 1986/87). Originators of somatic learning practices as well as researchers within somatic learning could this way use their own individual somatic process and experience in their research (Hanna, 1973, Johnson, 1995 Dragon, 2008, Mullon, 2014) and at the same time keep a science-conscious third-person perception. This science-conscious third-person perception where the mirror actually is used plays an essential part in the development of the Alexander Technique³ (Alexander, 1932)

³ 1972 Nobel prize winner in physiology Niklas Tinbergen gives in his Nobel speech a description of Alexander technique's scientific process <https://www.youtube.com/watch?v=XXr-9kQZ0ow>

Steering of body's soma in classroom practice

In regard to the above my points of departure in this study is the involvement of human sensorial practice in classroom learning. By that I acknowledge an existing pre-understanding related to bodily experiences and that knowledge production as well as learning generally is more complex than common claims. With the intention of increasing and widening the body concept by its possible articulations, meanings and central value for knowledge production and learning (Östern & Strömme, 2014) I will now outline my ideas of how the body's soma is effected by spatial steering and interactive classroom practice.

Models within the social constructivism, i.e. the model mentioned earlier (Scheper-Hughes and Lock, 1987), state bodily effects from an individual, social and ruled perspective. Relating to ruled aspect of this model, the general minding of the body as well as adapting to the spacious conditions, imposes demand to bodily discipline and control.

“Pupils have to mind - must sit in seats, walk in lines, not chew gum, have raise their hands when they speak, should not interrupt... Teachers have to mind the bodies to mind these rules... Classroom, school, lunchroom and playground are designed to make it possible for bodies to be under constant surveillance by those in charge of minding them” (Davidsson, 2004).

It is by a *subject steering dominance*, that education desires a controlled bodily behavior, that advocates regulation, surveillance and control of the body (Focault in Scheper-Hughes and Lock, 1987, Burke and Grosvenor, 2008). Effects on the somatic body can be multiple, but the important fact is that basic requirement subjects make our somatic body to an object, bodily following the leading required subject in daily classroom practice. For example, we tend to use our bodies in order to fully understand things with reactive movement pattern possibly governed by the attraction towards or against the learning subject. This can be recognized when we are i.e. *“taking a stance and posturing, like crossing arms and leaning backwards, frowning, fumbling and fiddling with hands or an eraser”*. This happens often in an unconscious manner, with a result that can distort coordination and increase tension instead of balancing and building a constructive relation by choosing how to act. For learning and gaining knowledge it is vital that our senses are responsive to information given during a lesson. To sit and balance on a chair is a multifactorial construct with at thirteen different systems being involved in (Batson, 2014). When pupils take positions and make use of static positioning, they risk to block the information from their own sensorial systems and impair by that their learning capability (förmåga att lära). We know also from work-environmental and architectural research, as well as of own experience, that matters of space, i.e. light, air or noise can affect our body negatively. There are therefore continuous attempts to improve acoustic, air and light conditions in schools in relation to the standards of work-environment law (AFS 2011). Unfortunately is the matter of space also here becoming the leading subject and our bodies are the objects that get exposed to present spacious matters (Jedeskog, 2007, Burke and Grosvenor, 2008). But there is also research and projects that engage in different ideas about designing school and classroom practice, as i.e., outdoor education or the mentioned concept of educare. They can be related to pragmatic and sociocultural knowledge theory of Vygotsky (1978) and Dewey (1994), that learning is situated where the place takes

an active part in the learning process (Dahlgren, et al., 2007). They also emphasize the need for schools today, that are designed around the pupils needs, not the educational subjects (Burke and Grosvenor, 2008, Larsen, et al., 2010).

When we control, govern and steer our objectified body, we can experience a locking or fixing of our position, likely building up a so called static tension. We find often no value on sensory somatic activity as such, are unconscious about it and are even able to desensitize, not feeling hunger, thirst, smell or our position in space. We are, at least explicitly, interested and governed by space, tasks from school subjects and aim for required targets (Batsson, 2014). Within that, our somatic body seems to disappear. One of the main figures in somatic education, Elsa Gindler lectured about already in 1931, with an even stronger emphasis:

... when we cannot satisfactory meet the demands in daily life,... if we are stressing out of shortage in time, or when we have not really grasped the meaning within a work and become unsuccessful in managing our tasks. We become victims of our circumstances.... Become this used, tired, overagitated human being, that we nowadays often meet in her more or less huge slackness or stiffness (exerpts, own translation Gindler, in Ludwig, 2002)

Beside the already mentioned leading subjects; the regulation of space and the dominance of the school learning subject that constantly consolidate a bodily objectification, one more subject appears to constantly steer somatic bodily interaction within the existing environment: The given task or aiming goal. We can put so to say our mind over matter, “*endgaining*” in our wish to achieve our goal, which justifies bodily disciplinary means (Alexander, 1932).

In this process we seem not to gather information from the senses, but use instead memories, previous learned cognitive information, which than can lead to misconception and a faulty sensory appreciation; as present circumstances are changing all the time, especially for children that grow. In the development of the somatic learning method of the Alexander technique, it was a predone fixing or position of the body that resulted in a malfunction of our sensory mechanisms. (F.M. Alexander, 1932). A underlying basic principle in the Alexander technique is that use effects function and that knowledge concerned with sensory experience can be redirected. The individual is (re-)learning to make a choice about reacting to stimuli as the subject and relating constructive to the object of space and interaction demanding tasks. Somatic learning happens by that on the base of an integrated body open for sensory experience (Arps-Aubert, 2010, Alexander, 1932).

For this study the pupils individual interactions with their chair, desk and the learning material they are using when reading or writing are important. From perceiving oneself somatically as an individual subject they have a choice to relate in different ways, i.e. with the sense of balancing, staying bodily integrated and moveable, choosing to bring the visual learning material towards them (illustration 1).



Illustration 1 from *Entfaltungen* (Hengstenberg, 1991) showing pupils sitting reading.

From an objectified bodily perspective, meaning experiencing oneself as an object in motion (Sheets-Johnstone, 2010), the pupil's body is affected by chairs and other objects in the room as well as the learning material used (illustration 2). These matters can support or distort the body. Research on pupils sedentary behaviour as well as on visual dominant reaction show this problem clearly (Williams et al., 2015) and we may have ourselves experienced bodily discomfort in neck or back when being governed by space or tasks.



Illustration 2 from *Entfaltungen* (Hengstenberg, 1991) showing pupils sitting writing.

In order to give a deeper explanation for why pupils and teachers move the way expressed some aspects need to be elaborated more. Within regulation, objectification and constraints by school space and task (Batson, 2014) the school must be made into a safe space. The expected fear of

falling and hurting is therefor acknowledged and given preventive normative regulation (AFS 2011). This intention of eliminating risks does affect somatic learning in a fundamental way. It means that teachers and parents develop a sort of secure frame and teach the child how to move in this construction. This safeguarded school-frame consists of movements that are put in or exercised into a child. Somatic learning instead is building on the fact that we all have the ability to sense and move within us and has a direct interest in allowing choices for well-being and lessen matters as our fear of falling, independently of age (Fortin, 2017, Batson, 2014)

My intention with the above mentioned background is to highlight some important terms for this study. It shows the intertwined connection of movement, body and mind as well as a necessity to see these connections deconstructed to its elements, for making a somatic classroom practice visible. By that I argue how position, flow, bodily movement and learning are all important parts in classroom practice. This perspective is illustrated by using the concept of *somatics*, which was historically created out of a diversity of sensory movement approaches that discovered the potency of listening deeply to the body (Fortin, 2017). I also wanted to show how tasks and spatial matters demand bodily co-ordination, which can in classroom practice not only be disregarded, but also be controlled, put into a frame or locked by targeting. In order to highlight I use the concept of position and positioning (Batson, 2014, Alexander 1932) where pupils by fixed positions risk to block information from their own sensorial systems and likely build up so called static tension, eventually leading to malfunction of our sensory mechanisms. I intend by that to open for a discussion about impairing or improving pupils learning capability (förmåga att lära).

Method

My theoretical stance just as my methodology aims at working as wide and pluralistic as ever possible. Even though impossible, my intention has been to frame as many aspects during my observations as possible with the understanding that the neglected portion will be a trembling factor somewhere else. Isolation becomes disintegration possibly leading to non-connection between inside and outside, room and body. I have to think of all together whilst continuously choosing the next step, an enactive process in an occurrence of multitude activity. This formed an investigation with a post- humanistic perspective for sorting and describing relations, materiality and effects within the *somatic discourse* in classroom practice.

The term discourse can be described as “*a specific way to talk about and understand the world (or a section of the world)*” (Winther Jørgensen & Phillips, 2000) and systems of discourse both summarize and produce knowledge about the world (Foucault, 1980). It is not the aim to define this knowledge as true or false, but to illustrate that we construct truth and facts in different ways, depending on what we regard as important and valuable. By that we live in a world of a “perspective” truth with meanings that are embedded in competing discourses. As way of representing the world, discursive system become easily connected to struggles over power, or regimes of truth. In this study here the somatic discourse is in focus, taking a post- humanistic perspective that i.e. can be found at Foucault and which in recent years has developed further theories about today's changed conditions about human existence, include, problematize and exceed the humanistic heritage of the age of reason (Åsberg, Hultman and Lee, 2012). The post-humanistic interest in materiality and matter as well as in processes of creation is opening for a dialectic position. It is not about humans' profound dependence of environment and surrounding, but about a real intercommunion in how individuals (e.g. pupils) create different material compositions (Åsberg, et al., 2012). Reality becomes moveable, active and multiplex in all its materiality, which allows seeing bodily intercommunion as different material compositions or cartographies (Åsberg, et al., 2012). That means, that this moving body concept also reaches outside the body, as well as to the interactive processes within the body. The body is in these processes part of thinking, expresses thought and thinks by itself through movement.

In my understanding this perspective also includes a differentiation between a materialistic, representational body (Braidotti, Barad in Åsberg, et al., 2012) and a somatic moving body. It is the somatic practice, the self-sensing and self-moving process of somatic self-organisation and adaption (Hanna, 1986/87), which is in focus for this analysis. The observed micro movements are analysed in the arrangement of classroom matters to show affect and relation, co- functioning or dis-functioning in the learning situation. The somatic discourse within the learning discourse promotes the body's awareness in order to allow individuals to make choices for their own well-being, thus in contrast with a disciplined and objectified body, often in conflict with the present living body (Fortin, 2009). My intention is, hence, to get a closer look into regular classroom practice, in order to create knowledge about how tasks and spatial matters demand bodily co-ordination.

Critical discursive practice

The study is designed as a critical discourse investigation to evaluate patterns of cultural life and give voice to other cultural enclaves (Flick, von Kardorff and Steinke, 2000). It is a search for a different truth within dominant discourses as i.e. a discourse of aim- and target-orientation in subject related learning in school. The specific understanding of this somatic discourse is that humans' sense- and movability is based on somatic self- organisation and adoption. It is an investigation about how this discourse is representing as well as producing knowledge about the world⁴. The investigation is looking for unarticulated, undefined and dis-regarded movement during classroom practice, suspecting that resistance might be developed by suppression of self-sensing and self- moving activity. The form of this study's critical discourse analysis (in short CDA) progressed in relation to the premises of the analyzed discourse in the investigated context (Fairclough, 1995, Fairclough and Wodak, 1997). To develop a somatic cartography (Deleuze and Guattari, 1983) the study methodology became adapted to the data under investigation (Wodak, 2006).

The analysis' frame builds on a number of common aspects within critical discourse analysis: The studied somatic discourse, seen in micro-movements, is regarded as being constituted as well as continuously constituting itself. The analysis is constantly moving backwards and forwards between theory and empiric data, re-contextualizing relationships between elements of the discourse (Wodak, 2006) In other words, there is no codification of data, but categories, maps and tools for analyzing are defined in accordance with these all these general aspects as well as with the specific problem under investigation (Wodak, 2006) as like a craft skill, something like bike riding, regarding the research practice to be a kind of "analytical mentality" (Bryman, 2011, Potter, 1996). To study the dialectical relations between the elements of the somatic discourse the analysis looks for organization, variation and reads as well the details in the course of events to articulate themes or central aspects (Potter, 1996, Faircough, 1995). And finally as being critical to how bodily movement is governed by a dominant discourse, the analysis is general problem- orientated (Wodak, 2006). By that the approach of this study is mainly relating to Wodaks and Faircloughs critical discourse analysis including cartographic elements as i.e. a three-dimentional model to articulate inter-textualitet of communication in acts and expressions within ongoing somatic discourse (Winther Jørgensen & Phillips, 2000)

⁴ A somatic discourse of sense- and movability, that might in this larger discourse of aim- and target-orientated learning in school just be seen as contributory tool, maybe regarded as part of general didactics or acknowledges in subjects as physical education or arts education

The researcher as subject

Within this kind of discourse analysis the researcher is never situated outside the discourse, hence always a kind of co-creator the discourse (Fejes, 2015) . Being a teacher in theatre, a balance artist and a teacher of somatic practice, the Alexander technique, means also that there is a solid experiential knowledge about perception and movement which is built on my values and norms and which is critical to the steering of the somatic body by space and interaction in classroom practice within the dominant discourse of learning in school. A critical perspective to the way schools or institutions use their power to discipline and regulate bodily movement (Foucault, 1979) includes a risk of reproduce this reality and by that recreate a normativity I am also part of (Simonsson, 2017). To not ignore this fact and being aware of this risk will hopefully give the opportunity reflect and give account about it under the research process.

When I by observation take part in classroom practice I also influence the situation through creating awareness about bodily movement during the lesson. As observing researcher I take a role of following the present events which means that I am staying bodily as responsive and organic functional as possible. I do not react directly to the events, I stay connected to the flow of somatic information and maintain a moveable poise. In this process I reflect constantly about my own sensory appreciation in relation the discourse I am as researcher focussing on. As being a part of this discourse it is impossible to answer how I, as the researcher, affect what is being researched on (Fejes, 2015). In this process I continuously attempt to be conscious about how I create meaning. It is done by a practice of giving account to the process and the demand of this study's (re-)traceability. And of course to the central research focus, on what material is relevant to study, to answer the given research question, to observe how pupils are acting, expressing, using various functions during class, why and who/what is framing their space.

Ethical considerations

The project is framed as an ethnographic study and the empiric material is collected by the use of participant observation (Fangen, 2005). The gathering of research data by classroom observation in school is following the four main requirements of the research ethical principles, i.e., information, consent, confidentiality, and purposive utilization (Bryman, 2011). Participation in the study was voluntary and anonymous. I stated clearly the purpose and context of the investigation, by sending a letter to schools before starting the fieldwork (appendix) as well as informing the participants about this research before my observations. For being clear about informed consent (Hammersley and Atkinson, 2007) and out of the principle of self-determination (Bjørndahl, 2005) the children were also included into ethical considerations by giving the description of my observation to them afterwards and through that maintaining the pupils consent. At the end of my visit in the classroom, I got 5 minutes from the teacher to speak to the class and explain my writing and answer the children's

questions as well as asking them if there had any objections to my observation, though, one class was not interested in that. Studying movement of children means as well that they obtain an important part in production of knowledge. By that knowledge production and ethical considerations are jointed together and a clear involvement of ethical aspects in the perspective of what knowledge is and how knowledge materializes becomes a constant fact during the research process. A reflexive approach (reflexive consideration) will therefore be used as tool for knowledge production as well as for discussing ethical questions at issue. Through that ethical considerations will be always present and in need to be related during all the moments of this study.

The field work

I have used observations of classroom practice during five different lessons in four different classrooms in three different schools. One trial observation was made to practice what/ where and how to observe and to make notes of the observations. The process of selecting, choosing and ordering served to develop a to the research questions directed view as well as part of the continuing analysis process.

Classroom observation was chosen as method for collecting research data / empiri production as it holds the opportunity for a field study of non-verbalised communication, as human movement (Fangen, 2005). Using i.e. interviews as method would only give access of retrospective movement, a lingual interpretation and filming that would expose the individual pupil and demand further ethical considerations. A camera captures the mainly visible classroom practice as well only from a limited angle, which risks excluding perceivable information. Observations on the other hand can describe and give evidence of versatile sensed action. They allow access to perceivable interrelation between object and group as well as information about the stimuli leading to sensations (Bjørndahl, 2005). The simultaneously written field notes do further support attentiveness and being sharp sighted whilst observing. They produce empiri as well as analysis (DeWalt & DeWalt, 2011 in Simonsson 2017). In this study they constituted in the process of noticing, identifying and documenting for me not only a support to recognize patterns and relations in classroom practice, they formed in the process of transcribing and reflecting also the base for further analysis, discussed further on in the analysis chapter.

Selection, information and premises

Classroom observations were made during Autumn 2017. Five observations in four classrooms in three different elementary municipal schools formed finally the research data of this study. A sixth observation in upper secondary school was made as trial to develop practice and skill for observing and taking notes of micro movement in classroom, and is not included in the analysis. To choose “regular” representative classrooms, a contact was made

to the municipal coordinator of school locals, who give me advice on 10 potential schools, which all varied in size, location (town/countryside) and history (new school building/ old school building). I contacted these schools, presenting my study and got reply from four of them, who all took part, one however only as trial. After arranging date and time for observation a letter (appendix) was sent to all schools in advance, to inform about the study and asking permission to participate by being observed during one lesson. The observations were finally done in class 1,2,3 as well as 7 and 8, during lessons in Swedish, English and mathematics. Each lesson lasted between 40 and 60 minutes. The classes were mixed and having between 12 and 21 pupils (in one class was however just one boy and 11 girls). Some supplemental pictures of the classroom, without pupils, were taken before the observation. Before and after the actual observation I talked also with the pupils' teacher, presenting myself and checking if there were any lack of clarity, viewpoints or questions.

The observations

Following five different lessons in four different classrooms by observing and writing down occurring movement. Activity started with presenting myself briefly for the class in the beginning of each lesson. Being allowed to be part of a group, which I didn't have any previous relation to, created several thoughts in me and by reflecting about them I could develop my proceeding. Firstly, a thought of apprehension of disturbing the lesson. This thought was encountered and actually reinforced by perceiving myself as part of the course of events. Secondly, for not further increasing the pupils' exposure of being looked at, I placed myself outside the centre of happenings, but visible, i.e. to the side. In this way they could also look at me, observe me, if they wanted. It felt for me that this created a more equal and confident situation.

During my observations I perceived myself as an observing participant as well as a participant observer (O'Connell et al., 1994, in Simonsson 2017). The position as an observing participant was also created from the study object, the observation of micro movement in classroom practice. As part of classroom practice, I can make the same sensorial experience as the pupils, how I sit on my chair, listen to occurring sound, sensing temperature and airflow in the classroom as well as having a spatial perception of myself in relation to external matters, the pupils, the furniture or the room. This position of the observing participant includes the other position of the participant observer as well, that holds a more formal contact with the pupils in the perspective of obtaining data of their micro-movements (O'Connell et al., 1994, in Simonsson 2017). I sat mainly at the same place during the whole lesson, having an as good as possible overview. For meeting pupils' questions on what exactly I have been writing down during the lesson, but also for recollecting and sorting my jottings, I read and described my observations to the class at the end of the lesson. By that I could partly receive consent and eventually add details that I became of aware of during my little sum up.

The field-notes

Notes were taken with the intention to write down how pupils (micro) movement is formed by and how it affects classroom practice. In the trial observation I found a demand to sort in some way several parallel happenings, following the learning discourse on what movement happened on a subject/task level as well as on what interactions happened between pupils, between teacher and pupils and between matters and pupils, or even within the pupil. Beyond that were effecting spatial conditions as light or air, continuously changing as time progressed. To be able to keep the research questions in centre of this investigation I was directing my attention towards pupils patterns of micro- movement and at the same time relating these movement patterns to the prevailing issues/matters found. In this process several groups and themes developed, constituting the further analysis.

However, a schedule was not actively used during the observations, the sorting became merely a reminder of what I would listen to particularly. This way I could note matters in the pupils way of moving in relation to matters found and noting my own way of perceiving of or moving in classroom practice. To not forget interesting details as well as for keeping the observing, sorting and articulating process vivid in mind (DeWalt & DeWalt, 2011, in Simonsson 2017), I always transcribed my notes as closely as possible to the observations themselves, usually on the same day. In the transcriptions I included the picture taken of the classroom as well and used these transcribed notes as the base for my further analysis (with possibility to go back to the original jottings).

Analysis

The analysis consisted of a continuously shifting *process*, reflecting and structuring my observations to answer the research questions. As the environment, here the physical classroom represents a prerequisite for bodily movement I started to look at the observed movement, expressions and interactions in relation to organisation or arrangement of the room, including tools and matters in use. In this process I became aware of recurring situations or encounters that through repetition created patterns. I.e. were pupils in all my observations mainly leaning into their books or writing activities, only sometimes a jointed movement happened or pupils conducted matters as books towards them. Different patterns formed than areas of specific interest or themes that were concerned with finding purpose, reason and cause for this movement. Interestingly I found that one and the same pattern could be placed into different themes. The leaning into books, i.e. did fit into a theme of *micro-movement created by activity in classroom, for example through a internal thought during given task* and it also could be part in a theme of *movement-regulation through the format of the space* with its arrangement of space and matters, like chairs, whiteboard or books. The chair and table did here just not correspond well with the individual pupil, was non - functional too small or too big and did not offer a jointed movement. To not become caught in a conflict between causes and affect in (immanent) micro conditions and a more general

analysis of the classrooms external conditions the reading of the empiri followed a partly supplementary and partly contrasting way. This possible third position is described by Rothenberg (2010) as *both opposite and complementary* to structures that generate hierarchy orders as well as impersonal communication (Rothenberg, 2010, s.222).

Also Faircloughs’ three-dimensional model for discourse analysis (Winther Jørgensen & Phillips 2000) helped me in the analysis to untangle possible meaning of micro-movement on different levels by serving as cartographic map (se illustration). The observed micro-movement became articulated into text, producing sending and forming itself in the somatic discourse as well as being received, consumed and affected within the wider context of cultural practice⁵ in classroom activities. The analysis attuned the micro- movements to matters formed and affected by space and activities, which later chiselled out constructions and conditions of power relation and cultural practice (Börjesson and Palmblad, 2007). In the process of re-contextualizing relationships between elements of the discourse I searched further for elements, moments and signs of significant, particular in unarticulated and disregarded movement, suspecting development of resitances. This process of generating social cartography (Deleuze and Guattari, 1983) by building dynamic maps reflects in the following essays where the somatic discourse is articulated through space and relation.

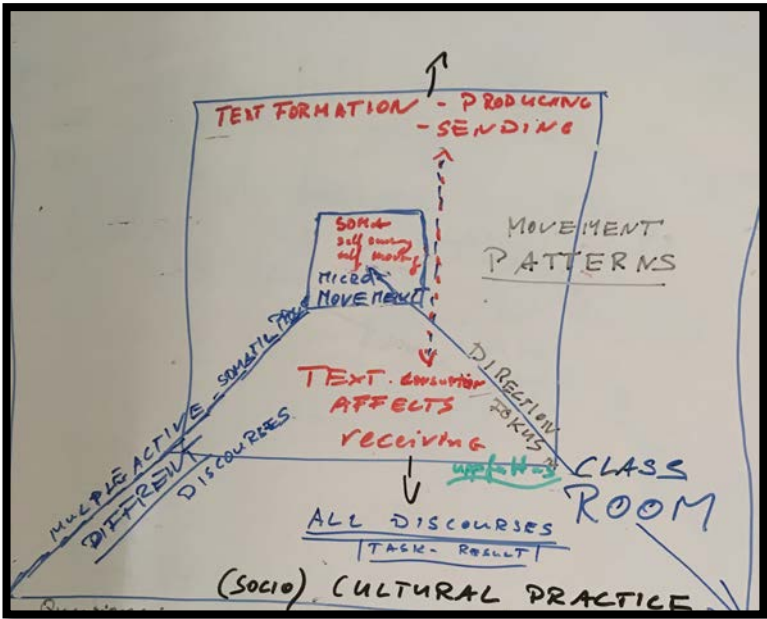


Illustration of my model developed from Faircloughs’ initial three-dimensional model

⁵ Fairclough uses the term socio-culture practice; I regard social practice included in cultural practice.

Space and bodies that matter

During the on and off reading of my notes from the observations I recognized that descriptions of the room, the actual learning activities, the movements and expressions could be interpreted as integrated with the activities, content, social rules or spatial boundaries depending on how I directed my focus. A pupil yawning could be seen as sign of tiredness because of demanding tasks with a high workload or because of bad ventilation the classroom or by both. Resulting affects can then be presented with a focus on spatial conditions or with a focus on to pupil's task orientated inter-action, but has its source probably in both, if we think that we relate to an outer and an inner stimulus. This resulted in presenting the result in two parts one with focus on the steering effects of space and matter (Room, desk,..) and the other with focus on how pupils actual practice in classroom led to a formations of somatic activity. At the end, in a third minor part, are some divergent cases presented, that showed more exceptional bodily movement during classroom practice. I interpreted words, movements and inter-action as part of different examples of borders (mental, physical as well as spatial), relation (to matters as the pupils instruments or the actual learning situation), formations (positions, stances, arguments) and transgressions, meaning that the at the end presented cases diverge from an observed movement culture in classroom practice. The texts in *cursive style* are summaries of observations in my own narrative description, whereas the other text explains the presented results

Space as matter of somatic practice

Most of us have been sitting in a classroom, maybe even having a distinct feeling of being in this space. When I went in to the classrooms I always started my observations with getting a clear sense of the room, to understand spatial conditions of where I am and how existing spatial matters are sensorial perceived:

ROOM – SOUND – LIGHT – AIR: The classrooms are primary coloured white, but often in combination with one or two other colours i.e. yellow and grey/brown, which can sometimes become dominant in the room. All classrooms are illuminated with neon light, fluorescent lamps are hanging in lines across the room, in some of the rooms there is a projector hanging from the ceiling as well as a thick metal tube for ventilation. Most of the classrooms have windows at one side of the room as well as the sun blinders rolled down (the sun is not shining at the moment, but they are there in case it might shine later). It gives not so much daylight (Together with the dark curtains I can get the impression of windows not existing). The sound of a fan can be heard sometimes slight, sometimes quite noticeable. I can as well hear the constant movement of children on chairs, chairs moving on the floor and whispering voices with the buzz of a fan underneath it all. The patterns created are not so loud, but at times intense and fast. At times I get hot and have to take off my sweater, but my feet are at the same time noticeable cold. I am uncertain if the room is hot or cold, has no fresh air or lots of air, is dark or light. The air feels used in spite of the ventilation fan buzzing. A sort of density is raising as lessons proceed and I experience the classroom becoming more loaded as well as pupils' disappearing into other spaces.

This is a summarized description of the rooms I attended, which can be described as settings to promote children's development (Jeddeskog, 2007). The rooms, all being square, showed a certain arrangement of air, sound, light, colour and temperature, a frame for physical interaction between pupils and teacher, delineating a clear determination of form. This can be helpful for creating orders in which learning processes are built into but needs to include relations and implications to pupils and teachers during classroom practice as well. Historically Comenius (1658) did illustrate this by showing a student sitting in a study-camber where complex educational context is included (Lundgren, 2014). It is a picture of another time and can't be directly applied to today's requirements, but it is a holistic picture of space and student relation, dynamic and aligned in its structure, which can remind us of the necessity of applying inter-spatial knowledge.

However, the results also illustrate the possible risks involved when inter-spatial knowledge becomes excluded, when classroom practice is not attending to pupils individually different needs for somatic activity; a common situation eventually leading to some sort of monotony and sensory deprivation. Teachers in the study could perceive the actual spatial conditions as problematic, but felt that they had little possibility to change. Some of them looked for solutions in refurbishing as well as referring to the standards of work-environment law (AFS 2011), suspecting this to be a work environmental problem. The spatial arrangements that were located during this investigation showed mainly classroom settings in lines, with teachers mostly in front of the pupils, at times with pupils arranged in small groups, which supports the statement that upfront teaching constitutes actually today still a fundamental part in classroom teaching (Jeddeskog, 2007). Below, I present some of my notes on spatial arrangements:

SPATIAL ARRANGEMENT: Matters in the classroom are ordered principally in lines – flowers stand on line in window, doors are closed material, pictures on the walls are in order, mostly in line. The room is square and rows of desks form lines again, with chairs and pupils' sitting in line as well. Some classrooms arranged furniture in groups, but with the teacher placed in front, besides the whiteboard, an alignment as well as a spatial positioning becomes visible. Pupils are sitting almost all the time on the chair, at a desk with the writing and reading material they have at their disposal. The younger pupils can store their material in their desk or in a drawer somewhere else in the room. Rules of getting material out of their storage as well as to clear away their working material when the lesson is over are created. At times there is some movement in the classroom, sometimes the pupils sit in groups of 4 or 6, but mostly pupils sit in rows on their most used assisting aid, the chair. A chair that is formed in accordance to European standards (CEN), and not specific for the individual body's form and size. They seem to fit for pupils at times, but are often too high and for many pupils in the eighth grade, too small, but they are together with the desks a support allways available for resting the body.

My notes above describe the arrangements and orders created in the classroom. There is an individual space for pupils on their chair, at their desk and there are at times working-places formed by small groups. Even so, the most ordinary classroom arrangement is the one where pupils are set in lines on chairs, being obliged to direct their attention to the side of the room where teacher and white- or smartboard is located. The actual structure of time, space and bodies as hence arranged in lines reminds of a historical set up with principals as "a place for

everything and everything in its place” (*var sak har sin plats*), which stands for the requirement of “things” being kept in order. It implies also the requirement of pupils being in a designated set up resulting in an arrangement aiming at symmetry between pupils but also an asymmetry in relation to the teacher.

Through a linear arrangement of furniture uniformity appears in the classroom. This kind of arrangement is lessening the individual difference and seemingly giving equal space to each pupil. It forms one group in symmetry with one teacher, but at the same time makes the teacher’s relationship to the individual pupil unbalanced. When i.e. one pupils gets up for fetching a book from the locker, another walks to the place where pencils are sharpened, a third one leans to the side for commenting on something, another one is just moving around on the chair, one is laying with the head onto the desk, and so on... the group of pupils transforms into a number of individuals which all build their individual relation to the one teacher instructing. The teacher has to work hard to keep this asymmetry when demanding every pupil’s attention towards her/himself, for instant when writing on the whiteboard. The catechetic⁶ structure in the teaching didactic within classroom practice becomes by that conservative, almost only orientated and concentrated towards the teacher. This structure in itself teaches pupils to subordinate the adults, to follow the impersonal rules that governed the everyday life of the school and, in the long run, to accept the order that society most rests on (Johanson and Florin, 1996).

The teacher position in the classroom appears to be the very core of the ‘ruling’ arrangement by how movement as well as sensory inter-activity is spatially ordered, predestining pupils somatic learning. It also appears as if she/he positions herself in the very beginning, or even before the lesson has started. It might be a positioning out of habitual patterns, possibly done unconscious and being automated by practice.

Viewing somatic self-regulation in relation to matters

I continued to observe pupil’s relations to room and matter, how they move in the classroom when they use their tools, a pen or paper, ipad and chair. I looked at the balance-act between pupil and material with the question of who is steering who?

Pupils search for an order when they are relating to their chair, legs seem to be too long, not fitting under the table, patterns of leaning onto the back-rest of the chair or onto the desk in front are common. Sitting positions vary - Using foot support, legs crossed under, sitting on knees, rocking the chair, as well as positions where hand and arm support the heavy head, having support from resting the table. One has the chair to the side and one is balancing without support. Chairs sitting surface slope backwards which tips the hip in a backward position. In sitting, most of the children release therefor into their middle back, it forms a sort of standard. It

⁶ Indicates the interaction between teacher and pupil. This can be determined in different ways, in a conservatively oriented teacher-centered way, where the teacher-pupil relationship is defined by the teacher, or in a radically oriented way, an explanatory orientation, with an equal dialogue between thinking subjects, as living interaction, where both teacher and pupils are winners. A third possible conception is that the quality of interaction is governed by the teaching content. (Hopmann, 1997)

seems to be difficult to find a comfortable position on the chair. Pupils sink more into their chair as the lesson proceeds, use even more “supportive” positions, by leaning backwards or onto the desk in front, more distinguished disengaged, head in front of the body, sinking into the shoulders, the neck tensed. When activities become more energetic they can be shortly balancing on their chair, drum with a pen on the table or spinning a paper on the pencil. When reading or writing they move head and body towards their ipad, book or writing paper. The eye/head wants to come closer to the book and becomes strained forward. Their device can be placed on the table in a standing position, with attention and bodily position directed towards the tablet/ ipad. There is an increase of holding pattern when writing i.e. the holding of breath is clearly visible. The pupils that write on a piece of paper move their arms whilst writing and hold up their shoulders as they have to relate to a text on the screen of their tablet as well. Writing action consists of decreasing in stature and increasing tension in arm and finger. Writing patterns when holding a tablet/ ipad with both hands show fixed arms, thumbs are tapping on the screen, sometimes also the index finger – or writing when the device is in positioned on the table by fixating wrists to get more fingers engaged into the writing.

The notes above show in this descriptive short recollection a standard of the pupils – chair relation. This inter-action can be characterized as an on-going search for co-ordination during classroom practice, leading to bodily disengagement (disintegrative) as well as to static positioning. Type of chair and individual different bodies presuppose and allow only a certain range of movement and with chairs that have a sitting surface tilting backwards expression and shape of the body is shaped by the chair. This is significant for all matter relations in classroom practice. The body is sinking into the chair; the micro-movements are directed to the tools, in a bodily disengaged or static positioned way. Only occasionally bodily micro-movement is co-ordinated relating to artefacts as books or devices. In these occasions did pupils lead artefacts towards their eyes or moved together with i.e. their book. Hence, the bodily disengaged or static positioned way of moving was commonly present. This illustrated how these chairs, books or pens became an activity, steering pupils micro- movements. And, when the pupils got tired they were even leaning more into matters. Heads sink into spine and chairs backrest and sitting surface and when reading or writing they move head and body towards their ipad, book or writing paper. The interaction is than switching between finding a rest holding a static position and created movement by command of the teacher or within oneself. Pupils can than, i.e. become more energetic and shortly be balancing on their chair or drum with a pen on the table, seemingly steering their movement in relation to their instruments. So, from this view an experience of actually balancing on a chair while reading might give an understanding of the actual body movement performed, leading to different choices and alternative interactions with different kinds of artefacts.

Spatial allowance and suppression of learning

Observing pupils interaction between with their working equipment in the classroom I start focusing on how these matters take part in the steering and regulating of the body:

All pupils engage with objects, as electronic devices, chairs, pencils, papers, books and erasers. Pupils are constantly moving towards them, looking for positions on the chair and do things with their instruments, a micro-movement and activity that is allowed in classroom practice. This

interaction forms a somatic process. Contradictory sometimes, when tiredness and tension increases at the same time, when pupils are even more sinking into their chair, forming a bow with their spine, to get the eyes closer to the paper, whilst increasing tension in arm and shoulder as well as wriggle with i.e. fingers or feet. The disengagement as well as the tonus and tension increases when they are using or playing with pen or erasers.

Overall pupils are following their teachers' instructions during classroom practice and work on the tasks the teacher is giving. Some other activities such as quiet talking with each other are also happening. When the teacher perceives talk as disturbing noise a command comes to keep quite: sshh... When sound from ventilation, moving chairs and speaking noises increases, the teacher has to work harder and classroom practice becomes more intense. Fans are buzzing, one pupil is yawning. (I become warm/hot as well and have to take off my pullover, but my feet are noticeable cold). I look around - I feel the air is used; the attention is at the moment on the tablet/ phone. Pupils search for other stimuli as well, looking at picture on the wall. Tiredness and tensions (quick movements of feet, legs, finger) increase. The sun is shining. I feel a sort of "density"/ heaviness and a classroom becoming more charged.

I observe that pupils positions are not only disengaged but also form a posture that can block stimuli from the outside, like standardized positions, with a special attitude in their positioning. The micro-movement allowed with chairs or pencils gives pupils also the possibility to control their classroom practice, find a sort of integrity. They create a space where they seem to be physical present, but mentally absent, mind wondering or seemingly being in virtual spaces. Their boredom and tiredness shows i.e. in spinning the paper on the pencil, one student stretches slightly. Teacher walks around, checks, helps, keeps the tempo and has to work harder, using IRE pattern, occasional hand signs, otherwise the teacher asks specific pupils, because there is no free will for answering. The end of the lesson comes closer where generally everybody has to clear up their things and in some lesson pupils have to sit still before they are allowed to go.

It appears as if spatial somatic processes are being ignored and by that also, at least partly, suppressed by and from both teachers and pupils. It seems as if neither pupils nor teachers seem to be conscious about air as well as temperature, maybe regarding it as unimportant or not changeable. Tiredness as well as being cold or overheated was part of several observations without conscious regulating responses. Yawning, stretching, excess energetic micro-movement as drumming with fingers or fidgeting with feet could be viewed as unconscious somatic self-regulating processes. As seen in the matter relation pattern earlier the engagement of pupils towards their instruments is not only strong, it is constantly on going. Especially in classes of lower grades pupils bodies move constantly on their chair. It is difficult to say if it is out of teachers steering or directing of the body through specific learning activities or if it is out of other reasons, in all observations most of the pupils were suppress self- regulating coordination, they did bodily disengage and hold static positions. Even so, the overall engagement seen in micro-movements towards their instruments was not only allowed during classroom practice, it also helped pupils to create their own space, where, especially the pupils in higher grades, found a sort of integrity, a physical expression that gave them power and control during classroom practice. The teacher had to work harder to engage them into subject learning and pupils used the "taking position" to secure them from demands of the teacher or from group pressure i.e. being looked at when speaking when the class is watching or. One could say that the allowance of micro- movement during classroom practice resulted into a learning, independent from the subject, where pupils gained power and

control over their physical expression. Further could this “taking position” give pupils access to their own imaginary space.

The earlier mentioned observed tiredness among the pupils (just as my own) during classroom practice might also depend on teachers steering or regulating bodily movement. Together with the spatial sound-, light- and air- conditions the atmosphere become during classroom practice more condensed, creating seemingly contradictory sensations. I became hot and cold, pupils became tired and overactive. In my jottings I wrote that a “density”/ heaviness was rising in time of the lesson and the classroom became more charged. I sensed that as an intensifying working demand, a pressure or increase of frequency in classroom practice. Problems emerging from being hot and cold (uneven blood circulation) and the observed high static tension, tiredness, bodily disintegration and controlled responsiveness could be subject for further investigations. It could also be argued further of how space and matter predefines the teacher- pupil interaction and by that approves the teachers’ catechetic conservative didactic stance.

Formation of positions in somatic activity

It is still a little dark outside when I arrive at the school. After going inside to meet a teacher I can still hear the sound of wind blowing outside. It is the end of October and a bit chilly. This Thursday morning I am on my way to do one of my observations. In my fieldnotes I describe the entrance to the classroom as follows:

I enter the room together with the teacher. I sense my breathing, whilst looking around to see and sense a good place to be during my observation. I choose to sit at a green round table. After sitting down I notice the chairs surface underneath my sitting bones, my legs are bent quite far, both feet touching the ground. Chair and table do not match with my form and size. The chair is small in relation to my body and its sitting surface is sloping backwards tilting my hips towards the backrest. It is difficult to balance and stay moveable. I also sense that I am in the line of sight between some pupils and the whiteboard, where the teacher is standing at the moment. I choose to move place and go at a different table, more to the side, close to the windows. I sit down on the front part of a chairs sitting surface, sensing my spine organizing itself in relation to an invisible line of gravity. I sense a breeze of cold air from the window and see that it is still dark outside. I become aware of the neon light being on and hear the sound of a fan. It is end of October and a bit chilly in the room. I notice that I hold my upper body and I feel, that my breathing becomes affected; it feels restricted. I decide to breath out and stay moveable in my torso witch results of an increased flow of air and a balancing poise. Staying sense-able I start to make notes...

This marks the start of my observations in primary school. A start with perceiving my own experience of the present events. The process described above is an example for my observations in all classrooms. I registered how matters were ordered in lines, the dominance of colours (like yellow, grey and brown or no colours, just the basic white paint) I heard the ventilation fans, how they were buzzing noticeable loud, feeling at times a flow of air and at times that air was standing still. I also observed how the atmosphere influenced me, as when I became warm or even hot, and how my feet were noticeable cold at the same time. Hence,

this observation is mostly about seeing the pupils' somatic processes in order to sense/observe their movement activity. The observation continues with focus on their somatic activity and the following was rather characteristic:

When the lesson starts activities are happening smoothly and pupils are often in communication with their teacher. When one activity is finished the teacher leads the children into a new activity. One teacher, talks energetically, both feet on the ground balancing in standing. The pupils sit on their chairs and listen, respond and answer questions, talk to each other sometimes, write and read, move their hands for other reasons and walk around occasionally to do or get some things. The teachers introduce activities, give tasks, distribute paper, ask questions, direct activity, demand pupils to be quiet, stand in front, move around, act quick in demanding situations, give explanations and are with their assignment in charge of the situation. I see pupils mostly sitting, sitting in many different ways, using foot support, leaning over benches, having little small talk whilst moving around the chair, standing up whilst leaning over, leaning back, legs crossed under, sitting on knees, rocking the chair, legs are dangling as the chairs are too high for touching the ground, they use support from table when leaning over, have one leg over one leg under as well as positions where hand and arm support the seemingly heavy head – generally there is no "independent" balanced sitting (sitting without using back or hand support). When they are sitting, listening, reading or writing almost all are positioning themselves, in different ways or styles. They fixate head/eye, stop breathing and often they tense up their shoulders and arms. A type of postural control, which blocks the multifactorial construct of balancing. (Batson, 2014)

As time passes as well as with the demand to respond to task or teachers, these patterns increase, the holding of breathing, holding of tension in shoulders and arm as well as a non dynamic or static head-neck-spine balance. Pattern of leaning over, placing/ leading the head towards the ipad or paper is standard. Most of the pupils sink into their middle to lower back; also this becomes a standard/regular. Other patterns of activities develop within pupils by changing the activity of sitting and expressions, where only parts of the body move. Legs, feet, but mainly hands and fingers are not only pointing up to give answers, they seem to be on the move all the time. These hands move not only in task-responding activities as writing, tapping on screens, sharpening pencils, erasing written words and signs. These hands show also an activity not related to tasks. Pupils perform movements of scratching and rubbing the face, the top of the head or arms and legs, fingers are placed on to many different areas of the body, but also on desks or chairs, sometimes even when holding the eraser, fingers are put in mouth, nose, ear, sensing skin and they "play" often with the hair. As time goes by the patterns emerging from bodily positioning show on one hand a growing disengagement or blocking (often met by more input/ energy from teacher/task) and on the other hand an increasing activity of seemingly unarticulated bodily movement. Legs are wriggled in incredible speed, fingers drum frenetically on surfaces, nails or pens are bitten on, they move in high speed from head to earphones, erasers to eyebrows so on...

The description above shows pupils as well as at teachers applying shifting patterns of moving to find rest and moving to find energy. Also, that the teachers are trying lots of postural positions, sometime standing on one leg, sometimes leaning on to a bench with straight legs using support from arms, and so on... (it seems that one teacher has difficulties to move in the lower back). One assistant uses a little stool but is also leaning towards a pupil, shifting between different positions. Are their bodies acting out, resisting but also demanding other spaces, or possibilities? Or do they just want to establish their own space? The on-going shift between different positions, looking for "good" postural control appears here to result into more holding and fixed posture. Subject related learning is happening, within these postures, pupils discuss with each other, they look around and can make the impression of

seemingly enjoying the lesson. Only at moments when something unforeseen is happening and catching their attention they stay up, listen and sense, perceiving their environment (e.g. Ingold, 2000) At these moments the bodily coordination changes, they are relating to somatic stimuli and having to think what the present moment will bring for new knowledge. Their body movements become more dynamic and show than signs of presence and creativity.



Train crossing sign, Ingold, 2000

With increasing demands and signs of tiredness, speed and tension increase, resulting into disengagement and stronger positioning. Often this happened parallel, at the same time, with the result of increasing contention (antagonistic tension) in balance-activity. I observed also how pupils were sinking into the chairs with heads falling backwards into the shoulders, whilst arms are fixed on tables and at the same time they perform more energetic movement with their hands, eyes or legs. I read these observed activities with reoccurring interest and get caught in the possible central roll of expressions through positions and positioning in classroom practise as well as the contradictory movements building around them.

Fluids and static expressions of isolation

As I continued to think of the way pupils and teachers were bodily managing during the given learning activities, I wondered about their conception of appropriate movement patterns. Do they have a conception of what it means of being still? Do they aim at and want to be unmoveable? What can be said is that the pupils bodily movement seem to be part of performance based classroom activities. There might be a growing need of finding bodily ways of understanding their relationship towards rooms, books, paper and bodies. It seems not to be easy to tell how pupils are learning about their sensorial involvement when learning. And, if they do not have any conceptual idea about their sensorial participation in learning, can this form critical aspects or misunderstanding? During my work with the study I started to see new things in classroom praxis. My field notes therefore includes also a lot of philosophical reasoning:

I remember sitting on a train that had stopped at a station. I look out of the window, where another train stands on the opposite platform. My train starts to move again, but I see by looking out of the window, that we are still standing at the station. It was the other train that moved and my conception of movement was deceptive. I find it interesting that our conception movement, which we later build our choices of actions on, can be so elementary wrong. In the case of the

train moving I recognize my misconception, but in case of perceiving my own movement and positioning I can continue to retrain deceptive conceptions as long as others do so, and by that form a norm or culture. I look out of the window again and see that time has passed as the sun has moved on the horizon. Looking at sundial it can actually show me more or less the exact time at this moment. Even so my position in relation to the sun varies in angle and distance by the change of seasons, the fact that it is now me that is “sitting in a moving train”, is often not part of our conception. It is the earth moving with me on it, and it is me constantly moving as long as there are organic processes inside and around me. My conception of being still is wrong, but forms a norm through culture, here the culture in classroom practice. This might be one of the reasons why we positioning ourselves, we do maintain a deceptive conception of movement in our culture even if we learn and know that the earth is not flat. In case of the sundial we have even built a measure instrument that shows deceptive movement, (correctly it should show the earth’s movement in relation to the sun) ☺.

I became more interested in how thoughts, time and materials were related but also depending on angle. When I continued my observations I continuously saw how the interplay between activity, energy and static borders was especially clear in regards to time, as different in the very beginning and at the very end of class. Also, the fluidness of different positions in class increased during classroom practice and static expressions of isolations were noticeable more pronounced in higher grades. It meant for me that the somatic self-regulating process was clearly working as a dynamic interplay between stimuli and expression in the beginning of several lessons, but became more and more static in the on-going course of classroom practice. These static expressions, as signs of pupils postural control, worked less in relation to the actual learning activity and more to the individual pupils control of the body in the learning situation. Pupils moved apparently towards stereotyped positions (sometimes crossing arms and lifting the chest, sometimes sort of folding together and decreasing in spatial volume) and were meeting the demands of the classroom practice with a what I interpreted as at time challenging attitude. This control could have several underlying reasons. It could imply a protection for keeping an individual integrity or signify a bodily claim of taking part in classroom practice. It seems further to bring along a conduct of bodily regulation through fixed or static positions, where the somatic inter-play becomes replaced by a voluntary controlled posture.

Smog of isolated movements

As described above, the question is if conceptions of moving and being still become elusive as well as represent an unnoticed part of a cultural arrangement between pupils and teachers. The pupils often show a postural expression during classroom practice regressing their own somatic ability. When I reflect on it, I come to the conclusion that the demands (of having to make choices) in the learning situation can include a concept where one must exclude one thing in favour for another. And, this brings up the questions of how we organize our movements or regard bodily processes as important or less important:

Time flies and I need to get this thesis done before the submission date, the different parts have to be included, the references checked, the line in the writing to be elucidated in the course of time. But relating to a sequence or line does not mean to abandon an overall picture; on the contrary I

need to have access to an extensive and detailed cartography to finish my act. When I juggle and walk the line I have to be attentive with all my senses. It is like being inclusive with everything at my disposal to be able to sense, what might be blocked or missing in my overall picture. My job is to be as responsive as possible, obtaining sensory feedback and choosing the appropriate means whereby I can take the next step. I simply establish a dialogue to choose the most appropriate move. It helps to know that the ground is moving, as constant re-organisation is a fundamental premise for all somatic movement.

In reading classroom practice this way sitting still means not sitting still, or maybe I could say being quite is not sitting still or maybe being constantly on the move without having to talk to others that I am moving. It is a practice for being available and participant in learning. In my classroom observation I see and read the teacher race, a race to maintain control, to maintain the order for learning. Always needing to be one step ahead of the pupils to direct the movement of individuals as well as the group, being very skilful and quick on demand, determined about the desired action, lining up sequences given in the aims of the learning subject. It is a fight the teacher has to win by i.e practicing IRE (Initial – response –evaluation) patterns where the speed is high with- quick small talks, fast moving children which are getting pencils and an increasing complexity of IRE patterns. Focus gets more complex when pupils have to relate to the teacher, their writing and their physical activity. Short questions from the teacher “ Have you understood?” Yes, tell me how it looks?” reinforces the feedback game and insures interest and focus on the task. After a while these IRE- patterns works with pupils’ hand pointing only. Children accept to wait for their turn with raised arms, showing bodily expressions seemingly unrelated to the task.

I do read these as unarticulated expressions, as a sort of disorder of the somatic self-regulating process, where somatic attentiveness is not included. These expressions, associated activity, “stimming”, buzz, is present in every classroom observation, often increasing in speed and intensity as lesson-time passes. I noted in one particular observation: “*When the children get tired they are leaning more into objects or they create activity, with their fingers or they are sharpening a pencil, moving legs, hands on face, play with an eraser...*” This describes how the room becomes “smogged”, meaning overloaded or clogged, with the undirected energy of feet, hands and bodies twisting, tabbing, and scratching as well as with clear fixations in certain positions. I see how these kinds of bodily tensions become and create a norm and culture in classroom practice. Above that it does give the pupils something to play with and especially with the younger pupils the play with i.e. erasers could be quite creative when they were drawing abstract forms on the desk or performing skilful finger exercises with the eraser. However, it was not clear for me to see how these activities were contributing directly to the subject learning. On contrary, they seemed to become a demand for the teacher to keep focus on the determined learning discourse.

Specific cases of correspondence

Instances of somatic self-regulating activity also appeared regularly during my observations, expressed between pupils and teachers in how they moved and acted. They simply showed in their micro- movements a correspondence and adjustment to space and matter, but also an individual co-ordination. Below, the examples indicate an inter-spatial somatic knowledge,

which is dynamic, aligned and seemingly without conflict in present classroom inter-action. For example, this observation was made:

Children read for themselves - they are allowed to choose space in individualized work with reading and writing. One child is moving the whole body, moving constantly, clear to see how attentiveness, focus physical expression relates to reading and writing task.

Here, it is illustrated how the pupils are allowed to form an individual space and could as well engage in a somatic process. The spatial-interaction with matter and moving expressions did match the whole present arrangement of classroom practice. The space, work and student relation became dynamic and aligned in its structure, I see it as a practical example of inter-spatial knowledge. There was no conflict or contradiction in the compounded arrangement of classroom practice, no search for rest or more energy, just a process where present movement and learning purpose harmonized.

It is about nine o'clock now; the pupils become a bit tired as one of them reads aloud from a book. Pupils sit by themselves on their chairs at their desk starting to get a bit restless, they move a bit on their chair, with hands, fingers. Martin, the only boy in the class rises almost unnoticeable in stature, maybe he is thinking. In general he makes a bit of an insecure impression and has not taken much space in the classroom before. Now it seems as he is sharpening his senses.

This reminds me of a marmot rising in stature for scenting the surroundings, not sure read if it is out of apprehensive expectation or a positive feeling of “*Now I decide to sense what is happening and connect with space and matter*”. The interesting aspect in his balancing and broadening micro- movement is the inter- activity with the learning practice. His presence and connectedness constitute an eligible requirement for learning, happening as efficient as possible. In my field notes I note how:

Teacher balances in standing. Teacher is constant walking around, sitting beside, going on to the knee or sitting on the table.

These kinds of micro-movements showed at times. Even so the overall attention was mainly directed to pupils and task related interaction, teachers showed a self- regulating movement in a sort of dynamic re-organizing way. They moved in a sort of general attentiveness to space and situation, hearing questions and at the same time talking to another pupil, knowing where they are in space as well as mentally processing towards their next step. This multitasking was apparently giving them energy and they did find variations in their movements patterns where they could be in the learning discourse in classroom practice and at the same time maintain their own balance.

I can hear the constant movement of children on chairs, they try to be “comfortable”, they get tired or choose a static position, One child is a bit more occupied with sitting, actively searching for balance, while all the others are constantly moving around, one is balancing without support. The standard pattern in writing showed that children lower themselves to the paper, while increasing tension in arm. Here I can see an exception by 2 children. They move/ bend from their hip joint, when they write, staying balanced when moving.

Here do some children clearly show a somatic activity where they find movement that allows a bodily integrated learning dynamic. They are moveable, staying perceptive and adjust their

movement to the learning activity. They build a relation to task and matters, which allows than to stay coordinated. I see it as a corresponding with and between the movement adjusting pupils and the chairs as well as the learning activity of sitting and writing during classroom practice. Again, there is an absence of conflict.

Short summary

The results show how pupil and teacher positions are produced in how teachers constantly create and need control and oversight. This seems to form the very core of the 'ruling' arrangement in the classroom, in which movement as well as sensory inter-activity is understood, defined and spatially ordered, predestining pupils' somatic learning. I see, for example how teachers take control over their own and pupils bodily movement by asking pupils for constant response, correct and put on different kinds of borders as the spatial arrangements where pupils mostly sat in lines on chairs. During the lessons progression, a sort of on-going buzz increased in speed and intensity, seemingly also increasing bodily tensions as well as constituting a part of a norm and culture in classroom practice. The results illustrate an ascending conflict between the leading discourse of mastering given tasks and the individual somatic discourse is active. It appears that individual and spatial somatic processes are being ignored and by that suppressed from both teachers and pupils. With this kind of controlling over bodily movement in classroom practice somatic discourse seems not to be included in the existing classroom culture.

The results also illustrate how teachers use artefacts in order to find ways to set rules when pupils are being obliged to direct their attention to just one side of the room where teacher and white- or smart board is located, but also how pupil's micro- movement is governed through the provided chairs, books, pens or digital devices during classroom practice. I see that bodies are sinking into chairs; the micro-movements are directed to the tools, in a bodily disengaged or static positioned way. The subject related learning is happening, within these postures, when pupils i.e. discuss with each other, looking around and also can make the impression of seemingly enjoying the lesson. Only occasionally bodily micro-movement is co-ordinated guided to matters, matters as books or digital devices led towards the pupils eyes or an interactive meeting happening between artefacts and pupils. With increased demands and signs of tiredness, speed and tension seems to grow, resulting into disengagement and stronger positioning as well as more exaggerated leaning into matters. However, the results also suggest that these static expressions, as signs of pupils' postural control, worked less in relation to the actual learning activity and more to the individual pupils control of the body in the learning situation. That would mean that the overall engagement into on-going micro-movements helped pupils to create their own space, where, especially the pupils in higher grades, found a sort of integrity, a physical expression that gave them power and control during classroom practice. In opposition to that I could see also that pupils and teachers occasionally and in specific cases were self-corresponding as well as integrative

corresponding with task and spaces. At these moments, sitting, reading and writing, the pupils were apparently attentive and responding to their somatic stimuli.

Finally, I see it a misconception of classroom practice, where a necessity of quietness creates an ideal of being still (which is not the same as being quiet). Above that, the teachers also express that they have little possibility to change the arrangement in classroom learning. They can perceive current spatial conditions as problematic but do not see their own power and potential for improving a somatic discourse in their classroom practice.

Final discussion

This chapter discusses the results of this study. In the investigation of pupils' somatic interactions in the classroom and how a group of pupils interacts and defines using their explicit bodily senses, three thematic topics evolved: The topic of bodily movability, the body as well as bodily interaction in classroom and finally a topic of challenging our conception of body. These themes summarize the results of the study. The concern the first theme is taking hold of is the school's assignment to develop pupils' abilities (in Swedish *förmåga*), arguing that inclusion of the somatic discourse into classroom practice can lead to an absence of performance related bodily conflicts. The second discussion takes hold of the body and bodily inter-actions looking at communication processes in inner and outer space, and what might steer pupils choices in bodily inter-action and developing of their postural control in classroom practice. The last topic comes from the studies aim to challenge conceptions of conceiving pupils as sitting still, as well as to open up for debate concerning how bodily movements are part of every learning environment and of how pupils learn.

Movability: restricted, challenged, or just present?

Discussions about movability and bodily education are said to be absent in Sweden as well as in several other countries (Nyberg, 2014). This study hopefully contributes to putting these kinds of issues at centre. It specifically wants to discuss is the question if movability is something that *has* to be learned or if movability *is* an elementary part of our human organism. It is not only an epistemological, philosophical question of *to be or to have* (Fromm), it is a question of developing education of a human cap/ability (*förmåga*), to move is an ability we all process. The question of "*How we are educating our movability?*" or the knowledge of "*why we need to be moveable*" seems at times to be in conflict with school demands of security and control, as the example in the beginning showed. Another example where pupils are controlled and secured by daily procedure is, when they at the end of class have to sit in line, have to sit still, be quite and are not allowed to move until the teachers say's: "*Now it's ...(name)... turn to go. Walk tidy, line up in a queue outside the classroom and wait there in line until I come.*" However, when pupils are not allowed to practice their movability out of safety regulations it might be worth to consider what this might teach them about their movability and their bodily engagement.

The regulation through the spatial arrangement showed in this study not only how movability was restricted, it also showed that linear, uniform furnishing of the classroom can reduce individual expressions and can lead to a disregarding of somatic activity of both pupils and teachers. To move on response is, however, challenged by the multitude of micro-movements that pupils are performing during classroom practice. These movements were not implicitly regulated by the teacher and are here seen as signs of overall engagement. These movements, conscious or unconscious performed indicated a possible change of meaning and seemed *also*

to affect pupils' self-esteem, behavior and mood. Especially the pupils in higher grades, found through these movements a postural control that gave them a sort of integrity, a physical expression that gave them power and control during classroom practice. This change of movement with different kinds of expressions would be interesting to explore further, especially in highlighting how these expressions are relating to the subject learning context or in what way they could be interpreted as a defence against classroom practice, just a way of safeguarding oneself and controlling the learning situation. The bodily positions could then be seen as artefacts for pupils' integrity when being part of classroom culture (Simonsson, 2017). The study's conclusion is that these changed movements with different kinds of expressions can carry a risk to diminish and not educate movability in classroom practice.

When pupils and teachers were at times bodily corresponding with task and spaces, they were balancing and self-adjusting their movements. I see this as a sort of bodily dynamic, re-organizing process where somatic learning processes occur. The pupils and teachers were not especially practicing sensing or moving, but as their sensorial feedback provided them with accurate information about their present poise they could respond with adequate movement patterns when performing their learning act, a subject learning as well as a somatic learning with an apparently absence of bodily contention. They could have been for example standing on a balance board or as in the illustration in the beginning sitting and reading on the top of the chair, their activated somatic learning activity apparently provided a constructive response during classroom practice.

This does show that the somatic discourse is included but not recognized in the learning discourse, and when made conscious be encouraged and educated. Characteristic for this classroom practice becomes also an absence of performance related bodily conflicts. The deeper underlying question relates therefore to the motive of somatic activity. When classroom practice demanded movement as well as sensory activity through i.e. an exercise bodily contradictory movement patterns did increase, which indicates that movability isn't something you do (or have to do), but something that is sustained existing. Hence should knowledge of including of this existing movability, (in the same way the teachers know that pupils see or hear), also be able to educate when this somatic movement process is perceived as meaningful in learning, i.e. when a pupil has just understood a mathematical principle, bursting out "*look, I've got*" it in a present, balancing and sensory perceptive way.

Together with a perspective that recognition of movement is seen as the generative source of spatial concepts (Sheets-Johnstone, 2010), it could further indicate that a preventing, safe guarding classroom practice can be part in creating severe future problems, seen today i.e. by increasing circulation problems, heart diseases, sedentary behaviour or balance problems in elderly people.

Body and bodily interactions in classroom practice

The current interest in research on body pedagogics and embodied learning (Vetenskapsrådet, 2013, Andersson, Garrison and Östman, 2018, Andersson, 2018) brings up partly new and known meanings for developing bodily learning (Carlgren, 2015, Larsson, 2012, Maivorsdotter, 2012, Shilling, 2017). To understand pupils as multi-sensorial acting beings we need to recognize bodily interactions in a pedagogic context (Ivinson, 2012). The study found that the teacher position in the classroom appears to be the very core of the 'ruling' arrangement by how movement as well as sensory inter-activity is spatially ordered and by that predestining pupils' somatic learning. However, the way teachers allow pupils to move within schools has usually been recognised as an aspect of regulative rather than instructional discourse (Ivinson, 2012). With the teacher having control over bodily movement in classroom practice it should alternatively also be possible for the teacher to act within an instructional discourse and focus on how posture, stance and breathing is related to learning to reunite somatic and semiotic messages (Ivinson, 2012). This also happened occasionally when teachers performed self-regulating movement. They could be in classroom practice and at the same time maintain their own balance, maybe consciously, maybe unconsciously. Pupils (as well as teachers) leaning into matters were however dominant in bodily interactions in classroom practice. One of the reasons for this leaning can be seen in the strong stimuli these matters represent. Pupils and teachers just disregard their own coordination and get drawn into books, digital tablets or pupils questions. But is this leaning a kind of normal pose? Or can it describe that teachers need the pupils to lean on? These results from the observation and analysis in this study illustrate how the pupils partly actually give the teachers the reason for leaning. Hence, the more far reaching point for changing our conception of bodily inter-action would be to further investigate what message or sign the teachers are actually communicating to the pupil, where the teacher's leaning intentions might possibly differ from the pupils' perception of it.

Similar differentiated possible understanding for meaning and intention of bodily expressions can be seen in pupils gaining of postural control. The patterns, often evolving out of engagement into micro-movements resulted especially in higher grades to "fixed" poses, giving an individual space and seemingly control over the present situation. It is though difficult to know if pupils have been consciously choosing this pose and out of what reason. It might be a blocking or resistance for learning? Or do they show that they are in control of their leaning. I just consider for myself of how I decide to sit when I am at an event, and if I am always going back to the place I have been choosing first, claiming it as my place. Ivinson (2012) argues that *some young people are excluded from academic learning even before lessons properly begin because they cannot conform to the degree of docile posturing required*, and also makes the conclusion that a greater awareness of somatic regulation within official pedagogic practice might help to illuminate how and why this is happening. (Ivinson, 2012). A further result deriving from pupils' postural stance is the concept of making physical choices by choosing a favourite position and through that reducing their movability. In terms of our own sustainability it might be contra productive to exclude or even remove somatic

capability and I do suspect that our supposition of being still when sitting in classroom is part of this deceptive concept. However, the recurrent theme and interest of *how we make choices* within the learning process, embedded in Aristotle's striving for *arête* with the meaning of an disposition to act in a certain way (Gustavsson, 2004), to Mauss' theory of composition⁷ where we choose the way in which we will use our bodies through further educational transmission (Anderson, 2008) as well as present research around concepts of *privileging* where the learning process includes some kind of choice (Wertsch, 1998), might be very important to understand better in relation to bodily inter-actions in classroom practice.

Challenging conceptions

Swedish educational research tends to include at least two problematic issues in relation to understandings of learning. Firstly, it has difficulties of placing a somatic discourse, as educational science's primer focus seems to lie in gaining knowledge represented through the body (instead of enriching learning by gaining knowledge about somatic processing – moving as well as sensing). This brings, secondly, an unnecessary focus on the steering and regulating of the body (instead of keeping focus on an inner and outer instructional process). There is however a growing interest in social science research to create bodily understanding (Vetenskapsrådet, 2013, Andersson, Garrison and Östman, 2018, Andersson, 2018), necessary to be built through many studies that can generate a generalizable base. Terminology is interlaced and terms or concepts of i.e. embodiment at times difficult to define and always necessary be seen in context of a specific study. In Swedish educational science a substantial ground for bodily learning can be found through an ongoing research within the field of practical knowledge as well as in some extent within research in physical education and health (Carlgren, 2015, Lundwall, 2015, Larsson, 2012, Maivorsdotter, 2012, Shilling, 2017). Terminology that is used and known within the these fields can i.e. be *body pedagogics* (Andersson, 2018, Shilling, 2017) as well as *physical literacy* (Nyberg, 2014, Lundwall, 2015). These bodily concepts share the same theoretical background as *somatics*, by seeing no differentiation between mind/body and regarding humans as embodied beings. *Somatics* however, regards also our continuous self-regulating processes as fundamental activity for learning and create by that an existential problem. This might be related to the intentional association of the somatic concept with Husserl's vision of a "somatology", a science that would unite a methodical knowledge of the body derived from experiential studies with the biological sciences (Husserl, 1980, Johnson, 2004, Garrido, 2012). Somatic learning is therefore essentially about actual self-sensing and self-moving activity. It is not about the bodily representation, suggesting that the experience of being in my body has a different meaning than an understanding of having a body (Tiwald, 2012).

[Composure] is above all a retarding mechanism, a mechanism inhibiting disorderly movements; this retardation subsequently allows a coordinated response of coordinated movements setting off in the direction of a chosen goal...." (Mauss, 1934 "*Les Techniques du Corps*" in Anderson, 2008)

With these obstacles of a shifting perspective of reality as well as a muddled terminology in mind, there is however a substantial number of research studies pointing in the same direction. This, being a minor empirical study and regarding its size as well as possible ways of reading the empiric sample, could be questioned in relation to its validity. Ground for more generalizable results as well as for adding some more validity can though be found in the comparable results from other studies. This perspective is, however, more related to other aspects of validity, in how theoretical ideas are used, context specific descriptions and ethical considerations. By that the study argues for a possible third stance, being *both opposite and complementary* to structures that generate hierarchy orders as well as impersonal communication (Rothenberg, 2010). Even so, I am convinced that further coherence can be found in deepened investigation, where somatic reading is used and developed further as form of an embodied way of reading:

We can 'read' before language, conversation and interactions in embodied ways. We have moved into an area of 'bodily between' – the pedagogical relationship between self and other is not metaphorical. It is not only that the learning and teaching are bodily, but the form of the relationship is bodily. As the body of each extends past its apparent boundaries, these connections are felt by others, seen by others. (Dixon & Senior, 2011)

To find more and new knowledge about formation of bodily relationships I hope that we can get acquainted to the idea that we can still learn more; learn more about how our moving bodies are learning in classroom practice. And, of course a moving body in classroom is actually also a way of getting your blood going, increasing airflow, metabolism and sensory perception, which can not only help in the work related to sedentary behaviour. Classroom practice with interactive dynamic movements could as well become more accurate and fluid, which thoughts and learning might gain from.

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Picture credits:

Primary school "Solberga folkskola " built 1893, visited 2018-03-20
<https://www.gotland.se/solbergaskolan>

Comenius, J.A. (2006). *Orbis sensualium pictus*. Own photo of a print

Hengstenberg, E. (1991). *Entfaltungen*. Freiamt, Deutschland: Arbor Verlag.
Picture courtesy: Ute Strub.

Own sketch of used discourse analyse model.

Ingold (2000) print (royalty free) of the train sign visited 2018-05-20
<https://www.dreamstime.com/stock-photo-stop-look-listen-sign-image9094720>

Appendix: Letter of contact

Anga, 10 okt. 2017

Hej!

Jag heter Wolfgang Weiser och håller på att avsluta mina studier inom pedagogiskt arbete med att skriva min masteruppsats (30hp). Uppsatsen ska handla om skolan och klassrummet som en plats där lärandet kan ske genom kroppen, sinnen, balans och koordination. Den skrivs nu under hösten inom programmet pedagogiskt arbete på Göteborgs universitet.

Jag har undervisat i rörelse och balans i många år och studerar därför lärandets fysiska aspekter eller hur vi förkroppsliga det vi lär oss, vilken balans vi har och hur vi rör oss när vi interagerar. Jag önskar därför att följa med under en lektion i skolan och observera undervisningen. Vilken rörelse som finns i klassrummet, hur undervisningen och lokalerna tillåter rörelse, hur vi förflyttar oss. Studien har sitt intresse i lärandesituationen i skolan.

Jag tycker att det skulle vara spännande och roligt om jag fick komma till er skola och vara med under en lektionstimme. Jag hoppas ni är införstådd med att jag kommer den 25 oktober. Om du/ni har några frågor eller invändningar så hör gärna av till klassläraren eller direkt till mig via tel: 0707-683767 eller mail: at@weiser.se.

Hälsningar Wolfgang Weiser

Kort om: Wolfgang Weiser, lärare i Alexanderteknik, balanskonstnär och jonglör samt gymnasielärare i teater, cirkus och estetisk kommunikation. Undervisar och fortbildar inom hälsa och livsstil samt arbetsmiljö och kreativa processer. Som lärare i Alexanderteknik har han samlat erfarenheter både nationellt och internationellt. I sitt pedagogiska arbete forskar han om rörelsebildning. Magisterarbetet, Present Poise In Momentum finns under: <http://liu.diva-portal.org/smash/record.jsf?pid=diva2%3A889262&dswid=-9211>