THESIS

USING LEGO: PLAY AND REFLECTION



Aalborg University | Hanne Jensen

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RESUMÉ

Ifølge David Whitebread ved Cambridge Universitet (2012), bliver vigtigheden af leg, i forbindelse med børns naturlige udvikling og læringspotential, i stor stil overset af regeringer i deres uddannelsespolitiske tiltag verden over.

Et kapløb for at kvalificere kommende generationer til fremtidens (og på sin vis nutidens) uforudsigelige arbejdsmarked og generelle vilkår, har hævet akademiske færdigheder som læsning og matematik til et særligt stadie; de fremhæves i større og større omfang på bekostning af leg i indskoling og sågar børnehaver, og begrænser dermed børns udviklingsmuligheder.

Ved at udlægge de mange forskelligartede aspekter af børns udvikling som leg understøtter, fremlagt ud fra 5 typer af leg, argumenterer Whitebread imod en 'jo-tidligere-desto-bedre' tilgang, som placerer skemalagt undervisning tidligere og tidligere i børns liv. Dette kandidatspeciale forsøger at imødekomme både behovet for at give fremtidens generation de bedst mulige redskaber til at tackle en verden i konstant forandring, og vigtigheden af leg.

Løsningen består i at sammentænke refleksion og leg, og dermed åbne op for et læringspotentiale baseret på selvstændig tænkning, motivation og initiativ. Det gøres ved at knytte an til teori om:

- Leg og de forskellige typer, samt udviklingsmæssige potentiale
- Italesættelse af kropsligt forankrede erfaringer

Grundet ansættelse som pædagogisk rådgiver i et af LEGO Fondens velgørende programmer, Care for Education (herefter benævnt CfE), kort tid efter semesterstart, anvender dette speciale en aktionsforskningstilgang. Programmet involverer både donation af legoklodser og træning til undervisningskontekster såsom børnehaver, skoler, legegrupper og læringscentre i lande som Kina og Ukraine, med flere.

Formålet med specialet er at udforme en strategi for træning af undervisere, der fokuserer på understøttelse af børns leg og læring, som også placerer de LEGO koncepter træningen ellers udgør, inden for teoretisk velfunderede og praksis-begrundede rammer.

Med afsæt i M.K. Warfords (2011) tilgang til voksenundervisning, inspireret af Vygotsky og hans zone for nærmeste udvikling, præsenteres et bud en træningsstrategi, der bygger på deltagelse og direkte erfaringer med både aktiviteter og klodser, ligesom der præsenteres forslag til i højere grad at inddrage undervisernes egne erfaringer, for at kvalificere træningens relevans.

Til sidst i specialet konkluderes på baggrund af de muligheder og begrænsninger, som strategien rummer i forbindelse med en styrkelse af CfE træningens indsats.

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INTRODUCTION

"The quest for certainty blocks the search for meaning.
Uncertainty is the very condition to impel man to unfold his powers."

Erich Fromm (1900-1980)

Ours is an uncertain world of complexity. The idea of a linear cause-and-effect pattern is giving way to a more dynamic notion; everything affects something and consequences disperse like rings in water in this age of globalization. It is "...the given fact of the world, and schools are to prepare children for this future-to-come." (Popkewitz, 2009, s. 247). But how do you prepare for uncertainty?

I began researching for this thesis in southern China, doing an internship as a foreign English teacher with a high-end elementary school near Guangzhou. At the same time I was in contact with the LEGO Foundation in Denmark, exploring how to use LEGO bricks to teach creative and collaborative skills during English lessons at the school. When a position as educational advisor with the foundation presented itself, this thesis went from a more traditional phenomenological type research to being in the center of the action.

The LEGO Foundation has numerous humanitarian projects around the world aiding local educators (and not only trained teachers, hence the term) and partners involved in teacher training. This is done with emphasis on playful learning. Several specific programs outline these efforts, but the one associated directly with my role in the organization is *Care for Education* (CfE). A key issue is understanding how children develop, and how this development can be supported, to help them master the 21st century challenges.

THE CHILD OF MODERN SOCIETY

From birth (and even before) children undergo a remarkable natural development divided by early childhood research into different domains and stages of abilities (see for example: The Cambridge Encyclopedia on Early Childhood Development, 2005). Children can improve and learn to apply these abilities into fruitful ways of thinking and interacting with the world through play (Whitebread et al, 2012, p. 3).

In this respect some argue that schools are set in this world to prepare the future work force to serve society's needs (OECD, 2005, p. 3; Wells et al, 2005, p. 64). Efforts have for example been made to implement competency as a framework for assessing and controlling educational aims (OECD, 2005).

Others argue that schools serve to equip future citizens with the autonomy and skills necessary to shape a better society (Illeris, 2009). According to Illeris (2009, p.145) this is due to a double interest often connected with the purpose of learning in educational settings:

- An economically centered approach aiming at assessing and controlling to ensure progress
- A potentially liberating aim of inspiring self-direction in individuals

Illeris further states that the reason for both positions is that sufficient adaptability and proficiency in the individual are seen as the most obvious solution to the challenges affecting society. With reference to Whitebread and his colleagues, this makes play central to schools – and society in turn. But provisions for play are under threat.

Whitebread et al argue, that the learning of formal skills such as literacy and numeracy through a teacher-directed approach have precedence over play in societies confronted by economic, social and environmental issues. Within the educational system and policy making, they specifically mention the following danger: "...the opportunities and support for children's play, which is critical to their development of the abilities they will need as future citizens able to address these challenges are themselves under threat. (...) in many countries within Europe and across the world, an 'earlier is better' approach has been adopted, with an emphasis upon introducing young children at the earliest possible stage to the formal skills of literacy and numeracy." (Whitebread et al, 2012, p. 3).

With this thesis I wish to address this issue of play's importance in relation to teaching practices. How it relates to my practice as educational advisor will be explained in the following.

THE CONTEXTS OF THE STUDY

AUTOBIOGRAPHY

In 2010 I finished a bachelor's in education, but remained dissatisfied with the link between theory on learning and the reality in the classroom. During the course of four internships I had experienced a dissonance in the discourses of the lecture hall and the teachers' office. Theories and methods can present ways of innovating formal education, yet practitioners feel overheard and alienated (Warford, 2011, p. 253). Studying a master's degree in learning and innovative change is part of an ongoing attempt on my part to merge practice and research; an effort which has not lost its importance with my current position. Though written in context of an organization with roots in the toy industry, the aim of this thesis is to demonstrate independent intent and reflection on children's right to and benefits from learning through play.

ORGANIZATION

The LEGO foundation's humanitarian programs are a recent addition to its initial interest. It was founded as part of a corporate strategy to ensure the LEGO Company's continued existence in times of crisis. But with funds, play materials and expertise at hand it was decided in 2009-10 to establish programs having a beneficial influence on children's learning and development worldwide; first by donating bricks, and later by sharing knowledge through training on how to use LEGO learning materials (sets of bricks along with methods for playful learning) in local educational settings.

The organization – the number and function of pedagogical staff and the administration – is by no means settled. Currently three educational advisors and one senior manager represent the Care for Education team. I was employed on March 19 2012, as the second newest member. And though the incentives and visions behind foundation's efforts are formulated in a charter, the individual staff member has a great say when it comes to choosing how to engage with specific projects and how to conduct trainings on sight in countries such as China and India among others.

Influencing the education of children, through the work and understandings of local teachers, demands conscientious considerations form the foundation's employees. But being part of an organization in the LEGO Group also places a great responsibility on each member and team in the foundation to consider the integrity of the LEGO brand in all activities – without the LEGO Company, the foundation would not exist. This relation is therefore characterized by interdependence.

THIRD PARTY OUTREACH

In the respective countries, the foundation's employees are involved with local partner organizations, government officials, local school administrations and educators (program stakeholders). Parents and their children are, as of yet, not a recurrent and direct part of either trainings or strategies for advocacy. Contracts are signed for periods of three to five years, including training on the foundation's part and a form of evaluation on the partner's. The overall goal is to scale up the amount of learning material donations as the number of educators that are able to train local and national colleagues accumulates.

BACKGROUND

What I aim at when designing learning processes, is to help students practice the skills and understandings necessary not just to cope with, but to master the world of today and tomorrow: "...because we know for certain that the current development continuously results in new and unfamiliar issues and that the ability to face these problems with an open minded and to act appropriately defines who will succeed..." (Illeris, 2009, p. 144, own translation). The key word here is 'open minded', as the ability to adapt (observing a situation, reflect, act, evaluate and modify action and thought) calls for independent thinking; not unlike what research requires, nor unlike what children naturally posses the ability to do (Whitebread, 2012, p. 20).

The question I ask is; naming only one, what is the most important notion we can inspire in children to help them master the unpredictable conditions of the present and future? My answer is: *empowerment*. It refers to giving someone power, making them "... stronger and more confident, especially in controlling their life and claiming their rights." (Oxford Online Dictionary), but I will argue that empowerment is something you can inspire others to possess, by rousing their confidence, commitment and curiosity.

In February 2012 I taught a drama class to students aged 11-12 in the elementary school mentioned earlier (see: Introduction). These students were shy, especially when asked to move outside the classroom and walk around among each other. Boys and girls immediately grouped separately and then froze on the spot. It is true that the fundamental values of the Chinese educational system, seen with an outsider's eyes, seem to favor obedience at the expense of personal freedom, but what I saw that day was budding teenagers hesitant in the presence of a new teacher, who asked them to expose and express themselves.

In the very same school, as preparation for an oral English contest, a select few of the students had been invited to practice their skills with the school's foreign teachers. These students tackled the spotlight by facing the challenge and giving their best. They were confident in their roles, committed to the school's ambitions and curious about what these foreign faces might have in store for them.

The two groups of students have been part of the same environment, yet with different outcomes. I propose that this can be attributed to the children's immediate environment – alterations in response and feedback from fellow students, teachers and parents or as Dewey defines it: "... the environment consists of those conditions that promote or hinder, stimulate or inhibit, the characteristic activities of a living being. (...) What he does and what he can do depend upon the expectations, demands, approvals, and condemnations of others." (Dewey, 1997, I. 260). This in

turn means that intentional changes on the educators part of the learning environment can nurture empowerment in children. The core value guiding my practice towards achieving empowerment in children is participation; by gradually making children aware of the influence they can exercise over themselves and others, and the responsibility which comes with it.

Curiosity is a key feature in this understanding, as it signifies active open-mindedness; to opinions different from your own, to other cultures and beliefs, views and ways of life. To change in your own life so you can adapt based on new insights. To stay true to this core value, I should teach children to be curious about relations, materials, concepts, ideas, views and aspects. And to be committed to that curiosity, asking questions which challenge themselves and others:

- How far can I go?
- Can this be done in another way?
- What is truly important?

As an educational advisor my practice has moved from a classroom full of children, to training the ones responsible for their learning, shifting focus along with it; to have educators reflect on the influence they already exercise on the children, how and why this is done, and that they in turn can inspire empowerment in children.

TERMS AND DEFINITIONS

Reflection is a vital element of adaptability in individuals. It can be defined as careful or deep thought, sometimes over a period of time (Oxford Advanced Learner's Dictionary, 2005), or the consideration of an idea, especially one that is written down or expressed (Oxford Dictionaries Online). Another similar activity, being reflective, is simply explained as 'thinking deeply about things' in Oxford Dictionaries Online.

Uncertainties can come at all times and in all forms. On a greater scale, a new line in educational policy might be announced, and a nation's entire educational system has to be revised. On a smaller scale, 40 and not 20 participants might show up for a training session in China, and suddenly the trainer has to rethink the schedule and organizing of activities. The need for reflection changes with the challenges faced. Donald Schön (1987) has presented a useful framework distinguishing between two aspects of reflection in this regard (Donald Schön in Singh, 2008, p. 243-4); reflection-in-action (to reflect on and reshape action *while in the process*) and reflection-on-action (to reflect on and evaluate action *after concluding the process*). These two aspects are incorporated in the conceptualization of reflection used in this thesis, while reflectiveness is later introduced with reference to its use in an executive summary authored by OECD (2005).

In correspondence with the value of participation, the approach of this thesis has emphasis on teaching by way of example; including involvement and inviting participants to experience activities, share knowledge and encourage reflection on children's learning through play. It is conceptualized as *facilitation*, from the act of making an action or process easier (Oxford Dictionaries Online). This is to underline the position of the trainer as one who can organize activities to support reflection on and in action, and participants as the ones learning through involvement and seen as capable individuals.

The value of participation should then be equally applied during the process of assessing the learning of participants – and children in turn – with focus on their active and knowledgeable contribution to its form and content. This is done in order to facilitate the individual educator's ability to apply such measures in his or her own educational setting. According to the Oxford Dictionaries Online, evaluation has connotations leaning towards value and amount, whereas assessment refers more directly to the quality and ability of someone or something. The latter will therefore be used in this thesis.

Finally, the CfE program is concerned with local practitioners – and these can be termed as such. But also educators (when applying a broad understanding including non-trained teaching staff) or teachers, when referring specifically to trained professionals.

RESEARCH QUESTION

Referring to the introduction, formal skill such as literacy and numeracy are important in societies experiencing rapid advances in communication and other technologies and confronted with pressing challenges; environmentally, economically, politically. The same goes for a number of social, physical and emotional skills such as the ability to collaborate and apply fine motor skills to name a few.

In this thesis I will argue, that even more so is *how* these and other skills are learned, if children are to fully explore their developmental potential. As an educational advisor I have an opportunity to advocate the importance of play in classrooms and other educational settings around the world. The point is not to introduce unreflective concepts or entertain children, but to educate and thus empower. I aim to demonstrate, through the example of my practice, both how play and reflection can work together in children's learning, and how an accompanying strategy for training educators can be formulated.

The aim is recommendations informed by research and action focusing on the following question:

How do I train local educators to facilitate and assess reflection in children through playful learning?

ACTION RESEARCH

The aim of an action research project is to improve practice by observing what values are supposed to direct action. The researcher explores if this is in fact the case and how action can be improved upon: "This means that action researchers do not look for a fixed outcome that can be applied everywhere. Instead they produce their personal theories to show what they are learning and invite others to learn with them." (McNiff & Whitehead, 2011, p.32). Acknowledging that findings are contextual, and must be so to create correspondence between intention and action, is central to this approach.

Action research has developed out of critical theory, which "... questions the hidden assumptions and purposes of competing theories and existing forms of practice." (Bronner, 2011). In this understanding research is always carried out with reference to a certain time and place. The aim is then: "...to understand a fact within the value-laden context wherein it assumes meaning." (Bronner, 2011). Critical theorists studied how thinking was being reduced to what is operative and profitable, with ethical reflections tending to vanish and the diversity of aesthetic experience ignored (Bronner, 2011). Action research draws upon this legacy, placing the researcher (a whole and experiencing individual part of a social context) in the center of the enquiry.

HISTORICAL ROOTS

According to McNiff and Whitehead (2011, p. 41) it is generally understood that action research appeared around the 1940s with the work of social psychologist and Jewish refugee Kurt Lewin,

who investigated how people became motivated in their workplace when involved in decision making. His ideas have influenced the way many researchers organize their work in this continuing cycle of action-reflection (McNiff & Whitehead, 2011, p. 42) exemplified in figure 1 to the right:

In the 1950-60s the approach was adopted within the field of education in context of progressive movements which emphasized that education had the responsibility of producing responsible citizens

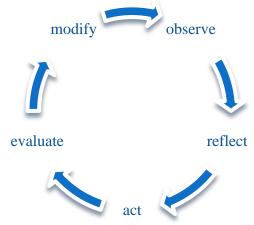


FIGURE 1: THE CYCLE OF ACTION-REFLECTION

(McNiff & Whitehead, 2011, p. 42). Because action research has democratic and liberating intent at its core: "... action research itself should promote just practices, that is, do away with hierarchies of power in relation to who knows, and recognize that practitioners themselves should be acknowledged as the creators of their own knowledge." (McNiff & Whitehead, 2011, p.43). As a

consequence the approach advocates that teaching professionals should be seen as capable researchers with regard to their own practice.

It legitimizes the teacher's own attempt to research to improve action, and involves generating new theory. Theory learned is incorporated into his or her own process of theorizing, offering explanations for action and thereby generating a living theory (McNiff & Whitehead, 2011, p. 43). In this sense action research went beyond critical theory. The latter tried to uncover the underlying assumptions hidden in a given situation in order to understand it. The former added the question: how can it be changed?

McNiff and Whitehead identify this difference as the ontological 'l' of the action researcher, who wants to improve practice (McNiff & Whitehead, 2011, p. 49). The purpose is to hold yourself accountable for your own learning and your influence on the learning of others.

METHODOLOGY

I previous sections I mention how this thesis became centered on the action research of the CfE training practice, beginning with my employment in March 2012. Below in figure 2 is the overall timeline depicted, presenting an overview of the process which has led to this final report:



FIGURE 2: THESIS TIMELINE

The green pins starting in February signify events related to the practice at the foundation, whereas the blue pins show both continuous efforts particular events connected to the research on action; throughout the duration of this project, a journal has been used to keep record of events, note points from discussions and reflect on both theory and action.

The data gathering procedure was directed by two aims; a) explore and capture aspects of practice with special regard to facilitation and assessment in trainings, and also b) collect insights on the practice of participants to inform suggestions for improvements of action.

In both cases, the purpose of such data gathering has been informed to contributors, and consent given; in particular regard to interviews, and a sample permission letter can be found in appendix.

THESIS STRUCTURE

The purpose of this study, to formulate a strategy for training in local educators, has involved investigating:

- 1. Why the trainings are relevant
- 2. What local conditions training participants are facing
- 3. How children develop and learn in relation to play

Referring to question one, I first examine the overall strategy of the foundation, its purpose and programs (The LEGO Foundation, 2010), before contextualizing these with regard to the challenges for education in the 21st century society (Wells et al, 2005). Next, to reflect on the nature of interactions between teaching practitioners and the foundation, I draw on similar cases, presenting both a commercial and humanitarian organization (OECD, 2005; WHO, 1997) to particularly compare incentives; this leads to a brief discussion on liberating versus instrumental intent when educating children for the future (Illeris, 2009).

The following question directs attention towards the specific conditions, which constitute the practice of training participants; by conducting a semi-structured interview (Brinkmann & Tanggard, 2010) during the CfE training in Ukraine (see: thesis timeline), I found the abovementioned challenges to be manifest in the daily work of the participant in question, however, other factors with great importance to the organizing of trainings, surfaced; differences in cultural and political situations influence understandings of both the practitioner and trainer. To ensure relevance of trainings these should be taken into account.

The third question, focusing on child development, first leads to an exploration of play types, developmental benefits and relation to learning (Whitebread, 2012; Howe, 2009; Hirsh-Pasek & Golinkoff, 2008; Smith & Pellegrini, 2008), before summing up on quality indicators for play activities with educational intent. As play signifies a child-initiated activity with no extrinsic goals as such (Hirsh-Pasek & Golinkoff, 2008) a distinction between guided and free play is presented. This leads to a discussion on the importance of supporting child development at governmental level

(Feinstein, 2003), commenting that a focus solely on promoting formal, academic skills may produce the opposite result. Instead, a solution combining reflection and play to add educational value (Jordi, 2010; Illeris, 2009; Ackermann, Gauntlett & Weckstrom, 2009) is presented.

Finally, a strategy for training educators founded on these insights from theory and research on practice, is formulated. It is based on an adaptation of Vygotsky's Zone of Proximal Development (ZPD), modified to suit an adult education purpose (Warford, 2011). It frames both the intent of trainings; to advocate and present arguments for the importance of play in children's learning and development; and a means for practicing these trainings in accordance with the overall value of both the foundation, as organization and practice, and myself, as an action researcher.

THE LEGO FOUNDATION STRATEGY

As a LEGO Foundation employee, it is my responsibility to work in accordance with the values guiding purpose and programs. Apart from its bylaws, the foundation refers to a strategy framing these and which also explicitly mentions values. Being part of The LEGO Group, a business, affects the foundation's interest regarding support, making it double as seen on page two in the strategy (The LEGO Foundation, 2011):

- 1. "...furthering the financial and human resources invested in the Group..."
- 2. "...children and their development..."

This is an example of how the support of children's development is central, but not at the expense of the business or the LEGO Brand's integrity. As a consequence, the foundation avoids projects and activities which are at risk of undermining either the brand, the LEGO Foundation or the Group as a whole, the logic being that corporate growth benefits the entire group and third parties. And has the potential to increase the amount of activities and support.

VALUES AND VIEW ON LEARNING

Values are found throughout the strategy and refer to different levels in both the organization and its programs. Some values are part of an overall mission and some the organization's output and management, such as *synergy* (between business and philanthropy), *accountability* and *communication*. These values do not refer directly to the focus of this thesis, but to aspects such as management and interaction among colleagues. At present attention is turned towards the foundation's view on learning and the relation to the local community and partners:

Value	Definition in charter
Participation	"learning is more effective when learners are actively involved in the learning process () when they construct something that they find personally meaningful" and society asks for "fresh ideas, creativity and new ways of thinking." (p. 8).
Active citizenship	" an education that motivates children to become self-directed, motivated learners, who have the interest and capacity to become active citizens in their society." (p. 8).
Commitment	"The program enters into partnerships () for a period of minimum three years. Impactful change in education requires a medium to long term engagement from the major stakeholders." (p. 8).
Philanthropy	"Care for Education works with professional partners () with the same philanthropic goals as The LEGO Group" (p. 8).

TABLE 1: VALUES STATED FOR THE CFE PROGRAM (THE LEGO FOUNDATION, 2011)

Commitment applies as a value with the mutual cooperation of program stakeholders (and the programs' duration), whereas *philanthropy* defines the quality of that cooperation. The value of

participation forms the center of the foundation's view on learning; what educators and trainers must bear in mind when designing, implementing and assessing learning processes – which corresponds the central value to this thesis (see: Background).

The second value, *active citizenship*, stands out. Mentioned in four out of five programs it is defined as: "...the philosophy that citizens should work towards the betterment of their community through economic participation, public & volunteer work and other such efforts to improve life for all citizens." (The LEGO Foundation, 2011, p. 3).

All foundation programs:"...express the LEGO Values – Creativity, Fun, Learning, Quality, Caring and Imagination." (The LEGO Foundation, 2011, p. 3). These values are further elaborated in the LEGO Brand framework and concern the design of everything from products to educational concepts and activities:

Value	Definition in document:
Imagination	The ability to envision explanations, possibilities and the extraordinary and "the foundation for creativity" (sl. 9).
Creativity	"the ability to come up with ideas and things that are new, surprising and valuable" (sl. 10).
Fun	"Fun is the happiness we experience when we are fully engaged in something that requires mastery" (sl. 11).
Learning	"Learning is about opportunities to experiment, improvise and discover" (sl. 12).
Caring	"the desire to make a positive difference in the lives of children, for our partners, colleagues and the world we find ourselves in" (sl. 13).
Quality	"is knowing what we do is fit for purpose, and caters to the expectations and needs of those we serve" (sl. 14).

TABLE 2: EXTRACTS FROM THE LEGO BRAND FRAMEWORK

The LEGO values concerned directly with the foundations view on learning are *learning, creativity* and *fun* (I understand *imagination* as part of *creativity*, as pointed out by the text itself). Together these define the qualities of the learning environment, which is sought through the program's efforts, and which should:

- Actively involve the children
- Inspire them to be self-directed
- Offer activities which allow them to be fully engaged
- Have room for experimentation, improvisation and exploration
- Nurture and acknowledge children's ideas which are new, surprising and valuable

MAIN FINDINGS

With active citizenship as the purpose of its Care for Education program and participation being the value guiding program practice, the six LEGO values represent aspects of the foundation's interpretation of participation.

This, and my professional values (see: Background), leave several notions to consider: *empowerment through participation* (with commitment, confidence and curiosity as aspects) on the first individual level and *active citizenship through participation* (with fun, creativity and learning as aspect) on the second and organizational level.

Where *participation* refers to the practice of organizing learning processes, both *active citizenship* and *empowerment* have more abstract intent. Both are ideals, but their emphases are different. With active citizenship the idea of commitment is defined as **developing the community** on a local, national or international scale.

The notion of empowerment presented earlier, does not spring from a community centered thinking, but from the uncertainties of the 21st century, which I believe **the individual child** can develop abilities to master. In this sense, the two ideals move towards the same goal – the betterment of society – but have different roots:

Empowerment points to internal changes in the individual's mindset with the aim of adaptability and self-direction, whereas active citizenship is concerned with the individual's ability exercise influence on the community to improve practices and conditions. In this action research project I then place active citizenship as an answer to why trainings are relevant, and empowerment as how I am guided to improve the specific training.

THE CHALLENGE OF SOCIETY

Almost a synonym with globalization, the challenges of modern complexity hold many definitions, one of which is phrased in this way by Wells et al: "... As a result of expanding world trade, nations and individuals experience a greater economic and political interdependence. New technologies, particularly communications technology that facilitates expanded world trade as well as cultural interaction, are considered essential to the emergence of globalization." (Well et al, 2005, p. 43).

In short, globalization affects all levels of society with advances in information and technology, politics, economy and culture (a wide array of human activity) being communicated in all directions. The magnitude of globalization is widely contested (Wells et al, 2005, p. 43), according to the authorts, with the main differences revolving around the distribution of material resources and the role of the nation-states. However, the overall forces at work are:

- **Economic** exchange across borders
- Political interdependence
- Cultural conversion

Globalization has a huge impact on educational settings worldwide; Wells et al conclude the result to be: "...a more competitive and deregulated educational system modeled after the free market but with more pressure on it to assure that the next generation of workers are prepared for some amorphous "job market of 21st Century." (Wells, 2005, s. 64).

Free market competition and the related discourses reach the sphere of education, as nations attempt to secure the best possible prospects for societal development and wealth. The challenge which will decide who succeeds or fails is the uncertain economic, political and cultural fluctuation.

This accentuates how decisions regarding educational policy are influenced (and sometimes enforced) by global factors beyond the control and intent of the local educator. In the following I include a brief comparison of two organizations embodying examples of this global discourse; a set of core skills or competencies formed by WHO and OECD will be analyzed, posing these questions to both:

- 1. What type of organization is it and what are its immediate incentives?
- 2. How are the skills/competencies categorized and why?
- 3. And finally; whom does the organization then principally serve?

The purpose is to elaborate on the relation between an organization, such as the foundation, and local teaching practitioners, on the subject of education in the 21st century.

IMMEDIATE INCENTIVES

The World Health Organization, an agency under the United Nations concerned with international public health¹, has compiled a guideline regarding life skills education. It is targeted at people and agencies involved in school curriculum development. The focus is on the individual and the promotion of health in its most general terms; physical, mental and social well-being in a time "...when behaviour is more and more implicated as the source of health problems." (WHO, 1997, s. 1).

The guideline defines life skills as "...abilities for adaptive and positive behavior, that enable individuals to deal effectively with the demands and challenges of everyday life." (WHO, 1997, s. 1). 'Adaptive ability' as a response to 'complex everyday demands' is a recurring theme when discussing 21st century education. The interpretation made in WHO's guideline is in direct relation to psychosocial competence and has a constant eye on health, but incentives connected to local practice are also mentioned, for example the improvement of teacher and pupil relations, academic performance and classroom attendance.

The Organization for Economic Cooperation and Development (OECD) was founded by its member countries with the purpose of stimulating economic progress and world trade². With countries more and more depending upon knowledge as a resource, this includes initiatives within the field of education as stated in the executive summary of its DeSeCo (Definition and Selection of Competencies) Project (OECD, 2005, p. 4) It describes how the first major attempt in this direction was the launching of PISA in 1997 "...with the aim of monitoring the extent to which students near the end of compulsory schooling have acquired the knowledge and skills essential for full participation in society." (OECD, 2005, p. 3).

According to the summary this assessment takes place with the understanding that students' success in life depends on a much wider range of competencies, than those acquired through a few select school subjects (OECD, 2005, p. 3). Similarly to that of the WHO guideline the overall incentive is phrased: "Today's societies place challenging demands on individuals, who are confronted with complexity in many parts of their lives." (OECD, 2005, p. 4).

The training of key competencies is suggested to help individuals make sense of and function well in this world. That which really separates the formulations in the OECD summary from those of WHO, is the incredibly systematic style as described below.

¹ From ((About WHO) http://www.who.int/about/en/
² From (About OECD → History) http://www.oecd.org/pages/0,3417,en_36734052_36761863_1_1_1_1_1_0.html

WHO AND OECD

CATEGORIZATION

After formulating three criteria which a key competency must meet to be viewed as such, the **OECD summary** presents three broad and overlapping categories. These categories are sued as a reference throughout. It is a thorough approach providing functionality and overview, yet at the same time the numeral symmetry – 3 requirements for defining competencies, 3 categories, and 3 competencies in each of these – raises the issue of authenticity versus artificiality:

Competency Category 1	Using tools interactively	
Competency 1-A	The ability use language, symbols and text interactively	
Competency 1-B	The ability to use knowledge and information interactively	
Competency 1-C	The ability to use technology interactively	
Competency Category 2	Interacting in heterogeneous groups	
Competency 2-A	The ability to relate well to others	
Competency 2-B	The ability to cooperate	
Competency 2-C	The ability to manage and resolve conflicts	
Competency Category 3	Act autonomously	
Competency 3-A	The ability to act within the big picture	
Competency 3-B	The ability to form and conduct life plans and personal projects	
Competency 3-C	The ability to assert rights, interests, limits and needs	

TABLE 3: THE NINE KEY COMPETENCIES (OECD 2005, P. 10-15)

Models of thought and action simplify human motives. This seems the logic behind the OECD framework on key competencies. It works from the basis of methodical assessment and, referring specifically to page 6, tries to enter the realm of 'soft skills', intent, interactivity and other personality traits as a means of avoiding 'arbitrary decisions' about desired human qualities. Instead the aim is: "...careful consideration of the psychosocial prerequisites for a successful life and well-functioning society."(OECD, 2005, p. 6). A question remains; does this form of logic offer more comfort than clarity when it comes to capturing the complexity of human intent and action?

WHO works with a simpler core set of life skills, ten in total, which are seen as complimentary and paired in five main areas covering responses (*decision making* and *problem solving*), modes of thinking (*creatively* and *critically*), the quality of interaction (*effective communication* and *interpersonal relationships*), insight into self and others (*self-awareness* and *empathy*) and coping strategies regarding both emotion and stress (WHO, 1997, s. 3).

WHO AND OECD

PURPOSE AND UNDERLYING ASSUMPTIONS

As an example of how **the WHO guideline** defines a life skill, problem solving can be mentioned. It enables individuals "...to deal constructively with problems..." which would otherwise "...cause mental stress and give rise to accompanying physical strain." (WHO, 1997, s. 2). It is health which rules the definitions; and the purpose of training life skills is that individuals can then give balanced responses to challenges in their lives. Choosing this standing excludes skills deemed important by OECD – for example different literacies. The responsibility for such skills is left to the current practice of schools, the home and communities.

Another important matter is also raised in the introduction to the guideline; cultural and social circumstances play a crucial role in determining the precise nature of life skills. In India, for example, effective communication might be one thing for boys and another for girls (WHO, 1997, p. 3). In this sense the WHO guideline moves within a designated sphere of international public health, but points to strategies and approaches reaching beyond, with the formulation of specific guidelines and the link to cultural diversity and issues.

POLICY PURPOSE AND REFLECTIVENESS

Regarding underlying assumptions, the wording of the OECD framework spans:

- "The ability to construct tactical and sustainable alliances;" borrowing expressions from a product management line of thought, and also the need for...
- "...individuals to be empowered to manage their lives in meaningful and responsible ways..." a phrasing which has an idealistic ring to it (OECD, 2005, p. 13).

But in the last sentence the focus of the summary is underlined, as it continues with: "...by exercising control over their living and working conditions." (OECD, 2005, p. 14)

At the same time reflectiveness is positioned at the heart of OECD's key competencies framework. It is the ability enabling individuals "...to distance themselves from social pressures, take different perspectives, make independent judgments and take responsibility for their actions." It implies thinking about thinking, as wells as "...creative abilities and taking a critical stance." (OECD, 2005, p. 9). Using something *interactively*, for example, is defined as more than having mere access and technical skill; the individual needs to be familiar with a tool to such an extent, that he or she understands "...how it changes the way one can interact with the world and how it can be used to accomplish broader goals (...) in an active dialogue between the individual and his or her environment." (OECD, 2005, p. 10).

In the summary the function of reflectiveness is further described as the ability to not demand answers in a world of complexity to be either-or, but instead handle the tensions following a goal set between seemingly irreconcilable positions – say, innovation and continuity (OECD, 2005, p. 9). This is a shift in perspective for an organization with such deep roots in unambiguous assessment of human achievement.

I agree with much of the outcome of the OECD framework on key competencies, but not necessarily the underlying assumptions. These might be necessary when considering the use to which OECD's definitions are put; measurability, monitoring progress and determining the need for governments to draw policy lessons (OECD, 2005, p. 3).

LIBERATING VERSUS INSTRUMENTAL INTENT

My reservations with reference to the wording in OECD's framework, which can again be exemplified in the sentence 'empowerment, by exercising control', calls for a brief return to the root of action research; critical theory. Its original purpose was to investigate"... the ways in which thinking was being reduced to mechanical notions of what is operative and profitable..." in a time when "...ethical reflection was tending to vanish and aesthetic enjoyment was becoming more standardized." (Bronner, 2011, I. 465) connoting an instrumental standpoint.

Instrumentalism regards activities as instruments or tools for some practical purpose, rather than in more absolute or ideal terms (Oxford Dictionaries Online) but taken a step further, with 'people' in place of 'instruments', its undertones change considerably.

When I first began phrasing the intent and purpose of this thesis, the initial project focus was itself along the lines of 'what life skills are considered essential, in order to maximize children's school success.' But that moves in direction of what critical theory was being critical towards: "...how people are treated instrumentally, as 'things', through concepts that have been ripped from their historical context." (Bronner, 2011).

The current approach of this thesis has a more liberating intent, with the individual's freedom to learn, choose, act and define at its core. In the OECD framework, autonomy "...requires an orientation towards the future and an awareness of one's environment, of social dynamics and the roles one plays and wants to play" (OECD, 2005, p. 14). Yet, I would take it further and supply this interpretation with the ability to question or be ready to redefine the rules of the 'game'.

The next issue is how to decide on a point along a cline with an economically centered approach on one end and a potentially liberating aim at the other; the need for monitoring to secure the welfare of society versus the intent of inspiring reflectiveness and autonomy for the individual's own sake. The WHO guideline achieves this by narrowing down the focus to a concern for health, and thus avoids the discussion. But when it comes to the education of children to secure their future – and everyone else's – I find that bold visions should not be overruled by safe choices. In a sense neither does the OECD summary with reflectiveness at the center of its framework.

At the same time there is a difference – I hold to the second liberating aim, without excluding attempts at measuring the qualities of independent thought. But rather than adapting the notion of reflectiveness to a symmetric framework, I will explore the possibilities leading in the opposite direction: how to shape the tool to the notion. When scrutinizing the OECD definition of reflectiveness (statements linked to its different aspects mentioned earlier), similarities with empowerment occur as seen in the table below – one row contains specific definitions (see: Policy Purpose and Reflectiveness) and the other refers to the aspects mentioned under Background:

Reflectiveness	Empowerment
Distance oneself from social pressures	Confidence
Take different perspectives and make independent judgments	Curiosity
Take responsibility for own actions	Commitment

While reflectiveness denotes active inward metacognition, empowerment encompasses outward action. In this sense we can return to the play-by-the-rules-metaphor, where reflectiveness is to master the game - understood as the complexities of the world today – by exercising control and adaptability, whereas empowerment emphasizes mastering the game to change it.

This is how I aim to engage with local practitioners, influencing their understanding of children's learning potential. It implies entering a dialogue with local practices to recognize culturally specific needs and conditions, along with a local manifestation of the 21st century challenges. In the section below, an interview is presented to provide examples of such local conditions.

In accordance with the concern of action research, the overall strategy of the interview was to uncover practice; what form action might take in this local setting and why. To better understand if practitioners perceived a change in the nature of their work, I set out to conduct a semi-structured interview with a training participant.

A LOCAL PRACTICE

In their handbook on qualitative methods (*Kvalitative metoder - en grundbog*, 2010) Brinkmann & Tanggaard present a method for approaching and later analyzing interviews, where the foundation is laid even during the actual interview situation where the interviewer can test interpretations in the encounter (Brinkmann & Tanggaard, 2010, p. 45). Before going to Ukraine, I was unfamiliar with the educational system, local practices, and at the same time full of my own understanding of the current discourse on 21st century challenges and how to meet them. This interpretation was tested during the interview and the discourses varied distinctly, as will be seen later on.

The interview was concerned with the overall personal experience of an educator regarding demands and expectations from others and herself, with a special interest in consequences of the 21st century challenges. Traces of economic exchange across borders, political interdependence and cultural conversion were specifically of interest. These constituted broad research themes which were translated into interview questions in the guide, with this main research question:

In what way is the everyday practice of a local educator shaped by current political, social and professional demands and expectations?

This question could in itself become a thesis, and the reason for phrasing it in this wide-ranging way, is simple: I did not have access (either via e-mails, phone or personally) to the training participants prior to our first meeting or the location, as the CfE training session was coordinated by local staff members and conducted on sight. Which educators would attend could differ from session to session and even during the course of the training day. Consequently, I did not know beforehand if the participants spoke anything other than Ukrainian, if they would agree to be interviewed, where it could take place and for how long, or if there would be a translator with time available to help with the interview.

As a result, I decided on the following strategy:

- Before: define an interview guide with research and interview questions
- During: sit down in a break and ask the participants present if they are willing to assist with information to improve future training, while informing them of its use in the thesis (record interview and oral consent)
- Record names and questions used in the transcription (but not in the final report)

The guiding interview questions seen below, move from concrete descriptions of practice to more abstract notions of changes, aiming to link the interviewee's specific experiences with overall societal challenges:

- 1. Describe a typical day on the job as detailed as possible.
- 2. Have you experienced changes in the way you and your colleagues work? If yes, what kind?
- 3. Do you think expectations towards teachers have changed in recent years? If yes, how?
- 4. Is this training relevant regarding these changes?

SET-UP

The interview took place in a kindergarten in Kiev on the 25th of April 2012 during lunch. It was arranged following an informal inquiry into the daily work and routines of local Ukrainian educators among the participants present, following the original plan. The voluntary interviewee was an English-speaking, middle-aged kindergarten methodology teacher trained at Kiev Pedagogical University under Soviet rule. A location was found in a side room to the training facilities. As seen in the figure below, A signifies the interviewee and B the interviewer:

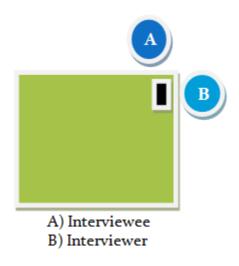


FIGURE 3: INTERVIEW SET-UP

When conducting the interview questions were phrased in a way which prompted the participant to use own words to describe changes in demands and expectations on a daily basis, if any.

HANDLING DATA

There are distinct differences between written and spoken language (Brinkmann & Tanggaard, 2010, p. 43). When translating a recorded interview into a transcription, this is necessary to keep in mind. The spoken language involves layers of meaning – intonation, gestures, context, social positioning and many other facets – that a written text cannot capture. Brinkmann & Tanggaard (2010) call it to transform meaning from a dynamic and contextual form to something static (p. 43).

In this particular interview another important aspect played a significant role; the interviewer and interviewee were from separate countries, one located in Western the other Eastern Europe, and different mindsets were at work, just as English was a second language to both. Some degree of meaning is very likely lost, as the interview sequence below serves as an example of.

As noted in the introduction, the interview specifically aimed at locating traces of economic exchange across borders, political interdependence and/or cultural conversion. During the interview I tried to extract specific statements to especially the second point, but was confounded by the answers, as can be seen in the following example³:

B: Ok, who decided that you have to use projects now instead of just have a special lesson?

A: It's the whole project, everything makes this open lesson.

B: I understand, but today you have projects, before you didn't.

A: Yes, before we didn't make it this way and now make it such a way...

B: Now you do.

A: I like it very much the news.

From here the interviewee continues explaining hers and fellow teachers' interest in and use of educational literature. This sequence seems to express a cultural dissonance between the interviewer and interviewee, perhaps linking to a particular national and professional discourse. Yet, I was able to examine the subject more closely by posing the same question in different ways was.

Preliminary codes were found during the interview. And these were evaluated during the subsequent transcription and categorization of the interview material. During this process I have specifically extracted statements illustrating:

- A's role in the kindergarten
- What it involves
- What has changed
- What these changes mean for her practice and that of colleagues
- If they are related to changes in external factors (e.g. political, cultural etc.)

MAIN FINDINGS

Statements occurring during the interview confirm systematic reflective practice amongst kindergarten teachers in Kiev.

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³ the term 'special lessons' refers to open demonstration classes with colleagues present

However, contrasting my preliminary understanding, this is not driven directly by political influence or instructions, but rather by professional and pedagogical initiatives:

A: When I visit my visit my colleagues I speak with them and we discuss literature I always try to find new ideas for the work and today there is a special form of work to make projects.

B: Yeah. Are there any laws about the projects?

A: We don't use these laws, you see, if there is a very interesting project for example, maybe, it may be printed in this special literature where share our experience with other people in such a way...

Despite the apparent existence of political directives on kindergarten practice, these are disregarded by practitioners, according to the interviewee. Instead their work is organized around a model with a methodology teacher researching new ideas on materials and methods, as well as assisting kindergarten teachers in conducting projects on practice. These are localized in the individual kindergarten, but experiences are shared among peers. The initiative is highly motivating to the practitioners:

A: And the children, you see, they are very interesting, they are alive, and it's a great art to make up with them such interesting things that you study.

It is aimed at inducing engagement and decision-making in children, as an answer to the uncertainties of modern society.

As mentioned earlier, educational practices worldwide are all confronted by the challenges of the 21st century, yet these have differing manifestations influenced by culture and history, local politics and other factors. The findings presented above indicate that interviewing can reveal important aspects of local practitioners' conditions, frustrations, motivation and understandings, which otherwise would be unknown to the CfE trainer and therefore not considered either before or during trainings.

CHILD DEVELOPMENT AND PLAY

Rather than setting up an intricate framework for identifying 21st century skills (or compile a very long list), I aim to approach the modern challenge from a child's perspective in a developmental sense. Here, play is an essential part of children's natural behavior. In the thesis introduction, Whitebread and his team are cited for warning against a recently adopted 'earlier is better' approach among governments. This approach aims to present children as early as possible with formal skills such as literacy and numeracy (Whitebread et al., 2012, p. 3) to ensure that the full academic potential of each child is reached.

In doing so, governments limit the opportunities for rich play experiences in educational settings. And, as Whitebread et al argues, the potential of play is overlooked; explicitly as a means (and end it itself) to support children's whole development as well as the skills necessary to easily learn and apply symbolic representation and abstract thought necessary in reading and math, is then overlooked. In the subsequent section I elaborate on this view on play and its developmental benefits in children, linking these to the ideas of learning the LEGO way.

THE NATURE OF PLAY

Though play has been studied for more than a century it remains an elusive field for researchers to define and analyze. In their report *The Importance of Play*, David Whitebread et al. (2012) provide a field overview including recent analyses, which have taken the field a huge step towards: "...clear guidelines at the nature of provisions for play that is required to allow our young children to flourish in all aspects of development." (Whitebread et al., 2012, p. 14).

Though the authors state that these guidelines are based on evidence for play's developmental benefits and a growing consensus on different types, a brief glance at *Encyclopedia on Early Childhood Development* (2008) reveals examples of disagreement among researchers on types of play and how directly the benefits of play can be linked to children's development and learning. Researchers are either enthusiastically in favor (Hirsh-Pasek & Golinkoff, 2008) or reserved towards giving absolute confirmation, essentially forming two factions: "...those who advocate a child-centred, constructivist approach (...) or those who hold to a more traditional, skill-based approach..." (Howe, 2009, p. 1).

However, the fact that different types of play exist, and that in real life these merge and overlap, is generally acknowledged within the field. I will use the types most recently presented (Whitehead et al, 2012), including comments from encyclopedia contributors (2008).

PLAY TYPES AND BENEFITS

Young children spend 3-20% of their time engaged in play, even more so if they have access to rich play provisions, and if young children "... are temporarily deprived of play opportunities, for example being kept in a classroom, they play for longer and more vigorously afterwards..." (Smith & Pellegrini, 2008, p. 1). This supports the notion that play is part of children's natural behavior.

Physical play is related to the developing of whole body and hand-eye co-ordination; it covers 'rough-and-tumble'-play, and fine-motor play, which is often a solitary activity that benefits from adult support and helps children to develop concentration and persistence ((Whitebread et al., 2012, p. 19). The time spend engaged in this play type increases from toddlers and peaks at early primary school age (Smith & Pellegrini, 2008, p.2). It is also closely related to another type; **play with objects**, which is concerned with children's explorations of the physical world.

Play with objects begins as soon as infants start to grasp and manipulate objects, as they investigate their properties (through biting, kicking, rotating, dropping etc.) and by the age of 4 years behaviors such as building, making and construction emerge (Whitebread et al., 2012, p. 20). As they build, young children often add narratives to their inventions, and this is distinctively related to thinking, reasoning and problem-solving, as they set goals and challenges for themselves and monitor own progress towards them, through self-commenting. This verbalization allows for children: "...to consolidate their understandings of their world and facilitates their development of the representational abilities they will use to think through ideas as adults." (Whitebread et al., 2012, p.16).

Symbolic play supports development of the abilities necessary to express and reflect upon experiences, ideas and emotions (Whitebread et al., 2012, p. 16). It constitutes a very active process in which children for example make up new words or play with rhymes – it also has a great impact on their ability engage with formal mathematics and literacy later on. Both the capacity in children for pretence and producing sounds which carry meaning emerge around the age of 10-14 months (Whitebread et al., 2012, p. 16).

In the Whitebread field review, Lev Vygotsky (1896-1934) is presented as the first to produce insights on two crucial contributions to the development of these abilities in children; language and self-regulation (the controlling of cognitive and emotional processes). Recent research, by for example Vallaton and Ayoub (2011), has shown that these abilities are interrelated and form:"...the most powerful predictors of children's academic achievement and their emotional well-being." (Whitebread et al., 2012, p. 16).

Both abilities are developed extensively as children engage in symbolic forms of play – covering verbal and artistic expression, and overlapping the last two types; **pretence**, or sociodramatic play, and **games with rules**. These forms of social play are initially with caregivers (e.g. peak-a-boo), but from the age of 2-6 years they are increasingly with other children; first as parallel play at 2-3 years as children play next to each other without much interaction. Later, by the age of 3-4 years, children can participate in groups of 3 or more, having acquired social coordination skills and scripts (Smith & Pellegrini, 2008, p. 2).

From the age of 3, children pretend play with others, this has great potential when it comes to language learning, as pretence play: "...can involve understanding others' intent, sophisticated language constructions, and development of (sometimes) novel and intricate story lines." (Smith & Pellegrini, 2008, p. 3). Furthermore, it is hypothesized that children develop theory of mind – understanding that others can have different beliefs or states of knowledge than yourself - through pretend play (Smith & Pellegrini, 2008, p. 3).

GUIDED AND FREE PLAY

Researchers are in general agreement that from a child's point of view, play is signified by features which immediately sets the activity apart those initiated by adults in educational settings; play is spontaneous, often has a private reality and most importantly *has no extrinsic goals* (Hirsh-Pasek & Golinkoff, 2008, p. 2). It is then possible to distinguish between 'free play', initiated by children, and 'guided play' which contain extrinsic goals in some respect.

Hirsh-Pasek & Golinkoff emphasize how both forms of play are linked to social and academic development; children enjoying free-play during recess show greater improvement in reading and mathematics than their peers not having recess. The same is true for skills such as attention, problem-solving and inhibition (labeled *execute function* skills). These were nurtured through guided play for a whole day with preschoolers, who afterwards showed improvements linked to the same formal subjects (Hirsh-Pasek & Golinkoff, 2008, p. 2).

In the introduction to this section (see: The Nature of Play), two approaches to early education were mentioned; Hirsh-Pasek and Golinkoff (2008) state that when comparing children exposed to each of these, research reveals that: "Children in the child-centred approaches do better in tests of reading, language, writing and mathematics (page 3). Needless to say, children can be trained to perform well in specific tests through familiarity, but the benefits presented in this thesis section emphasize long-term improvements.

QUALITY PLAY PROVISION

In urban environments the importance of providing outside play spaces cannot be overstated; that said, very productive playful activities can be facilitated in early care and school. Whitebread et al underline three key factors in this respect: "...the level of stimulation, the quality of interactions with adults, and the degree of independence and autonomy offered to the children concerning their play." (Whitebread et al., 2012, p. 27).

The first factor is primarily related to the provision of a variety of play materials and toys. According to Whitebread and his team, these should be flexible and provide rich opportunity for creativity, social interaction and deep engagement. Linked to the second and third factor, along with the general nature of play, is the fact that for children to learn through the use of toys, they must:"...perceive the situation as playful." (Whitebread et al., 2012, p.27). In other words these factors represent quality indicators for educators to consider when facilitating children's learning through play activities.

As such, great benefits can be achieved from structuring children's play to include educational value. This can be done by providing activities (e.g. color and pattern matching games), materials which they can manipulate, and by enhancing sociodramatic play through suitable props or by stimulating their imagination (e.g. visiting hospitals or the zoo) and suggesting play themes (Smith & Pellegrini, 2008, p. 4). But it is important to consider how children's daily routines are organized from an overall perspective. The result of children being over-supervised and over-scheduled is a decrease in the amount of play they enjoy with peers and adults, and this is very likely to have a harmful effect on children's: "...independence skills, their resourcefulness and the whole range of developmental benefits..." which play would otherwise induce (Whitebread et al., 2012, p. 12).

COMMENTING 'EARLIER IS BETTER'

With reference to children performing at their peak or when assessing skills, research also suggests that: "...children demonstrate their most advanced language skills during play..." and that 46 % of the time, 4-5 year-olds free play contains foundational roots for mathematics (Hirsh-Pasek & Golinkoff, 2008, p. 2).

Over the last 10-20 years the opportunities provided for children to learn through play have been greatly limited, especially due to the systematic prescribing of early childhood and primary school curriculum by governments worldwide (Whitebread et al., 2012, p. 13). The restrictions cause difficulty for practitioners who wish develop effective and enriching practices around playful activities.

But in one sense governments and researchers could be in their right to focus on formal skills in preschool education, according to Leon Feinstein (2003). The Research Director at the Centre for Research on the Wider Benefits of Learning (Institute of Education, UK) Feinstein has investigated the degree to which academic achievement can be predicted from early development (starting with children aged 22 months and comparing with their qualifications at age 26) in relation to social class (Feinstein, 2003).

Going through statistics from a 1970 Birth Cohort Survey (Feinstein, 2003, p. 25) he finds that: "... preschool, academic development does matter, in the sense that it predicts final educational success. However, I also find that large social effects continue impact on children after they have entered school." (Feinstein, 2003, p. 30).

This implies that a focus solely on academic achievement in children will not counteract consequences of other aspects, such as the social attainment gap. Researchers and policy makers are right in their concern for children's development and the importance of support at an early stage. But drawing on play research, I suggest that rather than establishing (or maintaining) a more traditional teacher-directed and skills-based approach, energy would be better employed in the provision of rich opportunities for both guided and free play to achieve long-term developmental benefits.

MAIN FINDINGS

Summed-up in table 4 is children's development along with associated behaviors and play types:

Specific developmental aspects	Associated behavior	Main play types
Gross and fine-motor skills	Early exploration (bite, kick, etc.) Exploration (making, building etc.)	Physical play Play with objects
Concentration and persistence	Solitary fine-motor play	Physical play Play with objects Symbolic play
Reasoning and problem-solving	Self-commenting and narration	Physical play Play with objects Symbolic play
Language (reflection/expression)	Self-commenting, narration and playing with words and rhymes	Symbolic play Pretence Games with rules
Self-regulation and theory of mind	Parallel play Play with others	Symbolic play Pretence Games with rules

TABLE 4: SUMMARY OF PLAY TYPES AND DEVELOPMENT

Though LEGO learning materials primarily consist of LEGO bricks, their use is not limited to physical play and the training of fine-motor skills through construction. Instead it depends on how the educator chooses to integrate construction and other learning content (e.g. building a setting and role-playing good friendships or present a challenge to be solved using reasoning and problem-solving). However, play and reflection on action are always central elements.

In the following section the 'LEGO way of learning' – including hands-on experiences and a focus on systematic creativity – is presented and linked to theory on reflection.

LEARNING THE LEGO WAY

While a colleague conducted the training sessions in Ukraine (April 25-26, 2012), I took the opportunity to observe the training practice, with a particular eye on the organizing of activities and presentations. Having logged type and content of each element, I later compiled an overview of the didactic structure of the training. The following is an extract from the second day, where a central LEGO learning concept, the 4Cs, were introduced:

What	How	Why
Welcome	Participants arrive to see slideshow with pictures from yesterdays training rolling over the screen as they enter.	Spark engagement
Review	Brief review, first in groups and then with all together.	Facilitate reflection
Open class	Host and flagship kindergarten presents how they use LEGO learning materials in class.	Share practical experience, discuss
Presentation	Local Methodology Teacher presents their experiences at a more theoretical level.	Share insights on theory, prompt discussion
The 4Cs	The 4Cs are introduced using a power point presentation and drawing on activity examples from the day before.	Link hands-on experience to concept.
Hands-on exp.	In groups receive LEGO learning materials and are asked to explore content and develop activities based on the 4Cs.	Facilitate reflection on practice.
Discussion	Teachers take turns presenting their material and activities. Discussion and questions.	Present activities and assess understanding.
Ceremony	Diplomas are presented. Participants fill in questionnaires.	Round-up training, acknowledge efforts.

TABLE 5: DIDACTIC OVERVIEW OF THE SECOND TRAINING DAY

As seen from table 5, the training consisted of a blend of reviewing contributions from earlier, demonstrations and sharing sessions, subsequent discussion as well as a presentation on the LEGO learning method – the 4Cs – accompanied by relevant hands-on experience. This method is based on the report *Systematic Creativity* (2009) compiled in a corporation between researchers from MIT (USA), University of Westmininster (UK) and the in-house LEGO Learning Institute.

THE 4CS

The activities developed for CfE trainings are based on this idea; that we can harness the potential of our creative capacities by using systems, such as the rules for musical chords or the scientific process, to explore our world: "Systematic Creativity is about using logic and reasoning along with playfulness and imagination, to generate ideas or artifacts (...) Children learn about themselves, others and the world through play." (Ackermann, Gauntlett & Weckstrom, 2009, p. 4).

Together with LEGO bricks the 4Cs constitute such as system. Activities are organized around a learning content – either designed as a closed or open-ended task – and then follow four steps towards a solution to the task:

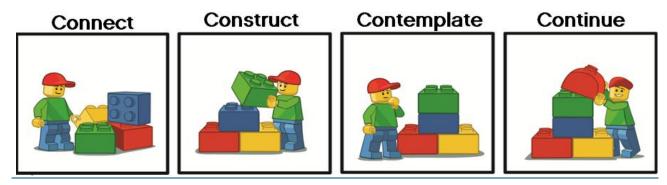


FIGURE 4: THE 4CS ILLUSTRATED

In the **Connect phase**, the objective is to link children's knowledge and experience to the task at hand, for instance by eliciting using a picture or telling a related story. During this phase, the teacher presents criteria to be fulfilled by the students' solutions. These can be simple or advanced, related to mechanisms or focus on creativity; it all depends on age groups, subject, amount of students, time or if the task is perhaps part of a cross-curricular project. However, it is essential that the criteria are relevant to the challenge presented.

The **Construct phase** involves a hands-on experience focusing on the actual construction of a model made from LEGO bricks; children have to experiment (and negotiate when working in groups), until they come up with a satisfying model or time is up.

The purpose of the **Contemplate phase** is to have children verbalize what they did, how and why in the previous phase. The teacher can ask about the mechanics at work, what the thoughts or story behind different elements are or how the previous phase went.

In the final **Continue phase**, the children apply newly acquired techniques and insights through an extension of the activity; the teacher might introduce new criteria for the model, ask the students to inspect each other's models and choose an improvement for their own, or have them draw a story related to the model. Again it depends on aims and relevance.

The 4Cs pose a framework for teaching, designed to draw on children's ability to reflect on experiences (particularly those that are hands-on, but instances of conflict, flow, joy of creations etc. might also be considered). Instead of forming a step-by-step recipe for teaching, the phases demonstrate the necessity for the teacher to reflect on practice to ensure relevance and an appropriate level. When facilitating the transformation of children's hands-on experience into conscious insights, the keyword is participation every step of the way. What constitutes a hands-on experience in relation to reflection more specifically is detailed below.

EMBODIED REFLECTION

On the way to the Idea Conference 2012, the LEGO Foundation director told me how efforts had been made to implement and scale up a LEGO learning initiative in China, using e-learning lectures and tasks for local teachers all over the country. But as soon as the Chinese officials got their own hands on LEGO bricks and experienced the joy and depth which come with hands-on activities, they too realized something important; you cannot *tell* others what this does or signifies to learning, you have to involve them. The initial e-learning strategy was then discarded.

Why did the Chinese officials change their minds? They had hands-on experiences which are distinctly different from the direct teaching of concepts. Through Richard Jordi (2010) and Kolb (in Illeris, 2010) in particular, I first explore how reflection has been understood through, and then conceptualize an understanding of the term which is relevant to the hands-on LEGO way of learning, in order to show what educators should aim to facilitate and asses in children within this framework.

Through time reflection has been seen as occurring in the mind, a notion originating in ancient philosophy with Plato's realm of ideas separated from the material world, and later Descartes' theoretical duality of mind, which fed a Cartesian claim: "...that we are radically distinct from animals, uniquely possessed of a soul and its attendant powers of abstract reason." (Anderson, 2003, p. 126).

Richard Jordi, a Curriclum Coordinator at Cape Town University, has devoted an article to reembody reflection, drawing on a combination of contemporary work on experiential learning and neuroscience (Jordi, 2010, p.189). He opposes an understanding of reflection springing from the Cartesian claim and further states that locating the very first moments of reflection and learning solely in the body, is equally problematic: "...we have to move away from the dualistic *structures* of mind and body and understand learning as a *process* that embodies all kinds of moments in its emergence." (Jordi, 2010, p. 189).

Jordi instead introduces the concept *Focusing*, through Eugene Gendlin (1926-). Working as a psychotherapist Gendlin found that some of his clients benefitted from therapy while others did not. The difference lay in how some clients had the ability to intuitively access and process implicit experiences or tacit knowledge (Jordi, 2010, p.191). These insights led to the formulation of his term *Focusing*.

Two aspects are important in the *Focusing* understanding of reflection, which have their source in the embodied process and continuous flow of human feeling and experiencing (Jordi, 2010, p. 192):

- The **felt-sense** is initially an unclear sensation of a situation, which Jordi links to Polanyi's 'tacit knowledge'. But is not to be understood as either an emotion or sensory perceptions it is a bodily felt interaction with a specific situation, drawing on the richness of associations arising from experience (Jordi, 2010, p. 192). And likewise important; the felt-sense: "...always urges forward, demanding words or a thought or an action." (Jordi, 2010, p. 192).
- This forward movement happens through a **felt-shift**, where a crossing of feeling, memory, tacit knowledge, and opinion emerges. This crossing is unique to:" ... a specific situation and a person's interpretation, thought, or action in relation to that situation." (Jordi, 2010, p.193).

What happens when a person then *focuses* is that her understanding of a situation shifts from a nonconceptual, bodily felt and mentally sensed mix to being thought, verbalized or done, making reflection equally linked to mind and body.

This shift can be seen, according to Jordi, as A) intentional and a human yearning towards resolving dissociation, seeking integration and meaning, B) drawing more on our capacity for imagination than on analytical modes of thinking, C) just as it is affected by the surrounding environment and thrives on dialogue and listening, D) and feeds our creative potential by inviting us to be present to the uniqueness of the experience of the moment (Jordi, 2010, p. 194-5).

SYSTEMATIC REFLECTION

Another important experiential learning contributor is David Kolb, famous for his Learning Cycle,

which he based on works by Piaget, John Dewey and Kurt Lewin (see: Action Research) and which Peter Jarvis later acknowledged as one of the best of the known illustrations of learning (Illeris, 2009, p. 66).

It identifies four stages of the continuous process of learning (as seen in figure 4 on the right), starting with either doing or having and experience, which you review and reflect on, before concluding something from the experience. Then you move on to experiment with what you have

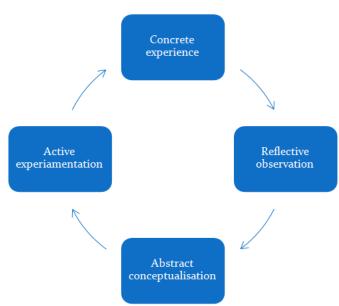


FIGURE 5: KOLB'S LEARNING CYCLE

learned (from Kolb, 1984, in Illeris 2009, p. 67). While Gendlin's (through Jordi, 2010) concept of *Focusing* in many ways captures the diversity of the human learning experience, Kolb's cycle provides a systematic overview of the learning process, and both are necessary.

Compiling the phases of the 4Cs method, Kolb's cycle and the notions of *Focusing* result in a model of the reflection process through hands-on experience:

As the overarching system is Kolb's cycle with its four stages of a learning process (see figure 5). A concrete experience might very well come from a Connect and Construct phase, where children are introduced to a task and then asked to build a solution using LEGO bricks.

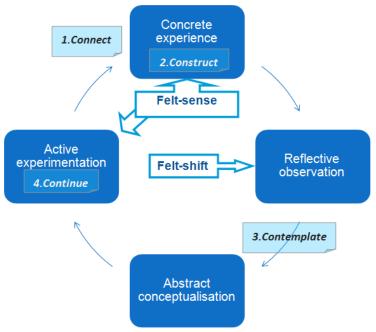


FIGURE 6: A COMPILED ILLUSTRATION

When verbalizing their felt-sensed experiences of the first two phases, children are transforming this felt-sense (moving through a felt-shift) moving from a hands-on experience, through reflective observation to an abstract conceptualization.

Then they can use what they have learned in a continuation of the task using active experimentation.

When assessing the children during the Contemplation phase, the educator (matching their level) should encourage the children to:

- 1) **Verbalize** experiences (*what happened?*)
- 2) Analyze why (how did it work and why this way?)
- 3) **Theorize** (what happens if..? or will this happen...?)
- 4) **Evaluate** outcome (does this correspond with the intentions?)

MAIN FINDINGS

These insights presented through Jordi especially, underline the importance of hands-on experiences when facilitating learning in children (and adults). These should therefore FIGURE 7: THE LEARNING CYCLE, 4CS AND EMBODIED form a foundation for trainings.

At the same time, this corresponds with the three values previously mentioned as aspects of empowerment (see: Background); being **curious** about the world and exploring it, as playful hands-on experiences are essential in children's the development. Secondly being **confident** enough to be curious and attempt these reflections at different stages and finally **commitment**; acknowledging that we are part of a community, both in a local and global sense, and that commitment leads us to ask why things are as they are, and more importantly; how we can improve them.

This also means that training participants should experience the beneficial aspects, the necessity and the joy which come with hands-on experiences firsthand; together with arguments based in research and reflective practice, for advocating their views to politicians, parents and school boards.

INFORMING A TRAINING STRATEGY

Mark K. Warford (2011) has converted Vygotsky's Zone of Proximal Development (ZPD), to suit the training of teachers. Acknowledging that the CfE participants are, in most cases, in-service educators, his adaptation is functional as it contains a framework for formulating a overall strategy when training adults.

He cites Vygotsky for saying: "... direct teaching of concepts is impossible and fruitless. A teacher who tries to do this usually accomplishes nothing but empty verbalism, a parrotlike repetition of words by the child covering up a vacuum." (Warford, 2011, p. 252). Similarly it would be fruitless to convey concepts such as the 4Cs or the significance of hands-on experiences, simply by explaining in words directly. If participation is the value, and reflection through playful learning the focus, then the training should involve participants and support them taking the concepts and adapt these to their own practices.

Vygotsky used his ZPD to describe the distance between what a learner is able to on his or her own, and what can be achieved through the facilitation of an expert other (Warford, 2011, p. 253). Warford has translated this notion for the purpose teaching adult learners; a version which acknowledges differences when the learners are not children:" In contrast to the malleable, maturing minds of child-test subjects, adult learners lose some of their plasticity." (Warford, 2011, p. 253). In other words, adult participants are likely to have settled on preferred practices. Any training must involved some degree of unsettling these.

To achieve this Warford suggests a 'three-way-conversation' where 1) participants and their tacit knowledge are drawn into a dialogue with 2) pedagogical or educational content (in this case the

LEGO learning materials and methods), along with 3) elements of observing practice (Warford, 2011, p.253).

The original ZPD process moves from 1) facilitation through an exper-other to 2) self-assistance by 3) internalizing knowledge and methods, making them part of the learners own nature (automatization). The final step is 4) recursion, as the learner de-automates the concepts and methods learned. But when using ZPD in adult learning, Warford maintains, that it: "...requires a reversal of the first two stages (teacher-assistance, then self-assistance) in such a way that starts with candidates' reflection (self-assistance) on prior experiences and assumptions." (Warford, 2011, p. 253).

He further emphasizes the importance of choice; participants should be presented with tools to help them analyze, plan and reflect, but given the choice to determine the course of their own growth as learners (Warford, 2011, p. 254). He also underlines the significance of putting reflection into words; to center attention and develop inner speech: "Reflection (...) creates an imaginary dialogue partner with oneself to make meaning of practical experience." (Warford, 2011, p.255). A final and essential element is to include self- and co-organization of activities, as part of the strategy of involving participants.

Table 6 below is a summary of Warford's ZPD-version, formulated as a strategy for CfE trainings:

A STRATEGY FOR CFE TRAININGS

Stages	Descriptions					
Statements on practice	Prior to the first training, participants are invited to formulate statements					
(I. self-assistance)	describing own practice, their expectations and needs. These inform the trainer's decision regarding the specific training.					
	Collect statements					
First training	Training includes dialogues on participants' prior experience, presentation of					
(II. expert-other ass.)	LEGO Learning Materials and methods, and elements of observing practice.					
	Assessment of relevance					
Practical experience	Participants use materials in their own practices, and are invited to capture					
(III. internalization)	successes and frustrations in some form of writing (journals, scrapbooks etc.). Follow-up assessment					
Second training	Training is based on follow-up assessment, and includes sharing sessions eith					
(IV. de-automatization)	experiences, new inspiration and retracing prior steps in the development of activities (to facilitate reflection on own practice).					

TABLE 6: STAGES AND DEFINITIONS FOR A TRAINING STRATEGY

Follow-up activities can consist of a questionnaire similar to the one already used, or as Warford suggests: "...hosting workshops, gathering focus groups to demonstrate responsiveness to local professional culture." (Warford, 2011, p. 256).

ASSESSING REFLECTION

Assessment is systematic evaluation of outcome and performance intended to inform future decisions and actions in an organization – or CfE trainings specifically in this case - be it as a researcher, practitioner or both (Dahler-Larsen in: Brinkmann & Tanggaard, 2010, p. 167). This thesis is concerned with such assessment from two perspectives:

- 1. To present practitioners with principles for assessing reflection in children
- 2. To assess the relevance of CfE trainings based on local practices

Regarding the first level, assessment principles based on play research and theory on reflection is covered in the Systematic Reflection section. In the following I consider the second perspective, which concerns the assessment strategies necessary to continually ensure relevance in trainings and progression in participants.

As mentioned under Contexts of the Study, the training participants have differing backgrounds, qualifications and experience. For the most part, they are either preschool or primary school educators; other profiles include play group initiators, methodology teachers, project coordinators and partner organization staff members. All of them have at least an indirect contact with children in an educational setting, and further ahead they will all undertake some form of peer training.

CFE TRAINING ASSESSMENT

For this purpose, the CfE trainings have up till now been adapted to different purposes, depending on whether participants were 1) new to the LEGO learning materials, 2) if they were about to conduct own trainings, or 3) already had. Combining this three step model with a systematic assessment strategy could further qualify the training content and follow-up activities. It requires both acquiring information on the practice of individual participants, to establish relevance criteria, in conjunction with assessing their progress towards becoming trainers themselves. The former points to a user-oriented strategy (Dahler-Larsen in: Brinkmann & Tanggaard, 2010, p. 174).

Dahler-Larsen suggests two approaches which can achieve this; a top-down model where criteria are established by the deciders; the CfE trainer and manager in this case – after which participants are asked, typically through quantitative surveys using a questionnaire (Dahler-Larsen in: Brinkmann & Tanggaard, 2010, p. 174).

in theory, this has been the procedure with CfE trainings so far; by the end of a session participants were asked to fill in a questionnaire – not with the aim of comparing levels of contentment across projects or countries, but to determine if the participants considered

themselves capable of either using LEGO learning materials in the own practice or train others to do so. A sample questionnaire can be seen in the appendix. It consists of:

- Questions concerned with the participants' profiles (including prior experience)
- Statements and the extent of agreement (not at all, to some degree, mostly, very much)
- A Net Promoter Score (which I will return to shortly)
- Questions on participants' prior expectations, and if these are fulfilled
- A box for further comments or suggestions

QUALITATIVE VERSUS QUANTATIVE

The Net Promoter Score (NPS) is designed as tool for measuring to what extend a group of customers are loyal and enthusiastic towards (and therefore would recommend) a certain product or company⁴. As indicated in figure 6 below, a NPS score is calculated by subtracting the percentage of customer who have indicated a score between 0-6 (detractors), with the percentage which has indicated 9-10 (promoters):

How likely are you to recommend to a colleague or friend? Detractors O 1 2 3 4 5 6 7 8 9 10 Not at all likely Not at all likely Not at all likely No of PROMOTERS (9s and 10s) We of DETRACTORS (0 through 6)

FIGURE 8: ILLUSTRATION OF HOW TO CALCULATE NPS5

Despite the presence of the NPS cline, and though the CfE questionnaire seems a quantitative assessment tool, a qualitative approac has been used when handling feedback; the CfE trainer first calculated the NPS score, and then compared this to individual questionnaire responses, as a way of understanding to what extend the training was relevant, and to be informed of potential action areas for future trainings.

The second user-oriented assessment model presented by Dahler-Larsen, follows a bottom-up approach (Dahler-Larsen in: Brinkmann & Tanggaard, 2010, p. 175). It is exemplified through the BIKVA-model (from Danish: <u>Brugerinvolvering</u> i <u>kvalitetsvurdering</u>). Here, the assessment

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⁴ From: http://www.netpromoter.com/np/calculate.jsp

⁵ From: http://www.netpromoter.com/np/calculate.jsp

procedure begins with a group of participants being invited for an open dialogue to share their experiences and expectations with an assessor (the CfE trainer), who collects statements and narratives. These are then used to approximate an understanding of the participants' needs, which are compiled into themes and reviewed by the professionals concerned with the subject of assessment (the assessor's colleagues in this case). Decisions on action can now be informed directly by the users and their practice, prior to trainings.

Naturally, issues are connected with this approach, as with most, one of which is; how to determine the users – are they the participants only, or should partner organizations be more involved? According to Dahler-Larsen, users also have a tendency towards being inconsistent in their responses; during the training in Shanghai Chinese teachers expressed a need for specific procedures on how to teach children to be creative, yet any such could easily conflict with the essentially explorative and unpredictable nature of creativity.

Two additional issues, arising specifically from the nature of CfE practices, are access and time; in the case of both Ukraine and Shanghai, the CfE staff was not acquainted with new participants until the morning of the first training day.

ALIGNING INTENT AND STRATEGY

The purpose stated in the beginning of this thesis was; to formulate an action and research-based strategy on how to train educators to facilitate reflection in children through playful learning. Such as strategy is suggested through Warford's adaptation of the ZPD process (see: Informing a Training Strategy), and this includes collecting statements or narratives on practice from participants prior to the first training, as means of facilitating reflection on own practice.

This strategy is depicted in figure 7 below:

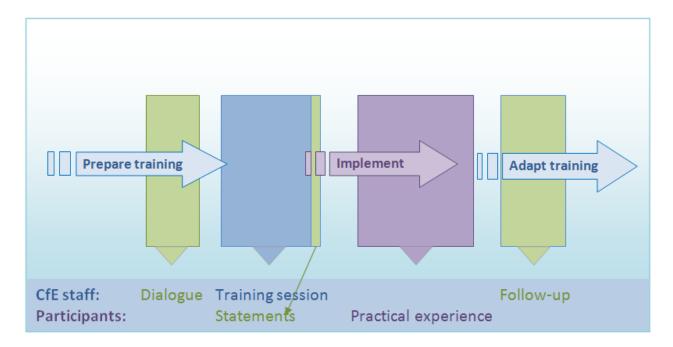


FIGURE 7: THE SUGGESTED STRATEGY FOR CFE TRAININGS

Informed by the interview with the methodology teacher of a Ukrainian kindergarten (see: A Local Practice), it was demonstrated how valuable insights (and a differing perspective from that of the educational advisor's original understanding) can be obtained. With reference to both Warford and Dahler-Larsen, these insights could increase the relevance of trainings, as they qualify the CfE trainer's decisions on content and training structure.

VALUE GUIDING PRACTICE

With the current course of CfE training procedures, little time remains for extracting statements on practice and then plan, perform and follow up on trainings in accordance. It poses a strain, and therefore argument for maintaining the original qualitative-questionnaire-procedure.

However, this conflicts with the core of practice – the value of participation:

- as participants are not consulted directly, their influence on content and structure is limited to what can be achieved during the course of the actual training days
- the exclusion of insights on local practice jeopardizes the relevance of trainings, and in turn,
- the training purpose is to some extent neglected:
 - o to increase awareness of the educator's influence on the learning environment
 - o to advocate the importance of play in children's development and learning

The current approach involves additional concern: The NPS score used in the questionnaires is designed for commercial contexts, where there are competitors and customer loyalty to consider. But the CfE trainings are based on different incentives – consider the participants; they have received donations, in the form of LEGO learning materials, along with training and inspiration regarding how to use these for learning with children.

In this sense, there are no competing donators and the receivers are spending little other than time and energy in return for the materials. Is it then plausible, that the NPS score would indicate anything but a high level of loyalty towards the foundation and its donations? In Ukraine, two training sessions were conducted; the first (with primary school teachers) had a score of 83, while the second (with kindergarten teachers) had one of 100. Can we expect the receivers to be critical towards the donor? And be willing to indicate this critique in questionnaires formulated and read by the same?

A final concern to be considered in this thesis is cultural dissonance: How is it possible for the CfE trainings to present views on children and learning and present concepts to be used in many different cultures and contexts with different views, which are not necessarily centred on empowerment, active citizenship or even curiosity? Here, the key is *practice*. A CfE training might take place in countries in which the overall political agenda and directives are in opposition to its values. But the practice of local educators with children id in focus; they are viewed as independent thinkers, with own motivations and values. These the trainings aim to inform.

The CfE training cannot substitute secure, responsive relationships for children or be responsible for all aspects of their development. Yet, a research and action-based strategy aimed at continuous improvement and relevance when training their educators, can help provide an environment where they are encouraged to engage with the world in playful and fruitful ways. The key issue remains for the CfE team to consider together; to how align practice and intent, following the value meant to guide the training practice: participation.

APPENDIX

INTERVIEW SEQUENCES

Interview sequence	Condensation	Interpretation
A: Well, when the children go to sleep, the teachers come to me and they ask me questions and I recommend them special literature. And special toys maybe, different aims,	A recommends material and approaches to colleagues	A's role is to find and mediate new ideas on practice
A: When I visit my visit my colleagues I speak with them and we discuss literature I always try to find new ideas for the work and today there is a special form of work to make projects.	Projects are a new approach, and A helps introduce this to her colleagues	Recent shift towards using projects
B: I mean, in a Danish context I think that in many cases you are told, you should make your student plans, you should do this and A: We are also told, but we may have our special ideas, when I have an idea I go to my [speaking Ukrainian] ()my methodical guidance	Teachers receive instructions, but pursue own ideas and turn to a methodical guide in these instances	Teachers show independent initiative
A: now we suppose, we think, we demonstrate it as a project, why? Because she must read special literature, she must prepare special things for this lesson, she must work with the children, she must work with the parents you see, and it's a	In projects there are specific procedures to be followed (suppose, think, demonstrate)	Projects involve systematic reflection and knowledge-sharing
project A: Of course, and if we have success, we can show our success to our colleagues who works at another kindergarten in such a way.	If a project is 'successful' they share experiences	
A:and if we have mistakes it's life, it's our life of course, it's very interesting life A: And the children, you see, they are very interesting, they are alive, and it's a great art to make up with them such interesting things that you study,	Risk of failure in project approach is accepted, and A finds the approach interesting despite. The approach has a positive impact on the children as well, they are engaged	Project approach is motivating professionally and personally
A: () we may prepare them to see the world and to make up the decisions for themselves, for himself, for life, you see? It's small, kind of, little children, but they must learn to live in this world.	Teachers aim to prepare children to make decisions for themselves, to live in the world	Decision-making is an educational aim
A: () such achievements which help children to develop, to learn to think, to make up their decisions, little childish decisions, and it's very important for them in next life, they grow and they must learn to make up decisions that are difficult conditions in life,	Projects are part of this effort to help children develop and learn to make decisions in a life with difficult conditions	Projects are deemed necessary because of difficult conditions
B: Did you decide to do projects or did someone tell you to? A: No, no, no. It's from high ways B: High? A: It came from high ways. B: Like politicians or experts? A: No, pedagogical.	The decision on working with a project approach was made by a pedagogical influence, and not a political agenda.	The project approach is a pedagogical and not political initiative
B: Yeah. Are there any laws about the projects? A: We don't use these laws, you see, if there is a very interesting project for example, maybe, it may be printed in this special literature where share our experience with other people in such a way	There are laws which teachers must follow, but these are not used, instead projects are shared with other practitioners	The teachers circumvent laws, and instead exchange with peers

TABLE 8: EXTRACTED INTERVIEW SEQUENCES

Letter of permission

Shanghai 25-05-2012

Dear training participants

Sincerely.

First of all, thank you for participating in this LEGO training session.

We would like to invite you to help improving the quality and relevance of trainings, by sitting down for a brief group interview near the end of the session. This will be used to inform the structure and content of future trainings.

Also I, Hanne Jensen, request your particular permission to use recordings from the interview in a written report which is to be submitted at Aalborg University in Denmark, as part of my master's degree.

In the final report, no names or live recordings will be included.

3 /		
Hanne Jensen		
(on behalf of the CfE	team)	
	(name)	(signature)
	(name)	(signature)

SAMPLE QUESTIONNAIRE

Questionnaire for training of elementary school teachers (1st LEGO training)						
Date: Location:						
How many years have you been working as teacher?	Years					
Have you worked professionally with LEGO bricks before?	Yes No					
Please express your opinion about the following statements:						

Statements:	Not at all:	To some degree:	Mostly:	Very much:
The training was fun.			-	
I find the activities syllabus relevant.				
I have a good understanding of the 4Cs.				
I think the LEGO sets and activities are difficult and too challenging for the students.				
The training content is relevant to my job.				
The training contained sufficient practice and hands-on activities.				
I received enough information about the training before I got here.				
During the training I received enough insights on the theory behind activities.				
The trainer listened to my questions and provided the assistance I needed.				
I think the LEGO Learning materials and activities are beneficial to children's play, learning and development.				
I need more training in order to use the LEGO sets and activities.				
I feel motivated to work with the LEGO sets as a playful learning tool in lessons.				
I feel confident enough to try to develop my own activities.				
I would like to be inspired more and exchange ideas through training.				

How likely are you to recommend this training to others?

0 means "Not likely at all" and 10 means "Very likely"

0	1	2	3	4	5	6	7	8	9	10

Please describe your expectations to the training before coming:					
Please explain how the training did fulfill or didn't fulfill your expectations:					
What did you miss at this training? What would you recommend? Any comments:					

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