Creativity, reflective thinking and self-directed, life-long learning

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Creativity and design activities, as conveyed in creative expressions, reflective-thinking and individual value-clarification, can stimulate self-leadership and self-directed learning. This research demonstrates that participants in creative workshops, through the creation of collages and ‘hand-made’ strategies, can acquire deep reflective-thinking about dominant values. Subsequently participants created new possibilities, felt empowered, took action and initiated leadership in their lives.

The “human condition” are changing radically these days, which is why leadership and in particular self-leadership is a highly relevant topic. As Peter Drucker argued in 2000, the biggest changes right now are within “the human conditions”: “…People have to manage themselves” (Drucker, 2000, p. 163). This leads to an increasing need for identifying our personal values and ‘voices’ and become self-leading (Covey, 2005, Drucker, 2000) and self-directed in the pursuit of lifelong learning. Thus there is a huge need to change many of our dominant values and basic assumptions that stem from the Industrial Age. In particular our values and assumptions related to the concept of ‘a human being’ are vital. In the Industrial Age ‘a human being’ was considered ‘a thing’ that needed to be managed and controlled – an assumption that still prevails in many of our organisations and educational institutions; but these assumptions also exist in our way of thinking of ourselves.

Dominant values and assumptions are central in a Danish design research project in which participants were exposed to creative processes in order to make them reflect deeply about concepts such as ‘money’, ‘banks’ etc. This way of ‘thinking-with-the-hands’, reflecting, imagining while creating, visualising and making things is experienced by various participants as a strong ‘language for self-dialogue’ (Sørensen, 2011).

This paper presents a brief summary of the results of these design research experiments in various domains (2008-2014) demonstrating how creativity and specially designed creative workshops aimed at individual value clarification can stimulate lifelong learning – learning which is “ongoing, voluntary, and self-motivated" and enhance e.g. personal development and self-sustainability (Department of Education and Science, 2000). The workshops make people reflect and change their dominant values and thus their behaviour, while feeling increasingly empowered and self-leading. Finally we will introduce our current research in elementary education, working with the motivation for learning among 11-year-old pupils.

Problem statement

Despite being focused on achieving a successful life, most of us seldom reflect on our dominant values and assumptions. Instead most of us quietly ‘accept’ our daily ‘habits’
and assumptions. Another challenge is the fact that most of us consider our everyday reality “...as a given, objectively defined reality, impervious to change,” as Maxine Greene expressed it. People don’t seem to be aware of what they really want and what they are capable of achieving.

Thus, in order to become more aware as human beings and to see and create alternatives and new possibilities we suggest increased awareness about: 1) our dominant values, 2) the strength inherent in our creativity and imagination and 3) design activities including the role of creating and visualising – seeing and creating new possibilities. In the following research these ingredients are included in specially designed creative processes aimed at different types of value clarification.

Unfortunately creativity and imagination are having a bad time in many educational systems. In school children typically stop being creative, stop drawing, stop dancing at the age of 10 to 12. In a TED talk in 2006 creativity expert and education professor Sir Ken Robinson asked: “Do Schools Kill Creativity?” The video, a 20-minute talk on education, has been downloaded more than 20 million times in 150 countries and is still being downloaded 10,000 times a day from the TED site alone. Why is the talk so popular? Because it resonates so deeply with people at a personal level. Moreover people can see there is a crisis in society, in business and in education. As Robinson argues, “whether it's a child bored in class, a disillusioned or misused employee or someone who feels frustrated but can't quite explain why, too many people don't realize what they are capable of achieving” (Robinson, 2010).

Similarly Maxine Greene, the late renowned American professor of education, strongly urged educators to bring the vitality of the arts to teachers and children. She fought for the role of creativity and imagination in education. In one of her books Landscapes of Learning, she wrote about the way we perceive everyday reality, “…taking it for granted, we do not realize that the reality, like all others, is an interpreted one. It presents itself to us as it does because we have learned to understand it in standard ways” (Greene, p. 44).

To Greene imagination is the cognitive ability that permits us to give credence to alternative realities, “…it allows us to break with the taken for granted, to set aside familiar distinctions and definitions” (Greene, 1995 p.3) We are all born with deep natural capacities for creativity, and it is increasingly urgent to cultivate these capacities and to rethink the dominant approaches to life in general – and to education.

**Involving creativity and a design approach in life-long learning**

The objective of a Ph.D. thesis completed in 2011 was a deep concern about our dominant values and mental barriers to change. The concrete research object was people’s perception and behaviour in relation to money. Our experiments showed, like Greene stated, that people seldom reflect about their dominant values, neither their core values, nor the values that steer their behaviour in relation to money.

Our hypothesis then was to design creative processes aimed at individual value clarification and offer these to students and banking customers who wanted to change their ‘money behaviour’. The workshops offered creative activities, design thinking – a kind of visual-making language – for the purpose of seeing, reflecting and changing mental and narrow perspectives – here in relation to money (Sørensen, 2011).
Fig. 1: Collage expressing a young participant’s money memories (the past).

The Money Workshops were designed and redesigned multiple times, but always included different time framings: the present, the past and the future. In a short introductory demonstration of these workshops, this collage shows the work of a young participant working with his money memories. He explains: “This is my mother [in the upper corner, showing an empty wallet] we did not have much money, we had what we had and we spent what we had. That’s why I have this “spend it, spend it, spend it, otherwise it is just sitting there” [hand written text on the left side]...that was my mother’s philosophy, that’s how I grew up...we never saved up for anything, we never travelled or anything...”

Later in the workshops he says,”...I had not thought about it before, but I spend money the same way as my mother, I spend money as long as I have it.” Here he identifies his dominant values that guide his current money behaviour.

Fig. 2: Collage expressing a young participant’s visualisation of the future.

Working with the future, the young man created this collage about the future and expressed (among other things), ”...That’s what I would like to be, a Money-Man-Jazz, be more in charge...” In the subsequent session he continued working on how to become a Money-Man-Jazz and created a personal statement.

On the basis of these Money Workshops we generally concluded that participants practiced design activities like ‘reflective thinking’ (Schön, 1987) and created visual, ‘hand-made’ strategies. All in all, the workshops proved to be strongly self-persuasive: six weeks later the participants had changed their behaviour in
accordance with their new strategies. Additionally participants felt increasingly empowered and were taking action and showed leadership.

Research processes and applied design methods

There are various definitions of creativity, imagination and design. In this paper we use Robinson’s overall definition, but elaborate on the definitions of design processes: *Imagination* is the process of bringing to mind things that are not present to our senses; *creativity* is the process of developing original ideas that have value (in addition *innovation* is the process of putting new ideas into practice) (Robinson, 2011).

There are also different definitions of design and design practice. Some studies of design expertise indicate that design thinking is a distinct mode of knowing and reflecting (Cross, 2004, 2006; Lawson & Dorst, 2009). Lawson and Dorst consider design processes to represent a higher order skill (Lawson & Dorst, 2009) and another way of reflecting (‘reflection-in-action’, Schön, 1985) – a reflection that includes thinking with the hands, also described as follows:

“The process of design is a complex, multifaceted activity that requires sophisticated professional thinking and competence, described as reflection in action and embodied process where hand, eye, and mind collaborate”

(Seitamaa-Hakkarainen et al., 2014).

Design researchers also explain design as the art of seeing the design situations in multiple ways or ‘seeing as’ (Schön, Lawson, Dorst). As Lawson and Dorst argue, “Designers are used to performing this little dance around a problem, taking stabs at it from different sides” (Lawson & Dorst, p. 26).

**Generative tools and the ’say-do-make approach’**
The Money Workshops include the use of generative tools. In the field of design, generative tools are used as thinking tools or ‘making tools’ and they have a strong appeal to our visual ways of sensing and expressing ourselves. Generative design processes appeal to our tacit and unconscious knowledge, our feelings and dreams (Sanders & Stappers, 2008, Sleekwijk Visser, 2005, Brown, 2014).

*Fig. 3: Generative tools – here coloured pens, pictures, printed words, items for making 3D representations, pictures or collages.*
The elements of the generative tools are components that together form a ‘toolkit’. Participants choose from the components and create ‘artefacts’ that express their thoughts, feelings and/or ideas, for example visualising their money memories. The artefacts can have different forms, e.g. collages, maps, stories, plans and/or memories.

Sanders calls generative tools a language for co-creation, aimed at the collective creativity. She argues this language is characterised by two things: First of all the language is predominantly visual and the ambiguity that often characterises visuals does indeed affect the participants’ way of thinking. Second, a key concept in the language of co-creation is ‘making’, and the fact that participants are ‘creating’ makes the use of the language a kind of creative process, a design process. Sanders outlines the use of generative tools as follows:

[The generative tools] take advantage of the visual ways we have of sensing, knowing, remembering and expressing. The tools give access and expression to the emotional side of experience and acknowledge the subjective perspective. They reveal the unique personal histories people have that contribute to the content and quality of their experience. These are qualities useful to those of us involved in making people-centred decisions (Sanders, 2000, 8).

Generative tools are used ‘a making language’ and represent what Sanders calls “a say-do-make approach” (Sanders, E.B.-N., 2001, 3). Sanders accounts for how different methods appeal to different types of knowledge claiming that generative sessions can reveal “latent needs” and provide “tacit knowledge” – knowledge that can’t readily be expressed in words (Polanyi, 1983).

In her “say-do-make approach” (2001) Sanders gives an account of how different methods appeal to different types of knowledge. She claims generative sessions provide “tacit knowledge” and can reveal “latent needs.”

The illustration by Visser (2005) (fig. 4) gives an overview of how different techniques influence different types of knowledge in people. The say-do-make approach includes the generative sessions which Sanders calls ‘a guided discovery process’. Here the ‘make’ method enables creative expression “by giving people ambiguous visual stimuli to work with.” As Sanders claims, “When we bring them through guided discovery and give them the participatory make tools, we have set the stage for them to express their own creative ideas” (Sanders).

Fig. 4: Different levels of knowledge can be accessed through different methods (Visser et al. 2005).
Design thinking as ‘doing’ and ‘making’
Two central activities included in the workshops using generative tools are ‘doing’ and ‘making’ representations which are essential activities in a design practise. Representations of problems, solutions or situations are important because they allow the designers to develop their ideas in conversation with these representations, in a reflective conversation with materials (Bamberger & Schön, 1983). Designers externalise their thoughts in all types of drawings, doodles, sketches etc.; they ‘talk’ to their sketches and have conversations with representations. The sketches act not only as outputs, but as important inputs to the thought process and stimulate the act of framing and reframing a design problem or situation.

Designing as ‘framing’ and ‘reframing’
Another central activity using generative tools is the reflective conversation participants have when working with numerous pictures, making and doing collages. The ambiguity in the visuals is pivotal as it encourages the central element of ‘framing’ and ‘reframing’. In Paton & Dorst’s understanding of framing, ‘reframing’ refers to “building a new frame for oneself, based on changing one’s view…” (2010, p. 318). In the current research framing is one way of seeing a situation; you can do several framings, finding new ways of seeing a situation. Reframing is changing your perception, which can include deeper self-reflection about unreflective, or maybe underlying and subconscious mental mappings and/or dominant metaphors, and seeing the situation anew (ref ???). Going back to the Money Workshops: When participants, who want to change their current money behaviour become aware of their current dominant values they are urged to reframe their current money situations into preferred ones and/or they reframe their perception of themselves by doing design – like a participant (AM) said: “I realized I cannot be a big spender, being a student, I really want to become a person in charge.” And AM succeeded in changing her perception of herself from ‘being a big spender’ and ‘not being in control’ to ‘taking action’ and ‘being in control’.

The cognitive workings of the value workshops
The process of the Money Workshop described above echoes Manz & Neck’s idea about Thought Self-Leadership. Self-Leadership was originally applied to organisations, developed with the purpose of improving employees’ performance. Self-leadership seeks to appeal to an individual’s inner motivation, as Neck & Houghton explain: “Self-leadership is a self-influence process through which people achieve the self-direction and self-motivation necessary to perform” (Neck & Houghton, 2006).

In the perspective of the cognitive scientists Manz and Neck’s theory about Thought Self-Leadership (1992, 1999) this visual making-language stimulates the development of new cognitive strategies and thus makes us capable of changing our habitual ways of thinking and acting. Thus this method of designing becomes a crucial component in Thought Self-Leadership that stimulates new personal inner strategies.

In the Money Workshops the majority of the participants changed their perception and behaviour. They reported feeling empowered as they were now agents in their own lives and acting in accordance with their values. In the thesis these customers were called “Self-Leading Customers” (Bonde Sørensen, 2011) who were ‘designing for self-leadership’ (Sørensen, 2011, 2013).
Designing for self-leadership expresses an increasing need for identifying our values and ‘voices’ and becoming self-leading (Covey, 2005, Drucker, 2000). This need aligns with the recent discovery within cognition and neuroscience that we actually can change inappropriate thinking patterns and habitual ways of acting (Manz & Neck, 1992, 1999, Seligman, 1998, Damasio, 1999, Pinker, 1999). In the perspective of learning theory this way of designing echoes the theories of both transformative learning (Mezirow, 1991, Illeris, K., 2013) and self-directed learning (Knowles, 1975)

From Money Workshops to other types of value clarification workshops

Exploring the limitations and possibilities, we have researched how the principles of the Money Workshop can be used in other domains. In the following paragraphs we will present cases that demonstrate how creative value clarification workshops can also be used in other domains among adults working with lifelong learning. These experiments form the background for our current study in elementary education working with eleven-year-old pupils in a Danish public school, which we will bring as the final case:

1) Entrepreneurship:
Our first experiment included close to 100 creative entrepreneurs at Iværk, located at Spinderihallerne in the Danish city of Vejle (2011-2014). Our workshops focused on building business but also on the individual ‘inner voice’ (Covey, 2008), including values, talents, passion, increased awareness and motivation for developing a business. Some of the participants were familiar with more traditional ways of thinking and doing business modelling (Osterwalder & Pigneur, 2010), but argued that this way of working increased awareness and motivation for developing “something personal and unique”. As Louise, one of the participants, stated: “…I am familiar with business modelling, but I think this process includes ‘me’ in a whole different way.”

Fig. 5: A collage visualising the core competencies and possible value propositions of an entrepreneur.
The following paragraph is an excerpt from an interview with Louise:

Louise: This collage illustrates what my company will look like in two years.

Interviewer: How did you feel creating the collage?

Louise: It was extremely liberating, it was enormously liberating... For a long time I have tried to figure out what kind of competencies I have, what kind of services I am capable of delivering...but this creative process kicks into gear. This making and doing process, creating these collages, really kicks into high gear... This way of working is an absolute ‘possibility generator’, there seems to be no limits as opposed to for example Business Model Canvas, which is much more rigid – there is not so much of myself in that model.

Generally among these entrepreneurs, we experienced that participants working with these processes were not only excited, but stayed motivated, because they obtained a deeper personal clarification.

2) Career development
This experiment included 122 employees in the financial industry (conducted with the Danish trade union in 2014). In this industry people are facing a decrease in the number of jobs. More and more people are being laid off and cannot expect to find a job in the financial industry. In other words, they have to redefine – here reframe – themselves and see their competencies in a new light.

For these participants thinking through these creative making processes was new, but most of the participants had a strong experience in how this creative way of working can open up for deeper values and leave clarity. Most of all, it gave people empowerment to take action.

**General findings:**
Generally participants are not aware of their dominant values, strengths and weaknesses, abilities that are crucial in order to be able to manage ourselves (Drucker, 2000). Generally participants present themselves as more or less ‘passive’ employees/people acting within absolute and limited possibilities. Only few see themselves as proactive players who ‘see’ and create new possibilities. These general findings seem to align with Covey, Greene and Robinson arguing that our dominant values about human beings are still dominated by the Industrial Age.

Generally people had a strong experience on how this creative way of working opens their deeper values and empowers them to take action, leadership and create new possibilities.

The particular limitations in this approach are participants who are dominated by a perception of creative expression as something “childish” or “unserious.” As a participant, a manager in a bank, said: “It is hard for me to imagine my colleagues [other managers] cutting and pasting, creating collages.” Generally visual literacy, the ability to interpret, negotiate, and make meaning from images, is underestimated in our educational systems (Sunny Brown, 2014) and results in such perceptions.

In conclusion we consider the different cases a demonstration of how a design approach and these specially designed workshops aimed at individual value clarification offer the ingredients for people to become more aware as human beings
and to see and create alternatives and new possibilities. These design processes increase awareness about: 1) our dominant values, 2) the strength in our creativity and imagination and 3) design activities in general, including the role of creating and visualising.

Our current research in basic education started with a hypothesis that these experiments could inspire a solution to some of the current challenges in elementary schools.

Creativity and design processes in the perspective of self-directed learning in elementary education

In education, and especially in elementary education, there is a lack of freedom to create new interpretations that guide learning for the individual. In traditional learning the teacher sets the goals and the students are asked to reproduce what is already well-known. Subject matter is seen as a one-dimensional obvious reality in the same way as Greene points out that we are seeing reality. Both reality and subject matter are, however, cultural and semiotic constructions open for new interpretations (Eco et al.). This fundamental openness or potentiality nourishes creativity and imagination, and this world of possibilities has become the new ‘order’ in the 21st century that calls for self-leadership. In addition these many potential opportunities are the driving force in the political and economic development of society (represented by innovation and entrepreneurship). But this openness towards new possibilities is lacking as a dominant force in education. In the educational system, there is no ‘freedom to learn’, to quote the title of Rogers and Freiberg’s classic book (Rogers and Freiberg 1969/1994).

Self-directed learning has been the one learning philosophy, which has supported the freedom of students to set their own goals and follow their own direction in learning. In self-directed learning students are asked to “take the initiative, with or without help from others, in diagnosing their learning needs, formulation learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating learning outcome” (Knowles 1975, p.18).

This classic description of self-directed learning is also an apt definition of self-leadership. In this paper and research we are emphasising two specific aspects in relation to the individual motivation for learning:

1) to point out subject matter open for interpretation, as a field of possibilities, which can be learned in many ways.
2) to focus on what is valuable for the individual in relation to learning.

Some researchers have highlighted personal values as being important for learning (Assor & Kaplan 2001, Gelderen 2010). Likewise the learning philosophy Transformative Learning has argued that learning is motivated by personal values (Mezirow 2000). According to transformative learning the acknowledgement of your own motivation determines your openness to learn. In his connection between self-directed learning and entrepreneurship Gelderen (Gelder 2010) has furthermore assigned ‘autonomy’ as the leading force in both entrepreneurship and learning. It is the freedom to make a decision, to act from your own free will and according to your own goals and personal identity that connects entrepreneurship and self-directed learning.
The personal identity – ‘Who am I?’ – and personal value – ‘What matters to me?’ – are considered mandatory for self-directedness.

As mentioned above seeing learning and more specific subject matters as an open field of possibilities is also essential for self-directedness (Davidsen 2014). You need to be able to develop or choose between different learning paths in order to make your own choices.

Both aspects – seeing subject matters as numerous possibilities and identifying personal values – are evident in the daily teaching and learning, difficult for teachers as well as learners.

**Current research project in elementary education**

In our current study in Denmark we are researching ways to integrate a design approach in elementary education both for teachers and pupils. In this paper we focus on how incorporating creativity and design processes can foster motivation and self-directed learning. Our specific focus is on 1) seeing subject matters as numerous possibilities and 2) identifying personal values:

Our hypothesis is: a) to support pupils’ motivation for learning and influence own learning by making both their own values and their own choices more visible through design and design activities and b) to support teachers’ motivation for seeing subject matters as numerous possibilities for learning.

More specifically we have:

a) Used design processes and generative tools – similar to the cases presented above – to give more direct access to both the subjects’ own values and to the selection of their learning goals.

b) Redesigned subject matters into different types of learning roles that leave plenty of possibilities for the pupils (and teachers) to learn and to choose or even create own learning assignments.

In our study we have developed prototypes for ‘reflection on values’, for ‘visualisation of learning tasks connected to different learning roles’ and for ‘visualisation of learning goals in subject matters’.

The basic assumption in the study is that using design thinking and this visual-making language opens up both the reflection of value and the subject matters for interpretation. It is not easy, especially for elementary school pupils, to identify what matters to them, or find new ways of learning for themselves. So our hypothesis is that these visual making and doing processes can support self-directedness and self-leadership.

In our test workshops among fourteen eleven-year-old pupils, we gave them various exercises that made them reflect on learning, school, being a pupil etc. One of the exercises was to ask the pupils to draw themselves on ‘a good day at school’ and write up to five things or situations that contributed to them having a good day at school, such as ‘a good packed lunch’ or ‘a fun game in the schoolyard’. The next exercise was to indicate the person(s) who was the reason for the activity or involved in the situation, like ‘my mother made my packed lunch’, or ‘my classmates were part of the fun game in the schoolyard’ etc. Finally we asked whether or not the pupils found that they had influence on the different situations. ‘No influence or little influence’
involved adding a red dot, and ‘influence or some influence’ involved adding a green dot.

Although this was a small study, there seemed to be a clear pattern that pupils feel they have influence on various situations in their lives and in school, except the teaching.

In this introductory workshop the pupils were also presented with a new lesson plan including four different learning roles, which leave very different assignments to choose from. (At the conference we will bring new experiences from this study.)

![Illustrations of the four different learning roles.](image)

**Fig. 6: Illustrations of the four different learning roles.**

**Conclusion**

The current research highlights the human power of seeing, creating possibilities and choosing among different possibilities. In this paper we highlight a creative design approach represented in the design activities: ‘framing’, ‘reframing’ and ‘design-as-doing’, using generative tools as a visual making language for value clarification and self-dialogue. The paper demonstrates the value of this approach to lifelong learning and self-directed learning, emphasising creativity and imagination.

The paper suggests that creativity and design processes are essential in self-directed lifelong learning. Design not only represents a high-order skill and reflective thinking (Lawson & Dorst, 2009, Schön, 1987) but also a culture of possibilities, being occupied by ‘what might be’ instead of being occupied by ‘what is’. Similarly Boland and Collopy argue we need to balance our ‘decision attitude’, representing a problem-centred culture with ‘a design attitude’, representing a culture of possibilities, ‘seeing’ and creating new possibilities (Boland & Collopy, 2008).

This paper also argues that, prior to self-directed lifelong learning, individual value clarification, being aware of and changing ‘inappropriate’ dominant values and assumptions, are of the utmost importance – a point which is similar to Wendon (2001) arguing that ‘metacognitive knowledge’, a higher-order thinking process, is essential in self-directed learning as it involves the student – or another person – actively taking control over his or her cognitive processes.

In practice this paper argues that special generative processes can be designed for individual value clarification. In an overall perspective these processes can be considered ‘a tool’ for self-directed, lifelong learning that leads to ‘transformative learning processes’ (Mezirow, 1991, Illeris, 2014). Transformative learning processes lead to changes in identity – like in the example from the Ph.D. research where
customers changed identity for example from being ‘a big spender with no control’ to being ‘in charge’ and in control’ (Sørensen, 2011).

In our ongoing research in elementary education we are looking forward to final results, but we have seen indicators that the approach presumably will contribute to the solution of some of the challenges we see in elementary education, such as 1) seeing subject matters as numerous possibilities and 2) identifying personal values. Seeing learning and more specifically subject matters as an open field of possibilities is, as stressed above, also essential for self-directedness (Davidsen 2014). You need to be able to create and choose between different learning paths and make your own choices.

Last, but not least, in this approach we consider pupils as human beings with deep natural capacities for creativity. As Greene and Robinson argue, it is increasingly urgent to cultivate these capacities and to rethink our dominant values and approaches to life in general – and to education.

“Learning is stimulated by a sense of future possibility and by a sense of what might be” (Greene, 1978, 3).

References


Figure 1: http://hciresearch4.hcii.cs.cmu.edu/M-HCI/2006/MEDRADProject/process-problem-maketools.html (01.09.2014).