Abstract
This paper offers a theoretical framework for how to think about and understand creativity – and how to work with the development of creative competencies in design education.

Most design students experience recurrent, individual challenges in design work, which have to do with their personal, psychological configuration. The objective of the present research is to provide new insight into the dynamics underlying our individual strengths and challenges, and develop approaches to help design students come full circle in creative work processes.

The paper builds on contemporary theory and techniques from the field of psychology, as well as research-in-practice with students at the Kolding School of Design and presents the outline of a model for how to work with and facilitate the development of creative competencies. While the research is still in its early phases, response from participants is promising.

Keywords: creative competencies, psychological building blocks, co-designing learning processes

Introduction
Much has been said about the mystery of creative endeavor and there seems to be a general agreement that it is a ‘highly complex construct’ (Moxey and Studd, 2000, p. 175).

The complexity comes forth when listening to successful creative individuals pass on what they experience as the distinguishing factor. Some advocate playfulness – “[…] creativity depends absolutely on the ability for child like play” (Gehry in Perinotto, 2012). Others will suggest that we need to get to a point of silence: “Stillness is where creativity and solutions to problems are found” (Tolle, 2003, p. 7) or that we must work persistently – “[…] the battle must be fought anew every day” (Pressfield, 2011 p. 9).

The list goes on – ‘don’t think’, ‘accept mistakes’, ‘let go to let come’, and so on. Being a supervisor of design students and having co-supervised students with other teachers, I have heard these almost contradictory suggestions many times. In my view, they each carry a piece of a much larger puzzle of what creativity is, and how to develop creative competencies. Which is the focus of the present study. The objective is to provide new insight into the psychological building blocks underlying individual strengths and challenges, and develop approaches to help design students come full circle in creative work processes.

The paper starts off by introducing two theories: a large-scale study of what constitutes the creative personality by the psychologist Mihaly Csikszentmihalyi, PhD, and a framework for how to work with human transformation by the psychologists Hal Stone, PhD, and Sidra Stone, PhD. Next follows an analysis of where the theories converge, and where they differ, leading to a new view on what takes place in individuals when they work creatively, including the role of vulnerability in identifying development potential. The final sections of the paper present results from the research in practice: Two student cases and the outline of a model for how to facilitate the development of creative competencies in practice.
The Creative Personality

Csikszentmihalyi describes the creative person as someone who is able to contain and navigate between extreme positions on an inner and outer plane. “They contain contradictory extremes — instead of being an "individual," each of them is a "multitude" (Csikszentmihalyi, 1996, p. 57). Csikszentmihalyi likens the creative person to that of Carl Jung’s mature personality, explaining how “[…] having a complex personality means being able to express the full range of traits that are potentially present in the human repertoire but usually atrophy because we think that one or the other pole is "good" whereas the other extreme is "bad"” (Csikszentmihalyi, 1996, p. 57).

He moves on to describe 10 traits of complexity in very creative individuals. The creative person is extrovert when networking and collaborating with others, and introvert when trying to catch hold of and work through thoughts and ideas. She can be diligent, hardworking, and focused but also able to let go, wait, or break away and do something entirely different. She can be playful and serious, in the detail and in the big picture, imaginative and realistic, rebellious and conservative, not somewhere in between, but literally able to navigate between polarities.

To most of us, this is not easy and we will prefer one of the extremes to the other. Some of us “stay in our heads” for ages, we have beautiful visions and ideas, but when it comes to developing, let alone implementing and finishing our ideas in real life, we lose steam. Others are skilled builders, but lack the vision and imagination to develop something new before doing it. In the first case, the vision is never built; in the second case, what’s built lacks the vision. Neither is creative.

Csikszentmihalyi reaches the conclusion that most of the lessons learned from studying creative individuals can be acquired, but he thinks that some aspects of the creative personality are formed in childhood and cannot be changed or enhanced (Csikszentmihalyi, 1996).

The Psychology of Selves

According to Stone and Stone, we are not just one self, but made up of many selves (Stone and Stone, 1989). The selves are organized in pairs of opposites; on one side there is the primary selves, and equal and opposite are the disowned or undeveloped selves. “Primary selves are the selves that we identify with and that define who we are, how we think, and how we behave in our lives. They are also the way we define ourselves to the world. The disowned selves are the selves that are pushed down or repressed by the primary system.” (Stone and Stone, 2012)

The primary selves are developed as we grow up as a way of protecting our vulnerability and enable us to ‘make it’ in the world. They depend on many things, for instance the culture that we grow up in, our family system, position in the family, school life and so on. The problem is that most of us will think of the primary selves as who we are, and do not have access to what the other side, the
disowned selves, might bring us.

**The Voice Dialogue Method**

Stone and Stone have developed a method called Voice Dialogue, which enables individuals to begin to see and explore the primary and disowned parts operating in them. By separating from the primary selves it becomes possible to access the disowned selves.

For instance, a person might be identified with a ‘Rational Mind’ (Stone and Stone, 1994), which means that he has a preference for thinking things through, looking at things objectively, wanting to understand and know things. On the other side, there are the more intuitive and spontaneous parts, which are less accessible. Stone and Stone suggest a separation process in which the person starts to dis-identify with the ‘Rational Mind’ by experiencing this part, literally inviting it to ‘come out’ on the floor, giving it a voice. The person then returns to a middle position, experiencing how the ‘Rational Mind’ is a part of the personality, but not the full personality. From here it is possible for the person to move to the other side and experience what has been disowned.

It is important to stress that the goal is not to get rid of anything, but through a separation process build greater awareness of the opposites operating at an inner level. Thus the person begins to have access to both sides, leading to a place where there is a choice. Stone and Stone call the ability to stand between opposites ‘the aware ego position’ (Stone and Stone, 1989, p. 21).

Returning to the earlier example, we might have a preference for ‘big thinking’ rather than ‘getting things done’—or vice versa. Both are needed in creative work, and when we separate from our primary part, we move into a place where we can access what we have disowned or just not developed. One does not have to stay in ‘big thinking’ forever. One can learn how to work with and realize the visions. And one does not have to just build; imagination and visionary thinking can be accessed and trained.

**Developing a Position of Choice**

There are obvious parallels between the theories of Csikszentmihalyi and Stone and Stone. They both build on the idea offered by Carl G. Jung that the psyche consists of opposing structures, where each part needs the opposite to exist (Jung, 1958) and where one pole is valued over the other. In both theories, the ability to stand between opposites and be able to choose which one to access is central. “Perhaps a central position, a golden mean, is the place of choice […]” says Csikszentmihalyi, “[…] it involves the ability to move from one extreme to the other as the occasion requires” (Csikszentmihalyi, 1996, p. 57), which is similar to the aware ego position presented by Stone and Stone.

However, there are also differences. While Csikszentmihalyi expresses limits in relation to how far one can go in relation to developing a creative personality, Stone and Stone offer a method that enables individuals to actually move between extreme positions, suggesting that it is possible to access and train the ability to move between polarities.

Another difference is to be found in the concept of vulnerability. Csikszentmihalyi does not address vulnerability in the movement from one pole.
to the other. He states, “[…] creative persons definitely know both extremes and experience both with equal intensity and without inner conflict” (Csikszentmihalyi, 1996, p. 57). Looking to the work of Stone and Stone, this is not likely to be the case. The primary system operates to protect our vulnerability and even very creative people will probably experience inner conflict when navigating in the creative process.

**Uncertainty and Vulnerability in Creative Work**

Many creative persons have described their own vulnerability, e.g. the American choreographer Twyla Tharp, who says, “No one starts a creative endeavor without a certain amount of fear. The key is to learn how to keep free-floating fears from paralyzing you before you’ve begun” (Tharp, 2003, p. 22). However, vulnerability is often omitted or attempted ‘bypassed’ in creativity theory. A good example of this is the rational step-by-step models and tools developed by the Creative Problem Solving School (Darsø, 2001). In this approach to creativity, processes are visualized as being linear, the methods are described in the form of guidelines and tools, and much work is based on mental agility and can thus stay ‘safe’ outside of the emotional realm.

In the HBR article ‘How to Kill Creativity’ Teresa M. Amabile, PhD, stresses the importance of individual curiosity and intrinsic motivation as a driving force in creative work. She sees positive emotions, not so much negative emotions, as leading to creative breakthroughs (Amabile, 1998). However, when engaged in creating something new of value, we must leave the world as we know it and move into the unknown to gain new insights and understanding (Mauzy and Harriman, 2002).

The unknown is a place of ambiguity, complexity, and sometimes, utter darkness. It takes guts to go there; it means losing our foothold for periods of time; it makes us vulnerable, and many of us find it too uncomfortable to bear. Making quick decisions can be the road back into safety, but that is unlikely to lead to new discoveries. In order to reach a higher level of consciousness and possible crystallization, we must endure the complexity and ambiguity for as long as it takes (Csikszentmihalyi and Getzels, 1976).

**Primary Selves in Creative Work**

Looking at creativity through the lenses of the Psychology of Selves, the resistance and underlying vulnerability is likely to stem from the Primary System, which will work to protect us from the uncertainty of the unknown. “[…] they [the primary selves] protect the subjects’ vulnerability, and what they fear will happen if they are not in control. They are the determining factors of personality, always screening, protecting, observing, and controlling” (Stone and Stone, 1989, p. 88).

We feel the resistance in the form of fear, self-doubt, and confusion, and if it is too overwhelming, we will want to stop. To return to the earlier example: If a part of our personality is identified with being ‘visionary’ and ‘big thinking’, this part is likely to fear that we lose the ‘grandness’ that we envisioned in our minds when we have to deal with the practicalities and pragmatism of building the idea in reality. This underlying vulnerability can
keep us stalling and staying away from realizing the project.

I have experienced this pattern in many design students, who will drop a concept just before building it. They then move on to think up a better one, just to do the same thing over again. It is frustrating, time consuming, and the process becomes increasingly burdensome and painful. In the following, I will mention a few other examples of selves, which have the capacity to sabotage our creative work.

**The Perfectionist, The Pleaser, and The Pusher**

A strong inner Perfectionist, who thinks in terms of ‘right’ and ‘wrong’ and wants things to be perfect from the outset, can worry tremendously about whether what he or she does will live up to standards, be good enough or ‘right’ (Stone and Stone, 1989, 1994). This can lead to heavy blocks in the work process, and in many instances people give up: It is too hard to even try.

A Pleaser, who is tuned into the feelings and perceptions of others, will be influenced by what others like and what they value, which in itself can make it hard to hear one’s ‘own voice’: ‘What do I think?’ The Pleaser might also fear that no one will appreciate what she makes or that she might hurt someone that she cares about, making it difficult to freely express our selves.

The Pusher, which is the part in us that wants to get things done and often drives us unmercifully with long lists of what hasn’t been done yet, will have a tendency to speed up and have us ‘work harder’. However, pushing does not always get us where we need to be when doing creative work.

I recall a project manager at the design firm e-Types, which is where I did my PhD from 2003-2007. He was faced with a prestigious and challenging design project, decorating two guest rooms at the new Fox Hotel in Copenhagen. He had been pushing for weeks, trying to get the team to come up with ingenious solutions. It just did not happen. He was exhausted, desperate, he had not had a good nights sleep in weeks, and had been living in a work bubble, away from family and friends. One evening, close to deadline, he finally gave up. Some friends called and asked him to come out to play and he thought ‘I might as well!’ Tired as he was, he went out, had a few beers and a lot of laughs, relaxed and forgot about the whole thing. He got home late, stumbled into bed, and woke up with a start at 5 am: Eureka! He had the idea! He wrote it down, slept for another hour and went back into the studio to build the thing.

The example shows how creative work processes involve the ability to push and work hard, but they also demand of us the ability to relax, just be, experience, and sometimes let go. If we identify with the Pusher, this is impossible. Of course, the opposite situation, identifying with ‘Being’, would be equally disruptive to the creative endeavor: The work simply would not get done. No matter what the identification, it ‘traps’ us in a single position, and we are left without choice and the competencies that the other position brings.
Vulnerability as an Entrance Point

Alas, while our primary selves develop as part of our socialization, trying to gain us power in the world and preventing us from being hurt (Stone and Stone, 1989); they might obstruct our creative work processes. However, we can initiate a transformation process by using vulnerability as an entrance point to identify ‘what self in us is afraid?’

For instance, a fourth-year student arrives at our first meeting with what she calls a ‘design blockage’, experiencing the frustrating pattern of not finishing her projects. She has no trouble thinking up big and objectively, quite extraordinary concepts, but when it comes to building and demonstrating her ideas, she stops. When I see her, she has not handed in last year’s project, and she is now witnessing the same pattern in her present project. As mentioned earlier, this type of challenge is quite normal among design students, but the underlying dynamics might differ.

As we begin to investigate, it turns out that she has a deep fear of slowing down long enough to experience what is happening when she is doing the actual building. There is a part in her that prefers to move fast to keep things in check, away from feelings. As she gets to the point where she has to make a physical prototype, other things in her life become much more urgent, and she throws herself into new projects and chores. Once she sees this mechanism, it becomes possible to separate from the fast moving Pusher energy, which has been ‘hijacking’ her process. When she moves to the other pole, she is able to slow down and explore with more patience and sensitivity.

In this position, I ask her if there is something she can do to make the shift from the faster moving to the slower moving pace? She says “It’s necessary to create and plan for time bubbles where there is room to play with and work in the materials. The time must be set aside, as it takes time to get into this slower pace” (April, 2012).

Over time and with practice, she has the opportunity to develop a position where she can make choices with greater awareness: “Who in me is operating now? Is it time to pick up speed or slow down? What does the situation demand?” This is what Csikszentmihalyi identifies as the most important characteristic of the creative personality – the ability to move between extreme positions and have a choice in the matter. It can be likened to having a flashlight in our hand when we move into the darkness of the unknown: It will not take the uncertainty away, but it will enable us to more consciously choose our next step.

Facilitating the Selves in Creative Work

One of the advantages of this way of facilitating creative competencies is that it is tailored to individual needs and configurations. We each have different challenges in relation to coming full circle in creative work – this forms the starting point. In addition, it is an empowering approach: by seeing the opposites at play, the person can begin to access new competencies without losing what she has.

Another example: a third-year design student comes to see me just before embarking on her Bachelor project. She feels stuck and is deeply worried
whether she is cut out for being a designer after all. I ask her about different aspects of the situation to get an overview of the territory, for instance previous project experiences - what works well and what does not work so well. This gives me an initial idea of the pairs of opposites at play. She describes her work processes as ‘mechanical’, ‘sensible’, and ‘tool-based’, something, which is taught and promoted in her department. What stands out is that she is longing to work more freely and intuitively with colors and materials, which she has seen students do in other departments, but something is holding her back.

I ask her to make an illustration of the process, to explore in more detail ‘what happens when?’. I then begin to address the opposites at play to help her see them more clearly: ‘It seems like there is a part of you that prefers a structured and factual approach, whereas another part longs for free play with colors and materials?’ She is receptive to this way of talking about it, and in the subsequent conversation she discovers that the more serious, rational part of her is worried about making the shift. It is a part that likes things to be clear and under control and is worried what happens when she goes ‘expressive’ and ‘artsy’. We talk about the two extremes of this polarity and she comes up with examples of the different ways of working.

We return to the process visualization, and she decides to include new types of experiments with colors and materials in the first phases of the project, placing them in between more ‘rational’ activities. In this way, she explores two parts of a pole and designs a learning process for how to try them out in practice. I have her check at an inner level, if the new additions feel okay. If there is resistance, the balance must be changed; either by removing new experiments or adding methods that will make it feel feasible and viable. If not taken seriously, primary selves can go underground in a session like this, and will pop right back up when the student leaves the room, making it unlikely that she will carry through with the process.

At the end of the session, I return to her initial concern about studying to become a designer and her feeling of being stuck. It turns out that there has been a shift. She feels elated and is looking forward to experimenting with the new approaches.

**Facilitation Steps**
The following steps are an overview of how a session might play out. The research is still in its early phases and this should be considered an outline, not a finished model. Basic principles and guidelines have been left out as it is beyond the scope of this article.

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| 1 | **INITIAL CONVERSATION ABOUT THE STUDENT’S CREATIVE WORK PROCESS:**  
The facilitator tries to get an initial idea of the territory and what is to be explored by asking questions about strengths, challenges, and examples. |
| 2 | **VISUALIZING THE PROCESS:**  
The student draws a visualization of his/her creative process, preferably on a large sheet of paper, which the student and facilitator can share. The facilitator is looking for the underlying pair of opposites while continuing the conversation. |

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INVESTIGATING PAIRS OF OPPOSITES:
The facilitator introduces the idea of polarities in creative work and begins to ask more directed questions about the pairs of opposites at play.

IDENTIFYING PAIRS OF OPPOSITES:
There might be more pairs of opposites and the student identifies the parts that he/she feels have the strongest impact and resonates the most with him/her at this moment.

NEW PROCESS VISUALIZATION:
Once the pairs of opposites have been identified, for instance the part that needs a structured approach, and the part that longs to free play, the facilitator and the student generate ideas for new approaches to be experimented with, redrawing the process. It is important to check in with the opposites at play and make sure the person has a balanced sense of the new process.

REVISITING THE SESSION:
At the end of the session, the facilitator rounds off by returning to the starting point, having the student look at the initial questions and challenges from this perspective.

FOLLOW UP:
After finishing up the session, the facilitator can arrange for a follow-up to evaluate the progress, either while the student is in the process or after the project has concluded.

Table 1. Outline of Facilitation Steps, Silje Alberthe Kamille Friis, 2012

CONCLUSION
The theories and practical applications from the field of psychology presented in this paper create a new foundation for understanding what takes place in creative work processes.

The blocks, fear and vulnerability which most design students experience from time to time are not just hurdles to bypass but can act as entrance points for developing new creative competencies. The research in practice indicates that it is indeed possible to identify and work with the psychological building blocks underlying creativity and thus initiate new learning and transformation to enhance individual, creative performance.

A systematic evaluation still needs to be performed in addition to further research and further development of the framework and practical applications. However, as the case studies demonstrate, design students already benefit from the new way of thinking about and working with creative competencies, enabling them to act as co-designers of their own learning processes.

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