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Creativity's Risk to Design

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Creativity's risk to design

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The competencies of designers can be summed up in one word: Creativity. Creativity would seem to be the most critical skill of any design practitioner's repertoire and is a core component of innovation and entrepreneurship. In general; creativity is considered to be a positive thing, generating positive outcomes for design enterprises and their clients.

Designers utilise their creative skills to solve problems for clients, and to develop design ideas and to run their design enterprises. However, the perception of creativity and the creative worker outside the paradigm of design differs from the view within, and therefore a negative opinion of what creativity means could hinder an understanding of what the value proposition of design enterprises is and what creativity means.

This paper identifies and discusses potential problems or issues with creativity identified in the international literature. These problems may include but are not limited to: practices undertaken by the practitioner; attitude responses from practitioner; how creativity is perceived within the client community; perceptions about creativity within popular culture; and myths associated with creativity. All of which, designers must consider to be effective with their creativity.

Keywords: Creativity, Design, Process

Introduction

Creativity would seem to be the most critical competency required by designers, this paper begins by defining the author's understanding of creativity in the context of design. This is achieved through a critical assessment of the literature. There would seem to be a universal acceptance that creativity generates positive outcomes, such as successful problem solving or design solutions. However, the author has identified a number of issues that have negative connotations relating to creativity. These are discussed in the context of their impact on design practice.

Defining Creativity

Creativity is the single most important skill required by designers (Minale, 1996) and there seems to be a consensus in the literature that designers require creative skills to successfully solve design problems (NCAD, 2014; Ravensbourne College 2014; European Commission, 2009; Shaughnessy, 2005; Glaser, 2000). Conley (2004) expands on defining the purpose of creativity used in the design process and argues that creativity is required for 'coming up with new and valuable ideas', 'building brands' and 'helping clients to innovate' (p 45). Therefore, creativity and design are component parts of innovation. Creativity draws upon many spheres, including technology, business and culture, which are then used to create new more powerful combinations (Florida, 2012). Creativity is a cognitive skill that can be learned (Gill, 2013) and therefore is not simply 'talent' and is a powerful skill, facilitating individuals to express themselves. According to Forty (1986), design is seen as a distinct competency that is exclusive to designers, this only adds to the myth of the designer's omnipotence and creativity belongs entirely in the realm of design. As such it is reasonable to conclude that creativity will be viewed differently

depending on the perspective, be that from inside or from outside the discipline. Therefore the seemingly positive aspects of 'Creativity' may be viewed differently outside the paradigm and may not be considered positive at all!

Conley (2004) indicates that creativity requires an understanding of the design problem at hand and that the solution that will be arrived at requires an insight by the designer to the needs and want's of both the client and the end user. Designers are therefore able to produce solutions that require a level of thinking appropriate to the brief or situation and are capable of designing multiple concepts or solutions without a knowledge of all the details or information that the client may have. Designers use ideas to establish a connection between the deign solution and the end user by communicating an intrinsic value in what they are creating for their clients. Kolko (2011) argues that sometimes designer acting on hunches or instinct, or making decisions with partial or imperfect information are demonstrating synthesis in the design process. Designers make design decision without the complete picture, and with limited information within a given timeframe. But, designers seem unaware of these complexities due to ill-structured design briefs (Kolko, 2011). Various stakeholders in any design solution hold different pieces of data or information which are crucial to the success of a design assignment or in writing a design brief, indicating that the design process is a heuristic journey where the outcome may be known, but the details of which will remain unknown until the process has come to fruition. This incubation period may be seen as frustrating or delaying the creative process for those who don't fully understand the process.

Nussbaum (2013) discusses similar concepts covered by Conley, in particular, the techniques of creating connections between concept, client and user in new ways. However, he also discusses the importance of creating social connections within the creative team, the designer and client and end user. This is suggesting that the culture within a design practice is essential for positive and creative outcomes. In these connections, the designers know implicitly what to do next rather than the need for prompting (Kolko, 2011). Seely-Brown and Duguid (2000) describe knowledge as something is digested, rather than held. Themes such as insights and perceptions would seem to be of value to creativity according to Nussbaum (2013). Creativity involves the ability to synthesise, and that creativity is in fact hard work and that the process can be time-consuming before any results bear fruit (Florida, 2012). Gulari (2013) discusses a design practitioner's skill is the ability to capture and recall (organise and retrieve) previous experiences (design and otherwise) and to re-use these experiences regularly in developing design concepts (synthesise). This re-use and retrieval of knowledge, information and experiences serve as a rehearsal, or practice concerning making design knowledge a tangible solution. Designers follow a sense-making process in collecting and curating information into a central location where it can be manipulated. Kolko (2011) suggests that it is the absorbing and synthesis of information and elements in which designer make sense of complexity by doing things. Therefore, creativity, culture, complexity and connections (both social and cognitive) are crucial for understanding the design process and outputs. Creativity is not an instant process, it takes time and effort.

Florida (2012) states that the creative worker requires Cognitive Skills, the ability to acquire new knowledge, process information and solve problems, and Capacity Skills, which is less understood, but includes the ability to work with others in achieving the goals of the individual, bringing the right people together on a project to ensure it is success, social and emotional intelligence, communication abilities, empathy and leadership skills. Here, not only cognition and thinking skills are essential, but also knowledge and intellectual ability play a fundamental role in creativity. However, there is a critical distinction between knowledge that makes you an expert and knowledge that makes you creative (Nussbaum, 2013). This indicates that knowledge alone does not equate to creativity or creative competency, knowledge alone is not sufficient to make a designer creative.

Creative work is one of knowledge creation and creativity the building upon of ideas (iteration) and teamwork that requires an interactive space only found in design studios or scientific laboratories (Florida, 2012).

> When employees sit changed to their desks, quietly and industriously going about their business, an office is not functioning as it should. That's because innovation... is fundamentally social. Ideas arise out of casual conversation as they so out of formal meetings
> Florida (2012, p.109)

What is argued here is that creativity requires the ability to not only make connections of knowledge and information but also requires the ability to make social connections between all individuals involved with the

process as part of a wider team or community of practice. Suggesting that perhaps emotional intelligence and studio culture play a crucial part in the development that social connections with the client and colleagues. The key difference between creatives and other workers is that creatives are paid to use their minds and are required to regularly think on their own (Florida, 2012), creatives not only solve problems, but they are also tasked with the identification of problems to solve. Therefore, the full spectrum of creative skills require more than just creativity, it requires research, sense-making, synthesis, cognitive, critical and strategic thinking and problem-solving. However, these are also necessary for the individual to demonstrate initiative and for self-direction and that self-direction may be creative.

DeBono (1996) argues that creativity is simply making things better, but it allows us to identify and utilise experiences, information, structures, old and new concepts, patterns and perceptions that we already have built up over the years. Quite often, designers seem to make creative decisions or act on intuition or informed hunch, to utilise this, designers are in fact responding to a design solution using tacit knowledge which is built up through experiences (Kolko, 2011). The more knowledge and information the individual possesses, the better their ability in realising connections and being creative (Nussbaum, 2013). But also identifying patterns and seeing what information is missing and that skilled innovators study what has happened in the past in order to identify ideas they might revisit or revolutionise. This competency is a deliberate and conscious act, connections that work best are not always known, but what is important is keeping an open mind and the synthesis of ideas into the most effective concept (Nussbaum, 2013). These experiences and pattern identification contribute to the designer's ability to make decisions and progress complex design problems and facilitate a more fluid design process (Kolko, 2011). DeBono (1996) suggests that time sequencing of information can have a positive or disruptive effect on the creative process and that creativity is the construction of alternative and parallel hypotheses and that in the construction of these hypotheses there is a need for generous speculation and guessing. This re-framing process can break routines that can lead to predictable solutions (Nussbaum, 2013). According to Kolko (2011) framing in the design process is the designers unique and particular perspective to any given situation, a point of view, at any given time as it may differ from moment to moment, it may be a short-term perspective that will often change over time. This perspective when approaching the process of problem-solving which may be subjected to a set of exterior constraints and is built on the experiences references during sense-making. Lupton (2011) states that designers look beyond what is familiar in order to create solutions, therefore designers discover ideas by re-framing and exploration. Designers have a set of unique qualities, namely their experience, expertise and personal experiences in which they utilise in order to frame the design problem or assignment and model potential solutions (Kolko, 2011). Therefore, the design practitioner collects data and information, which are mapped with experiences, emotions and knowledge, which is then filtered through a cognitive and deliberate process, with the purpose of arriving at a final design solution for the client.

According to Heller (2008), not everyone has the ability to conceive ideas and that creativity is an alchemic process and there is a moment in the creative process when the generation of new ideas "just pops out" (p.79). Suggesting that some people are born designers and that you either have the eye for it or not. This would seem to contradict both Gill (2013) and DeBono (1985; 1996) in their interpretation of creativity as a skill that can be acquired and developed over time by an individual. However, expertise is not a skill that the individual design practitioner is born with, but rather, the practitioner acquires skills only after many years of experience with deliberate practice (Gulari, 2013). Suggesting that the core competency of creativity required of designers must be practiced and developed over the career of the individual design practitioner and perhaps, creativity is a skill which must be regularly exercised in order to keep the skill active within the individual.

A designer's knowledge and skill is a design repertoire (Schön, 1983), therefore a design practitioner, either consciously or unconsciously draws upon their own design experiences (or the experiences of another designer) in arriving at competent design solutions. A design practitioner's knowledge is often implicit, tacit or experiential and they acquire their knowledge intuitively without reason or inference and this repertoire is the internalisation, digestion and re-using of the design or creative experiences, which is regularly performed in the practice of designing (Gulari, 2013). Therefore, the design practitioner is a repository of design information and draws upon this repository in developing their design repertoire and internalising this design knowledge in order to learn to perform as a designer.

Fig. 1: Defining the Creative Process
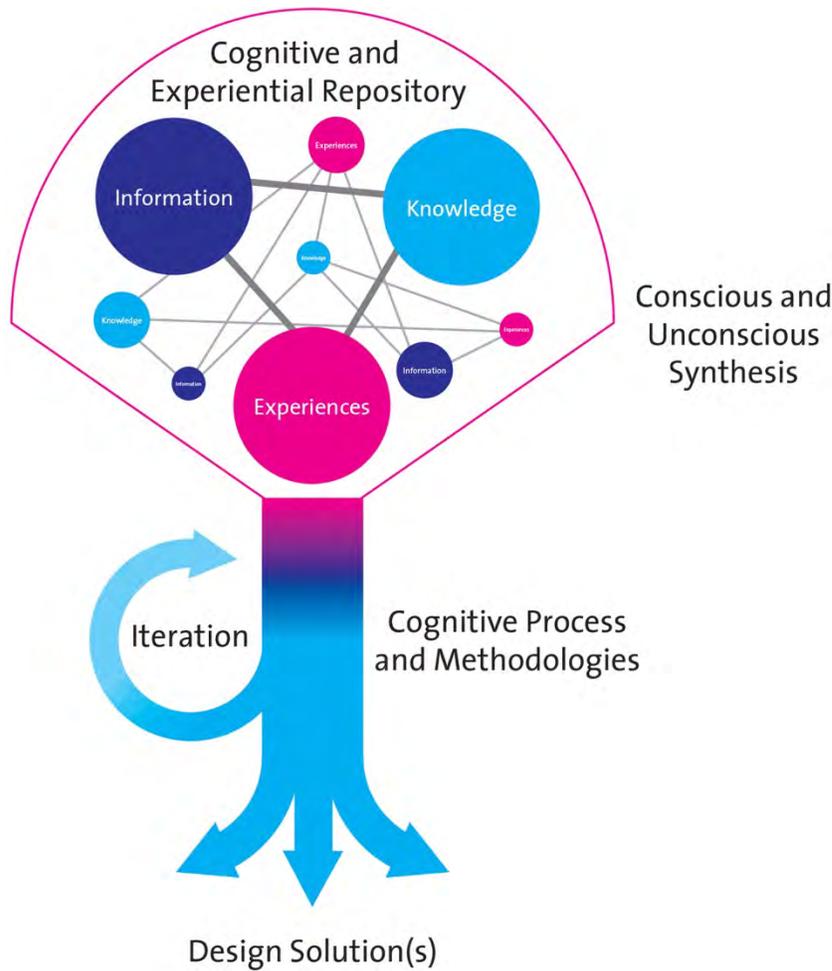
Source: Author

Figure 1 illustrates the authors' understanding of creativity which has was informed through a critical analysis of the key concepts in the literature. For the purpose of this research, creativity can be defined as the conscious and unconscious synthesis of tacit knowledge, which may be existing in the individual and therefore be drawn upon from the individual's cognitive and experiential repository. However, creativity may be derived from new information supplied by the client or gathered through research that is combined with experiences of the individual. This knowledge combination which is then filtered through a deliberate cognitive thought process and or design thinking methodologies in which potential solutions are developed then iterated and refined until potential design solutions are developed and proposed. This may explain how different Design Practitioners develop different design solutions in response to the same client brief. This is because the individual practitioners have a unique Cognitive and Experiential Repository to draw upon, Creativity does not happen by accident. It also shows how the creative process requires deliberate and conscious actions to arrive at possible solutions. These design solutions are then iterated and refined through a deliberate cognitive process and methodologies in order to arrive at an acceptable conclusion. This iteration process may naturally come to a conclusion or maybe forced to a conclusion because of budgetary pressures or impending client deadlines. However, the iterative nature of the design process also suggests the requirement of opportunity identification within the process for the creation of connections and realise design solutions.

The literature discusses creativity as being a positive element, requiring multiple skills and competencies, but this monolithic view of creativity resides solely in the paradigm of design. But how is creativity viewers from

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outside the discipline? The author has identified a number of theme of how creativity is perceived within wider society. The following section looks at these themes and their impact on how creativity and design are perceived outside the discipline of design.

Problems with Creativity

Gulari (2013) suggests that design practitioners themselves rarely agree on what constitutes design expertise or in fact what criteria is defined as skill expertise. Despite what misconceptions there are about creativity, there seems to be a sense of logic to the process, where creativity itself is messy and confusing (DeBono, 1996). There is also difficulty in the defining the word. To be creative means bringing into being something that was not previously there, suggesting an element of alchemy or magic that surrounds the creative process and the creative worker. DeBono (1996) states that we may look at creativity as a mystery where brilliant new ideas are produced and without knowledge of how they came about. However, an analysis of the creative process and the behaviour of creative people often illustrates that the creative person is unaware of what actually triggered their brilliant idea, suggesting that the individual may themselves be unconscious to the process or how they may have arrived at a particular solution and therefore, making it impossible to document or fully research the creative process.

The Magic of Creativity

Gulari (2013) discusses product designer Philippe Starck as a particular individual who relishes the mystique surrounded and created by design and designers. In producing Starck's famous Juicy Salif (see Figure 2) he claimed that the concept came to him 'Magically from nowhere' (p.7). This implies that Starck (and by extension other designers) arrive at their solutions without practice or methodology, where the designer embraces their genius at first glance and without question. Clearly, this is contradictory to what the literature has shown about the creative and the design process, connections and synthesis used within. This myth-making does not help the design profession in terms of helping clients understand the value and processes involved with design. It also implies that creativity and design happen without work, investigation, research or synthesis. Thoreau (2013) argues that some designers use the association with magic and mystery in what they do as a positive factor and exploit this myth-building as a marketing tool. Perhaps Starck is cognisant of the myths that non-designers have about design, and in fact, is exploiting this in a deliberate way for marketing his products. Therefore, no other designer could be as good as him, because he has a unique set of creative abilities!

Fig. 2: Phillipe Starck's Juicy Salif (1990)

Source: Alessi (2014)

Lupton (2011) suggests that creative talent may be a mysterious entity and Kolko (2011) suggests that some clients may in fact desire mystique, mystery or magic surrounding design because a satisfying magic show means

that the client's money is well spent on hiring an entertaining magician! The mystery in the design process relates to the synthesis stage, the informal internalisation of the individual during the process. The unresolved or un-communicated part of the design process is rarely formalised. Kolko (2011) warns that this leads to ignorance of the design process and design companies usually to not allocate enough time or budget to the synthesis stage of the design process, where connections and creativity are made. Creative outputs of design are difficult to explain or rationalise and therefore may always remain inexplicable, where magic and mystery are often met with suspicion from the wider community because magic is practised in isolation and secrecy and the magician never shares their tricks (Gulari 2013). According to Florida (2012), creativity is a "rather mystical affair" (p.18).

Gulari (2013) suggests that the design profession has long sold itself around mythology and as a direct result, people simply do not understand what designers do! Seeing design as something that is mysterious simply hinders collaboration, participation and democratising of design. As a result, designers are now placing more emphasis in co-design and collaboration (Gulari, 2013). This indicates an attempt by designers to engage with clients during the creative process and therefore educate the clients to the intricacies of design which simultaneously gathering continuous feedback. Although there is an acknowledgement of the actions and processes used in the design process, the actual activity of designing in professional practice may appear magical when encountered (Kolko, 2011), which may be considered either good or bad depending on the client's perspective. The concept of the designer as a magician may be an intriguing one (Kolko, 2011) because their working methods may be mysterious, and the audience can perceive the output as both phenomenal and emotional. Creativity and design are internal processes, unique to the individual practitioner, therefore by internalising the process, the designer, it would seem from an outside viewpoint, practices their craft in secret, away from scrutiny or observation. This is unavoidable, as it is impossible for design process to be fully externalised because of internal synthesis. The design process will always have to be observed from and external viewpoint, to some this, makes the process magical, to others the process is seen with suspicion as designers seem to create something from nothing. Describing design as something which is magical or mysterious has implications on how creativity is perceived outside the paradigm of design. This may influence how design is understood and how design can share its processes with novice designers. A willingness to simply obscure or to surround the design process with mystery may lead to a sense of curiosity to what design is about, or it may serve to protect explicit design knowledge. Is this a deliberate act on the part of designers? Or is it, as the Design Council (2007) suggest, designers simply are poor at verbal communication and therefore unable to verbalise their cognitive and creative processes.

Creative Rebel
DeBono (1996) argues that the myth that creative people are rebels is because rebels challenge existing concepts, therefore making it easy for conformists to isolate them and dismiss creatives and creativity. Conformists, DeBono (1996) argues, learn to work within established systems, whereas creatives have the courage and energy to form different points of views.

> The place where I'd want to work would support my creative endeavors and the kinds of creative things that I did on the side and would recognize the fact that if I continual building my skills with with my own stuff, it would also be benefitting the company. That's one thing I really hope everybody does while they are there - learn stuff, get better and realize their own dreams as creative people
> Lloyd (2010 p. 230)

Discussed here, the issue of designers working for clients and the challenges that face the designer in their work being recognised and valued by the client. Therefore, designers face the challenges of working in environments that seem to restrict creativity. Florida (2012) states that psychologists have long notes a connection between self-expression and creativity, therefore what may seem as rebellion for the sake of rebellion is in fact, an expression of the designers' views and opinions. As previously discussed these views and opinions are gathered from tacit experiences, information and knowledge rather than the desire to simply disrupt to behave in a prima donna fashion.

DeBono (1996) states that many creative practitioners argue that if you rid oneself of inhibitions you will become more creative through altered mental states, he makes the point that this can have limited and unreliable effects. The shedding of inhibitions may also feed into the myth that designers are different and rebellious, rather than professionals who engage in a deliberate cognitive process and synthesis in order to arrive at effective design

solutions. Florida (2012) states many highly creative individuals regardless of ethnic background or sexual orientation, grew up feeling like outsiders, or different in some way from their peers, they may have odd habits or dress differently. Again, this feeds into the myth that designers are different in some way to their peers. Nussbaum (2013) states that creative individuals see their work as a calling, their work gives them an energy to move forward.

Creative Genius

Historically there is a perception that creative people are different, and this myth of a creative genius rarely helps the creative individual as it is often considered to be self-destructive in compounding the belief in creative individuals that they are part of an elite group (Boden, 2004). If something is considered genius, therefore it must be unattainable for the majority of the general population. Genius relates to the very few, to the extremely talented and to an elite number of a societal grouping. DeBono (1996) discuss this theme of elitism and states that there are a number of misconceptions about creativity and creative people. The main misperception about creativity is that it is a natural talent possessed by the individual that cannot be taught, this perpetuates the myth that only a certain few people in society can only ever by truly creative. Suggesting that there is no point in fostering or developing creativity, as genius cannot be taught. Arguing a similar point, Nussbaum (2013) states that the creative act may seem like a stroke of genius, but in fact is the result of years of study and hard work, but designers are often unaware of their own capabilities. When these capabilities are recognised, there is often a failure by the designer to perceive them in a larger context. There would seem to be an inability in the designer to connect skills from one area into another (i.e., creativity and problem solving being utilised outside the discipline of design itself). Boden (2004) offers this as a suggestion to why there is a perception that creative people are different to others, or how designers are seen as different to their clients. This monolithic and individual notion of creativity and the creative worker may be discouraging to those who feel that their own efforts will only lead to mediocrity.

Creative Madness/Insanity

Dietrich (2014) discusses the concept of the Mad Genius in the paradigm of creativity and discusses how in popular culture there is a belief that creativity and mental illness are somehow linked. He gives examples such as Vincent van Gogh, who suffered from bipolar disorder, famous for cutting off part of his left ear and eventually committing suicide. Other tortured creatives cited include Edgar Allan Poe and Michelangelo, who suffered from a number of various mental health conditions such as depression, mania and alcoholism. Dietrich (2014) indicates that these individuals had an underlying issue, suggesting the link between creativity and insanity is simply one of folklore. Nussbaum (2013) states that there have been a number of psychological studies linking creativity with mood disorders and the rate of depressive illness amongst distinguished artist can be as much as ten to thirty times higher than in the general population, indicates that there is belief in popular culture that creatives are not only different from everybody else, but are perhaps a little crazy!

The American Psychiatric Association (2000) have identified a condition described as Oppositional Defiant Disorder. This disorder is defined as an ongoing pattern of disobedient, hostile and defiant behaviour. Symptoms include questioning authority, negativity, defiance, argumentativeness, free thinking and being easily annoyed. Personality traits include above-average creativity and cynicism. Creativity, questioning and free thinking are traits required of designers when exercising creativity and creative thinking. It is clear that this is at odds with Dietrich's argument and he questions the increase of mental health diagnostics in recent times. Again, the comparison to the creative practitioner with those in society who may have an underlying disorder only seems to reciprocate the myth that creatives are different to normal people and that there is underlying mental health issue with all creatives. Clearly, this has repercussions for the designer, as previously discussed, with the conservative nature of clients, may suggest an unwillingness to engage with an industry perceived to be populated by individuals suffering from mental health problems and are therefore unstable in some way. As previously discusses, clients are conformists and conformists like stability, a perception that an industry populated with unstable or unhinges individuals could have severe consequences for how the sector is perceived.

The Eureka Moment

The prevailing myth about design is the notion that creativity the instant flash of inspiration, the so called 'lightbulb moment' (Nussbaum, 2013, p.64). This metaphor is used in describing how designers develop and produce their concepts, referring to the lightbulb as a visual metaphor for 'I have an idea' or that breakthrough moment (Gulari, 2013). The conventional wisdom on creativity would suggest that is a gift or the individual would discover the 'aha moment' (Nussbaum, 2013), and this is how society romanticises creativity. Frank (2013) argues that new creative epiphanies build on previous epiphanies, and to understand the current creative vision, we must revisit an earlier insight. Therefore, design solutions are developed because of the cognitive and experiential repository of the individual and not through some flash of inspiration. Designers describe what they do as a way or organising complexity or as finding clarity in an overwhelming amount of information (Kolko, 2011). Therefore, there is no 'lightbulb moment'. Previously it has been shown that creativity is about making connections between information, knowledge and experiences that are filtered through an iterative process of cognitive thinking and purposeful design methodologies. Designers synthesise and develop solutions based on creative experiences, rather than some random Arkimedian Eureka Moment or flash of inspiration!

Measuring Creativity

In most business spheres it is relatively easy to develop metrics for success measurement such as sales targets, business growth to increases in market share. However, how creativity? Nussbaum (2013) questions how creativity is measured, quoting Executive Director of Stanford University's design programme, Bill Burnet "What can't be measured doesn't have value... We need a measure of creativity" (p.252). Creativity does not appear to lend itself to a metric measurement, we assess portfolios of design work to measure creative output. Suggesting a metric of measuring design's output, no more advanced than personal opinion or persona taste.

According to the DBA (2014), the most important way of communicating the value of design is by measuring its true effectiveness using case studies, which serve to demonstrate the value for money that a professionally executed design strategy can achieve for the client. The Design Council (2013) identifies that the utilisation of creative design by clients can see average increases in year on year sales of 13% and that number rises to 37% over three years. For every £1 a client invests in design, they can expect over £20 in increased revenues, over £4 increase in net operating profit and over £5 in increased exports, in addition, client businesses reported boosts to confidence, strategic thinking, brand and business identity (ID2015, 2015, Design Council, 2013; Design Council, 2012).

> Looking back, I believe the design investment directly contributed towards over £500,000 worth of new business secured in the initial months after the re-branding.
> Judith Stracey (Design Council, 2017)

Therefore, rather than trying to define a measure of creativity (which seem to be both abstract and arbitrary, and possibly too difficult to conduct), designers should be utilising a measurement on what their creative output can achieve through design effectiveness which is the contribution that design makes to both other business and wider society could be measured in tangible ways. If the effectiveness of design is measured, the results can be communicated to the clients such as increased sales, greater turnover or profitability. Therefore, design has a business purpose and not creativity for creativity's sake.

The Risk of Creativity

The role design is poorly understood outside the discipline (Gulari, 2013). Lawson (2003) compares the activity of design with a gamble, similar to a chess game, where the players create new and unexpected moves, but according to Nussbaum (2013) the essence of creativity is intelligence and risk, suggesting that the unknown element is something which should be embraced, he goes on to state that 'creativity scares us' (p.7). We are trained to deal with predictability and the biggest challenge we face is the fear of creativity (Nussbaum, 2013). Therefore, for some clients the fear or risk involved in the creative process are too much to undertake and the client may opt for a conservative stance, i.e. not hiring a designer. Frank (2013) argues that Florida's (2012) understanding of creativity is flawed because of the assumption that creativity is a thing society values and rather than seeing value in creativity, society has no interest in new ideas unless these new ideas reinforced favoured theories. Therefore, for some, creativity could reinforce their own bias or predefined expected outcomes rather than delivering innovation because to develop creative solutions implies risk.

The Post-rationalisation of the Creative Process

Designers often find it difficult to articulate the exact value of their insights. Designers are often relying on plausible post-rationalisation of the concepts in order for the client to accept the creative outcomes and to add credibility to the designer's work, but more often than not, concepts and creative insights are rejected by the client as being too risky (Kolko, 2011). DeBono (1996) suggest that, on analysing the creative process, in hindsight, creative ideas seem to be formed in a logical way, arguing that the identification of patterns in decision making an iteration of ideas provide a logical explanation to how ideas have been reached. Kolko (2011) points out that for clients, the actual synthesis element of design can be a frustrating part of the process, for many clients there is value to logical and linear thinking. However, creativity may not seem that way from the client's perspective. The synthesis in design, a revelation of clarity is performed privately inside the designer's consciousness, in which the outcome is only observed by the client ofter the process has taken place or at least, begun. Therefore, the synthesis process of design is an insular, private activity, making it difficult, if not impossible to observe, document, or to understand from an external point. If design is an internal process and phenomenon of the individual and that design practitioners may have difficulty in explaining their methodologies and processes, therefore, rely on post-rationalisation of their solutions in order to explain the concept to the client or team members.

Not the '9 to 5'

Florida (2012) suggests that creativity is not something that can be switched on (or off) at will and that creativity is multi-dimensional. All forms of creativity feed off each other in order to develop concepts and creative problems would seem follow the designer around. Usually, it's at the end of the working day that problems remaining to be solved are completed, and typically at times when least expected. If a lightbulb cannot be switched on, equally the lightbulb cannot be switched off. Therefore, the creative worker may actually work more than statistics shown and does the creative worker record this at time (Florida, 2012)? If creative time is not being fully recorded, how can the client be billed for the full value of the creative input and time commitment from the designer? Indicating that design practitioners and design entrepreneur need to fully capture and document their value creation outside the normal working day to fully realise revenue generation for the design enterprise.

Ideas often percolate or require frantic work in search of a solution, only to see it click into place at an unusual time. Florida (2012) suggests that creative work involves an enormous amount of concentration, but it also requires periods of downtime daily due to the fact that creative thinkers cannot turn on and off at will.

> Intrinsic motivation is conducive to creativity, but extrinsic motivation is detrimental. It appears that when people are primarily motivated to do something creative activity by their own interest and enjoyment of that activity, there may be more creative than when primarily motivated by some goal imposed on them by others.
> Amabile (1996 p.15)

One suggestion here is that the designer is forced into making creative decision because of external pressures such as deadlines, budgets or juggling multiple design assignments or to prioritise work. Creativity may be fine in developing concepts, but other motivations may be required to finish what was started because of budgetary pressures or the pressures of an impending deadline. Designers often are characterised as being overworked and too busy meeting deadlines to delve into any complex literature on the matter. Requiring instead, a more immediate approach to integrating new ideas and concepts into the design process. Not that designers lack the intellect to comprehend such matters, they simply lack the time due to commercial pressures to absorb and digest this information (Kolko, 2011).

Misconceptions about Creativity from Clients

Nussbaum (2013), in citing IDEO founder David Kelly describes creativity as a "foreign language" (p.15) and creativity needs to be partnered with analytical tools so that it can be understood by clients. This has previously been discussed, designers need to understand how to measure the effectiveness of their solutions. DeBono (1996) argues that many people do not understand the logic and process to creativity, which can lead to frustration and impatience. But, if creative techniques that are being used are effectively managed, the creative output is much improved. Suggesting an element of client-management through the process and that creatives may need to explain better to their clients to what is happening at each stage.

Research carried out at Cornell University, Pennsylvania University and Chapel Hill, indicates that participants in a study suffered from a negative bias towards creativity and that this bias interfered with the ability to recognise a creative idea (Nussbaum, 2013). Many people see the value in creative ideas but are not prepared to accept the need for creativity, but once the logical process is explained their attitude changes and once there is an understanding of the logic of creativity, there is an intrinsic motivation to be creative (DeBono, 1996). Nussbaum (2013) argues that there are many myths and uncertainties about creativity and that we quite often reject creativity in favour of more predictability and conventionality, a similar point by Frank (2013) who discusses the need for society to use creativity to reinforce already existing views. Therefore, it is understandable that if clients see design as a risk and something that is perceived as a risk is potentially dangerous. This indicates that the client conformist will opt for the predictable solution as it would seem to be fewer risks associated with it, which may also have a detrimental effect on the creativity of the design solution.

Conclusions

Creativity is the core competency of a designer, and creativity is the conscious and unconscious linking of information, knowledge and experiences in which ideas are generated through cognitive methodologies, involving critical thinking, iteration, prototyping and testing, which results in a number of potential design solutions. Creativity in design does not simply happen by accident, there is a deliberate cognitive process associated with design, and this process is generally internalised by design practitioners, there is no 'Eureka Moment'. In popular culture, there are a number of prevailing myths surrounding design and creativity. The design industry will need to work harder in order to dispel negative connotations associated with design and creativity. Designers seem to be unaware of their own creativity and potential but these inhibiting misconception and negative bias about creativity and the creative worker would seem to be hindering an understanding of the value of creativity and creativity can bring to the client's business and to wider society. Myths such as creative genius or liking creativity to mental health issues do the design industry no favours, particularly when there is no empirical evidence to support such misconceptions. Because the nature of creativity in design (in that it doesn't always happen within normal working hours) design enterprises may be failing to capture the full value of their work. Creativity may be seen by some clients as too risky when creativity can potentially benefit their business, therefor a loss of potential revenue for the industry. Designers need to understand more about these negative associations linked to creativity and how to counter these misunderstandings.

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