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"Trust me, I am a designer", why is there a lack of trust in design expertise?

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Abstract:

The design field has broadened to include a wide range of design interventions following the promotion of concepts such as design thinking that are based on a generalist mind-set. Yet, some designers as specialist–generalists find it difficult to communicate their expertise. As Kripperndorf's (2009) quotation illustrates, "designers who know a little bit of everything, none too deeply, are universal charlatans."

This paper focuses on the perceptions held by Small and Medium Enterprises' (SMEs) regarding design expertise. It examines the issue through a series of interviews conducted with individuals representing SMEs and designers. It discusses the nature of design expertise, questions why there may be a lack of trust in design expertise. It investigates the confusion emerging from a generalist-specialist dichotomy and tries to uncover the difficulties in communicating design expertise.

This paper aims to contribute to this unresolved dialogue that is taking place between businesses and designers working in partnership.

Keywords: design expertise, SME, generalist, specialist, design consultancy

Introduction

We are invited to put our trust in experts, assuming that they have deep and specialised knowledge. Socrates said, "an expert is a well qualified specialist on whom others may safely rely" (Woodruff, 1990). We consult experts for their special knowledge and judgement to solve ill-defined problems (Cross, 2004). Dictionary definitions for expertise repeat some key words

such as experience, knowledge and special skill. "Specialist" is sometimes used as synonym for "expert". For instance the Cambridge Dictionary (2013) describes a specialist as "someone who has a lot of experience, knowledge or skill in a particular subject". Socrates quotation also shows that synonymous usage. From his definition, we understand that an expert is a specialist and that we can "trust" and rely on this specialist. As an antonym for "specialist", many dictionaries (for example The free dictionary, 2012; visual thesaurus, 2012) use the term "generalist"[1], even though it might not always be the case. The English language seems to reflect the confusion of society towards the terms: expert, specialist and generalist. This paper does not attempt to assess the validity of this evaluation or explore its possible psychological, social and historical roots but based on this observation, it discusses the context of expertise, particularly design expertise, the credibility of design expertise and the specialist-generalist dichotomy. This paper proposes that this mistrust is perhaps a result of the ambiguity surrounding the concept of design expertise, and how to select the right expertise

The effects of this mistrust can be observed in the practice of design. Whilst so many companies require help why do design consultancies have to make so much effort to find clients? Or why does a designer or an agency lose a solid client to another one? Brazier (2004) suggests that most of the time design services are viewed somewhat sceptically. She states that small and medium sized enterprises (SMEs) recognise design as a low priority or a luxury requirement. Currently SMEs comprise more than 99% of all businesses within Europe. In the UK, they account for more than 59.8% of private sector employment (BIS, 2010). The majority of these SMEs (micro enterprises) employs less than 10 employees and do not have a design department (European Commission, 2012). They either have not worked with designers yet or is not fully aware of the value of design and how to work with designers (Design Council, 2008). In addition, compared to corporate businesses, they have a limited amount of budget for design and innovation investment, which significantly affects their decision-making process on getting external design support. Yet, inevitably, the majority of design consultants[2] often have to work with SMEs within the current economic climate.

This study, therefore, focuses on SMEs' *perceptions* towards design expertise. The paper explores why there may be a lack of trust in the design profession. This excludes individual expertise, not competencies, which are not shared by the majority of designers. It discusses the specialist-generalist dichotomy through insights and discussion arising from conducted interviews. It clusters and analyses opinions and experiences of individuals representing SMEs and external designers. It aims to provide insights for designers to assist them in working with their clients more effectively and to communicate their expertise clearly.

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[1] Generalist: a person who is knowledgeable in many fields of study (the free online dictionary)

[2] Design consultant or design consultancy is used to describe a professional design service provided by designers externally for the creation and implementation of new products, services, or materials for the development and communication of corporate identities.

The research followed a qualitative research methodology and an interpretative paradigm. For this paper, six owners-managers working in SMEs and nine designers were interviewed to access the opinions and experiences of the participants. SMEs were selected from different industries, based on whether they had worked with designers internally or externally in the last two-three years. Design interviewees were selected from design practitioners or design directors having a minimum of ten years UK experience in the field and having worked with SMEs externally. Among the six SMEs that were interviewed, four SMEs did not employ any specialised internal designers but were only supported by external designers, and two of the SMEs selected work with both in-house designers and external designers. Additionally three design-led innovation centre associates, and six design consultancies have been interviewed for this paper (Figure 1). Interviews were conducted in 2012 over an eight-month period, eight were carried out in-person, six of them by telephone and one was via Skype. Each interview was 30-90 minutes in duration. The researcher encouraged participants to bring up new issues in each interview but utilised a semi-structured interview schedule. During the interviews, SMEs were mainly asked what design expertise means to them, how they recognise the right expertise to work with, how they work with designers, and what kind of difficulties and problems they encountered while working with designers externally. Designers were asked what design expertise means to them, whether they consider themselves a generalist or specialist, how being a specialist/generalist informs their practice, how they work with SMEs, what kind of problems they experience in communicating their expertise, and how they solve these issues. The research undertakes the thematic analysis method, following an inductive perspective (Boyatzis, 1998). The thematic analysis method allows the researcher to categorise common and repetitive themes that appeared in the interviews but not to disregard themes that appeared only once if they are important in relation to their context.

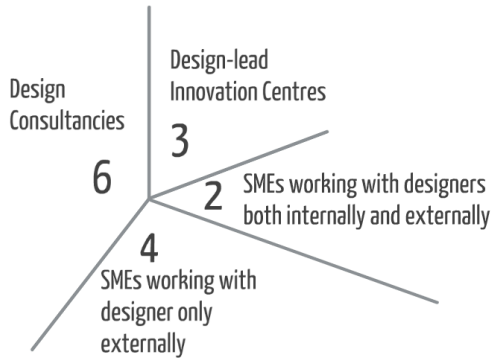

Figure 1: Number of Interviews

This paper is structured as follows; the first section briefly presents the nature of design expertise, and summarises the design expertise studies by clustering them into two main groups. Section 2 discusses the issue of trust and mistrust towards expertise and the concepts surrounding the role of expertise in society and how these inform the value of design expertise and the profession. Section 3 discusses the generalist and specialist dichotomy and the credibility of design expertise

in the field, Section 4 presents the interview findings and discussion and finally Section 5 concludes the paper by summarising the findings and suggesting insights to design practitioners to improve their provisions.

The Design Expertise Literature

Design expertise is considered as an important subject; an extensive collection of studies on the subject of design expertise can be found in the proceedings of the Expertise in Design Conference (Cross & Edmonds, 2003). In Lawson & Dorst's, book "Design Expertise" (2009) the nature of design expertise is explored through the use of short accessible case studies. In the design expertise literature, there are many contrasting yet equally reasonable views on the issue. Cross (2004) provides an overview of a wide range of prior research. In this paper, existing studies examining design expertise can be grouped into two main categories, "experienced vs. novice" and "designer vs. non-designer".

The first category is based on the understanding that *expertise is not a skill* an individual is born with; s/he *acquires* it in time after years of *experience*, after hours of deliberate practice and study of knowledge (Ericsson, 2001). Research suggests that there are different phases in developing expertise. Numerous studies in the literature compare the activities and the comprehension levels of novice and senior designers to inform an understanding of expertise (for example, Christiaans & Dorst, 1992; Kavakli & Gero, 2002; Lawson, 1979; Atman *et al.*, 1999, 2005). Atman *et al.* (2005), reported that 4th year engineering design students generated higher quality solutions by considering more alternatives, spending more time to develop them and being more efficient in design steps than 1st year students. On the other hand, studies comparing design professionals to novices highlight the issues such as design professional are more likely to pursue a single design solution (Ullman *et al.,* 1988) without enough exploration or redefining of the problem that results in a "fixation" on initial concepts (Ball *et al.*, 1994).

A seven-stage design expertise model is mentioned by Dorst & Reymen (2004) based on the philosopher Dreyfus' previous five-stage model (1980). It proposes that acquiring expertise is like climbing a ladder, progressing from novice to competent, then competent to expert, followed by master and visionary. Each field requires a considerable amount of time to reach a peak of performance, but there seems to be an agreement that it requires a minimum period of practice of ten years starting from the first involvement as a practitioner (Ericsson, 2001). Dorst (2003) highlights the importance of researching how novices transit to higher levels of expertise as a consequence of experience. Yet, practice does not always "make perfect" (Schneider, 1985). The number of years spent in the design field does not necessarily bring faster, creative and innovative designs which apply to the market.

The second stream focuses on the idea that an expert displays a special skill or knowledge. It highlights a *skilled action* for perceiving, formulating and solving problems beyond knowing more facts, rules, principles, guidelines and examples (Newell & Simon, 1972; Anderson, 1983).

Comparative studies between designers and non-designers/laypeople have been undertaken to discover the abilities and knowledge that designers possess. Akin (1987) identifies the initial structuring of design problems, recognition and reframing, as the special knowledge of architects. Akin's studies investigating core design abilities and typical activities. Cross claims that designers typically "produce novel and unexpected solutions, tolerate uncertainty, work with incomplete information, apply imagination and constructive forethought to practical problems, and use drawings and other modelling media as a means of problem solving" (Cross, 1990, p139). According to Schön (1983), the core of design expertise is formulating the problem, not only at the beginning, but throughout the process as a recurring activity. An emphasis on personal knowledge and skills of exceptional designers are examined in some studies (Roy, 1993; Lawson, 1994; Candy &Edmonds, 1996). Cross (2003) claims that individual designers have differing design abilities; he, therefore, examines the commonalities in the approach of outstanding designers in order to identify the design expertise. These are displaying a 'systems approach', paying considerable attention to "framing the problem", sometimes in a rather personal way; and not being limited to the pre-defined problem criteria. One could question whether these impressive lists of skills serves to attract and convince SMEs of the value of design input and expertise. A study of the literature has not revealed any targeted studies investigating how design expertise is perceived by SMEs.

A third approach can also be mentioned which focuses on the rising hobbyist movement and how it affects the role of experts. This subject has been increasingly attracting the attention of academics (Beegan &Atkinson, 2008; Kuznetsov &Paulos, 2010). Learning by direct demonstration has become more and more widespread through pervasive applications and videos on the Internet, which contributes to the knowledge and skills of hobbyists. The level of expertise that amateurs can acquire is yet questionable. For instance, a layperson may practice design for many years; however, s/he may remain unskilled in their approach and application of methods. It may be that the amateur is content to be compared to the professional (trained) designer. On the other hand, in an open-source environment, many contributors are actually experts in their field, even if they are amateur contributors (for instance-Linux[3]).

This study, however, focuses on the "design profession" and does not cover the expertise of amateurs. Yet, it has an influence on the perception of expertise, which we discuss in the following section.

Shift in the historical value of expertise

Trusting in experts has a long history; it goes back to ancient Greece, to the Sophists. We rely on experts especially when decisions do really matter, when the risks are high. Multiple views on

[3] Linux is an open source computer operating system, which can be used in personal computers, mainframe computers and supercomputers. It is one of the most eminent examples of free open source collaboration.

difficult problems are to be valued (Hoffman, 1996). Given that the statistics illustrate that doctors misdiagnose one in every six NHS (National Health Service) patients in the UK (Devlin & Smith, 2009), it is unsurprising that we seek a second opinion. We are increasingly becoming uncertain about the value of expertise and about how to recognise the right kind of expertise to solve our issues.

Historically, the more technocratic and 'expert-driven' approaches dominated the growth of businesses in most of the 20th century (Freeden, 1996). Our loss of confidence in experts and expertise seems to have started with technological populism, epistemological weaknesses of science and short-term political impotence (Collins & Evans, 2009). We prefer to be less dependent on a singular authority, or a single dominant viewpoint. While not entirely new, beginning in the 1970s, participatory approaches as an 'alternative' development method, challenged the 'power asymmetries' and the effectiveness of expert-driven methods. By the end of the 1990s, collaboration had found a firm position in business development and decision-making. It had become a widely preferred approach to be employed as a vehicle for the 'democratization of development' (Friedmann, 1992; Pieterse, 1996). The progress of technology and the changing role of governments have created a more collaborative and innovative role for experts. A strict interpretation of a professional role seems to be outdated. The authority of experts is also undermined by their mistakes. For instance, Greece's economic crisis resulted in the appointment of technocrats who failed to resolve the problem. In addition, the fifth year of the recent global economic crisis proves that experts can be wrong.

The movement of democratisation and participation, influence the field of design. The boundaries between designers and users have become less visible with empathic collaboration, participatory design, and the growth of the amateur movement, which also have challenged the dominant position of design experts and professionals. Design is seen as the core of everyone's activities (Papanek, 1971). Simon's influential quotation illustrates,

> *"Everyone designs who devises courses of action aimed at changing existing situations into preferred ones. The intellectual activity that produces material artefacts is no different fundamentally from the one that prescribes remedies for a sick patient or the one that devises a new sales plan for a company or a social welfare policy for a state." (Simon, 1969, p.102)*

Similarly, Nelson & Stolterman (2003) consider the view that anyone can apply design without having to be a specialist. Yet, therein lies the danger of downgrading design skills, for example, when companies wishing to make use of graphic design, may often use untrained in-house employees using standard office software. This practice is independent from the hobbyist movement. This phenomenon has been often articulated as "silent design", marginalisation of design expertise, which refers to a great deal of design work being done by individuals who do not consider themselves designers such as company directors and engineers. According to Iduarte & Zarza (2010) this situation happens because of a false sense of expertise developed by the managers or underestimating the necessary expertise of designers.

The generalist-specialist dichotomy

"Jack-of-all-trades, master of none" is a figure of speech that suits generalists well. Displaying special knowledge is usually confused with being an expert". The French philosopher/thinker Foucault defined an expert as a 'specific intellectual', (Foucault,1980, p. 128). Does it imply that a non-specialist or a generalist is not an expert? If you are not specialised in something you cannot be an expert. Can anyone be an expert generalist or specialist generalist?

This study proposes that some of the mistrust and credibility problems have arisen from the generalist-specialist confusion in the field of design. A generalist approach that is involved with a little bit of everything in a contemporary, complex design project, may result in quite poorly performed tasks. Kripperndorf (2009) argues that "designers who know a little bit of everything, none too deeply, are universal charlatans." Conversely, Norman (2012) claims, "great designers are generalists, knowing a little about many different topics". The confusion is not limited with the examples from different authors; even one person can have conflicting ideas about this subject. For instance, in contrast with his previously mentioned view, Norman (2011) also argues, "designers are not generalists, they are specialists in design, and what they offer is a unique point of view and approach to problem solving." Many more examples and provocative discussions can be found in the literature and academic forums questioning whether designers are specialists or generalists (Norman, 2010; Kolko, 2011).

The expertise of designers may be illustrated by two axes, which can be seen in the following figures 2-4. The vertical axis represents different tasks included in the design process (concept development, design management, and visualisation), whereas the horizontal axis illustrates various sectors in the market (retail, health and social care, automotive, and food) in which a designer can work. Focusing on one or many points on a single axis does not create an ambiguity or problems about the credibility of the designer. However, if the designer attempts to cover various points from both axes, it results in confusion and unmanageable situations (Figure 4).

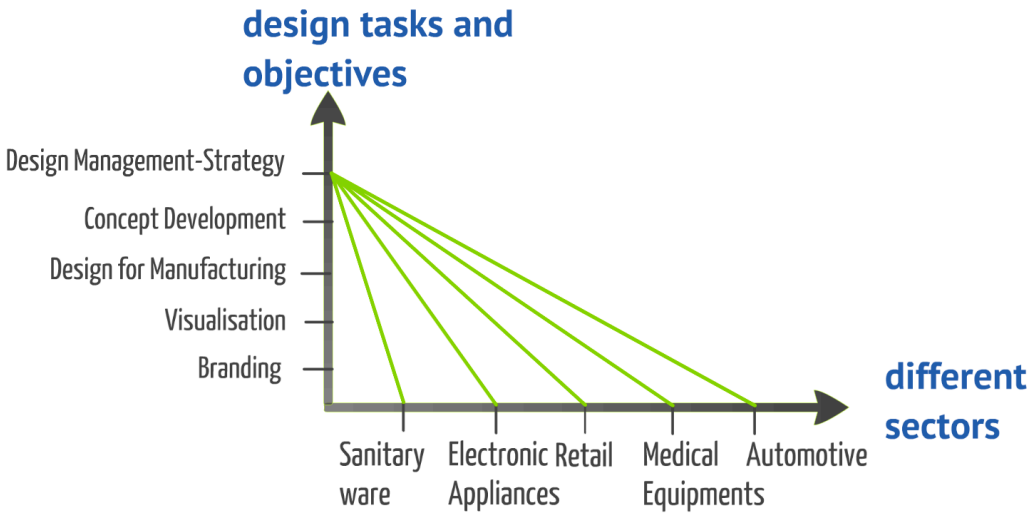

Figure 2: Specialist in designing, working in several sectors.

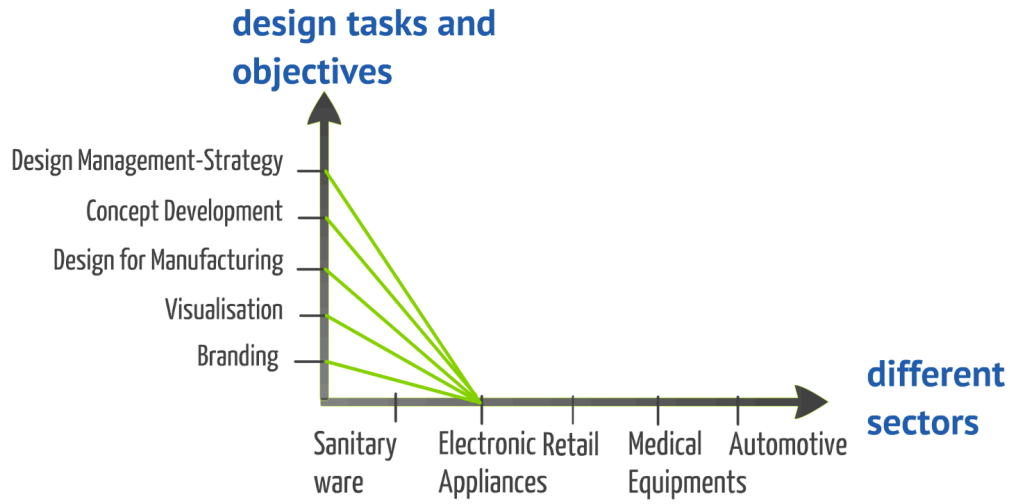

Figure 3: Generalist in designing working in one particular sector

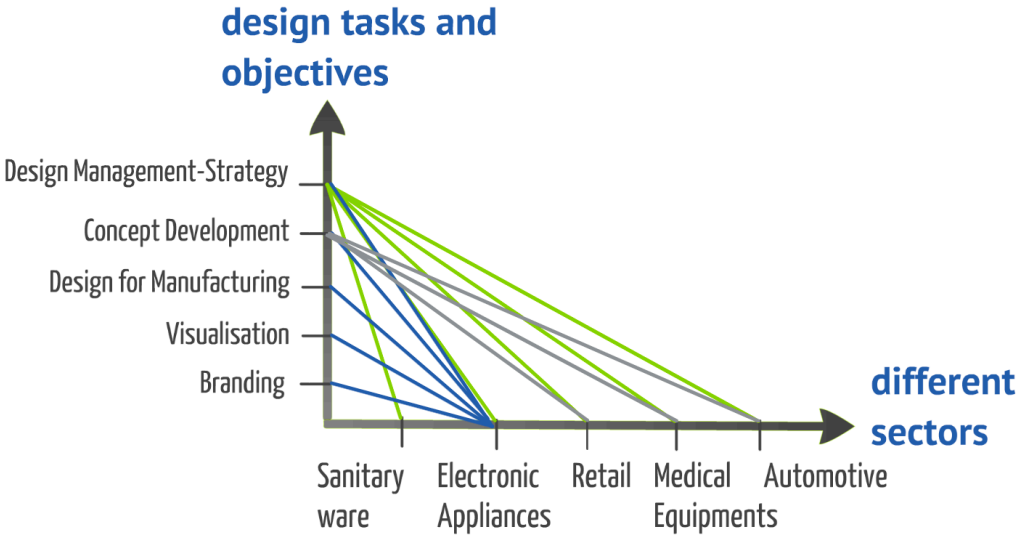

Figure 4: Generalist in designing, working in several sectors

The need for specialisation is also recognised by Kelley (2005) who suggests that individuals can be described as T- Shaped. He suggests that T-shaped designers have deep knowledge or expertise in one particular skill set and also have a number of complementary or tangential skills which are shallower, but the question is how deep the designers' specialist knowledge may be and what complementary skills they posses (See figure 4). It has similarities with axes above.

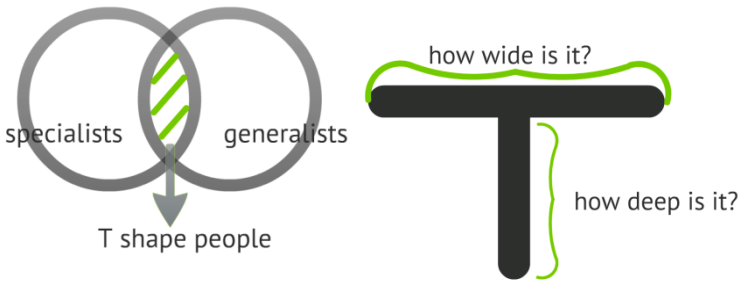

Figure 5: T-shape individuals

The generalist-specialist in relation to design education

Putting the personal drivers aside for being a specialist or generalist, in other words being either broadly curious or deeply curious, the generalist-specialist dilemma also has its roots in design education. Kolko (2011) says that the Bauhaus, as the root of many contemporary schools' design education, was built on a generalist approach. It aimed to teach students a clear, general, and broad design process and methods that could be applied in an infinite array of contexts. In some current design education programmes, design students, for instance, can be asked to design products ranging from an X-ray machine to a kite set, or a toaster to bathroom equipment in one school year. However, graduates of these schools, Kolko (2011)observes, are often recruited due to their specific skills and knowledge within a narrowly defined area. He says the market needs more and more specialised design graduates. Companies want to employ the top workers, supported by a portfolio of evidence of previously successful design work. (Kolko, 2011). The design graduates, who have a diverse selection of projects in their portfolio, may find it harder to gain appropriate employment. On the other hand, design education is also influenced by approaches that value a generalist mind-set. The concept of design thinking (DT) represents a generalist approach. For instance, Lindsey (2012), the dean of the College of Architecture/Graduate School of Architecture & Urban Design at Washington University describes their DT course as "designed for generalists and welcomes students from all backgrounds". The concept of design thinking, which proposes design as a methodological template not bound to any particular discipline, can be adapted by different disciplines to expand their domain-specific knowledge.

Specialised knowledge for working with SMEs

Design graduates often seek and secure work with SMEs since they are reported to comprise the largest portion of the private job market (European Commission, 2012). SMEs have become a key provider of private-sector employment and output. Their lack of awareness on how to work with designers is reported in several studies (Bruce *et al.*, 1999; Shove *et al.*, 2005; Cawood *et al.*, 2004). Yet, designers' lack of understanding about working with SMEs and about their priorities such as an appropriate return on investment is another problem, which raises the issue of reciprocal challenges in the working relationship between designers and SMEs, challenges which if understood and navigated could yield a productive and innovative pairing. SMEs demonstrate distinctive characteristics, such as limited resources and a close proximity between ownership and management. Each SME differs in size, sector, technology and R&D level, age/lifecycle and geographical location. In addition their individual dynamic, un-codified and informal knowledge is not the same (Tödtling–Schönhofer *et al.*, 2011). Unfortunately, design education seems to ignore the importance of SMEs in their curriculum. There appears to be few universities offering long-term collaborative projects with SMEs. This could result in design students graduating without this essential experience and specialised knowledge.

The credibility of design in relation to the nature of design

From a wider perspective, it can be said that the mistrust in design expertise is due to the eclectic nature of design resulting from its evolution. Design flourished and migrated to diverse areas and many professionals from other disciplines migrated to the design field (Buchanan, 1992; Cross, 1982; Bayazıt, 2004). This migration has two outcomes; one is borrowing methods, the other is influenced by neighbouring disciplines. The act of "adapting and adopting" methods is widespread in the discipline. Cognitive techniques such as "Think-aloud" (Lewis, 1982), "Protocol analysis" and "Morphological analysis" (Zwicky, 1967; 1969) are utilised by designers (Sudman *et al.*, 1996; Bayazıt, 2004). The design discourse is influenced by various other disciplines in relation to the economic and social circumstances of the period, especially from 1950 to the present day (e.g. engineering, computing, and social sciences). On the one hand, these appropriations enrich the capabilities of the discipline; on the other hand, they lead to various slippages, missing theoretical framework and scientific evaluation. This can widely affect the credibility of the discipline. Within this picture of adoption, communicating specific knowledge of design with other stakeholders is even more difficult.

Interview Findings and Discussion

While much has been written on design expertise and the concept of mistrust, the previous sections highlighted the specific challenges. This section presents the interview findings and provides an overview of the issues mentioned during the interviews. These issues were not clustered under specific headings, however "oversimplification", "the sector-specific knowledge gap", "non-codified expertise", and "negotiation" are some of the recurring themes in the empirical data.

The interviews illustrate some issues encountered during the collaborations between designers and SMEs. One problem is that designers sometimes underestimate the specialist knowledge that is required for a project. Designers might be reluctant to admit that they might need more than a certain level of familiarity with the topic they work on, and they believe that generalist knowledge is sufficient for their practice. Others might claim that design consultancies working in a wide range of sectors cannot grasp all the sector-specific information. All the SMEs interviewed who are working with external designers claimed that the lack of specialist knowledge is a problem. Other interviews conducted by Selek (2008) reveal that SMEs find it difficult to work with designers who do not know their (SMEs') field well. Similarly, a plastic pen manufacturer reported after working with an external designer that the biggest problem was that the designer was not competent in plastic pen manufacturing techniques, which, he believed, affected the learning pace, slowed down the product development process and harmed the effectiveness of working together (Er & Evcimen, 2012). Still, it is questionable whether the external designer should really need knowledge of plastic pen manufacturing techniques. This example implies a

lack of communication and reveals that the requirements and expectations of both sides were not set well at the beginning of the process. A study from Driver *et al.* points out the same problem in collaborative projects. It is found that "The designers did not make their capabilities and limitations clear at the beginning of the project, leading to them accepting a task they did not have the skills to fulfil" (Driver *et al.,* 2011, p.25).

The majority of the interviewees emphasised the importance of a face-to-face meeting at the beginning of the project to negotiate objectives, requirements and limits openly and to reach an agreement on these terms to maintain a healthy relationship. They observed positive differences on their performance in cases where the clients express their motivations and objectives more clearly. The majority of the consultants interviewed reported that considerable effort was made to understand each side's expectations outlined in the briefs.

A project manager working in a design-led business support centre also stated that difficulties emerged from high expectations. The respondent observed that SMEs have very demanding expectations in general; besides, first-time design users are much less knowledgeable and more demanding therefore it is more difficult to agree on expectations.

To overcome the knowledge gap some designers sometimes try to present a deeper level of knowledge than they actually possess. One interviewee indicated, "we are aware that there is always someone who is experienced more than we are, or knows more than we do. However, there are different levels of expertise. To be a credible expert, our thinking needs to be ahead of our clients, to illustrate this comprehension to our clients we do question their assumptions". Asking the right question is about identifying the problem. Solving the problem still requires different tools, capabilities and knowledge.

A lack of specialisation might also lead to the problem of unarticulated identity and non-codified expertise, which might hinder the process of exemplifying expertise clearly. The interviewed design manager underlined that they received better results when they focused on one particular sector or one type of design activity, such as packaging or branding. It helped them communicate their support more easily with SMEs. The majority of SME interviewees revealed that SMEs do not want to risk working with designers who do not have previous experience in the specific field in which the SME operates. Interviews showed that word-of-mouth is widely used to select which design consultant to work with; yet, one SME manager highlighted the difficulties of choosing between different agencies. "Design consultants, most of the time, only describe their services in terms of successful products which are often the least differentiating thing about them, but we want see more details about their approach, how they do it." Designers sometimes explain their successful stories in a fairy tale manner but they are expected to give more insight about the value of their intervention and procedures.

SMEs also complained about non-practical solutions, not immediately applicable to the market. One company that is working in a very traditional and specialist subsea market indicated that they are critical of the products offered by the design consultancy, because they think that designers do not fully understand the strict requirements of the market. Designers need to work several

times with companies to comprehend the dynamics and constraints of the market. Collaboration can be improved following a long-term partnership. Another company from the food sector stated that they experienced similar problems when they used open briefs to work with design consultancies, which delivered solutions that were not applicable to their market.

Another understanding might be that a designer can display different levels of specialisation from generalist to specialist. One design manager expressed the view that "design consultancies tend to be generalist and in-house designers are more specialists". The head of a design consultancy stated that they preferred to operate as generalists working in a variety of sectors believing that it helps the cross fertilisation of ideas. There exists a lot of learning in different projects, which nourish a whole design process. He acknowledges that dealing with a lack of knowledge is a problem, and consultants invest a lot of their time in learning the necessary information and working with domain experts. He admitted that entering a new market, competing with specialist rival consultancies without the products supporting your experience is a big struggle. He still hesitates to specialise in a single sector such as medical products since he believes that working for one particular industy is less interesting and less fruitful. But he recognised that specialisation may bring more credibility and lead to better deals with clients. One common strategy mentioned by three consultants is to collaborate with a specialist from the SME effectively during the project. Another creative director pointed out that it is very difficult to follow a specialist career path in small cities, it is much more effective and marketable to be a generalist designer.

Creativity is also another issue that was mentioned by SMEs in interviews. One SME interviewee that has an internal design department said that they work with external designers as well, to facilitate workshops and activities and to get some creative insights. Another SME director, who again works with designers internally and externally, sees experience as a barrier to creativity. His quotation illustrates:

> *"It (design expertise) falls into two schools. You have somebody who is here for 20 years then he may be in that certain product line for so long his creativity falls away. Then you have the newer less experienced colleague who may have fantastic creative skills but does not have the experience in the environment that we are working, I guess the technical challenge balances out there. To say that, there is a perfect medium, I probably say for some to become a good designer takes 8 to 10 years experience. After 10 years they need a fresh challenge or new company."*

One solution also observed is to work with external and internal designers at the same time; When an external design consultancy work with a company, the specialist in-house designer can overcome the possible knowledge and communication gap between SME owner/manager and the design consultancy.

Conclusion

This paper has examined the nature of design expertise, investigated why there is a lack of trust in design expertise and discussed the generalist-specialist dilemma in the field of design and revealed the issues related to the topic. It has illustrated the difficulties reported in the interviews undertaken with individuals representing SMEs and designers.

Limited and reasonably consistent interviews revealed that clearly defining a required speciality without using domain jargon will help foster a mutual understanding of perceptions and expectations, and ultimately help build a trusting working relationship between SMEs and designers SMEs want to recognise not only what a designer can offer to improve their business but also how they are going to achieve the required results. The knowledge gap emerging from a lack of specialisation is also another issue that was mentioned. Yet most of the time designers did not want to be specialists in the field, because of the limitations of specialisation. Domain specialisation is sometimes perceived as a barrier to creativity. Yet, aiming to cover a wide range of sectors needs collaboration with domain experts. Undertaking projects without the necessary assistance or collaboration by just relying on design skills alone might do more harm than good to the design practice.

Kolko (2011) says "future success for designers lies not in a generalist approach to creativity, but in highly unique, refined skills that provide value for a multidisciplinary team of other specialists." Designing is evolving to become a multidisciplinary team activity rather than an individual designer profession. Generalists and specialists perceive things differently, and contributions from both generalists and specialists are needed to provide breadth of perspective and depth of knowledge. It is essential for SMEs to be aware of the different capabilities of specialists and generalists in a design project and to develop criteria to detect whether they need specialists or generalists for each individual project. A significant issue was that some problems have arisen from a lack of communication and negotiation. There is a clear need to communicate the objectives and the limitations of the project openly at the beginning and to clarify the company's expectations. It is better to facilitate cooperation by involving each stakeholder in the decision-making process, to help them contextualise the problem, to use their domain expertise and to negotiate openly. Designers need to understand SMEs better without applying a too generalist approach. A continuous long-term relationship will build confidence, trust and credibility.

The uncertainties attached to the innovation market lead to a very dynamic and fast renewing market. These uncertainties create difficulties for negotiation processes because it becomes almost impossible to anticipate all the consequences of any agreement. Design consultants evidently need to "reinvent, redefine and refine their expertise and communicate it clearly" to secure their position as effective and favourable advisors.

This study is part of an ongoing research study, which aims to improve designer-SME collaboration and to assist designers in sharing their expertise.

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