Abstract: Design is now becoming a generalizable discipline that may be applied to processes, interfaces. To understand design as a discipline that can function within any of these frames means developing a general theory of design. From methodological perspective, there is no solid theoretical framework which can assist the craftsman or the novice textile designer to consciously integrate their culture in designing products. On the other hand, with its roots in cultural anthropology, and many ways to explore and understand everyday realities of people living in small scale, non-western societies, ethnography’s main focal point is at small-scale societies and the original central concept remains within the meaning of culture. Its basic approach summarized the ability of all humans to figure out what is going on through participation in social life. On the other hand, the field of design has always been an adjunct to art and craft but in a postmodern context the transformation of design into an industrial discipline brought responsibilities and design studies had to address methodologies. Though the techniques ethnographers use follow the routine of the everyday life, new sets of challenges are created as they design and built applications that leverage powerful, digital technologies for use by people of all societies and cultures.

Thus this paper’s function is to present ethnography as a research method for product design especially textile product design. To understand the importance of ethnographic research in textile design and explain qualitative techniques that can be used in ethnographic research for textile design, searching for meaning in socially constructed reality or a traditional context, the methods ethnography share with textile design, development process, the importance of the designer participating in the research, and how the research assists problem finding, an important aspect of creativity and innovation are discussed.

Keywords: Ethnographic research, textile design, design science research.

1. INTRODUCTION

Some researchers including Friedman (2000, p.13) argued that design was a process rooted in and involved in both theoretical disciplines and fields of practice. Furthermore, Terzidis (2007, p.69) confirmed that design was often confused with planning although it differed. He concluded that planning was the act of devising a scheme, program or method worked out before for the accomplishment of an objective, whereas design was a conceptual activity of an idea intended to be expressed in a visible form or carried out into action. Depending upon these and many more researches designers easily generalized design discipline by developing the theory of design. However, principles of design theory are getting more and more applied to processes and interfaces of different domains nowadays. Some researchers argue that the most critical step in design practice is the creation of the problem and its translation into design research. For example, Alexander (1964, p.77) confirms that finding the solution to a design problem depends on intuition since design is by nature imaginative and inspirational. For others on the contrary, design is a structured process that transforms creative ideas into concrete products, services and systems linking creativity to innovation.

Segelström et al, (2009, p. 2) suggested that beginning from the first design iterations, or even before, ethnographic approaches could be applied during most stages of the design process, from exploration of the context of future users to testing of experience prototypes in situ. Wasson (2002) explained, “the anthropological method of ethnography is usually defined as the description and explanation of the culture of a group of people”. Being rooted in empiricist social science tradition, ethnography aims to clarify systematically the ways that culture (or sub culture) simultaneously constructs and is constructed by the behaviors and experiences of members. It attempts to explicate structured patterns of action that are cultural and/or social rather than merely cognitive, behavioral, or affective. For this reason, Rodgers and Anusas (2008, p.1) acknowledged that ethnography has been recognized as a creative process about discovering cultural patterns and developing models to explain those patterns decades ago. In addition, design researchers have adopted an ethnographic approach to study the organization of design and engineering processes (Bucciarelli 1994).

Using ethnography as a research method, culture can be understood in part through an examination of the behavior of organizational members; like personal like or dislike mirroring the organization’s values or culture-specific motives for general appeal in the society. Values reflect a person’s beliefs lying at invisible levels of society’s culture. Moreover, ethnography allows a deeper understanding of the cultural background of product preference in the studied society. Using Turkey or a small-scale society as a case study, design research shall benefit from ethnography to argue that cultural unity other than personal variety is a primary motive for textile product choice in contemporary Turkish culture. This paper therefore presents a brief framework on Design Science Research (DSR) together with qualitative and quantitative approaches that can be used.
in ethnographic researches, revealing the importance and features of ethnographic approach as DSR method in textile design.

2. DESIGN SCIENCE RESEARCH

Depending upon the ethnography’s deep connection to the projects of modernist scientific philosophy, it has been conjoined to applied social research since its inception. However, some researchers (Hirschman 1986; Sheery 1990) declared that on a limited set of ethnographic practices in marketing research, the capacity of social science had been exaggerated. On the other hand, ethnographic research is still one of the Design Research (DR) methods that is a suitable for using in cultural design applications since it allows the designer to understand consumers, including how they act, what they want, and what their attitudes, perceptions, and behaviors are (Table 1). Some research traditions appear in related forms in more than one discipline, with the tradition originating in one discipline (e.g. ethnography originated in anthropology) and then being adapted for use in another discipline (e.g. some sociologists use ethnographic methods). Table 1 presents 17 qualitative research traditions organized into three categories. The traditions within each category are related in that they study similar phenomena. Some focus on understanding the nature of lived experience (type I), others seek to understand cultural and social phenomena (type II) and still others seek to understand language and communication phenomena (type III) (Gall et al, 1996). Addressing both qualitative and quantitative research methods according to the phenomena investigated, the designer can discover unmet needs and understand the impact of a product within a specific context.

Table 1. Qualitative research tradition classified by type of phenomena investigated (Gall et al, 1996).

<table>
<thead>
<tr>
<th>RESEARCH TRADITION</th>
<th>INVOLVES THE STUDY OF</th>
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<tbody>
<tr>
<td><strong>I. INVESTIGATION OF LIVED EXPERIENCE</strong></td>
<td></td>
</tr>
<tr>
<td>1. COGNITIVE PSYCHOLOGY</td>
<td>Mental structures and processes used by individuals in different situations</td>
</tr>
<tr>
<td>2. LIFE HISTORY</td>
<td>Individuals life experience from their perspective</td>
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<tr>
<td>3. PHENOMENOGRAPHY</td>
<td>Individuals conceptualizations of reality</td>
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<tr>
<td>4. PHENOMENOLOGY</td>
<td>Reality as it appears to individuals</td>
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<tr>
<td><strong>II. INVESTIGATION OF SOCIETY AND CULTURE</strong></td>
<td></td>
</tr>
<tr>
<td>1. CULTUREL STUDIES</td>
<td>Oppressive power relationships in a culture</td>
</tr>
<tr>
<td>2. EMANCIPATORY ACTION RESEARCH</td>
<td>Practitioners self-reflective efforts to improve the rationality and justice of their work</td>
</tr>
<tr>
<td>3. ETHNOGRAPHY</td>
<td>Characteristic features and patterns of a culture</td>
</tr>
<tr>
<td>4. ETHNOMETHODOLOGY</td>
<td>The rules that underlie everyday social interactions</td>
</tr>
<tr>
<td>5. EVENT STRUCTURE ANALYSIS</td>
<td>The logical structures of social events</td>
</tr>
<tr>
<td>6. SYMBOLIC INTERACTIONISM</td>
<td>The influence of social interactions on social structures and individuals’ self-identity</td>
</tr>
<tr>
<td><strong>III. INVESTIGATION OF LANGUAGE AND COMMUNICATION</strong></td>
<td></td>
</tr>
<tr>
<td>1. ETHNOGRAPHIC CONTENT ANALYSIS</td>
<td>The content of documents in cultural perspective</td>
</tr>
<tr>
<td>2. ETHNOGRAPHY OF COMMUNICATION</td>
<td>How members of a cultural group use speech in their social life</td>
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<tr>
<td>3. ETHNOSCIENCE</td>
<td>A culture's semantic systems</td>
</tr>
<tr>
<td>4. HERMENEUTICS</td>
<td>The process by which individuals arrive at the meaning of a text</td>
</tr>
<tr>
<td>5. NARRATIVE ANALYSIS</td>
<td>Organized representations and explanations of human experience</td>
</tr>
<tr>
<td>6. SEMIOTICS</td>
<td>Signs and the meanings they convey</td>
</tr>
<tr>
<td>7. STRUCTURALISM</td>
<td>The systemic properties of language, text, and other phenomena</td>
</tr>
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</table>

Many anthropologists and sociologists employed ethnographic techniques to understand everyday product experiences and the processes of design (Costall and Dreier, 2006; Henare et al., 2007; Ingram et al., 2007). Skaggs (2010, p.2) admitted that research could enable products and services to meet more market and consumer needs, thereby reducing the risks of introducing a new product. Fernandez (1986:61) pointed out that this method could give an awareness of the many different domains of experience in a culture to which expressive events would, in their predications, be making a linkage. Used in this way,
ethnography was employed as a front-end DR method to investigate everyday social life and culture as a context for innovation and creativity. This has been proven with the commercial success of “People-Centered Design” approach employed by many leading product development companies including Intel, Microsoft, BMW, and IDEO (Rodgers and Anusas, 2008 p.2).

Scientific design refers to modern, industrialized design as distinct from pre-industrial, craft-oriented design - based on scientific knowledge but utilizing a mix of both intuitive and non-intuitive design methods. “Scientific design” is probably not a controversial concept, but merely a reflection of the reality of modern design practice (Cross, 2001, p.50). Owen (2007, p.17) expressed that design thinking was in many ways the opposite of scientific thinking. Where the scientist shifted facts to discover patterns and insights, the designer invented new patterns and concepts to address facts and possibilities. Cross (2001, p.51) mentioned that Design as a Discipline, therefore, could mean design studied on its own terms, within its own rigorous culture. Therefore, DR is a methodology that involves the application of the principles and latest findings of science to the creative design and implementation of solutions to the problems of the society. It is a way of recognizing, defining, and solving complex problems that is based on innovation and thrives on transparency.

Cross (1999) defined that the field of DR would therefore fall into three main categories, based on people, process and product: Design epistemology; Design praxeology; Design phenomenology (Cross, 1999, p.6). As another example for the researchers thinking broadly on the proper articulation and classification of DR other than Cross, Mahdjoubi (2003) explained design as a broad and deep concept whose classification needs relevant attention and organized design under three tiers: Design as activity, Design as planning, and Design as epistemology. Although design is becoming a generalizable discipline that may be employed in processes, interfaces in many fields, the exact border between these three tiers of designs is fuzzy at best. With the general theory developed to understand design as a discipline that can function within any of these domains can delineate the epistemology of design only.

Friedman (2003 p.519) defines “Moving from a general theory of design to the task of solving problems involves a significantly different mode of conceptualization and explicit knowledge management than adapting the tacit knowledge of individual design experience”. Since the history of design survey must explicitly address the relevance and role that design history as a discipline can play in shaping practice and further study in the field (Lichtman, 2009, p.349), Design Science Research (DSR) is being discussed at the moment in various fields of design projects. Starting from early 2004, DSR is replacing DR name for the field. The difference is that DR is research into or about design whereas DSR is primarily research using design as a research method or technique (Vaishnavi and Kuecchler, 2004). According to March and Smith (1995) there are four outputs of DSR as constructs, models, methods and instantiations. The constructs are the conceptual vocabulary of a domain; models are a set of propositions or statements expressing relationships between constructs. Methods are a set of steps used to perform a task. Instantiations are the operationalization of constructs, model, and methods.

Hogan et al. (2011 p.36) discussed that with the variety of methods and data collection tools open to ethnographers, ethnography can be malleable to suit a research agenda, provided it is made clear how the researcher is using the approach in his/her research undertaking. They underlined that the specificity of ethnography’s purpose for studying a culture/sub-culture or population, and the use of observation in amusing field and contextual notes used in the analysis and interpretation of that culture/sub-culture or population. However, design theory procedures on artifact construction emphasize analogous steps to experimental natural science. Design Science Research (DSR) is a rapidly evolving field on these four outputs. As the result of the postmodern society, explosion of the Internet with its reach into all aspects of people's lives has accelerated the move of information technologies out of the workplace and into homes, recreational environments, and other nonwork-related settings causing a recent trend for the ethnographic perspective in design

3. ETHNOGRAPHIC DESIGN RESEARCH IN TEXTILE

Textiles and apparel manufacturers face every day with increased competition. Growth of Designer and Brand names becomes pervasive in the retailing sector because of the tremendous advertising support which proves to be overstated. The industrial and business context makes textile design rather different from the happy and beautiful images of models walking solemnly through the catwalk. Where the textile and fashion companies with well-organized management structures and talent management practices are searching for competitive advantage, the professionals in the sector are searching for effective creativity. Textile and fashion companies are key players in the stock market and parent groups of brands are not dissimilar to international companies that seek trade and financial investment to support their growth objectives.

Textile design is far from being conducted by talented and creative individuals who continually push the boundaries of taste and public acceptability. On the contrary with the harsh rivalry inside the sector, with the rapid consumption of creativity, and strict ties with organizational and inter-organizational business settings, unbalanced and persistent public acceptability continually pushes the boundaries of captivated and isolated designers. Design is also tied to production and forever mindful of potential problems that an idea might encounter at the production phase. This makes a core component of fashion design ‘specification work’ and like such work in other industrial contexts-specifications are
rarely worked up from scratch.

In contrast then to many intuitive notions of fashion design, time-critical and season-sensitive design proves to be the focus of both industries. Whole manufacturing process begins as an activity involving the collection, manipulation and management of multiple forms of data about products, suppliers and customers. Fashion marketing is the entire process of researching, planning, promoting and distributing raw materials, apparel, and accessories. It involves everyone in the fashion industry and occurs through the entire channel of distribution. Even in this complex fauna, ethnographic work can be used as a resource for defining and redefining research agendas in textile product development process. Fashion design is no one single activity and bears scant resemblance to any abstract notion of what design might be all about. The results from an ethnographic study can often inform developers and implementers of the most appropriate settings for the technology they are developing or have developed. Such results may contradict intuitions about the usefulness of applications and an application may turn out to be useful in a setting not anticipated by its developers. This use of ethnography may be particularly prominent when development work is advanced or design decisions are so entrenched that it is impractical to change or reverse them.

A standardized framework would allow industry and academia to quickly develop test sequences, more efficiently organize and retrieve data and make better use of a scientific database approach to experimental results and so on. Realizing a methodological solution would also allow industry to implement a research based strategy over their existing operating protocols with the minimum investment and would give a foundation for comparability between academic and industrial research (Cash et al., 2009).

The primary advantage of ethnography is its observational technique that allows researcher to record the behavior as it occurs. Furthermore, it will uncover and thoroughly describe the phenomena in a community. The last advantage of ethnography research is to understand the phenomenon under study from the perspective of those being studied. Therefore, the finding is more real than a research that manipulates variables by using external experiments (Nurani, 2008).

While “good” design sense is often the result of years of training and experience, becoming aware of the rationale behind such choices is not only interesting, but, if well documented and openly disseminated, can benefit the information visualization community. (Van de Moere and Purchase, 2011, p.369). For this reason, this paper strongly encourages market research clients to put aside their anxieties about commissioning longitudinal ethnographic studies of consumer subcultures and consider extending past ad hoc applications. Since ethnography sits at the nexus between the textile world and the designer or in other words market and academia.

4. CONCLUSION

In anthropology, ethnography developed as way to explore the everyday realities of people living in small scale, non-western societies and to make understandings of those realities explicit and available to others. The approach relied on the ability of all humans to figure out what is going on through participation in social life. Its techniques bear a close resemblance to the routine ways people make sense of the world in everyday life. The research techniques and strategies of ethnography developed and evolved over the years to provide ways for the ethnographer to "be present" for the mundane, the exceptional, and the extraordinary events in people’s lives (Blomberg, et al. 2002).

Since anthropology has its roots in cross-cultural understandings there is a distinct possibility for ethnography to be used to understand more about the processes of modern design pursuits. Rodgers and Anusas (2008, p.1) strongly emphasize the need to present this wealth of activity concerning ethnography and design to a wider design audience to question and raise ideas concerning its applicability and usefulness to design education. No other research tradition matches the ability of ethnography to investigate the complex phenomenon known as culture. Its holistic orientation enables a skillful researcher to identify diverse elements of a culture and weave them into coherent patterns.

Symbols enable humans to produce culture and transmit complex histories. Becker (1982) noted “We imbue meaning into everything, extending into the wider social worlds in which we exist. Through participant observation research, we can gain access to these symbols and meanings”. Ethnographers generally take an emic perspective, which means that the culture members own perceptions and language categories are used to describe and explain the culture. While this perspective helps the reader understand the culture as a unique social reality, it does not provide a basis for discovering laws of social life. An etic perspective, in which the researcher develops her own categories for understanding a culture, might provide a better basis for cross cultural studies and the discovery of cross-cultural laws. However, these categories might distort our understanding of any particular culture. Another unresolved issue is whether ethnography should subscribe to the goal of the natural sciences to develop universal laws or to the goal of the humanities to understand the unique and case (Gall et al.,1996).

Many key activities in textile sector are essentially cooperative. While individuals may have their own distinct responsibilities, this comprises a working division of labor constituted by an awareness of each other’s work and a readiness to help when required. Buyers and garment technologists cooperate on specifications, the sense given to ‘accurately following them’, what might be wrong with problematic garments or suppliers and what can be done to correct affairs. All global corporate brands, textiles and apparel companies included, are drawing upon ethnographic researchers of all types –journalists, writers, photographers and filmmakers, to bring consumer worlds to life and subsequently being disseminated across the
organization. Textile and fashion companies should take advantage of ethnographic design collaborations in order to understand emergent culture of the consumer groups and meaning in peoples’ lives. If textile and fashion marketers recognize that consumption is fundamental to all human experience, then they will see the power of ethnographic research not just for the tactical insights that it can deliver, but also for its broader portrayal of the evolving consumer landscape.

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