Criteria of an Alternative Empathy Research Method to Uncover End-user's Supra-Functionality Needs in Home Sofa Furniture

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Abstract

Furniture products have reached a level of functional maturity. To draw the end user's eye, designers must provide them with added value in the realm of pleasure called Supra-functional (S-F) needs. These kinds of needs are completely emotional and difficult to express and understand. Empathy is the common approach in the Design Thinking process to understand end-user's needs and gain insight into them. This study investigates to determine the criteria of an alternative empathy research method to uncover Home Sofa End-user's S-F Needs. The theoretical proposition is: "An alternative empathy research method can be constructed by understanding end-users' affective preferences as the main S-F factor in home sofa furniture to predict user's purchase decision". The home sofa is useful furniture as people have a prolonged and intimate sensory interaction with this product, making it a good case to study end-user's S-F needs. The research team used a qualitative approach and applied twenty-seven face-to-face interviews to collect data from furniture designers, furniture producers and furniture sellers as the main stakeholders in the furniture industry. ATLAS.ti software was used for coding and analysing the data. There were three levels of analysis, open coding, selective coding, and theoretical coding. The significant finding is: Sixteen criteria have emerged for alternative empathy research methods to uncover user's S-F needs which is better done with the categorization of style and S-F ranking task. Research findings show that an alternative empathy research method that uses online services (collecting user data in the virtual mood) and visual approaches (as a nonverbal technique), can uncover more end-user's S-F needs and deliver more pleasure products. The focus of this research was on the first step of the identification of user needs process (collecting raw data from users) to know user's S-F needs. Studying the other steps of the process of identifying user's S-F needs can be investigated in future studies such as interpreting the raw data in terms of user's needs.

Introduction

In the face of market globalization, which increases the competitiveness of industrial production, design scientists must propose new tools and methods that guide and facilitate the industrial innovation process (de Rouvray et al., 2008). Many industrial products have reached a level of functional maturity, to the extent that it has become difficult to differentiate a product from its competitors based on functionality alone, especially in products that are not technology-based like furniture. Thus, to draw the consumer's eye, designers must provide him or her added value in the realm of pleasure (Jordan, 2000), or what Weightman and McDonagh (2004) refer to as *S-F needs* related to the end-user's emotion directly.

There is recognition in the design community that an understanding of end-users and their needs is central to the analysis and design development (Strickfaden & Devlieger, 2011). Thus, it is necessary to know about end-user's needs, likes and dislikes, especially the ones that impact their emotions positively. The generation in the Design Thinking (DT) worldview does not begin until the concealed desires and needs of end-users are inspected (Meinel & Leifer, 2012). Meanwhile, hidden needs are ordinary emotional ones that are difficult to express and understand.

It is highly daunting to spot a need and design a response and subsequently, it is tough to produce a valuable product that someone loves (Kolko, 2014). The designer's capability to know the end-user's functionality and usability needs are at acceptable levels. End-users seek more than functionality alone. They want their dreams, aspirations, values, and in general, emotional models to be seen in the products they use (Weightman & McDonagh, 2004). Designers should focus on refining their capability of understanding and extracting the emotions and feelings of the end-users (Dandavate et al., 1996).

The most common approach in the DT process to understand end-user's needs and gain insight into them is Empathy (Brown, 2009). Empathy is crucial to constructing momentous products (Kolko, 2014) because empathic understanding can fill the gap between the creator and the emotional desires of the end-user (McDonagh, 2015; Meinel & Leifer, 2012).

Several empathy methods have been identified for uncovering end-user's needs to reach maximum empathy. These techniques, mostly concentrate on the end-user's functionality and usability needs. With the help of an alternative empathy technique that focuses on extracting the end-user's emotional needs, designers can reach more real empathy and subsequently design more pleasurable and better products.

Home sofa furniture as a none mundane product and as an everyday product has reached a level of functional and usable maturity and difficult to differentiate a home sofa from its competitors based on functionality and usability. Furniture designers should seek a method to know the third kind of end-user's need which refers to pleasure (Jordan, 2000). Our world is moving fast and designers need to know the end-users through a fast and precise method, especially in the markets like furniture.

The objective of this research is to identify the criteria of an alternative empathy research method to uncover end-user's S-F needs in home sofa furniture. The identification of user needs process includes 5 steps (Ulrich & Eppinger, 2016). The focus of this research is on the first step (collecting raw data from users) in order to know user's S-F needs with minimum misunderstanding.

Literature Review

This section is an attempt to clarify Empathy aspects in the design thinking process and provide a clear definition of S-F needs, and the importance of S-F needs in the furniture design realm, especially in the home sofa.

1. *Empathy with End-Users*

The research methods commonly used in Empathy fall into three categories.

A: Consists of techniques that relate to what people do in their context and includes mainly observational techniques.

B: Includes techniques where people are asked to express their thoughts, dreams and feelings (interview).

C: Includes techniques that aim to have designers try things out and learn about user's experiences (simulation) (Meinel & Leifer, 2012; Postma et al., 2012).

Empathy is different from sympathy because it focuses on putting yourself in someone else's shoes to truly understand what they are thinking or feeling and why. Sympathy is a mode of empathy, but empathy expands beyond sympathy (Marino, 2013). When one senses an emotion towards the other that is incongruous with the emotional state of the other; the emotional component is expressed as sympathy (Smith, 2006). Without an appropriate response, there is no empathy because it is responsible for emotional alignment (Oxley, 2011).

Empathy is seen as the key to understanding end-user's experiences and emotional models. Indeed, the design of empathy is bolded when we emphasise individual experiences and private situations instead of practical purposes (Kouprie et al., 2009; Wright & McCarthy, 2008). Several empathy methods have been identified for uncovering end-user's needs to reach maximum empathy. These techniques, mostly concentrate on the end-user's functionality and usability needs (Table 1). With the help of an alternative empathy technique that focuses on extracting the end-user's emotional needs, designers can reach more real empathy and subsequently design more pleasurable and better products.

Table 1: *Three main empathy methods in the field of industrial design (Source: Author, 2022).*

Method	Sub-Method	Description	Focus on	Most of use
Simulation Techniques	Role-Playing, Product Handling, Experience Prototyping, Body Storming, Informance, Experience Prototypes, Empathic Modelling	Simulating the user's situation	User experience and Usability in functional products	Disabilities and Elderlies
Interview	Storytelling, Creating a dialogue	Making a dialogue and listening to the user's experience	User's words	General
Observation	Ethnographic shadowing, Contextual Modelling, Character Modelling.	Observing actual persons in the real-life condition	Observing the Behaviour and Embodied Experience	Disabilities

Here are two related types of research conducted in the empathy design field as a sample: O'Kane et al. (2014) article is about autoethnography to capture non-routine mobile device use. They emphasised that auto-ethnographic methods can be disruptive to researchers. This allows him to understand and empathise with mobile device users' experiences in hard-to-reach situations. However, O'Kane et al. (2014) study focuses exclusively on mobile medical technologies, and specifically on non-routine times that are difficult to explore in traditional field user studies. Zingoni's (2019) article is about a study on the development of vicarious empathy in second-grade interior design education. They highlighted the applicability of vicarious empathy to understand people when direct interaction is not possible and as a means of speaking on behalf of those who cannot speak for themselves. However, Zingoni (2019) only focuses on developing empathy in interior design students.

2. *Supra-Functionality Needs*

Based on Patrick Jordan's hierarchy of needs for an industrial product (Jordan, 2000) there are three different levels of needs;
- Level 1: Functionality
- Level 2: Usability
- Level 3: Pleasure.

The fact that products can evoke pleasure and elicit emotions is not in question (Porter & Chhibber, 2005). End-users seek the product that answers their pleasure needs, especially when functionality and usability need mature in a product and there is no obvious difference in the product alternatives.

These emotional and pleasure needs are called Supra-Functional (S-F) needs. The goal of S-F needs is to create a positive emotional impact on the consumer.

S-F can be defined as follows: attributes that satisfy end-user beyond the utilitarian functional needs (McDonagh & Thomas, 2010), S-F refers to the more ephemeral needs of the end-user (Silva & Simões, 2010), are often associated with the stakeholder's cultural, emotional, social, inspirational and tribal needs, (Fenech & Borg, 2006). S-F specifications can be summarized by:

- S-F is the final deciding factor when pricing and functional needs are similar and there are no obvious differences between the two products.
- S-F is a completely psychological and intangible need.
- S-F has often-difficult-to-grasp elements and are vibrant and change frequently (Silva & Simões, 2010).
- Tools for integrating the S-F are extremely different in content for each product (Watson & McDonagh, 2004).
- S-F factors will interact with the functional aspects (Mcdonagh & Weightman, 2015).

Understanding and responding to end-users' S-F needs has many subsequently that affect product design (Weightman & McDonagh, 2004): Connecting people to products, Pride of ownership, respect for function, pleasure in performance, emotional bonding with products, enjoyable experience, Loyalty and Commitment to a product. All of these are outcomes of the perception of pleasurable emotions (Fenech & Borg, 2006) and create a good sense in the end-users mind. This good sense can persuade an end-user to keep and consume their existing product for a longer period which is an agenda of sustainable product development.

Here describe two related types of research conducted in the S-F needs field as a sample Weightman and McDonagh (2004) explored approaches that allow users to customise, specify, modify or create products directly to their needs. They argued that as user-centered production methods became more common, designers moved from advocating or interpreting the user's needs to being empathetic and inspirational facilitators, allowing users to realize their own needs. However, Weightman and McDonagh (2004) focuses only on the relationship between users and products, particularly in music, graphics and digital media production, and makes no mention of how we can figure out the user's needs in terms of higher-level functionality.

McCartan et al. (2011) Presents a series of design case studies that applied a methodological framework for emotional design to a 40-foot sailing yacht for a range of European individuals. They note that luxury is visually clarified in a cultural context as a tool to inform the process of interior design for a particular persona. Colour and shape and the rationale for the design detail are essential to the concept of luxury. McCartan et al. (2011) emphasise that design creates positive experiences for the consumer. The holistic blend of functionality and S-F (emotional needs) becomes crucial in a luxury product such as a superyacht. However, they only focus on luxury feeling as one of the S-F needs of a 40ft sailing yacht boat.

3. *Home Sofa Furniture*

There is close competitiveness in the furniture industry, especially in home sofa furniture. A home sofa is not a technology-based product and most furniture factories and even wood workshops can produce this product almost in the same way and same quality. Thus, the price of the home sofa and functional requirements are almost similar and there is no obvious difference between the two sofas (Figure 1). Therefore, considering a positive, pleasurable emotion in sofa design has a vital role in the end-user's consumption stage in the sofa life cycle.

Furniture is a type of product that consumers select with a great deal of consideration and spend a lot of time before they finally decide to buy it (Oblak et al., 2017). Besides, the home sofa was found to be useful furniture as people have a prolonged and intimate sensory interaction with this product. It means that people are likely to have some opinions and preferences regarding home sofas which makes this product a good case to study end-users' S-F needs.

Figure 1: *Price and functional requirements are similar in these two sofas with different pleasurable emotions (www.davincilifestyle.com/natuzzi/lem-three-seater).*

Methodology

This paper tries to construct an alternative empathy research method to uncover home sofa end-user's S-F needs. Twenty-seven face-to-face interviews were conducted with Malaysian local furniture designers, furniture producers and furniture sellers as the main stakeholders of furniture to collect qualitative data. The interviewer's actions were limited to giving the open-ended question paper to the participants, recording participants' responses (voice recording), and possibly asking for clarification if the participants' responses were ambiguous.

Nine local furniture designers in Kuala Lumpur (KL) and Selangor province of Malaysia were selected to conduct interviews. Furniture designers must have at least three years of experience in the furniture industry. The focus of this interview was on the designer's method and problems to know about end-user's needs and perspectives. Nine local furniture producers in KL and Selangor province of Malaysia were selected. The focus of the interview was on the manager's point of view about considering the end-user's needs and perspective in the design and production process. Nine Furniture stores in KL and Selangor province of Malaysia were selected to conduct interviews with their sellers. The focus of the interview was on the customer's behaviour, the customer's priorities and the customer's buying process.

The ATLAS.ti version 8 software was used for coding and analysing the qualitative data. There were three levels of analysis to extract codes and themes from 27 individual interviews:
A. open coding
B. selective coding
C. theoretical coding.

At each level of analysis, a constant comparison was used to distil the data further, until themes emerged from the data. The steps of analysing the interviews are summarized in Table 2:

Table 2: *Steps of analyzing the interviews (Source: Author, 2022).*

Steps	Description
1	Transcribing the audio of the interview and reading them.
2	Creating and labelling codes to quotations in documents (open coding).
3	Deciding which codes are the most important and creating code groups or code categories by bringing several codes together (selective coding).
4	Labelling the bold connections between selective codes and open codes and decide which are the most relevant (theoretical coding or Memo).

Step 1, Transcribing the interview audio and reading them: 27 Word documents created from interview audios and then uploaded to ATLAS. ti software. All transcripts were browsed quickly as a whole and a word frequency query was conducted on the documents to find the first impression.

Step 2, Creating and labelling codes to quotations in documents: Each interview was coded manually using the software ATLAS.ti the researcher reread the transcripts to identify themes. Relevant words and phrases or sentences were marked to create codes. The codes referred to actions, concepts, differences and opinions mentioned by the respondent. The researcher has paid attention to some points to create open codes such as repeated elements, and surprising ideas, the interviewee states that it is important, that similar points that were read previously, remind a theme or concepts related to the research questions.

Step 3, Deciding which codes are the most important and creating code groups: In analysing the depth of codes, word frequency on code groups, co-occurrence of codes, code-document table, semantic linkage of code groups and the number of quotations assigned to open codes, selective codes emerged from the data. The most relevant codes to the research questions were kept and grouped as a category.

Step 4, Labelling the bold connections between selective codes and open codes: Memo or Theoretical coding resulted from the relationships both within and across the open codes and selective codes. Relationships across the selective codes were analysed. When building the network of codes, each time a quotation is linked directly to a code, the researcher reviewed that quotation for relationships with other codes. If there was a relationship, the researcher connected the codes with an arrow.

Result and Discussion

Step 1: As Table 3 shows, the word *customer* was the most frequently referenced word type (13.83%) and the word *need* was the second most frequently referenced (11.07%) in the query search for all document groups. This shows how important the end users and their needs are from the designers', producers' and sellers' points of view.

Table 3: *Word frequency in all interview documents (Source: Author, 2022).*

	Word	**Count**	**Percent**
1	Customer	241	13.83
2	Needs	193	11.07
3	Furniture	159	9.12
4	Like	157	9
5	Know	116	6.65
6	Sofa	106	6.08
7	Want	93	5.33
8	Quality	78	4.47
9	Design	76	4.36
10	Price	70	4.01

Step 2: The researcher reread the transcripts to identify open codes. Relevant words and phrases or sentences were marked to create codes. The codes referred to actions, concepts, differences and opinions mentioned by the respondent. The open coding results included 97 codes from manual coding.
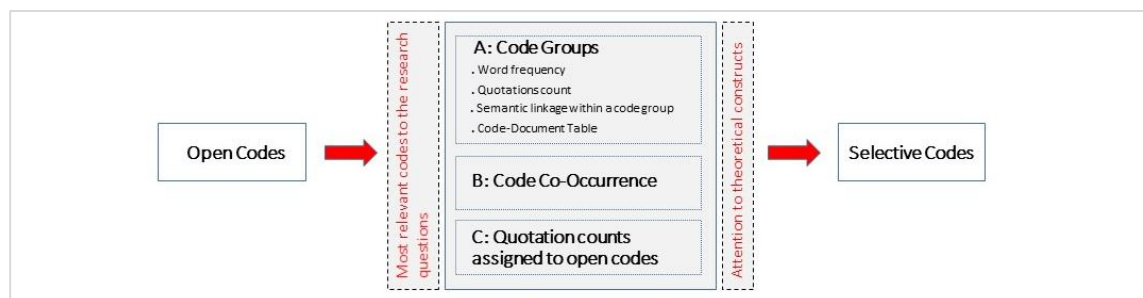

Figure 2: *Emerging Selective Codes from Open Codes (Source: Author, 2022).*

Step 3: The steps for obtaining selective codes from open codes are shown in Figure 2.

Results for code groups, word frequency and quotations assigned to open codes for each code group are shown in Table 4.

Table 4: *Code Groups (Source: Author, 2022).*

	Code Group	Code Count	Quotation Count	5 Most frequency words
1	end-user supra-functionality (preferences)	16	140	Like, Customer, Shape, Sofa, Design
2	empathy with end-user	39	256	Customer, Data, Time, Like, Needs
3	criteria of an alternative empathy research method	26	157	Time, Online, Market, User, Like,
4	end-user satisfaction and pleasure	14	84	Customer, Product, Like, Thoughts, Design
5	end-user functionality needs	12	85	Quality, Customer, See, Comfortable, Usability
6	home sofa purchasing	34	209	Customer, Quality, Market, Like, Sofa

The researcher used a code-document table to identify how often the codes have been applied to a document group. As the ultimate output of this research is *constructing an alternative empathy research method in the design thinking process*, open codes related to the designer's document group are the priority. The most open codes which the designers mentioned are in the *criteria of an alternative empathy research method*, *empathy with end-user* and *end-user S-F* code groups. Therefore, the open codes related to these three code groups are more important.

The researcher used Semantic linkage for code groups to build a network of code groups and their related codes. The codes that receive the most links and create a knot throughout the network, can be a sign of the importance of this code.

The researcher also used a co-occurrences table to show a cross-tabulation of 97 open codes and within the cells a frequency count of how often each pair of codes co-occurs and a coefficient that indicates the strength of the relation between the two codes and can show the importance of a code.

After applying these filters, fifteen more important codes called Selective Codes, emerged from the manual and ATLAS.ti 8 analysis shown in Table 5.

Table 5: *Selective Codes (Source: Author, 2022).*

	Selective Codes	Quotation Count
1	A reliable method for understanding end-user needs	7
2	Collecting data directly from end-user	11
3	Understanding end-user's needs	15
4	Face-to-face interview with end-user	20
5	End-user preferences	13
6	Material	22
7	Attention to online services	26
8	Communication with end-user	12
9	End-user Satisfaction	5
10	End-users' dreams, feelings and thoughts	34
11	End-users functional and usability needs	26
12	Using a fun and easiest way for collecting end-user data	6
13	Need to improve the current method	5
14	Interaction with end-user through social media	21
15	Time in collecting data	7

Step 4: Bold Connections between Selective codes and open codes were reviewed and labelled. This labelling and connection between them are the main results of the study called Memo. The network of Open codes, Selective codes and theoretical codes are shown in Figure 2.
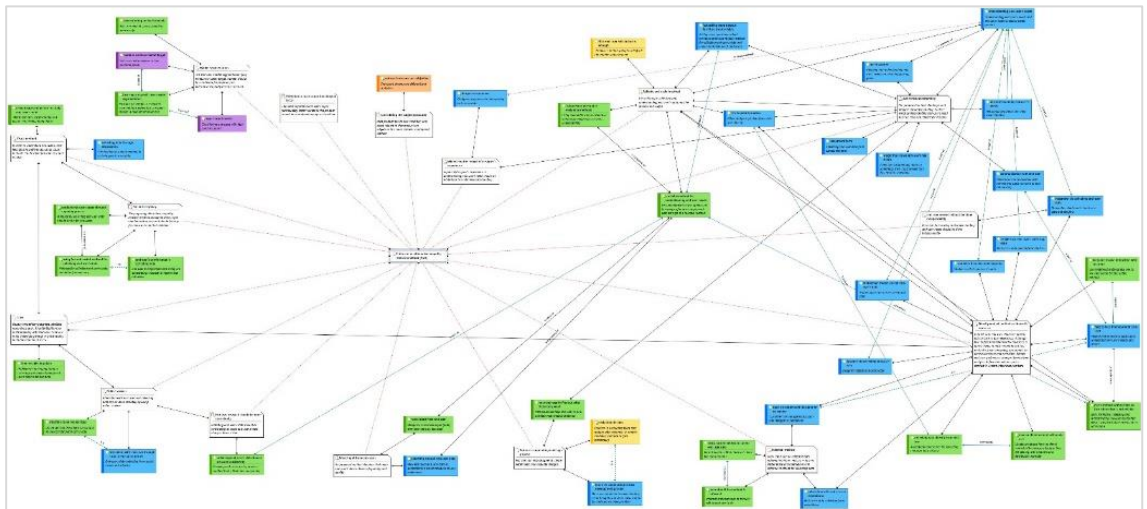

Figure 3: *Network of Open codes, Selective codes and theoretical codes for Criteria of an alternative empathy research method (Source: Author, 2022).*

For instance in Figure 3, the Fun and Easy Way Memo which commented as *proposing alternative empathy research method should be done in a fun and interesting way and should be easy for end-user to do that method* created from relationships between Using fun and easiest way for collecting end-user data selective codes and related open codes and quotations.
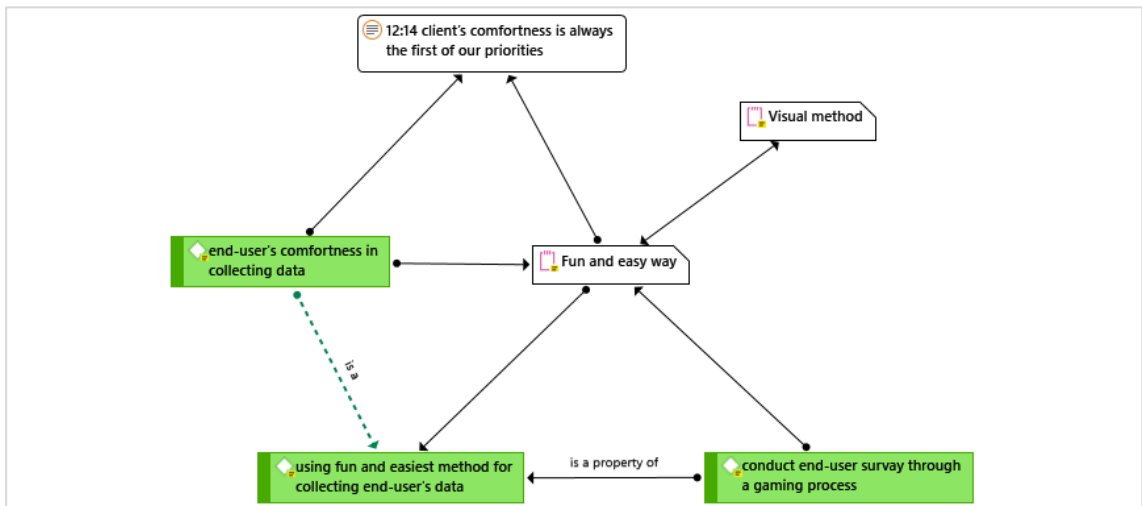

Figure 4: *Semantic linkage of emerging Fun and Easy Way Memo (Source: Author, 2022).*

The *Constructing an Empathy Research Method*, presents the principles for creating an alternative empathy research method for better understanding end-user's S-F needs. In this study, two code groups can present the *criteria of an alternative empathy research method* Memo group. These code groups are *empathy with end-user* and *criteria of an alternative empathy research method* (Figure 3).

In the *empathy with end-user* code group, the *understanding end-user's need* code and *reliable method for understanding end-user's need* codes receive the most links and show the importance of these two codes.

In the *criteria of an alternative empathy research method* code group, *a reliable method for understanding end-user's need* code receives the most links and shows the importance of this code.

In the *criteria of empathy research method* Memo group, the *direct contact and interaction with end-user* Memo, receives most links from codes and other Memos and shows the importance of this Memo, after that the *Avoid misunderstanding* Memo is in second priority. After them, Time, Online services and Visual methods receive bold links from other memos.

The selective codes with the most relationships formed at the start of the Memo (Figure 5). Sixteen Memos emerged for the Criteria of an alternative empathy research method which is shown in Table 6. These Memos are the main findings of this research and are explained in the Memo Comment column (Table 6).

Table 6: *Memos for Criteria of an Alternative Empathy Research Method (Source: Author, 2022).*

| Memo	Memo Comment
Attention to the main S-F factor	The most important end-user's S-F factor related to the product should be considered in the proposed method
Avoid Misunderstanding	The proposed method should prevent designer misunderstanding, in other words understanding end-user's needs must be easy and reliable for the designer
Considering the subject (product)	Each product has its condition and needs to be related to that product are subjective. this must be considered in the proposed method
Directly contact and interact with end-user	Contact with end-user should be direct but not face-to-face necessarily. Although face-to-face interaction with end-user is an approved way to make empathy this method is time-consuming and cannot be done everywhere and every time. besides end-user preferences change from time to time and face-to-face interaction can be conducted with limited interviewee numbers.
End-user cooperating in the design process	End-users can help designers to create better ideas and evaluate designs.
End-user research should be done consistently	Collecting end-user's data should be consistent because end-user's taste changes from time to time
End-user research should be done independently	Research for knowing and understanding end-user needs should be done independently
Fun and easy way	The proposed alternative empathy research method should be done in a fun and interesting way and should be easy for the end-user to do that method
Informal Method	More input can be collected with informal methods. end-users have a better sense and interaction with informal methods for collecting data
Market Segmentation	The end-user market segmentation (low, medium or upper target market) should be considered for proposing an alternative empathy research method
Minimizing the impact of the designer's experience	The impact of designer's experience in understanding end-user's need should be minimized to avoid misunderstanding
More input from end-users	The proposed method should collect more end-user's data in terms of quantity and quality
Online Services	Interaction with end-user and collecting data can be done remotely by using online services
Reliable and Useful Method	The method for collecting and understanding end-user's data must be reliable and useful
Time	Usually, empathizers (designers, retailers, researchers and ...) have limited time to make empathy with end-user. Time is the main challenge thing in getting empathy and understanding end-users.
Visual Method	To understand end-user's inner feelings and preferences, using visual methods can be more fun and easier and reliable
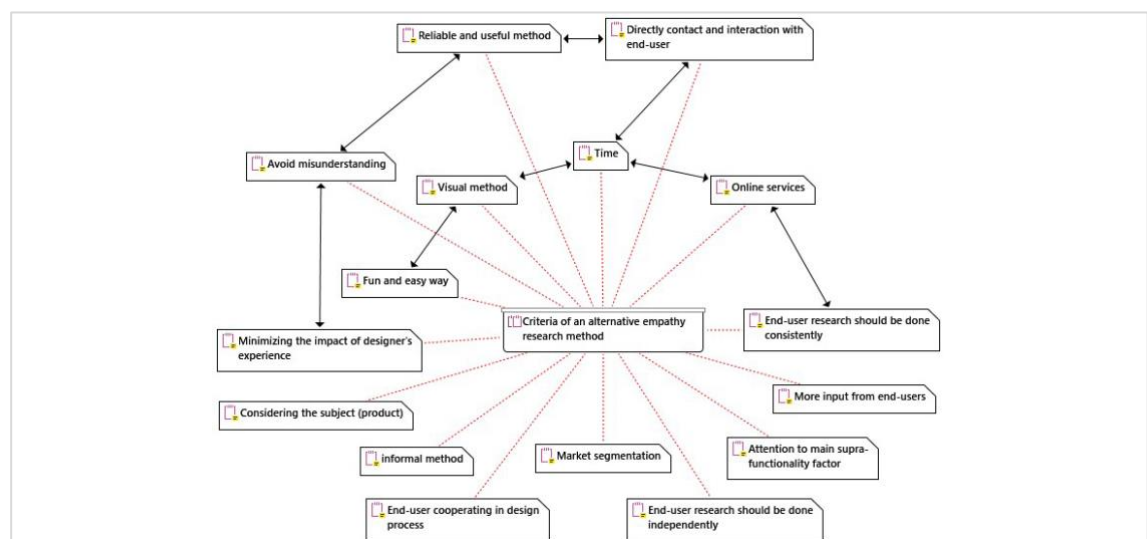
Figure 5: *Sixteen memos and relations between them (Source: Author, 2022).*

Conclusion

In conclusion, the criteria of an alternative empathy research method in the home sofa field in order of priority are (Figure 4);
1. Directly contact and interact with end-users
2. Avoid misunderstanding
3. A reliable and useful method
4. Time
5. Online Services
6. Visual Methods
7. End-user research should be done consistently
8. Fun and easy way
9. Minimizing the impact of the designer's experience
10. End-user cooperating in the design process
11. Market segmentation
12. Considering the subject
13. More input from end-users
14. Informal method
15. End-user research should be done consistently
16. End-user research should be done independently.

Eight Memos of *Fun and easy way*, *Visual Methods*, *Time*, *Directly contact and interaction with end-user*, *End-user research should be done consistently*, *Informal method*, *End-user cooperating in the design process* and *End-user research should be done independently* can be merged in one Memo which is Online Services and create a theme. In collecting end-user's data through online services such as email and social media, designers can have direct, consistent and independent interaction with the end-user in a fun, visual and informal way in a shorter time by considering the end-user's cooperation in the design process.

Four Memos of *Avoid misunderstanding*, *Minimizing the impact of designer's experience*, *Reliable and useful method*, and *More input from end-users* can be merged into one Memo which is *Visual Method* and create a theme because understanding end-user's inner feelings and preferences, by using visual methods can be more fun and easier and reliable and can bring more data and reduces the likelihood of misunderstanding. In short, the alternative empathy research method, can uncover more end-user's S-F needs and deliver more pleasure and better products. This statement can be confirmed by comparing the criteria of alternative empathy research methods with the most important current empathy research methods such as Observation, Interview and Simulation techniques (Table 7). The first column shows the 16 criteria for the empathy research method which emerged from this research and the three other columns show the main current empathy methods besides the proposed alternative S-F method.

The best technique to conduct these criteria of empathy research is the categorization of style. Categorization is the act of forming meaningful groups of products according to their perceived similarities or differences. de Rouvray et al. (2008) states categorization enables the user to organize their experience of the environment. The basic processing of the environment by our cognitive system leads us to search for similarities between perceived objects and stored objects. The task of categorization is a means of uncovering the product attributes and evaluating their relative importance. Categorization allows the designer to focus on the most important parts of a product to design or redesign it (de Rouvray et al., 2008).

The researcher proposes to perform categorization of style in the case of the home sofa as follows: Create good quality virtual images of sofas that users can zoom and rotate and that can be used on online platforms (websites or mobile applications). Participants will be asked to perform a task with this instruction: Please categorize the following sofas according to your criteria – you can create as many categories or families as you want.

Table 7: *Comparing alternative S-F empathy method with the most important current empathy methods (Source: Author, 2022).*

	Method	Simulation techniques	Interview	Observation	Alternative S-F Method
	Sub-Method	Role-playing, Product handling, Experience prototyping, body storming, Informance, Experience prototypes, Empathic modelling	Storytelling Creating a dialogue	Ethnographic shadowing contextual Modelling Character Modelling	Categorization of style S-F Ranking
	Description	Simulating the user's situation	Making a dialogue and listening to the user's experience	Observing actual persons in the real-life condition	Creating virtual contact with the user and using nonverbal Techniques
1	Directly contact and interaction with end-user	X	✓	✓	✓
2	Avoid misunderstanding	X	X	X	✓
3	Use reliable and useful methods in user S-F needs	X	X	✓	✓
4	Shortest possible time	X	✓	X	✓
5	Online Services (Can be conducted in Virtual mood)	X	✓	✓	✓
6	Visual Method (Nonverbal Techniques)	✓	X	✓	✓
7	Attention to main S-F factors in Sofa context	X	✓	✓	✓
8	Use a fun and easy way	X	X	✓	✓
9	Minimizing the impact of the designer's experience	X	✓	X	✓
10	User cooperating in the design process	X	✓	X	✓
11	Market segmentations	✓	✓	✓	✓
12	Considering the subjects	✓	✓	✓	✓
13	More input from end users	X	✓	X	✓
14	Use informal method	X	✓	X	✓
15	User research should be done consistently	X	X	✓	✓
16	End-user research should be done independently	✓	✓	✓	✓

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