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Product Co-Innovation and Emotions: The Designer's Emotional Ubiquity

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Abstract: *The aim of this paper is to understand product co-innovation through the empathy of the designer and the emotions of the designer and the client. The designer is seen as a profiler of the client's emotions and needs in order to innovate and create a product that satisfies them. We adopted a constructivist posture and a qualitative exploratory methodology. We conducted 9 semi-structured interviews with six female seamstresses, two male seamstresses and a seamstress's assistant in three sewing workshops in Owendo, Gabon. We used word cloud and continuous comparison thematic content analysis techniques. The results show that the tailor's empathy enables him to understand the client's emotions and needs, to adapt to him and to get to know him better. It fosters the designer's creativity and ability to innovate with the client. It is therefore a co-creation process involving product co-innovation. Managerial involvement enables the marketing field to integrate emotions and sensoriality into the relationship with the client.*

Keywords – *Emotions; Empathy; Co-creation; Sewing product; Co-Innovation.*

I. INTRODUCTION

The The fashion and luxury sectors are veritable breeding grounds for management innovation, which go far beyond the boundaries of the sectors and place technology at the center (Abecassis-Moedas & Moatti, 2014). Artisanal sewing, that is, non-industrial sewing, is no exception to this trend. In the global textile-clothing sector, we endorse the conclusions of Boussemart & Roncin (2007): "the confiscation of the sector by China and Turkey, the seizure of power by large firms that no longer respect market rules, and the global redistribution of production capacity to Third World countries, We are also witnessing the global redistribution of production capacity to Third World countries, which represent a potential, the logic of geographical proximity with the downstream part of the industry, which will enable gains to be made, and product innovation, which is giving way to superficial fashions as a means of renewing saturated consumption in wealthy countries. " Sewing workshops offering modest productions to local clients could be salutary for this sector. In this context, the extreme diversity of references combined with the constant renewal of collections has pushed the fashion sector as a whole to continually innovate by relying on technology, while preserving its traditional know-how (Abecassis-Moedas & Moatti, 2014). Sewing products and textile garments appeal to the preferences, desires and tastes of clients and consumers. It's not surprising that they appeal to their emotions. Several marketing studies have demonstrated the influence of emotions on consumer behavior. Holbrook & Hirschman (1982) show that positive emotions aroused by products increase the pleasure of buying, owning and using them. Artisanal sewing products, which are generally unique and therefore innovative by nature, fall into this category. However, to our knowledge, studies linking emotions and product innovation are rare. Emotions play a key role in human decision-making, perception, interaction and intelligence (Damasio, 1994), and in the adoption of innovative products (Loewenstein & *al.*, 2001). Admittedly, understanding emotions is just as difficult as including them in the product design process (Dupré & *al.*, 2015). However, the user experience framework has made it possible to take into account consumers' emotional feelings. Our field lies in marketing, more specifically in client behavior and relationships. The fashion designer profiles the client's emotions, gestures and speech to identify his or her needs and create and innovate a product with him or her. In the artisanal sewing sector, face-to-face interaction between designer and client is commonplace. It's important for the tailor to take into account the client's moods, behaviors and emotions in order to create the ordered product in line with their desires and needs. Rajshree (2016) seeking to improve understanding of the interaction between new product innovation and the career profiles of the individuals who create them, evokes that the personal characteristics that affect people's behavior at work include their intelligence, personality, attitudes, emotions and emotional intelligence. The designer should use his empathy to understand the client's emotions and get to know him better. Apprehending the other's emotions through empathy could be a source of innovation, through co-creation, and could also be a means of controlling the other. Schilling & Werr (2009)

highlight the need for further research to improve our understanding of a complex and multi-faceted phenomenon linked to the process of innovation and development in MSEs.
Thus, we attempt to answer the question: "How do actors promote product co-innovation in the sewing sector?"
We follow the research trend centered around shared innovation (Chesbrough & *al*., 2006). The aim of this paper is to understand product innovation between a fashion designer and a client. We will approach this work from the fashion designer's point of view. The interest of this research is twofold. Indeed, linking innovation to emotions is a topical field, and the profiling of a client's emotions by a fashion designer to create and innovate in the sewing sector has not yet been studied to our knowledge. To answer the research question, we present a literature review on emotions, empathy, product innovation, co-creation and co-innovation, followed by the methodology, the fieldwork, the results and their discussion before concluding

II. LITERATURE REVIEW

1. Notion of emotion

Plutchik (1958) defines emotions as adaptive reactions to the basic problems of life. In his model of primary emotions, the author argues that primary emotions come in opposing pairs and have valences including: fear/anger; joy/distress or sadness; anticipation/surprise; acceptance/disgust (Plutchik, 1980, 1991). Considering the pair of opposing primary emotions, one adapts to a positive situation, an opportunity, and the other adapts to a negative situation, an obstacle. The author postulates that each emotion can exist in varying degrees of intensity or level of arousal, such as annoyance, anger and rage, or apprehension, surprise and astonishment. Plutchik (1980) argues that emotions belong to eight (8) categories, each composed of three (3) levels. In turn, Frijda (1986) defines emotions as "tendencies to establish, maintain, or interrupt a relationship with the environment [. . .] emotions can be defined as readiness to act in response to emergencies or interruptions."

This definition suggests that emotions are channels through which individuals deal with people and events they encounter in the social world, as they react to complex social situations. Emotions are ways of copying and adapting to social situations in life. Emotion is defined as the result of spontaneous and transitory internal and external modifications initiated by an "object" (Tcherkassof, 2008). This "object", which is at the origin of the emotion, is multiple: it can be another person during interpersonal interactions, an event through the recall of a memory, or a product in its use. Sander (2013) defines emotion as a rapid, event-focused process consisting of two stages: a trigger mechanism based on the relevance of the event, and a multi-component emotional response. Emotions are adaptive reactions to certain stimuli in the life of an organization, i.e., antecedents are related to consequences. Several authors have worked on the primary and secondary emotions listed in Table 1.

TABLE 1
List of primary and secondary emotions and their authors

Izard (1977)	*Plutchik (1980)*	*Tomkins (1980)*	*Ekman (1992)*
Anger	Anger	Anger	Anger
Disgust	Disgust	Disgust	Disgust
Joy	Joy	Joy	Joy
Fear	Fear	Fear	Fear
Surprise	Surprise	Surprise	Surprise
Sadness	Sadness		Sadness
Contempt	Acceptance	Contempt	Contempt
Shame	Anticipation	Shame	Shame
Interest		Interest	Interest
		Anxiety	Embarrassment
			Respect
			Excitement

Source: literature on emotions.

The different properties of experiences are simulated through the sensory systems that underpin perception of a situation, through the motor systems that underpin action, and through the systems involved in emotion (Niedenthal & *al.*, 2005; Niedenthal, 2007). If one of these systems is deficient, then certain components cannot be simulated normally. Similarly, Niedenthal & *al.* (2001) show that "blocking" an individual's facial expressions diminishes their ability to process emotional expressions according to the "embodiment" theory. Whether it's an emotion or a gesture, we spontaneously imitate it in order to analyze the situation. Experiments show that, even for an emotion, common neural circuits are engaged when we feel the emotion and when we perceive its expression on another individual (Wicker & *al.*, 2003; Lawrence & *al.*, 2002). In this way, we seem to imitate the emotional expressions of the people with whom we interact. Emotion is therefore also subject to a mirror phenomenon, a spontaneous imitation. As for the importance of emotional factors, Mckee & *al.* (2009)

note that emotions are contagious. The human brain and our emotions function as an open system, meaning that we are constantly sending messages to others about our emotional states. We introduce the notion of emotion, empathy, co-creation and co-innovation of sewing products. In this way, humans are linked and influence each other, creating an emotional reality in our groups, organizations and communities (Fabbri-Destro & Rizzolatti, 2008). Emotional alchemy is the ability to use emotion to spark creativity.

Damasio (1994) proposes that decision-making is directed by a set of body states linked to a favorable or unfavorable situation, which correspond to emotional properties assigned to a stimulus during interaction with it. A new encounter with the stimulus will lead to its reactivation. The emotion is automatically assigned to the situation, enabling us to quickly analyze the affective consequences and thus guide decision-making. The body's state is easily linked to embodied cognition.

2. Notion of empathy

Empathy is defined as the ability and tendency to share and understand the internal states of others (Zaki & Ochsner, 2012). Empathy is a play on the imagination that aims at understanding others, not at establishing emotional bonds. For Stein (1989), empathy is our, or a stranger's, experience of consciousness. By "foreign", she means a body other than our own. She calls it a kind of perception of the other's psychophysical experience or feeling (Gure Gwatana, 2023, p. 52). Putting ourselves in another person's shoes does not imply that we share their grief. Wispé (1986) points out that "the object of empathy is the understanding of the other. In short, empathy is a mode of knowledge; sympathy is a mode of encounter with others." Finally, empathy must be distinguished from the more general phenomenon of mental simulation, that game of "as if" where we put ourselves in the place of the other in order to understand him or her. Simulation can be aimed at understanding the emotional experience of others, and is then confused with empathy. Empathy is a means of transmitting knowledge about the world and a tool for understanding other people's emotions (Pacherie 2004). It is also an instrument of knowledge, not only of others, but also of the world and of ourselves (Pacherie, 2004). In the author's vein, we note that the empathy approach emphasizes the role of imagination and projective simulation, and concerns the more elaborate forms. We need to be careful to maintain a separation between imagined inputs, i.e. the beliefs and desires of others, and real inputs, i.e. our own desires and beliefs, so as not to attribute to others emotions that are not their own.

We must also be careful to maintain the separation between imagined and real output, to avoid confusing empathy with emotional contagion. It's the ternary relationship between emotion, object and motivation that we aim to recapture in an act of imaginative empathy, but the exercise is all the more difficult the greater the gap in perspective between the subject and the one he's trying to understand. Empathy has degrees, in the sense that our attempt to imaginatively adopt another's perspective may be more or less successful, and thus our understanding of their emotional experience more or less adequate. According to Rogers (1975): "Empathy or empathic understanding consists in the capacity to enter the private perceptual world of the other, to become at ease, at home there. It means being sensitive to the changes in meaning that spring from the other person. It means temporarily living the other person's life, entering the other person's world delicately, without judgment, sensing the meanings of which the other person is hardly aware. This includes communicating one's perceptions and feelings about what's going on in the other person and what it evokes. It also involves frequently checking with the other person the relevance of his or her perceptions, and accepting to be guided by the responses received. "Being" with another in this way means that, during this period, we suspend our own points of view and values so as to enter the other's inner world without prejudice".

The making of a client's clothes by a dressmaker is a "construction made by the observer, rather than an objective grasp of reality" (Abdallah-Pretceille, 1986). This position also makes it possible to understand that the perspectives taken on others - which is what the act of "empathizing" essentially consists of - originate in one's own subjectivity. The "empathizing" subject can only represent the other with concepts that are compatible with those he uses to construct himself (Glasersfeld, 1986). "Empathizing" therefore consists in "constructing" an other on the basis of the constructs we have been able to elaborate and validate about ourselves. Empathy is a kind of "mirror". Messages sent to demonstrate empathic understanding can always be corroborated or invalidated by the target.

3. Product innovation and co-innovation from sewing to emotions

According to Jain (2023), product innovation is defined as the creation and development of new or improved products, services or processes by a company or organization. It involves introducing new ideas, technologies, features or designs that add value for clients and differentiate the product from existing offerings on the market. In our case, the product is mainly a textile garment. Textile is the material in the form of separable fibers that can be spun, i.e. these fibers must be capable of forming a whole whose coherence is due to the frictional forces that exist between these elements" (Battiau, 1985). This type of textile product is unique in

artisanal sewing, where each product created never resembles another, even if the couturier attempts to imitate it identically. Sewing products need to tell a story if they are to appeal to the client, and this can be tricky when they are produced in thousands of copies (Mantelet, 2006). This is a naturally innovative sector. Artisanal sewing is permanently and continually the domain of product innovation par excellence. Indeed, client preferences and tastes, which are translated into sewing products, are difficult to match. Sewing products are renewed according to fashion, on the whole after a season, one (1) year for some, after a few months for others. This implies frequent renewal of these products by consumers. These are products that appeal to their emotions, affections and cognition.

Sewing products appeal to the emotions, as there is a relationship between the client who experiences them and the particular object, in particular the garment to be made, the type of fabric, the colors, the model imagined by the client or chosen from a catalog, etc. The couturier has to use the product as a means of communicating with the client.

Through the sewing product, the designer must convey positive emotions such as acceptance, surprise, excitement, joy, interest and anticipation; there is a high-intensity response of short duration (a few seconds or minutes) that the client expresses externally or internally. In fact, when looking at the catalog of models to choose from, the client's reactions are expressed by perceptible facial expressions, since the face is a unique stimulus category in terms of the wealth of information it conveys (Young, 1997), and is also the vector of intentions and emotions between individuals. Expressions can be interior physiological (flinching, hot flashes, accelerated heartbeat, etc.).

clients also use speech to convey their emotions, as prosody (the part of phonetics that studies the duration of phonemes, intonation, accentuation, tones, rhythm and pauses) is a vector for emotions in speech (Banziger & *al.*, 2001). In short, clients are not indifferent to the process of making their initial choices and preferences. We can see the link between the sewing product and the four variables that define emotion: the degree of specificity of the stimulus, the intensity and duration of the reaction, and the frequency of somatic experiences (Derbaix & Pham, 1989). From the initial phase of making a sewing product, the client, while browsing the catalog of models, expresses a level of pleasure or displeasure and a level of calm or stimulation that is arousal or activation.

4. Emotions and the process of creating a new sewing product

Of Clark & Wheelwright's (1993) two ways of managing the process of making a new product, the sequential approach is the one best suited to craft sewing. Following Ulrich & Eppinger (2004), we have identified six main stages in the process of making a new product, which we have adapted to the craft sewing sector. At each stage, we attempt to specify the interventions of the actors (client and tailor), along with their emotions or empathy. The first stage concerns the client's initial choices (the model in a catalog, fabric, colors, accessories, etc.). In this phase, the client's first emotions are expressed through words, gestures or facial expressions as he or she discovers the models in the catalog, the types of fabrics and the colors, notably surprise, joy, admiration and/or acceptance.

The second stage is to adjust the model and fabric chosen by the client to personalize them, adding a few preferences by word or facial expression, and the phase of taking measurements by the dressmaker. In this phase, the dressmaker uses his empathy to pinpoint the client's choices, emotions and preferences by reading his face or listening carefully to what he has to say. The third stage of pattern-making is the designer's responsibility. He applies all the information and knowledge acquired in the previous phase, making the most of his skills, experience, technical expertise, empathy, emotions and ability to project himself into the client's shoes. He transposes this information and knowledge into a model, the pattern. The pattern translates the expressiveness or projection of the product to come. This phase is extremely empathetic.

The fourth stage, cutting, assembly and detailed sewing, falls to the couturier, who continues the actual creation, again using his empathy and emotions. The fifth stage, fitting or testing and readjusting the product, is an interaction between the client and the designer. This is the acceptability phase, which refers to the processes involved in representing a product's attributes prior to use. If these perceptions are positive, they will contribute to creating a context favorable to the user's adoption of the product (Barcenilla & Bastien, 2010). Client and designer will try to iron out any differences in perspective between the client's wishes and the designer's creation. In this exchange phase, the client reaffirms his preferences and also expresses his emotions, notably fear, disappointment, disgust and/or anger, if the product created does not reflect his initial choices and preferences, or does not correspond to his expectations. In the opposite case, surprise, joy, admiration and/or acceptance.

The sixth stage concerns final production and delivery. This is the essential phase for the client, of satisfaction, joy, admiration and final acceptance if Rogers (1995) five dimensions of acceptance (relative advantage, compatibility, complexity, use and observation) are met. Through empathy, the designer experiences

and shares the same emotions of satisfaction with the client. Acceptance highlights the social and situated nature of the process of adopting innovative products (Bobilier-Chaumon & Brangier, 2000). It has been shown that the positive effects of proximity (face-to-face, social embedding of economic relations, common knowledge base, sharing of values, representations, emotions, etc.) lead to the emergence of relationships of trust favoring the exchange of knowledge, its recombination and, ultimately, collective innovation. It has also been shown that too much proximity, particularly cognitive proximity (Broekel & Boschma, 2012), can reduce the innovative capacity of firms when the knowledge bases of different players are no longer complementary but too similar (Nooteboom & *al.*, 2007). Innovation is seen as the tangible materialization of creativity (Fillis & Rentschler, 2010). Creativity can be seen as "the production of new, useful and employable ideas or solutions" (Amabile & *al.*, 2005). Individual creativity plays an important role in the initial ideation phase. The type of innovation, whether incremental or disruptive, is largely determined during this phase.

Chgadna & Lalaoui (2019) have long emphasized the connections between creativity and innovation. Creativity appears to be a function of competence development, leading to innovation. In other words, creativity increases with experience (Simonton, 2008).

5. Client and designer participation in product co-creation and co-innovation

Clients can create new ideas because they can absorb information from the company and bring their own understanding to the creation of the new product and innovation. They project themselves, thanks to their emotions among other things, on the purpose of the use of the product created and on the impact of this innovation in changing their lives and those of other people, in changing their behavior in building and maintaining relationships. Emotion is conceived as a disposition to act; it is the emotion felt that will determine the use or non-use of the product on a daily basis (Dupré & *al.*, 2015). Cova & Dalli (2009) argue that "the more the client is involved in the production and delivery service process, the greater the perceived value and satisfaction [. . .] consumers become partial employees and employees become partial consumers".

In the same vein, Stevens (2009) argues that emotional proximity contributes to strong involvement and, Schau & *al.* (2009) argue that temporary control of clients enhances their sense of commitment and that companies derive added brand value by using the client's creativity and willing resources. Clients are involved in stages 1, 2 and 5 of the sewing process. This involvement accounts for a significant proportion of their ultimate satisfaction. Several authors have focused on client involvement in the development of a new good or service and its commercial success (Carbonell & Rodriguez-Escudero, 2014; Coviello & Joseph, 2012; Gruner & Homburg, 2000).

New product development combines two complementary approaches, projective and evaluative (Ulrich & Eppinger, 2004). We adopt the same approaches for sewing products. The projective approach is situated upstream of the process, involving stages 1, 2 and 3 of initial choices and expression of needs, preferences and desires. It is interactive between the client and the designer. It consists of translating the client's ideas and needs into a well-defined concept for the designer. This approach involves, among other things, the client's emotions and the designer's empathy in understanding all the information and knowledge provided by the client, conceptualizing it and transposing it into a pattern and then into a future finished product. The evaluative approach downstream in the process concerns stages 4, 5 and 6, of sewing, testing, fitting and readjustment. It involves transforming the previous concept into a product ready for consumption or sale. It is largely the designer's responsibility. The fitting and correction phase is interactive, with the client expressing his final ideas, emotions and preferences in the presence of the semi-finished product, and the designer integrating these readjustments, essentially due to the difference in perspective, into his empathic understanding of the client.

The projective perspective contrasts the approach based on the identification of client needs (user-centered) and the approach based on the symbolic dimension of products (design-oriented). In the user-centered approach, the designer identifies the client's needs and then defines the concept that best meets those needs (Veryzer & Borja de Mozota, 2005). This approach enabled Griffin & Hauser (1993) to define the notion of emotional need. Hauser & Clausing (1988) propose to translate emotional needs into objective product characteristics by associating them with a metric. This could be a prospect for future research. Certain products, such as clothing, cars and cell phones, enable individuals to express their personality and thus satisfy their emotional needs (Seva & *al.*, 2007). As for the design-oriented approach, it enables the symbolic dimension of the product to be appropriated. "This is a set of social and cultural meanings associated with a product, enabling consumers to express their identity and their belonging to a social group" (Ravasi & Rindova, 2008). Identity is linked to antagonistic emotions of acceptance and rejection. The designer's responsibility is engaged. He must anticipate these socio-cultural dynamics in order to develop the product that carries this new language (Herbeth & *al.*, 2016).

The evaluative perspective, the design-oriented approach, is well-suited, as concept testing consists of subjecting the semi-finished product to evaluation by the client himself, instead of a representative sample of

the future product's target client, as conceived by Le Nagard & *al*. (2015). Its purpose is to identify concepts that need to be developed further, and areas for improvement, in order to better meet client expectations. As for the product test or sewing product fitting, its aim is to assess the degree of acceptability of the product by the client himself and to validate perceptions of certain attributes (Crawford & Di Benedetto, 2011). Terms such as "hedonism", "desirability", "fun", "amusement", "pleasure" or "satisfaction" are used to describe the emotion of a product user (Bargas-Avila & Hornbæk, 2011). Satisfaction can be considered an emotion (Martin & *al.*, 2008; Westbrook & Oliver, 1991). Oliver (1980) includes it among the emotions when satisfaction comes close to a sense of pride. Product use studies measure satisfaction as being linked to the pleasure felt in using an object. The consumer experience involves emotions and the affective. In studying users' cognitive evaluations of products, Desmet (2002) notes that it is evaluations of product characteristics that are at the root of emotions. Bechara (2004) and Wood & Moreau (2006) have respectively established the role of emotions in client decision-making and in the adoption of innovations.

III. METHODOLOGY

We present our epistemological stance, methodological approach, research field, data collection and data processing techniques.

1. Epistemological posture and methodological approach

We adopt a constructivist posture. Indeed, constructivist theory is an essential point of reference for anyone interested in the empathic process (Brunel, 1986). We adopt an exploratory approach aimed at understanding phenomena (Dumez, 2013). Our method is qualitative, based on semi-structured interviews. According to Pin (2023), the semi-structured interview is a data collection technique widely used in qualitative social science research. It is used to produce data that enable us to better grasp the singularity of the experience that individuals or groups of individuals have of their relationships with others, with institutions, or more broadly of social phenomena (Pin, 2023, p. 1).

We retain the qualitative method as appropriate in this study, since it offers the possibility of exploring and analyzing the role of emotions in the participatory design process (Paixão-Barradas & Catoir-Brisson, 2020). In addition, it allows for serendipity in obtaining research results. Qualitative inductive research often yields results through serendipity (Bienaise, 2016). In order to obtain the data needed to understand and theorize the research topic of client emotions and needs, designer empathy, co-creation and co-innovation, an empirical study was carried out in several sewing workshops.

2. Collect, sample, process and analyze data

We are investigating three sewing workshops: MCI-Couture, D-Couture and Diallo-Couture. MCI-Couture was created by (CM), the owner and a computer scientist by trade. The company produces funeral dresses, traditional "Okoroué" loincloths, curtains, household linen, tablecloths, placemats, bread bags, aprons, men's shirts, wedding dresses, "Kaba" afternoon dresses and evening gowns. The company employs four people. D-Couture created by (SD) who is the owner-manager, a graduate of a design, pattern-making and sewing school. The company employs 2 people. It specializes in the production of men's shirts and women's clothing (wedding dresses, evening dresses, blouses, blouses and skirts, etc.). Diallo-Couture has 3 employees, including the owner (DI). It makes African shirts, pants, abacos, "Kaba" women's dresses, women's suits, etc. Primary data were collected through semi-structured interviews with ten actors involved in the manufacture, creation and development of couture products (Table 2).

TABLE 2
Sampling and interviewees

Company name	*Name*	*Age (ans)*	*Fonction*	*Date of the interview*	*Duration of interview*
MCI-Couture	CM	78	Seamstress and owner	January 22, 2023	1h 15’
	MO	32	Seamstress	January 23, 2023	1h 03’
	DA	37	Seamstress	January 30, 2023	1h 30’
	ME	47	Seamstress	March 06, 2023	1h 27’
	KI	30	Seamstress apprentice	March 06, 2023	1h 24’
D-Couture	SD	40	Seamstress and owner	June 21, 2023	1h 07’
	CH	31	Seamstress	July 14, 2023	1h 02’
Diallo-Couture	DI	62	Owner and designer	July 27, 2023	1h 05’
	MA	35	Dressmaker	August 02, 2023	1h 10’
	NA	39	Seamstress	August 02, 2023	1h 21’

These data were collected through recordings using a Philips DVT 6500 digital dictaphone. The interviews were transcribed in full into a 145-page Word document. Theoretical saturation was reached after eight semi-structured interviews. The primary data processing techniques used were word cloud and thematic content analysis. These enabled us to identify recurring themes in the discourse of the ten interviewees on taking emotions and empathy into account in the creation and innovation of couture products. We have condensed the data, i.e. sifted through these complete descriptions, in order to assign the elements of the corpus to the themes (Paillé & Mucchielli, 2021) we have selected. All interviews are coded. Prior to coding, the word cloud was used to facilitate coding and to extract ideas and keywords for categorizing the data into themes. This gave us a good illustration of the key themes and concepts, and made the text easier to understand.

IV. RESULTS AND DISCUSSION

1. Word cloud obtained from qualitative data

We present the results of our research in the form of the word cloud obtained from the qualitative data and the table resulting from the thematic content analysis. The word cloud in Figure 2 highlights the key verbatims. The words "dressmaker, fitting, alterations, catalogs, fashion, design, pattern, makes".

The words "emotions, joy, satisfaction, sadness, acceptance, content, anger, appreciation, tenderness, surprise, confidence, interest, desire and mood, embellish" suggest that emotions are involved in expressing "clients' needs, ideas and choices". Words or groups of words such as "to care, to feel, to put oneself in the place of" express the empathy that helps the designer understand clients in order to create or sew garment and product models. The words "innovation, new, adapt, develop, improve, unique, creations, evolution" suggest creation and innovation "together with the client". Words suggesting exchanges with the client are "speak, listen, discuss, language, hear, frame, advice, common, participate, respect, ask". These verbatim facilitated intuitive coding by horizontal analysis, based on continuous comparison of textual data.

FIGURE 1
Word cloud from ten semi-structured interviews

Source: Research result, with the software Wordaizer.

2. Results of thematic content analysis

Axial coding, following intuitive coding, enabled us to group common themes into classes in order to identify categories; finally, selective coding enabled us to retain the thematic categorization useful for the research: "client emotions", "expression of needs", "designer empathy", "client understanding", "designer creativity", "co-creation", "product co-innovation". Table 3 shows the nine main results obtained from the thematic analysis.

TABLE 3
Results of thematic content analysis

Results	Interviewees	%
Couture product innovation is a six-step process: 1) We start by welcoming the client and presenting the model.... If the client has one or not, then we look for the model together, ...we agree on the price, this is (the study stage), the choice of material and model.... 2) We take the client's measurements and give the delivery date (measurement stage).... 3) We cut the garment with or without a pattern (cutting stage)... 4) Next, the garment is made up, sewn and assembled (sewing and assembly stage).... 5) Then it's time for the fitting. During the fitting, if there are any corrections or alterations, these are made on the spot (testing, fitting and corrections stage). 6) If the client accepts the product, it is delivered (delivery stage). If the client does not accept the product, there is a dispute, which may involve a refund of the fabric or money.	SD, CH, CM, MO, DA, DI, MA, NA	80
The client's emotions play a part in expressing his needs and product choices.	MO, DA, SD, CM, KI, CH, DI, MA, NA	90
The designer's empathy fosters understanding of the client's emotions and needs.	MO, DA, SD, CM, KI, CH, DI, MA, NA	90
The emotions of the designer and the client contribute to the creation of the product.	MO, DA, SD, CM, KI, CH, DI, MA, NA	90
the emotions of designer and client drive sewing product innovation	MO, DA, SD, CM, KI, CH, DI, MA, NA	90

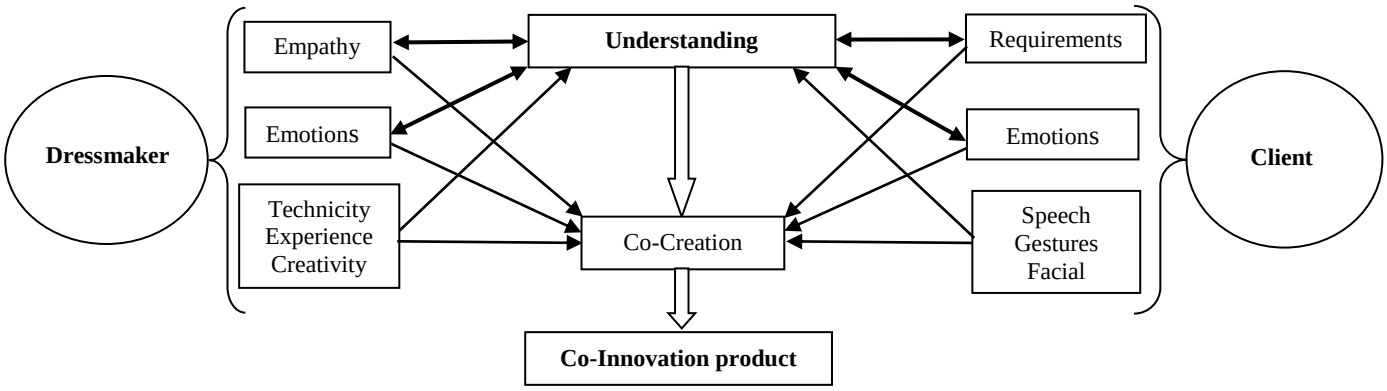
Results	Interviewees	%
Clients don't express their emotions at every stage of the product innovation process.	MO, DA, SD, CM, KI, CH, DI, MA, NA	90
The designer's empathy and emotions foster his creativity and ability to innovate by transposing the client's needs.	CM, KI, CH, SD, MO, DA, NA	70
The designer's creativity fosters product innovation.	SD, CH, KI, CM, MO, DA, DI, MA	80
The designer's empathy and creativity, combined with the client's emotions, ensure client satisfaction.	MO, CM, SD, DA, DI, MA, NA	70
The designer and client participate in the co-creation and co-innovation of the couture product.	MO, DA, SD, CM, KI, CH, DI, MA, NA	90

Source: Research result

3. Theorizing co-innovation through emotions and empathy

The various research results above lead to the theorization of figure 2. Finally, we have discussed the results by comparing them with the literature. The theoretical model in figure 2 suggests that the client who wishes to make a garment (or textile product) will express his or her needs, preferences and desires using verbal, facial, gestural and/or emotional language to the tailor. The designer will try to understand and understand them by asking questions, using his experience, knowledge, technical skills, emotions and empathy. The designer will integrate all this information and knowledge to activate his creativity and create a unique product in the client's image to meet his expectations. If the client's empathic understanding is sufficient, then the client will be satisfied with the unique final product. In other words, the client and the designer will have participated in the co-creation of the product, and since this product is unique, they will have innovated together - this is "co-innovation". If the empathic understanding is not sufficient, then the client will not be satisfied, and the designer can make the necessary readjustments (symbolized by double arrows, see figure 2) based on his new empathic understanding of the client's preferences and emotions, to achieve co-creation and co-innovation.

FIGURE 2
Theoretical model of sewing product co-innovation through emotional empathy



Source: Research result

4. Discussion about solutions

Nous sommes d'avis avec Ulrich & Eppinger (2004) que le processus de création d'un produit de couture innovant se passe en six principales étapes.

Among other things, the client's emotions enable him to express his choices and needs to the designer. The designer profiles them and tries to understand them. By empathy, the designer will transpose the client's emotions, words, needs and choices into a concept, model or pattern, and create the product using his own emotions, experience and technical skills. However, the client does not express his emotions at all six stages of the manufacturing process of the unique innovative product. He expresses them essentially at stage 1, during the expression of needs, ideation, conceptualization and initial choices, study and at stage 5, testing or fitting for possible alterations. In stage 1, the client can express joy, surprise, interest, acceptance, anxiety, excitement and anticipation; and in stage 5, the client can express the above emotions when satisfied, and anger, disgust, sadness and contempt when dissatisfied with the product.

We agree with Herbeth (2016) and Derbaix & Pham (1989) who make the link between product and emotions. In particular, we agree with Seva & *al.* (2007), because the client's emotional needs are satisfied by the garment, and with Herbeth & *al.* (2016), because emotional needs are translated into the object's benefits, and therefore into proposals for meeting client needs. Regarding empathy, we agree with Salovey & Mayer (1990) that emotional intelligence involves the ability to direct one's own emotions and those of others, to discriminate among them and to use this information to guide one's thinking and actions.

We also agree with Wicker & *al.* (2003), Lawrence & *al.* (2002) and Mckee & *al.* (2009) on the contagion of emotions. We imitate the emotional expressions of the people with whom we interact, and emotion is subject to a mirror phenomenon, a spontaneous imitation.

The client's emotions come into play mainly at stage 1 and stage 5, which is contrary to Morin-Delerm's (2000) view, in the case of automotive product testing, where the testing stage does not address emotional responses. On the other hand, we agree with Herbeth & *al.* (2016), who find that emotions are present from the outset of new product design in the projective perspective, and that emotions are everywhere in the evaluative approach, which can address clients' emotional response in terms of attractiveness, satisfaction and pleasure. The upstream phase of couture product creation is in line with Ravasi & Lojacono's (2005) emotion-based model.

As for the designer's empathy and emotions fostering creativity and product innovation, this result is in line with Bechara (2004) and Wood & Moreau (2006), who have respectively established the role of emotions in client decision-making and innovation adoption. It is also in line with the work of Isen & *al.* (1987), for whom emotions stimulate creativity in problem-solving. Finally, this result is justified by the model of emotional congruence based on Bower's (1981) theory, which states that the valence of ideas produced by an individual on a creative task is congruent with his or her positive or negative emotional state. Concerning the link between creativity and innovation, we agree with Fillis & Rentschler (2010), for whom innovation is seen as the tangible

materialization of creativity. He also agrees with Amabile & *al.* (2005), who believe that creativity can be seen as "the production of new, useful and employable ideas or solutions."

The designer's empathy promotes client satisfaction. It enables him to share the client's emotions, in particular his satisfaction, pleasure, etc. This result is in line with Oliver (1980), who includes satisfaction among the emotions, if it comes close to the feeling of pride, experienced by the tailor and the client; with Cova & Dalli (2009), who believe that the more the client is involved, the more satisfied he or she will be; and with the work of Goldschmid (2016), who argues, among other things, that managers' emotional intelligence improves service quality and increases client satisfaction.

With regard to co-creativity and co-innovation, i.e. client involvement, our result is in line with the work of Cova & Dalli (2009), who believe that the value perceived by involved consumers will be higher, and they become partial employees and employees become partial consumers. We agree with the work of Carbonell & Rodriguez-Escudero (2014), Coviello & Joseph (2012), Gruner & Homburg (2000) on client involvement in the development of a new good or service and its commercial success. Finally, we agree with Schau & *al.* (2009) who note that companies derive brand value by using the client's creativity and available resources.

V. CONCLUSION

At the end of this research, which sought to understand the relationship between the customer and the designer in a process of co-creation and co-innovation of a textile product, by integrating their emotions and the designer's empathy. Based on qualitative primary data collected from ten actors in the couture sector, we have established that the manufacturing process for a new textile product, such as a garment, takes place in six stages, the first of which, upstream, concerns the study, expression of needs and initial choices, and the fifth stage concerns the testing and fitting of the product, both of which integrate the customer's emotions and the tailor's empathic approach. The customer's emotions enable him to express his needs, choices and desires to the designer. The designer uses his empathy to understand the customer and create a product that satisfies him. The designer's empathy fosters creativity and, in turn, product innovation. The active involvement of the customer and the designer in this creative process co-creates and co-innovates. These results need to be put into perspective. Fisher & Shapiro (2005) have already warned that recognizing emotions is not enough to process them. Furthermore, Becker (2003) and Antonakis (2004) note that emotions have not yet been given valid and reliable measures that would enable them to be measured reasonably accurately. From our research results, we draw theoretical and managerial implications. Indeed, as a theoretical contribution, we complement the theory of customer relations and the theory of product innovation by integrating an approach based on emotions and empathy. As a managerial contribution, we suggest that marketing practitioners and all those in contact with customers also take emotions and empathy into account, to improve learning, understanding and knowledge of customers, and thus customer satisfaction and loyalty. We also raise awareness among managers of creation companies to integrate our results to co-create and co-innovate with customers. These will enable them to anticipate and adapt, like "profilers", to customer emotions and behaviors, to better understand them.

All this would contribute to a watchful eye on the manufacture of innovative products, to avoid deviations in the projection of customer needs. Finally, sewing shop owners can create catalogs based on the emotions of customers who have already achieved satisfaction, as working tools to present to future customers. They can also use this work to launch or influence fashion and trends.

We see two perspectives to this research. The first is to study innovation in relation to perceptual discrepancies in the couturier's understanding of customer emotions, i.e., in a misreading of customer emotions when the couturier's empathy doesn't work. The second is to interview the customer as well, in order to obtain cross-views between the couturier and the customer, to ensure exhaustive results and better theorization.

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