

Grounded Theory: An Effective Method for User Experience Design Research

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Introduction

The term “Experience” is generally considered to be self-explanatory, but remains ill defined. Chamber’s dictionary defines the verb experience simply as “to feel or undergo”[1]. Noting that experience is an elusive notion, Knutson and Beck (2003) propose that it however has two essential dimensions: it results from participation (of an individual in a situation) and is internal in nature; therefore individualized [2].

While “Experience” has always been implicitly a part of all design activity and outcomes in various domains like architecture, product design and visual design, the notion of “Experience Design” is somewhat recent. Varied views prevail about the term Experience Design; what it means, whether one can design experiences at all, and even whether such a construct is necessary. Nonetheless, one must acknowledge that the term is now well ensconced in the lexicons of several disciplines. Particularly, the domains of marketing, service marketing, and Human Computer Interactions (HCI) (!) have embraced the terms such as Experience, User Experience and Customer Experience, from their own perspectives. Starting with Pine and Gilmore’s late ‘90s concept of Experience Economy and assertions that fundamentally firms should “stage” experience for their customers [3], we seem to be now living in a paradigm that treats experience environments and experience networks as the primary source of customer value[4].

User Experience Design can be viewed to be about things that are actively experienced: something that involves the

dynamics of space, time, objects, the states of the participants and the context in which the experience occurs. It is something “whose design needs to be grounded in the nature of that experience”[5] (The term User Experience is used henceforth to encompass the phrase Customer Experience as well. The difference is not relevant for the purpose of current discussion). Further, most experiences of using products and applications today have a greater or lesser degree of social dimension. The technology dimensions are also changing dramatically, as exemplified in the ubiquitous mobile connectivity. One can surely affirm that User Experience Design is now important enough to attract increased research attention. Further, there is a likelihood that the research problems would be complex, even “wicked”[6], and socially rooted. Clearly a wide repertoire of research methods is essential in this scenario.

Research is understood as an inquiry aimed at contribution to the body of knowledge. However, practitioners are likely to interpret the term Design Research as the process of acquisition of knowledge to ground, inform, and inspire the design outcomes. The discussion that follows is carried out with the former perspective. Undoubtedly, it is informative to the practitioners as well.

User Experience Research and Qualitative Research Methods

Qualitative research methods have a long history, starting from colonial ethnography carried out in the 17th century [7]. Since then the methods have been used extensively in

social sciences, health sciences, humanities, business and HCI domain. Design activity is immersive, aimed at insights and solutions based on the designer's individualistic understanding of the problem and the context. Therefore, designers and design researchers alike might have a natural affinity towards qualitative methods, several of which have a post-positivist underpinning that questions the idea of a shared, single reality. As a result, they may have the temptation to jump to the erroneous conclusion that qualitative research methods are always appropriate in the domain of User Experience Design. In reality, the choice of research methods is linked to the problem being investigated. For instance, if the problem involves finding correlation between perceptions of the experience provided by a particular feature of a product (e.g. colour) and the age of the user, quantitative methods are preferable. However, qualitative methods may be suitable if the intent is to discover which contextual issues and the details of user's interactions with the product lead to such perceptions. In general, one can say that qualitative research is appropriate if the problem is framed to understand a phenomenon, and how experience is created and given meaning by the participants.

Before determining whether to opt for qualitative research, researchers should answer questions such as [8]: What am I aiming to find out? Am I interested in study of the phenomenon in detail, or in comparisons and variations in the different aspects or variables? How have other researchers approached similar situations? Will quantitative or qualitative methods inform me more?

Once the researcher decides to do qualitative research, there is a wide array of methods from which one or an appropriate combination must be chosen. The methods include case study, ethnography, grounded theory, focus group, action research, discourse analysis, narrative research and several others.

It is worthwhile to discuss at this juncture the importance of the researcher's position about 'theory' in the context of the research problem being studied, as it influences the choice of the method. Does the researcher plan to test an existing theory, and the outcome of research would be its confirmation and refinement or, is there an aim to build a theory? In the former, the research would commence with forming hypotheses or propositions based on established theories. In the later case, "theory" is interpreted somewhat flexibly, accepting that the initial assumptions would quite likely change gradually as the data suggests new ideas, leading to the construction of the theory. Theory, according to this perspective, is not a rigid, stable, testable formalization, but rather a collection of ideas that undergo redefinition. The viewpoints represent two ends of a continuum on which various methods can be positioned. Ethnography, which generally starts with a commitment to some type of cultural theory, lies at the former end, while Grounded Theory, which aims to develop new concepts and theoretical ideas, emerging out of the data and the context, lies at the other end [9].

Therefore, if the researcher's goal is to develop substantive theory, particularly, in areas where existing knowledge is limited, or to provide a fresh perspective to the existing knowledge about the phenomenon being studied, Grounded Theory is a suitable approach.

Grounded Theory: A Brief Overview

Grounded Theory refers at once to a methodology, method as well as the outcome of the research process [9]. It contains well defined procedures for analyzing empirical data, typically leading to middle range theories, i.e., theories that pertain to specific aspects of the phenomenon being studied, rather than broad, macro level theories. In the words of Barney Glaser and Anselm Strauss, the originators of Grounded Theory, such theories, "fall between 'minor

working hypotheses' of everyday life, and 'All Inclusive' grand theories"[10]. The use of Grounded Theory procedures leads to a coherent, well connected set of concepts that describes as well as explains the phenomenon under study. Being based on empirical data, the concepts possess predictive power when used in the right context. The usefulness of the approach in the User Experience Design domain is evident, as frequently the research could be driven by the intent to immediately apply its outcome, rather than develop a 'grand theory'.

Grounded Theory, though originally developed for application in social research, has gained wide acceptance in various other domains such as business research, marketing, organization and leadership studies, technological changes and organizational changes, consumer behaviour, consumer experience, and even Information System (IS) research[9]. During the period 1985 to 2007, thirty top IS-Centric journals published 126 articles where the authors had used Grounded Theory. Interestingly, 95 of them were published during the period 2001 to 2007. The year 2007 alone accounted for 18 of them [11]. The wide and growing acceptance of the approach indicates that various scholars have found it to be useful.

Since its "discovery" in 1967, three major variants of Grounded Theory have emerged. One the 'original', Glaserian; second proposed by Anselm Strauss and Juliet Corbin and third, the "Constructivist" Grounded Theory of Kathy Charmaz. The philosophical underpinnings of these are not identical, and as a result the procedures differ too. Glaser has maintained that Strauss and Corbin version is not Grounded Theory at all, insisting that it has departed from the fundamental philosophical position. However, in practice, researchers have found the Glaserian approach difficult to apply, as it does not provide practical guidelines, but relies on the ability of the researcher to conceptualize.

Strauss and Corbin version, however, does provide such guidance, at times criticized as excessively prescriptive. In practice, however, both methods are accepted as Grounded Theory and apparently more researchers are using Straussian method [12].

It is beyond the scope at present to discuss, compare, contrast and critique the variations. The reader may want to look for details in the original books ([10],[13]), views of scholars as well as examples of its application (e.g. [11],[12],[14],[15]) for gaining in depth understanding. For the current introductory purpose, it may be adequate to outline the basics of Grounded Theory drawn from Corbin and Strauss[13], with specific reference to [16], which is a short, yet comprehensive overview.

One of the strengths of Grounded Theory is that it permits the use of a single or multiple sources of data, providing enormous flexibility to the researcher. The sources can include interviews, participant observation, focus groups, life histories, and narration of experiences. Even data originating from newspapers, video tapes, and government records is acceptable [16]. However, the data collection must be done systematically, in accordance with the tenets of the method. The data collection proceeds on the basis of theoretical sampling. In this method data collection, analysis and coding progress hand in hand. Typically the first set of data is analyzed and coded immediately, and the results inform the next set of data collection activity – which data to collect, from where to collect and which aspects need special attention. Every concept that is discovered is treated as the basic unit of analysis. However, initial concepts and categories are treated as provisional, and become part of the theory by repeatedly being present in the subsequent data. Therefore, an important aspect of the activity is constant comparison of the concepts and categories as they emerge with the previously discovered ones for progressive refinement, and

eventual formulation of the theory. For instance several bits of data might belong to the same concept (e.g. from the case study that follows, regarding ATM usage ... the statements “I kept the slip coming out of the ATM till the entry was seen in the account” and “I prefer to go to the branch because they stamp on my deposit counterfoil”, both point to a concept “Need to possess evidence of transaction”). The concepts are grouped based on their relationships to formulate categories, which are at a higher level of abstraction.

The process ends when theoretical saturation is reached. It means that additional data does not lead to discovery of new concepts and categories. Therefore, in Grounded Theory there is no prescribed or minimum sample size. The yardstick for judging adequacy of the sample size is whether the sample selection was broad and diverse enough to ensure thorough coverage of various aspects of the problem being researched.

Data analysis and coding procedure is described below:

- **Open Coding:** It is an interpretive process in which data are broken down analytically with the intent to gain insights about the phenomenon under study. The events, actions and interactions are compared to arrive at concepts and categories. Categories are arrived at from the concepts looking for similarities.
- **Axial Coding:** The aim here is to understand the dynamic relationships amongst the categories, which form the basis of the emergent theory. The factors that are determined and used include: the conditions that give rise to the category, the context in which it occurs, the actions / interactions that express it and the consequences of the actions/ interactions. Tentative hypotheses are formed through a deductive process at this stage.

- **Selective Coding:** It is the process to arrive at a ‘core category’, which unifies all the categories and leads to the theory.

The method also emphasizes that the researcher should write extensive memos, which provide additional material for richer insights.

In Grounded Theory, validity of the emergent theory is essentially tied up with the rigour with which the process is applied. As such, in order to enable the readers to judge the validity, researchers should report[14]:

Adequate details of collection and interpretation of the data: The aim should be to demonstrate clearly how, why and from where concepts and categories were derived. The method demands that the theory should be traceable back to the data, and this should be the guiding principle.

Well developed concepts and categories: Concepts and categories should be sufficiently developed and presented to enable comparison with relevant literature in order to demonstrate the compatibility, relationship and, quite likely, the extension to the knowledge.

Presentation of the theory: Unifying of the concepts and integrating them into categories and relationships. The emergent ‘theory’ should have explanatory power within the specific context.

It is recognized that Grounded theory is a difficult approach, requiring utmost care, diligence, sensitivity and the ability to conceptualise. It can also be time consuming. Similarly, the researcher needs to be vigilant that the concepts and eventually the theory emerge from the data and are not ‘forced’ onto it.

Considering that several problems in User Experience Design areas are likely to have little previous literature and existing theories to fall back upon, and context in which

the experiences occur plays crucial role, Grounded Theory could be a potent tool for generating new knowledge.

A case study is presented below to illustrate the application of Grounded Theory.

Case: Discovery of the Reasons for Selection of Touch Points

The application of Grounded Theory illustrated below pertains to an investigation into customers' decision process in selection of a Touch Point for carrying out transactions, in their banking and telecom service relationship. The term "Touch Point" is defined for the purpose of this study as:

- a. An entity with which a User interacts to perform a transaction aimed at achieving a goal,
- b. OR an entity that plays a mediating role while a User performs a transaction aimed at achieving a goal
- c. The Provider has control on the presence and behavior of a Touch Point

Touch Point is a concept being investigated by the author and this investigation was continuation of an earlier study[17] in which factors that were uncovered included Lack of Convenience, Security and Control as the top reasons for not preferring a Touch Point. While the previous study focused on the factors influencing the choice, the present study aimed to build on this knowledge by investigating further the factors that play a role in the decision process in selection of a Touch Point.

Since Touch Point is a new construct, and there is limited knowledge based on framing the problem of customers' choices from the experiential perspective, Grounded Theory was thought to be the suitable method.

Before progressing with the details it is necessary to clarify the context. This investigation forms one part of the author's doctoral studies which are in progress, and it was executed in a constrained time frame. Corbin and Strauss (2008) acknowledge that constraints may exist, and recommend going ahead with a less than fully developed theoretical formulation [13]. Therefore, a theoretical scheme that met the objective of informing and guiding further work but did not lead up to a Core category was developed. However, every care was taken to maintain the spirit of Grounded Theory and diligent adherence to the procedure. It is acknowledged therefore that the following case study is a useful illustration, rather than an ideal instance of the application of Grounded Theory.

Researchers have used Scenarios, Critical incidents, as well mix as of methods such as focus group coupled with interview e.g. [18][19][20]. It was therefore decided to opt for semi-structured interviews, using scenarios and critical incidents as anchors. This approach was thought to be useful to provide an orientation to the respondents without creating a bias and maintaining the open ended nature of the interviews.

Six scenarios written in a realistic manner that depicted situations pertaining to transactions in banking and telecom Services relationship, such as depositing a high value cheque and resolving a query were administered. The respondents were required to choose only one item from the options given. The options were constructed in a manner that they embedded a tradeoff among factors such as Security, Convenience, Control, Need for Human contact, Ease of Use and Social cost (These factors were identified in the previous study). The respondents were encouraged to imagine that they had actually encountered the situation. A sample scenario appears in the Annexure A.

A depth interview using the answers as anchors was conducted after all the answers were collected. The respondents were allowed to deviate from the scenario and talk about other transactions, other service relationships, episodes and explanations, in order to elicit rich information. In order to further enrich the data, elicitation of critical incidents was done as a part of interview in line with Chell (2004)[21]. The interaction with the respondents was face to face, except for one telephonic interview, and each one lasted for about forty five minutes. An audio recording of the interviews was done with participants' permission, which was used later for transcription. Extensive memos were written during the interviews to note additional details.

The sample comprised educated individuals (at least graduates) from urban areas. It was ensured that they had awareness and access to a range of Touch Points to carry out the transactions related to the relationships, even if they might not have actually used all Touch Points.

Twelve respondents were selected through purposive sampling. The sample was skewed with nine male respondents and the rest female. The age of the respondents was from twenty five to sixty five, and evenly distributed. It must be noted that due to constraints on availability of the participants, three interviews took place before it was possible to commence analysis. This was a deviation from the ideal Grounded Theory approach, which requires commencing analysis immediately after the first interview. However, Corbin and Strauss (2008)[13] recognize such eventualities, and recommend coding such 'given' data in exactly the same manner as data collected through the ideal method. The interviews were transcribed and broken into meaningful, coherent chunks. The guiding principle was that each chunk should *prima facie* indicate a single idea. To illustrate, the two chunks, "Because, may be my other transactions are related to that amount ... in short it should be accepted by

the bank **well in time**", followed by, "... and if it is not done so, I should **have a receipt**, in case there is some problem" express two different ideas and contexts, one pertaining to the consequences of the transaction not being completed within certain time period, and the other about having evidence of the transaction. Therefore, they were treated as two separate units to be analyzed, in spite of being part of an unbroken narration. Each interview typically resulted in approximately two hundred such analyzable units of conversation.

Each unit was analyzed and coded through an interpretive process to identify the 'concept' that was being talked about. Instead of coming up with a short label for the concept, the concept was articulated in free format, to retain the essence of the idea. For Example, the above mentioned sentence part "and if it is not done so, I should **have a receipt**, in case there is some problem" was seen as representing the concept 'Need of evidence that the user has done her part successfully, as further processing of the transaction was not visible to the user', which takes into account the context in which the sentence occurred. This advantage would have been lost with short labels. The field memos were referred to capture the nuances of the ideas and context. Following the tenets of coding, categories were built by first developing concepts and then suitably aggregating them.

As stated earlier, the Grounded Theory prescribes use of theoretical sampling, with no prescribed minimum number of interviews. Theoretical saturation was reached by the time six interviews had been analyzed and coded, with steep reduction in the new concepts and categories getting uncovered as the analysis progressed. It was decided therefore to keep analysis of remaining interviews in abeyance.

Thirty Five categories emerged by this stage. While categories like convenience and need for human mediation

were not a surprise, some of the interesting categories are described below. The structure followed is: the concept/ category discovered, followed by illustrative quotations from the interviews.

a. Magnitude of adverse consequences of failure of the transaction

Magnitude of the adverse consequences, financial or even legal, in case the transaction fails was an important consideration (“... these days there is lot of misuse of SIM cards ... if it falls in wrong hands, terrorists or criminals, it would be traced to us ...”). Another determinant was dependence of other transactions on the successful completion of transaction on hand, indicating that users take into account collateral consequences as well (“may be my other transactions are related to that amount ... in short it should be accepted by the bank well in time”).

b. Perceived Need of Physical Evidence

This category surfaced very often, and may have roots in the Indian context where rectification of mistakes can often be cumbersome. Some relevant participant quotes:

- While choosing to deposit a cheque in an ATM machine, which was perceived as cumbersome, instead of the drop Box: “.. if it is not done so (cheque credited into the account in time), I should have a receipt, in case there is some problem”.
- Going to a Bank Branch to deposit a high value cheque even though it involves cost and need to spend time: “Confirmation ... and proof that this amount has gone in the right account.... yes ... they stamp the receipt (counterfoil) ... which is a proof.”

The desire to obtain evidence was noticed particularly in transactions where the customer completes actions required on her part successfully, but subsequent process needed to successfully conclude the transaction is not

visible, not within the customer’s control, and took time till completion.

c. Ability to mitigate likely adverse consequences

This seems to be related to the desire to possess physical evidence. It appears that in cases where physical evidence (such as printed receipt) is not provided by the Touch Point (or the ecosystem), the customer may create some ‘evidence’. For instance, a respondent who opted for Call Center to get a mistake rectified, said she would send a mail to the bank “Because this makes it official ... means it will go on their record that I have done something ...” or another respondent said, “... when I speak with a call center ... I note down the time, date and with whom I spoke ... that name ... So, in cross checking they can always say that no one from our side spoke ... but at least this record is there”.

d. Assurance received through other means / Touch Points

This category is related but distinct from the previous one; in that it pertains to the measures a Provider takes, which involve effective use of the Touch point ecosystem. For example: “(after issuing a cheque) if it is more than five thousand rupees, I get a message (SMS) from them ... your account has been debited”, or in case of a call center “I take up this matter with them ... then they commit ... but after 15 min or half an hour, you get a confirmation SMS from them that this is your request number, and it is being processed” There are several established practices, such as offering the facility of ‘Virtual Credit cards’, or someone calling up if a credit card is used from a place the customer is not expected to be present. However, the knowledge of the importance customers attach to such assurance does indeed help to spur other possible Touch Point ecosystem design interventions that can provide a gratifying user experience.

e. Perceived need to reach or deal with a specific individual at service provider’s end for success of the transaction

This is an interesting category, which appears to be connected with the Indian context. One can speculate that the origin lies in the users' experience with the bureaucracy in government as well as other organizations, as well as the perception that individuals rather than the business processes drive the result. For instance a respondent who chose to go to a franchisee for resolving the issue with excess bill said "Because, he will know with whom to speak for this problem ...". It seems to be an important consideration in case of transactions that are open ended in nature and where failure can lead to higher magnitude of adverse impact or if there is urgency.

f. Understanding of the Touch Point operation, including the back-end processes

Whether or not the customer understands how the Touch Point and the back-end processes work seems to be relevant. This is particularly important when a transaction spans a period of time and a several activities needed to complete it happen invisibly at the provider's end. For example, a respondent who selected Net Banking for creating a Fixed Deposit said: "if there is a problem in the software, then I should get an error message ... if don't get the error message then that means the server is updated ... (there is no apprehension of failure) that is why it is my most preferred way of transaction".

g. Leveraging / building relationships

This category as well seems to be related to the Indian context, where personal interactions and relationships do matter. For instance , a respondent who selected a franchisee for adding subscription said, "The reason is, I had taken the first connection from him ... so I have a business association ... relation with him ... and by selling this add on connection if someone is going to get any benefit ... then why not he? Who is working for me". There was also a

hint of mutual give and take in: "... perhaps ... I may get the option of selecting the number ..."!

h. Associated Social Costs / Benefits

One of the reason given by a respondent for preferring a bank representative as against requesting his spouse was "... It is a service they provide and when you can do the job sitting at your table, then why ask someone else?". Another respondent, who chose the option to request someone to go to the bank branch to deposit a high value cheque, said she will instruct the person: "If there is no queue, then (deposit it at) the counter else in the drop box", and gave the reason as "... because, even that person should not end up spending too much time". There is evidence that the likely social costs or benefits are taken into account, and as demonstrated in the second quote, a user may even take a higher risk to avoid incurring the social cost.

i. User's Value System

Value system as a consideration was an interesting find. Some illustrative quotes are:

- A respondent decided to wait for an earliest day when he could go to the bank branch to deposit a high value cheque, thereby incurring financial loss "... because (I) cannot compromise the office work for that ...".
- A value that a 'human being' should benefit, rather than an organization is reflected in: "They are any way going to charge me X amount. But if it (the benefit) is going to accrue to this person who has been giving me service throughout ... it should go to him."

Apart from the categories, some informative nuances of other factors were discovered as well. For instance, an interesting dimension emerged in connection with the category 'Perceived need for Human mediation'. There was evidence of respondents seeking human mediation in open ended situations or when they felt that a two way

unstructured communication is needed. However, it seems that the human mediation is also sought to overcome perceived difficulties in dealing with organizations. For instance, consider: “Rather, I find him (an agent) as a mediator between the company and the customers ... instead of I dealing with the company directly ... their own person ... their own representative is dealing with them ... he might get some priority ... he will know with whom to speak for this problem ... I don’t know all this ...”.

Another significant finding was the emergence of two distinct categories related to technology. One was ‘Comfort in using the Technology’, which is relevant in the usage stage. Another was ‘Confidence about the Technology used’ in the Touch Point, which is part of the higher level category of Perceptions and influences the decision. Technology comfort (or its negative counterpart Technology Anxiety) is a known construct that has been studied by several researchers from different perspectives [22][23][24] . However, ‘Confidence about the Technology used’ appeared to be related to the Touch Point ecosystem being deployed, and affecting the outcome of the transaction in an instrumental manner, and perhaps a new aspects that can be investigated further. The next level of abstraction was carried out by analyzing the categories in terms of their relationship with each other,

the relationship with the transaction involved and what role they play in the decision to select a Touch Point. This resulted into higher order categories:

Further, each of these categories can be associated with the stage in the encounter in which it plays a role. The stages are: During the Decision Process to select a Touch Point, During Usage and Post Usage.

The process led to arriving at useful insights as well as directions to build a model of decision process in selecting a Touch Point.

Just to provide a glimpse of the strength of the method, it is worth mentioning that the basic level approximately three hundred concepts were identified, which aggregated in thirty five distinct categories (see Annexure B for examples). Each of them can potentially be a User Experience design input. It is not possible to elaborate on all the findings due to the constraints of space, and the details given above should adequately illustrate the kind of insights one could obtain by using the Grounded Theory. The interested readers are welcome to contact the author for additional information.

Sr No	Higher Order Category	Description	Illustrative context
1	Conditions	Situations and contexts, generally beyond the user's control	Transaction requires a physical artifact
2	Experience	The actual experience the user gets while deciding or using a Touch Point	Feeling of control
3	State	The User’s state of knowledge and being	Past Experience - Positive or negative
4	Perceptions	The user’s perceptions about aspects of the Touch Point operation of usage	Perception of Security associated with the Touch Point
5	Disposition	The user's mental outlook and inclinations	User's Value System

Table 1: Higher Order Categories

Categories with significant relevance to the design of Touch Point ecosystem experience were discovered. For instance, the insight that confidence about a Touch Point is linked to the user having clear understanding of the operations of the system as a whole, not only points to the need of suitable User Experience design but even the necessity to engage with the customer over a period of time to build awareness. Reducing the perceived need for physical evidence is at once part of the design solution at the Touch Point Ecosystem level, as well as the efforts to provide visibility of back end processes.

The group of categories that have been clubbed under the higher order category 'Perceptions' would also have implications on design of the User Experience, and further on service design. For example, 'Perceived need to reach or deal with a specific individual at service provider's end for success of the transaction', which can not only be stressful to the customer but could involve avoidable costs, can be tackled through suitable Touch Point ecosystem design, and awareness building.

Certain components of the categories are interesting as well, and may have implications on design of Touch Point user experience. For instance, ability to combine several tasks in one service encounter was a component of 'Convenience' ("I try to avoid going to the bank, but if I have to, I try to combine it with other work ..."). This phenomenon was noted in an earlier study related to citizen – government interactions[25], but the authors labeled it as "efficiency", connecting it with the efforts required to use a channel. However, in the categories that have emerged in the present study, 'costs' are associated with 'conditions' and 'convenience' is linked to 'Perceptions', which appears to be a more appropriate representation. Another interesting component of convenience was ease of finding vehicle parking space!

While this may or may not be in the control of the provider, it is a factor they can (and quite likely do) take into account. Arguably, several categories that were discovered would probably not have been discovered with the use of some other methods. Examples are: user's value system playing a role, strong need for evidence and perceived need to be able to reach a specific individual in an organization. This also points to the fact that experience being a complex phenomenon, the approach of formulating hypotheses and testing them may provide only a partial picture. However, the insights rooted in the subtleties and complexity of the experience can be uncovered with the use of Grounded Theory. It therefore seems to be a suitable method for carrying out research in User Experience domain and worthy of inclusion in the repertoire of methods used by the researcher.

A collateral finding pertains to the methods used. The use of scenarios and critical incidents was found to be effective in giving a focus to the interviews without losing the advantages of the unstructured interview technique. It also, quite likely, helped in reducing the known dichotomy between expressed intent and the actual actions.

The respondents participating in the study were educated, residing in urban areas and having access to multiple Touch Points. While this was an appropriate sample for the purpose of this study, it is likely that the findings could have been different had the sample been drawn from, say, small towns or rural India. As such, the conclusions cannot be generalized. However, since the population similar in characteristics like the chosen sample is large and the insights would surely be relevant in designing User Experience suitable to such kind of people.

The theoretical sampling limit was reached when analysis of six interviews was complete. While the categories and the

relationships that have been observed appear to be valid as they are grounded in the data, further investigation could help enhance the understanding. However, that does not prevent their use in practice, with due caution.

As already suggested, additional interviews and investigation could be conducted in light of the findings for further validation. Similarly, triangulation through literature study can also be done before such an exercise to find whether other researchers have established any of the discovered categories and relationships. Building theoretical sensitivity in this manner could help in additional research to discover new categories and relationships.

Certain categories such as perceived need of a mediator and building and leveraging relationships appear to be related to the Indian context. They could be studied further, as well as to identify what causes them. The insights from such a study could be useful for designing Touch Point ecosystems. As illustrated above, Grounded Theory method did produce important and relevant insights, even though there were some deviations from the ideal application. Similarly, the method proved to be effective in the face of the complexity of the phenomenon being studied, and does seem to hold promise as a useful research method in the domain of User Experience Design.

Annexure A: One of the Scenarios and Choices

High value of the transaction (in this case that of the cheque). The transaction involves user performing his part, followed by actions by some other parties spanning over a few days, which are invisible and not in the customer's control. The process is largely deterministic, with no deviations or latitude for judgment.

I received a cheque of Rs. 200,000/- on a Tuesday. I did not need the money immediately, but did not want to keep the money idle either. So, I decided to deposit it the next day, which happened to be a working day. My firm allows leaving the work place for a couple of hours occasionally for personal work. That Wednesday, however, I had to go early

to office for an important meeting, and there were lot of activities lined up during the day.

- I went to the bank ATM during my morning walk and deposited the cheque in the ATM
- I went to the bank ATM during my morning walk and dropped the cheque in the drop box at the ATM kiosk
- I adjusted my work for an hour to go to the bank branch by an auto. There was a long queue, but I waited and deposited it at the counter
- I adjusted my work for an hour to go to the bank branch by an auto and deposited it in the drop box
- I decided to wait for an earliest day on which I can go to the bank branch and deposit at the counter
- I did something else ...

Category	Concept
Ability to mitigate likely adverse consequences	Creates ability to provide evidence
	Customer takes additional precautions to eliminate adverse consequences in case of transaction failure
	Customers learn good practices from other sources
	Finding ways to reduce potential financial loss, when forced to use a Touch Point
	Need to have evidence. Customer uses alternate means to create evidence of his having done his part of the transaction, as precaution against potential issue in case the transaction fails.
	Sense of comfort after having taken precautions that the customer can take
	Taking efforts to acquire means to reduce adverse impact of failure in transaction and other risks (in this case perceived risk of IT security breach)
Assurance through other means / Touch Points	A supportive use of another Touch Point (SMS in this case) is a positive factor
	Additional Touch Points used by the provider in a supplementary manner satisfy the need to have an evidence
	Assurance provided through other means that transaction will not fail, or there would be no significant adverse consequences even if it fails (e.g. financial loss)
	Feeling of safety due to assurances provided through other means
	Provider uses of another Touch Point to provide confirmation of the successful transaction. The contents of the communication provide the necessary details. The past experience of such a confirmation is an influencing factor.
	Sense of assurance enhanced due to provider's use of another Touch Point in a supplementary manner
	The other Touch points used in a supplementary manner provide the right kind of information to enhance the sense of assurance / reduce anxiety
	The supportive Touch Point provides adequate information about the issue resolution to inspire confidence

Annexure B: Examples of Concepts and Categories

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