From *User Insights* to *User Foresights*: Applying Video-based Ethnographic Narratives and User Innovation in NPD

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1. Introduction

Both researchers and R&D managers have widely recognized the importance of generating *user insights* during the early stages of new product development (NPD), as these lead to more successful products (e.g. Schultz, 2013; Rohrbeck and Gemünden, 2010; Kristensson and Magnusson, 2010; Cooper and Kleinschmidt, 2007). User insights allow R&D managers to understand users' needs and they are normally generated through the analysis of market research. The traditional, most popular methods for market research are focus groups and surveys (Cooper and Edgett, 2008). However, traditional market research has a propensity to generate ideas for *incremental innovation* (the improvement of existing product features), rather than generating ideas for *breakthrough products* (which have significantly new features and benefits) (Deszca et al., 1999; Poolton and Ismail, 2000).

The Oxford English Dictionary defines an insight as a "perception and understanding of a thing's nature", whereas it defines a foresight as the "ability to foresee and prepare for future needs". User insights are therefore mainly associated with the present (i.e. current product features and benefits), whereas managers need methods to generate *user foresights*—understandings of users' future needs (i.e. future product features and benefits). It is crucial for companies to develop an understanding of users' future-oriented needs (Boston Consulting Group survey, 2016) and the concept strategic customer insight has recently been proposed for such foresights (Schweitzer et al, 2019). However, how user foresights can be derived remains largely open.

One approach to generating ideas for product features is *user innovation.* Here, ordinary users are directly involved in discussing, suggesting and even in developing product features (Stock et al., 2015). User innovation can have a direct, positive impact in the early stages of NPD and an Economist (2012) global survey of R&D managers indicated that user innovation will become a major source of ideas for new products, together with on-line communities (Gassmann, 2006). Ordinary users are numerous, easy to identify and this means their ideas can be integrated into NPD without high costs (R&D Trends Forecast, 2019). As a result, there is growing interest in how user innovation can be applied to generate competitive advantage (Hienerth and Lettl, 2016, Schweisfurth and Herstatt, 2014; Kristensson and Magnusson, 2010; Prugl and Schreier, 2006).

When market researchers study users they (implicitly) adopt either an *etic* or an *emic* perspective. The researchers who adopt an etic perspective assume that there is an objective reality which can be studied from a "distance"; therefore, they formulate hypotheses that they quantitatively test, using surveys. The survey method is widely employed by R&D managers to elicit user insights (Creusen et al., 2013) because the method is simple and fast. However, survey data based on an etic perspective run the risk of omitting significant user problems and users' novel ideas (Morris et al., 1999).

Researchers who employ an emic perspective, investigate markets from the "inside", viewing reality as subjective, and focusing on users' self-understandings. Ethnographic market research is qualitative and it is the most prominent example of the adoption of an emic research

perspective in the investigation of user needs. Ethnographic market research applies key methods from ethnography (the systematic study of people and cultures) to generate rich user insights, which are particularly valuable during the early stages of NPD (Arnould and Wallendorf, 1994). Ethnographic market researchers strive to describe specific user groups in their own terms; they search for the inside perspective (Morris et al., 1999). Since emic data is wide ranging—consisting of user narratives, vignettes, video observations, views, and notes (Arnould et al., 2014)—managers often claim that ethnographic data are vague, disorganized, and therefore not actionable during NPD (Creusen et al., 2013). However, when analyzed in an appropriate way, ethnographic market research has been shown to generate deep, actionable insights (e.g. Arnould et al., 2014; Goffin et al., 2012). Interestingly, how the emic perspective that emerges from ethnography could be combined with user innovation has not previously been investigated. This is a gap in the extant knowledge of NPD, as a deep understanding of the user's perspective, including their problems and characteristics, could be positively coupled to users' solutions for future products and features.

This paper answers this call by providing researchers and practitioners with a rigorous market-oriented ethnographic methodology that balances the continuum of the emic/etic perspective. *Video-based ethnographic narratives* are a new approach that integrates user innovation and elicits user foresights. By capturing the users' subjective views on video, a durable and sharable emic record is produced where narratives can be analyzed in a novel, systematic way. The adoption of a pre-existing systematic coding technique and the sharing of interpretations among researchers enables the video-based ethnographers to view the data taking an outside view. In contrast to traditional market research, video-based ethnographic narratives can serve as a foresight research method that captures visible and implicit user behaviors and inspires future oriented product development. Compared to previous approaches to ethnographic market research, which have been criticized for being difficult to action, video-based ethnographic narratives result in user insights and user foresights that are organized, presentable and actionable.

To illustrate the utility of video-based ethnographic narratives, a field study is presented. This explains how the approach was applied in two business units (BUs) of a Fortune 500 Fast-Moving Consumer Goods (FMCG) company—these BUs are responsible for household cleaning products and food products. The field study describes how these BUs applied video-based ethnographic narratives to generate foresights; gives a detailed description of the analysis and findings; and explains how the BUs have made decisions based on the analysis that has led to new products.

New approaches are crucial to understanding users' future needs (Schweitzer et al., 2019) and so this study makes contributions to both theory and practice. NPD researchers have stressed the importance of user insights and the limitations of traditional market research in generating ideas for breakthrough products. This study shows that an integrative emic/etic approach with ordinary users can generate insights, foresights and product ideas that will not emerge in traditional user surveys. The findings are integrated in a new conceptual framework for ordinary user innovation for further testing. The study also shows that a detailed, systematic analysis of ethnographic data is needed, if user foresights are to be generated. Here, the current research produced very clear ways in which ethnographic data can be analyzed in a robust and effective way. To understand how the findings of video-based ethnographic narratives relate to NPD, the study describes how such data can inform the development of *use cases*—descriptors of how product attributes can help users—and strategic decision making at the early start of NPD.

For practitioners, this study provides them with a method by which they can efficiently collect ethnographic data and then analyze it in a systematic and discerning way. Video-based ethnographic narratives can enable companies to generate a broad understanding of their users (comprehensive and extensive), in a timely, efficient and actionable way, thus addressing previous criticisms of ethnography from both researchers and practitioners (Creusen, 2013; DAMA, 2013). To enable this, specific guidelines are provided for R&D managers.

The rest of this paper is presented as follows. First, we describe the theoretical background. Next, we explain the method of video-based ethnographic narratives. In the following main section, we present a field study followed by the empirical and methodological findings. We then discuss the contribution of the study in the user innovation stream of literature. Next, we elaborate on the methodological contribution for user foresight. Finally, we outline the managerial implications, limitations and areas for further research.

2. Theoretical Background

This section presents four theoretical underpinnings: 1)A conceptualization of foresight, user insights and user foresights; 2) A review of ethnographic market research and narratives; 3) An appraisal of the value of user innovation; and 4) An assessment of data collection and analysis in ethnographic and video studies.

2.1 Foresight, User Insights and User Foresights

In the strategic management literature, the term *foresight* refers to the set of practices that enable firms to build a competitive stance in future markets (Vecchiato, 2015; 2012; Rohrbeck and Gemünden, 2011). Typical management foresight practices involve the examination of technological and market trends (Boe-Lillegraven and Monterde, 2015), the identification of new business areas (Heger and Rohrbeck, 2012), and the systematic competitive analysis (Porter, 1985). A recent longitudinal study of European multinational organizations showed that foresight practices lead to breakthrough products and superior market performance (Rohrbeck and Kum, 2018). Foresight consists of a forward-looking view of the business at a strategic level; it is less concerned with user needs and product requirements (Iden et al., 2017).

In the quality literature, the term *user insights* refers to "understanding users and markets" (APQC, 2013:1) whereas, in marketing, insights are "descriptions, in the users' own words, of the benefit to be fulfilled by the product" as elicited by market research (Griffin and Hauser, 1993: 4). Insights are oriented towards users' current needs and existing products. However, both practitioners (e.g. Nielsen, 2015; McKinsey, 2012) and academics (e.g. Deszca et al., 1999; Kärkkäinen et al., 2001) have recognized that generating ideas for breakthrough products requires a deeper understanding of users, emerging from hidden meanings and users' values (Dahan and Hauser, 2000). Ideas for breakthrough products are-future oriented. The future "cannot be experienced directly, but only though images, thoughts, feelings and the multiple ways these are subsequently expressed in the outer world" (Slaughter, 2018:444). Practitioners suggest that ethnographic foresight involves "identifying new user behaviors and looking for how they might be creating unique futures (Crews, 2015: 50). Therefore, by drawing upon the marketing, quality and strategic management literatures and practitioners' views, *user foresights* can be conceptualized in this paper as understanding users' future needs, including identifying the product features required to solve their problems.

During the early stages of NPD, managers analyze the market and identify strategic opportunities (Rohrbeck and Gemünden, 2010). Managers also need to generate unique product ideas (Cooper and Edgett, 2008; Callahan and Lasry, 2004; Dahan and Hauser, 2000). The challenge is that current users often struggle to articulate their future needs: they are often blinded by past experiences; are not conscious of their needs; do not know what they will want in the future; or what is technologically feasible (Goffin et al., 2012; Poolton and Ismail, 2000). Similarly, there are "needs that many users recognize as important in the final product but do not… articulate in advance" (Kärkkäinen et al., 2001:393) and so these have been termed *hidden needs.* Users' hidden needs are novel, as they have not previously been identified, and so they can inspire radical and disruptive new product solutions (Goffin et al., 2012; Leonard and Rayport, 1997). Generating user foresights is therefore clearly an important challenge in NPD and R&D managers require effective methods to achieve this.

2.2 Ethnography and Narratives

Ethnographic market research is perceived by managers as the most effective way to identify user needs (Cooper and Edgett, 2008). It uses techniques from the social science of anthropology to understand customers' and users' values, beliefs, problems, approaches and emotions (Arnould and Wallendorf, 1994). Observing how users interact with products can identify users' hidden needs and inform product design (Brem and Larsen, 2015; Cooper and Edgett, 2008). Ethnography entails wide-ranging observations, rich qualitative data and adopts an emic perspective, focusing on "human practices… human beings and their world" (Crotty, 1998:42). Despite its advantages, managers perceive that ethnography generates a mass of ambiguous data, which are neither easy to analyze nor easy to apply during NPD (Durst et al., 2015; Goffin et al., 2012). Therefore, effective ways to apply ethnography to NPD are needed.

Within ethnography, there is recognition of the importance of *narratives* to construct meaning around human interaction and experiences (Bruner, 1991; 1986). Narratives, where people recount their experiences, can bring the lives of individuals into sharp focus (Gaydos, 2005). Narrative, which was termed *diegesis* by Aristotle, is a subjective version of reality, a perspective based on human experiences and memories (Propp, 1984), shaped by the characters, setting, and events being narrated (Fisher, 1987). Ethnographic stories are "redescriptions of people's worlds sequenced into plots, suffused with emotion and the granularity of human experience" and it is a meaning-making process to understand customer realities (Cayla and Arnould, 2013:1). Although narratives offer a way to understand markets, not all previous studies of the use of ethnographic market research in NPD have recognized this. Table 1 lists seven such academic studies, of which only three focus on the analysis of users' narratives.

Table 1. Previous Studies of Ethnographic Market Research and their Focus.

	Ethnographic Studies	**Sample**	**Data**	**Data Analysis Method**	**Narratives Considered**	**Results: User Understanding**	**Results: User Innovation**
1	Brem and Larsen, 2015	2 case studies	Textual	Not specified	Yes (diegetic)	Not specified	Failures of lead user integration
2	Arnould, Cayla & Beers, 2014	Not specified	Audio/Visual/Textual	Not specified	Yes (diegetic)	Empathic understanding of user experiences	Not specified
3	Cayla and Arnould, 2013	35 semi-structured	Textual	NVivo Codebook	Yes (diegetic)	Understanding of user cultures through	Not specified

		interviews with mgrs.		Common themes		collaborative storytelling	
4	Goffin et al., 2012	4 case studies	Textual/Visual	Systematic Coding (top & underlying codes)	No	Incremental and radical user needs	Not directly from ethno data
5	Rosenthal and Capper, 2006	Review of 14 ethno projects	Textual	Not specified	No	Unanticipated ergonomic attributes, aesthetic implications	Not directly from ethno data
6	Tomes and Armstrong 1998	Observation of 5 user groups 25 semi-structured interviews with managers and users	Textual	Not specified	No	Tensions among user groups and facilitating mechanisms	No
7	Arnould and Wallendorf, 1994	Observation 10 data sets 5-year period	Visual/Textual	Identifying locating co-0ccurrences through coding; and representing the broader cultural themes	No	Consumption and use situations	Not directly from ethno-data

2.3 User Innovation

User innovation is an important way to generate ideas in the early stages of NPD (Hienerth and Lettl, 2016; Kristensson and Magnusson, 2010; Kristensson et al., 2004; Thomke and von Hippel, 2002). Companies work directly with users to collect their ideas for product solutions and to see how users improvise to overcome the limitations of existing products (Brem et al., 2019; Stock et al., 2015).

For more than 30 years, research on user innovation has focused mainly on *lead users*. These are customers that use products in demanding, sometimes extreme, situations. As they face more challenges than typical users, lead users sometimes modify products to match their needs (Luthje and Herstatt, 2004; Thomke and von Hippel, 2002). Lead users can contribute to NPD by sharing their market knowledge and extensive experience of using products (Schreier and Prügl, 2008; Schreier, et al., 2007). Although it can generate useful ideas, a recent exhaustive literature review on lead users showed that, in practice, identifying and integrating them into NPD requires significant time and resources (Brem et al., 2019; 2018). Therefore, more efficient ways to apply user innovation in NPD are needed.

The elicitation of ideas from *ordinary users* has emerged as a simpler, more cost-effective approach but it is an under-researched area (Schuurman, 2015). Ordinary users possess limited technological knowledge of a product domain. They are typically satisfied with existing products and so rather passive when it comes to product modifications (Hienerth and Lettl, 2016). However, empirical research has shown that ordinary users can also provide useful product ideas in NPD (Kristensson et al., 2004). Recent technologies, such as 3D printing, have extended the role of ordinary user innovation (Rayna et al., 2015). Ordinary users should have good knowledge of the products and market being investigated (Amabile and Pratt, 2016; Amabile, 1988) but research has shown that ordinary users without any technical knowledge tend to innovate more (Kristensson et al., 2004).

Ordinary users are motivated to contribute ideas if it is a challenging and satisfying experience but the right forum in which to gather ideas needs to be provided. Approaches that work include so-called *living labs*, where ordinary users interact with products and typical situations (Schuurman, 2015), university environments (Moretti, 2019), and the internet (Tirabeni and Soderquist, 2018). The reported number of ordinary users who innovate is very low (less than 6%); this is because ordinary users rarely report their ideas, do not promote them and, so, their ideas are often hidden (Stock et al., 2015. One study indicated that traditional market research can indeed elicit users' ideas and solutions (Fursov et al., 2017) but another study showed that only half of the ordinary users who had made product modifications reported this in responding to traditional market research (Hienerth et al., 2014). Ethnography, on the other hand, can potentially elicit the otherwise hidden ideas of ordinary users. However, six of the key empirical studies of ethnographic market research have not considered user innovation (as evidenced by Table 1). Therefore, there is a need to investigate ordinary user innovation and to identify more effective ways to elicit user innovation.

2.4 Data Collection and Analysis in Ethnographic and Video Studies

Traditional ethnography often requires the collection of data over long periods of time (Morris et al., 1999). Contemporary ethnographic market research employs small, carefully screened samples of users from the market segment under investigation. This allows focused, less time-consuming data collection. Samples of users may be selected based on socioeconomic or similar criteria but findings are not usually based on statistical inferences (as the samples are too small). Rather, the findings emerge from qualitative analysis (Leonard and Rayport, 1997; Rosenthal and Capper, 2006), such as content analysis (Morris et al., 1999).

Ethnography collects textual data (e.g. notes, vignettes and transcripts) and visual data (e.g. photographs and sometimes video-recordings). *Video ethnography* is the collection of data in natural settings using video cameras. For example, users' interactions with products in specific situations may be combined with interviewing and asking users to narrate their experiences. This approach has been extensively used in marketing studies (Jewitt, 2012) and it captures the subconscious, unbiased behavior of users (Agar, 1996; Altheide and Johnson, 1994) and potentially their hidden needs. (Readers should note that video ethnography must not be confused with *videography*, which is where social scientists use short videos as a way to present the findings of their research [Belk and Kozinets, 2005].)

Due to the amount of data collected in ethnographic and particularly video ethnography, analysis is challenging (Arnould and Wallendorf, 1994). As indicated by Table 1, ethnographic analysis is usually iterative and reflexive (Altheide and Johnson, 1994). To enhance the reliability of data analysis, systematic ethnographic coding—including codes such as uses, misuses, environment, workarounds, problems, processes, acquisition, triggers, environment, emotion, humor, contradictions, and culture has been used (Goffin et al., 2012). Cayla and Arnould (2013) found that narratives are very useful but more research is required to show how they can be analyzed more systematically: "scholars have never really examined how [narratives] can complement other research approaches" (Cayla and Arnould, 2013:15).

Systematic analysis techniques are mostly adopted in video studies and include analysis of the situations observed (Heath and Hindmarsh, 2010) and diagrammatic analysis (Angelillio et al., 2009). Video data enable users' actions and narratives to be viewed multiple times (Jewitt, 2012; Crabtree et al., 2003) and open up the interpretations to wider scrutiny (Heath and Hindmarsh, 2010). Even though there have been numerous conceptual articles and books focusing either on

the methods and uses of video as a research tool (e.g. Kozinets and Belk, 2006; Belk and Kozinets, 2005; Arnould and Wallendorf, 1994) or on the diegetic narratives composed by researchers as the means to transmit their field experience (Arnould et al., 2014; Cayla and Arnould, 2013), there have been very few studies that have followed a systematic coding and analysis (Goffin et al., 2012; Arnould and Wallendorf, 1994). The use of video is often mentioned in studies but not examined in detail. To date, only a limited number of empirical studies have shown how video ethnography can be applied in NPD and further research is required.

3. The Method of Video-Based Ethnographic Narratives

The video-based ethnographic narratives method is a new qualitative approach that advances market-oriented ethnography by integrating the emic and etic perspectives. Video-based ethnographic narratives are inherently flexible and adaptable to the needs and skills of the individual researcher and specific projects. To lay the ground for the rigorous application of the method, four key elements will be explained.

Contextual entrée: First, researchers must have specific market-oriented NPD research questions to be addressed by the study. Secondly, researchers have to define the specific market segment for investigation and gain an etic perspective from available previous studies.

Sampling: The research subjects need to be identified and permission to access their work or home environment must be obtained. Ethical considerations are crucial and the research subjects have to be convinced by the researcher to allow video-recording of themselves in their work or home environment. So, the researcher has to explain in writing the purpose of the study; articulate the benefits of the video studies; ask for permission to share the data with other researchers; and provide a confidentiality agreement. In cases where the research subjects are willing to allow open sharing of the video-recordings, this has to be documented in writing.

Another key consideration is to assess the amount of data that is needed to address the research question. Due to the inherent advantage of video, that it allows data to be reviewed data multiple times and from different perspectives, often a small sample of a market segment is adequate to generate a detailed understanding of users and to reveal their user solutions.

Data Collection: The primary tool for data collection is video. A small hand-held video camera, a wearable camera, a mobile phone camera or a tablet can be used by the researcher to collect the data. The researcher needs to familiar and confident with their chosen technology and to ensure that there is adequate available memory in the device before commencing fieldwork. During fieldwork, systematic observation is emphasized over interviewing. Through the lens of the video, the researcher observes the phenomenon under study (e.g. using a product and subjects' narratives about usage) and captures the perspective of the research subject. Emic exploration can be leveraged with contextual interviewing, conducted as the phenomenon occurs (an 'interview in action'). The research subject is therefore stimulated to reflect and explain his/her actions while he/she is 'in action'. Demographic questions can also be asked and so the researcher can generate a comprehensive record without fieldnotes. Each video compilation needs to be labeled, stored in a database, and backed-up.

Data Analysis: Each video needs to be carefully transcribed. It can then be reviewed by comparing the episodes seen on the video with the timings and the transcript. Drawing upon the etic perspective mentioned in the contextual entrée, the researcher needs to focus on demonstrable findings in the textual, video and audio data by applying systematic coding and analysis (Goffin

et al., 2012). By reviewing the initial coding and by revisiting the subjects' narratives, etic and emic perspectives can generate user insights and foresights. The interplay between perspectives, which is enhanced by the opportunity to invite other researchers to discuss the video data analysis, is a major advantage of this approach compared to traditional ethnography.

4. Field Study: Video-based Ethnographic Narratives with User Innovation

4.1 Applying Video-Based Ethnographic Narratives

In the section that follows, a field study of the use of video-based ethnographic narratives in the early stages of NPD is presented. The research question was: "How do ordinary users innovate?" and the study looked to identify users' emotions and values in the context of practice. User innovation has been studied in the sports industry (e.g. Hienerth, 2006), the technology-based services (Kristensson et al., 2004) as well as in the computer games sector (Jeppesen and Molin, 2003). The FMCG industry was considered to be an optimal context for our investigation for four reasons. Firstly, this industry invests heavily in user-centered NPD, as stated by the senior managers of the most successful FMCG companies in a Deloitte global survey (Jensen and Porter, 2015). Secondly, this industry requires NPD to be effective and to achieve significant return on investment. Thirdly, because the FMCG products are characterized by very short life cycles and very high innovation rates (Horvarth and Enkel, 2014). Forthly, due to their interest in ordinary user innovation, FMCG companies are increasingly finding new ways to integrate consumers (ordinary users) in NPD. An FMCG company agreed to support the study but required anonymity and data to be treated in confidence.

4.2. Data Collection

Purposive sampling was employed for the selection of the users (Miles and Huberman, 1994). A key objective of sampling was to obtain a heterogeneous mix of households, with different cleaning and food preparation styles and preferences, so as to involve users with varying perspectives (Hepner-Brodie, 2000) but focusing on one in-depth, context-related experience (Von Hippel et al., 1999). An overview of the research subjects and the data collected is given in Tables 2 and 3.One of the largest and most innovative FMCG companies, listed in the Fortune 100, granted accessand enabled data collection to be conducted in two different FMCG sectors: household cleaning and food preparation and cooking:

Sector 1: a video-based ethnographic inquiry of household cleaning real-life practices. Data collection involved 14 video-recorded ethnographic observations of household cleaning, including users' narratives (a total of 275.72 minutes of video). In addition to the ethnographic data, which formed the focus of the investigation, data collection also included a 238-pages market survey report, administered by a third-party agency via face-to-face interviews with 600 users.

Sector 2: a video-based ethnographic inquiry of food preparation and cooking real-life practices. Data collection involved nine video-recorded ethnographic observations of food preparation and listening to users' narratives (a total of 186.33 minutes of video). In addition to the ethnographic data, which formed the focus of the investigation, the data collected included a 108-pagemarket survey report (administered by an agency).

The data collection process followed a practice-based approach, observing the users while enacting their normal everyday practices in their own work environment. According to Reckwitz (2002), 'practice' (*Praktik*) is a routinized type of behavior. It consists of several interconnected

elements: physical and mental activities, objects and their use, and states of emotion. The data collection process employed systematic observation (observing users not only using products but also completing a range of typical tasks). Systematic observation was supplemented by contextual interviewing—asking the users to explain how they use products, describe the tasks that they aim to complete using a product, and talk about unsolved problems they face and new solutions they make. The interview protocol, adapted from Goffin et al. (2012), is presented in Appendix A. During the systematic observation and the contextual interviewing, all of the data were captured by video recording.

4.3 Data Analysis

We conducted our data analysis by combining systematic approaches for coding observations (Goffin et al., 2012) and video-studies (Angelillio et al., 2009) with open coding drawn from *narrative theory* (McQuillan, 2000) and practice-based theory (Reckwitz, 2002). The data provided such rich insights into users' practices, that the data analysis required a comprehensive, twelve step iterative approach:

1. All the data collected were uploaded on two shared folders, one for each data set, to facilitate access from all authors.
2. One of the authors conducted detailed transcriptions of the video-based ethnographic data in both data sets.
3. Two of the authors applied a pre-defined systematic coding scheme described in Appendix B (Goffin et al., 2012) to the transcripts. They conducted this independently and in parallel, to enable reliability checks. The household cleaning data were analyzed first and then the food data. The analysis of the data from both sectors identified instances of uses, misuses, work space, workarounds, problems, processes, acquisition, triggers, environment, emotion, humor, contradictions, and culture-related issues.
4. The two authors subsequently compared their outputs for reliability purposes.
5. This enabled the research team to build an understanding of the kinds of user-product interactions and narratives found across users and across sectors. The level of understanding was enhanced through the multiple viewings of the video data.
6. Next, the research team used the coding results and visual methods to condense the video data to explore patterns (c.f. Angelillio et. al., 2009). Because the participative users performed two functions on camera, saying and doing (Sanders and Dandavate, 1999), the authors applied these codes to establish the nexus between saying and doing for each of the codes: uses, misuses, working environment, workarounds, problems, processes, acquisition, triggers, environment, emotion, humor, contradictions, and culture.
7. Next, the team identified and measured incidents of user innovation. To assess these innovations, measures were drawn from creativity and innovation research. The measures included *novelty* of idea that refers to the newness and originality of ideas (Im and Workman, 2004) and *innovation* that refers to the solutions developed and implemented by the users (Stock et al., 2015).
8. Once these phenomena were identified, the authors worked to refine and augment the categories. This allowed the phenomena to be coded reliably and relationships between the user-developed solutions and the user's individual characteristics and context to be established (Reckwitz, 2012; McQuillan, 2000; Ramage and Bean, 1998).
9. The next step involved writing up each user's narrative by synthesizing the findings from the systematic coding of the transcripts with what was seen on the video recordings.

10. To assess the utility of video-based ethnographic narratives, the authors compared the findings from the video-based ethnographic data with the findings from the market surveys. This involved checking the various incidents identified and counting their frequencies across the ethnographic and market survey data.
11. To elicit user foresights, the authors assessed the data for future-oriented aspects, an approach they termed as *prospection* (Voros, 2003). The authors compared the user insights and the user solutions gained from the video-based ethnographic narratives to those from the market surveys. Insights that were identified in the narratives but not in the market research survey data were coded as 'implicit/non previously articulated' and therefore novel to the FMCG company.
12. The authors calculated the amount of time needed for data collection and analysis for the video-based ethnographies and compared and contrasted these to the survey report timings as provided by the third-party agency. This allowed the authors to reach conclusions about the efficiency and effectiveness of video-based ethnography for generating user insights and user foresights.

The analysis drew heavily on Aristotle's and the narrative theory perspectives (McQuillan, 2000; Ramage and Bean, 1998), as well as upon practice theory (Rekwitz, 2012) and this enabled the coding progress to higher-order categories. Three higher-order categories for users' characteristics were used, namely *user ethos* (the user's values), *user pathos* (the user's emotional states), *user logos* (the user's experience). We added to these the term *user topos* (in ancient Greek this means place) to include a higher-order category covering elements of the physical environment in which the user practice was enacted (Reckwitz, 2002). For each of the higher-level codes, operational measures were adopted as follows: *user ethos*: aspects about the values of the user who use the product; *user pathos*: emotions observed in using the product, including satisfaction, enthusiasm, frustration, and humor; *user logos*: accumulated in-use experience; *user topos*: observations of the environment in which the product is used, including the physical space and other objects and equipment involved.

Table 2. Data Collected in the Field Study: Video-Based Ethnographic Narratives.

USERS	AGE	OCCUPATION	USE EXPERIENCE	PLACE	CATEGORY	DATA
CHRISTINE	40+	Housewife	Heavy (2-3 times a week)	Home	Household cleaning	Video-interview and photos
TETI	30+	Designer	Heavy (2-3 times a week)	Home	Household cleaning	Video-interview and photos
LORI	40+	Lawyer	Low (2-3 times a week by cleaner)	Home	Household cleaning	Video-interview and photos
LIA	40+	Manager	Heavy (2-3 times a week)	Home	Household cleaning	Video-interview and photos
GEORGINA	50+	Housewife	Heavy (2-3 times a week)	Home	Household cleaning	Video-interview and photos
SOU	30+	GP	Heavy (2-3 times a week)	Home	Household cleaning	Video-interview and photos
MARY-CHRISTY	40+	Sailing Athlete	Medium (1-2 times a week)	Ship	Household cleaning	Video-interview and photos
VIOLA	40+	Entrepreneur	Medium (1-2 times a week)	Home	Household cleaning	Video-interview and photos
NAYA	30+	Teacher	Medium (1-2 times a week)	Home	Household cleaning	Video-interview and photos
CAROL.	30+	Surgeon	Low (1-2 times a week by cleaner)	Medical Office	Household cleaning	Video-interview and photos
ANNY	60+	Retired	Heavy (2-3 times a week)	Home	Household cleaning	Video-interview and photos
KALIA	50+	Professional Cleaner	Heavy (2-3 times a week)	Work	Household cleaning	Video-interview and photos
MARIA	30+	Housewife	Medium (1-2 times a week)	Home	Household cleaning	Video-interview and photos
STELLA	30+	Employee	Medium (1-2 times a week)	Home	Household cleaning	Video-interview and photos
ANGELA	40+	Self employed	Heavy (7 days a week)	Home	Food cooking	Video-interview and photos
KATRINA	50+	Housewife	Heavy (5 days a week)	Home	Food cooking	Video-interview and photos
MICHAEL	50+	Unemployed	Low (2 days a week)	Home	Food cooking	Video-interview and photos
SARA	45+	Teacher	High (7 days a week)	Home	Food cooking	Video-interview and photos
LED.	35+	Artist	Medium (4 days a week)	Home	Food cooking	Video-interview and photos
JOHN.	35+	Director	High (6 days a week)	Restaurant	Food cooking	Video-interview and photos
DIANA	45+	Manager	Medium (4 days a week)	Home	Food cooking	Video-interview and photos
JEAN.	50+	Chef	High (6 days a week)	Catering business	Food cooking	Video-interview and photos
MARY.	50+	Entrepreneur	High (7 days a week)	Hotel	Food cooking	Video-interview and photos

Table 3. Data Collected in the Field Study: Market Survey Reports

USERS SURVEY	AGE	OCCUPATION PERSPECTIVE	USE EXPERIENCE	PRODUCT CATEGORY
n=600	30-64	N/A	Low to Heavy	Household cleaning
n=N/A	30-64	N/A	Low to Heavy	R&D Food

Two crucial aspects of ethnographic research and video research are validity and reliability (Heath and Hindmarsh, 2010; Miles and Huberman, 1994) and so these were carefully considered during the research design. To ensure validity of the study, the current study built upon proven analysis methods (Goffin et al., 2012; Angelillio et al., 2009) and coding was augmented by drawing upon established theories (practice-based theory and narrative theory). Internal validity was established as the availability of the video-recordings provided opportunities for continual data analysis and comparison to refine categories and to ensure the match between scientific categories and user reality. Moreover, systematic observation was conducted in the natural setting of the users and reflected the reality of the practice experiences more accurately than lab environments, for example. The combination of qualitative and quantitative data analysis enhanced the validity of the study.

To ensure reliability, in numerous data sessions, all authors searched for confirming and disconfirming evidence and discussed and reached agreement (Miles and Huberman, 1994). The use of video as shareable records enabled the four authors and external colleagues to perform confirmation checks between the written data and the reality as encapsulated in the video recordings. Operational measures are presented in Appendix B.

4.4 Empirical Findings

The empirical findings show the utility of investigating the user's emotions relative to the task being undertaken (pathos); the user's values (ethos), and the users' in-use experience (logos). The approach illuminates how users improvise to solve their problems and the constraints they face in their daily routines. The familiar environment (topos—place) where ordinary users perform their chores gives them a secure space in which they can confidently demonstrate their user solutions.

Logos, Ethos, Pathos and Topos for User Innovation. Across the 444.05 minutes of video, the analysis revealed sixty (n=60) incidents of user developed solutions (user innovation). From the twenty-three (n=23) users who participated in the study, twenty-one (n=21) were user innovators and only two (n=2) did not innovate. These findings are presented in Table 4.

All user innovators had accumulated experience (logos) because they used to perform domestic work tasks on a regular basis. Users had 'medium' to 'high' experience in cleaning and cooking, and therefore had accumulated useful knowledge relevant to these chores. It is evident from Table 4 that knowledge (logos) appears to be a pre-requisite for the identification of novel solutions, as the users who did not possess the necessary in-use knowledge did not innovate. For example, Carol, who was a surgeon, exhibited low logos and zero (n=0) user solutions. As the analysis of Carol's narratives showed, a potential reason was that Carol rarely had the time to conduct household cleaning chores, and therefore she did not have the adequate domain knowledge of routine problems and processes that could enable her to contrive any new solutions.

Table 4. Field Study Findings: User Logos, Ethos, Pathos versus User Solutions.

HHC USERS	**LOGOS: EXPERIENCE**	**ETHOS: VALUES**	**PATHOS: EMOTIONS**	**USER SOLUTIONS**
CHRISTINE	High	14	15	2
TETI	High	5	6	5
LORI	Low	0	2	1
LIA	High	4	23	8
GEORGINA	High	7	10	3
SOU	High	5	12	2
MARY-CHRISTY	Medium	1	6	1
VIOLA	Medium	1	19	4
NAYA	Medium	1	3	2
CAROL.	Low	1	3	0
ANNY	High	0	5	5
KALIA	High	1	6	4
MARIA	Medium	0	1	2
STELLA	Medium	0	5	2
n=14		40	116	41
FOOD USERS				
ANGELA	High	3	15	3
KATRINA	High	1	9	3
MICHAEL	Low	1	3	0
SARA	High	6	24	4
LED.	Medium	4	4	3
JOHN.	High	4	6	2
DIANA	Medium	3	8	2
JEAN.	High	0	6	2
MARY	High	4	5	3
n=9		26	80	19
Total		66	196	60

User logos alone was, however, not sufficient to stimulate user innovation. The analysis of the narratives demonstrated that the user emotions relative to the task (pathos) and/or the user's overarching values (ethos) stimulated the development of product solutions. For many user innovators cleaning or cooking was perceived as a boring and dull act. What was important was

that those users were performing these tasks as an expression of care and love for their family or as an enactment of the family's and/or the society's beliefs and ideas.

An example from the cooking narratives was that of Sara. Although Sara is the cook in her family, did not have an intrinsic motivation for this household chore. In other words, she had no passion for cooking but she nevertheless had come up with creative solutions (n=4). As shown in Table 3, Sara had built an extensive experience in food preparation by cooking for her family seven days a week and cooking was a means to take care of her family and to grow her children healthy and strong. Although she did not value the art of cooking, she valued instead the well-being of her children:

> "I cook because I have to. I really, really don't like to cook, I hate to cook. I'm sure that my children have grown taller and stronger because I insist that they have meat and protein … I'm just convinced that you have to have protein every day, to grow stronger, to be healthy especially since my children are growing, they really need food to grow. When it works and everybody likes it, I'm very happy because I know that I have taken care of my family, when it doesn't work, I'm very frustrated and I feel like there is no point in, in doing it but again, I will continue to cook because I know that they have to have good food."

Sara improvised because she was driven by her love for her children and her family's values for household economy. Sara's narrative revealed that her husband had retired early due to health problems and she was employed on a part-time basis. Due to the bad financial situation of the family, she was improvising solutions for cooking tasty meals using fewer ingredients and minimum electricity.

Another example was that of Teti from the household cleaning narratives. As evidenced in Table 4, Teti conveyed five new product ideas (n=5) that provided solutions to problems she was facing in her daily cleaning routines and which enabled her to achieve her cleaning tasks in a more efficient way. Teti used to prefer bio-cleaning products but found that they did not smell very good and their cleaning performance did not meet her expectations. As presented in Table 5, she demonstrated on-camera how she can make her own laundry detergent by combining soap nuts and other natural ingredients. She used to place eight soap nuts and aloe vera in a small bag and that was used instead of detergent into her washing machine and her dishwasher. The analysis of Teti's narratives demonstrated that she was the one who held the main responsibility of cleaning her house and had accumulated high in-use experience by conducting household cleaning chores two to three times a week. It was the strong ethos and pathos - the care for her family and the environment- that encouraged her to utilize her experience and to innovate.

Table 5. Illustrative Examples of User Innovation *(No color printing)*

User	Sector	Saying (Diegesis)	Doing (Mimesis)
Teti, Designer	Household Cleaner	"So you put eight of these seeds in the small bag and when they are subjected in high temperatures in the washing machine they emit soap".	 Teti. Video 3 Min. no. 9.15
Katrina, Housewife	Food	"We collect these mushrooms… Mm, what can I say, I like this … a lot of times I make traditional mushroom pies but with a modern twist like this one."	 Katrina. Video 1 Min 8.00

The analysis of the video-based ethnographic narratives demonstrated that the physical space where the users chose to be observed and interviewed was a topos -a place- of 'safety'. The users were able to demonstrate their own, creative solutions because they were in their own, comfortable environment. For example, as indicated in the household cleaner narratives, Mary-Christy invited the researcher to the place where she was feeling most comfortable, her sailing boat. This was her most 'natural environment', the topos where she spends most of her free time. Sitting on the deck, she introduced herself and narrated her routines:

> "My name is Mary-Christy. I am a sailor. Besides sailing, which is my hobby, I work for a retail company. This is a sailing yacht that I use as a part-time "home" but I am not a professional sailor, it's just a hobby that I love. It's a matter of safety, order… you have to be clean and tidy. It's not just a matter of… being clean for being clean… there is… that's the point of it, of necessary order. So, everything is in its place, is proper, is ready to be used next time. So, you don't leave the stuff dirty and when you want to use it is dirty and then you have to clean it and then use it. Everything has to be ready for its next use. And being cleaned is part of being ready."

In the narrative, Marie-Christy demonstrated her cleaning routines in various parts of the sailing boat in a relaxed way, showing new solutions including using dishwashing liquid to remove petrol stains on deck. She emphasized that her cleaning needed to be excellent because she had to safeguard the safety of all her passengers when sailing. Significantly, the analysis indicated that topos influenced the way logos, ethos, and pathos were expressed by users. In the working environment of each user, they freely shared details of physical activities, mental activities, the objects they use, their background experience and know-how. This is illustrated by the example of Viola in Table 6. The safe, familiar topos for Viola was her home, where she lived with her sister, niece and their dog. Although Viola found cleaning chores extremely time-consuming and tiring,

her values for well-being and caring for her family stimulated her to develop her own solutions for removing dog stains from the carpet and sofa.

Table 6. Illustrative Example for Logos, Ethos, Pathos, Topos for User Innovation
(No color printing)

User Logos	User Ethos	User Pathos	User Topos	User-Developed Solution	Video-Based Narrative
Name: Viola 45+ female Middle class Self - employed Single Lives with her divorced sister and niece No kids Has a dog Cleans once a week	Values: Cleanliness is a proof of taking care of her family.	Pride and confidence is what she feels when she invites her friends in a clean and beautiful home She feels more relaxed when she does the cleaning chores, that is why she never schedules in advance what needs to be done	3 bedroom apartment Objects used: Vacuum cleaner Bleach Windows spray Dishwasher Hand dishwasher Carpet cleaning liquid Carpet foam Sponges Cleaning clothes Viola uses disinfectant product to exterminate the germs. She mostly likes the smell of cleanliness. However, she cannot clean some difficult spots e.g. on top of the doors as she is rather short. She also has a difficulty in cleaning her sofa from the dog stains.	She has improvised cleaning solutions such as hot water machine wash cleaning liquid, baking soda with hot water as a refrigerator cleaning liquid, bleach for cleaning the leather sofa, vinegar as carpet stain removal.	Viola is a single middle-aged woman. She was never married and has no kids. She shares an apartment with her sister and her niece. She manages her own small business but she struggles financially. She has a small dog she loves dearly. She is extrovert, positive and dynamic. She is loving and caring. Viola's dog is the main source of dirt. That is why Viola cleans her apartment especially those spots that her dog uses the most.  Occasionally she employs professional cleaning services to clean her carpets as she cannot remove the stains herself. She likes the cleaning process because she believes that cleaning is an act that transmits positive energy…it is a type of Feng Shui.

Context of User Practice. As it is evidenced in the illustrative examples in Table 7, the physical tasks, the objects used, and the routinized ways of understandings and knowing were analyzed. Each household cleaning and cooking practice was analyzed as a nexus of sayings (diegesis – how the user described them) and doings (mimesis – how the user actually conducted them). The findings showed that the household cleaning was an everyday routine and a crucial aspect of home care. Their favorite cleaning product was seen by the users as trusted, top quality, protective and reassuring. They used it in various areas, such as the bathroom, the kitchen, laundry, the bedroom, and the living room. This is illustrated by the user Lia's demonstration on-camera of a cleaning and disinfecting routine in the kitchen sink while holding a brush and the cleaning product. It was evident that the cleaning practice was not a heavy duty one, but a gentle, caring and efficient procedure where the cleaning product was directly associated with cleaning and disinfection and was experienced through its strong smell of cleanliness.

From the food ethnographies, an illustrative example is the narrative from Angela. She explained her routine for cooking a hearty meal for her family while at the same time performing all the relevant activities on camera. The workspace and the objects were very important parts of Angela's routine. In preparation, the necessary ingredients were collected, and then the utensils, dishes and cutlery were all laid-out on the work surfaces. Even though the food preparation process seemed really fuzzy and complex, Angela easily whizzed her way around the kitchen and prepared quickly a beef dish with vegetables and pasta.

Table 7. Field Study: Illustrative Examples of User Practices

Code	Saying (diegesis)	Doing (mimesis)	User
WORKSPACE	"Would you like me to show you the products? Ok, here we have a special cream. That's a special cream and that's another for product X. It's a household cleaning product that I use all the time. So now we are in the bathroom. This is the small bathroom where I keep all my detergents for the washing machine and for the bathrooms. I have different sponges and different cleaning cloths."	(The user takes us from room to room and shows the products that she has been using taking them out from the storage cabinets and holding them in her hands)	Christine.
PROCESS	"And then we apply... the same again here on the tiles. The cupboards, I always open the refrigerator and clean like this, this is how I do it. This is good maintenance. When we do overall housekeeping, we do overall cleaning.	(The user is holding a wet cloth and a liquid household cleaner and shows how she cleans the refrigerator and kitchen bench; she first applies the liquid and then uses the wet cloth to clean the stains.)	Anny
	Ok, let's start the process. I' m gonna use aubergines, red peppers, potatoes, onions and tomatoes, f I had courgettes, I would have added courgettes as well, but I realized I don't have any. Instead, I found a bit of frozen okra in my freezer, so I'll put that instead. So the process now, it's quite an easy dish, the only difficult part is the aubergines because you need to either fry them in advance or grill them so they can be a bit soft before you mix them with the rest of the vegetables. So I will start with them. I always use my own very sharp knife, which I take everywhere with me, I can't cook without it."	(The user cut quickly with the knife the aubergines, peppers and the potatoes and she put all in a large pan on the table. The table is full of supplies, dishes, forks and knives and vegetables)	Angela
USES	"This is the… this is the… the toilet of the yacht. What I do usually is I put a little bit here… and then I clean it with fresh water, from the tank. I fill it up and then I flush thoroughly. And that should keep it clean for a while. And then I wash my hands with this soap. Once in a while I also wipe the floor a little bit because we keep those hatches open for some ventilation and you may get dust again especially in summer."	(The use takes the product and applies it on the toilette and then she uses a liquid soap to wash her hands. She closes the small window where the dust comes in from. She mops the floor of the yacht cabin)	Mary-Christy
EMOTION	"Before I start I make a plan and I say today I will do this room, this room, this room. So when I finish all the rooms I have planned to do, then I'm satisfied. And another product I use, just a moment, is this one, is this, this is magical!	(She is smiling while she is talking)	Lia
		(She opens a drawer and takes out a liquid washing machine product. While she is holding it,she seems very satisfied from the product's performance.)	
	How does it feel? Except from being tired , ok, I don't feel anything else because I know that in two hours or three hours the kitchen will be again… like this, a mess. And then I have to come again tomorrow, to clean it up. So it is a lot of… a lot of effort for nothing."	(She seems now disappointed from the way she talks, the movements in her hands and the tone of her voice)	

PROBLEM	“None of the bio products are good, they do not smell nice, they do not clean well, the clothes are not clean”	(The tone of her voice is very strong and dynamic. She looks positive and optimistic. When she talks about the bio products she stops smiling and seems dissatisfied)	Teti
TRIGGERS	“Cleaning for me is a very important topic for health reasons and overall wellbeing. It is critical that the house is clean and germ free on all surfaces for my son but also for the adults. Germs can cause serious health problems in the stomach, poisoning. Dust can also cause respiratory problems especially for patients.”	(The user is sitting at her desk in her office, is very serious. She does not smile at all. She looks tired.)	Carol
ACQUISITION	“It’s very, very effective. It’s the only product that is so effective for these difficult surfaces. And if you see…look. And it is now a week since we last cleaned this. You see… this. Look, look.”	(The user is holding the product and explains why she is so satisfied. She is facing the camera and she looks really pleased). (She is holding the product and on the other hand she is holding the wet cloth; she is cleaning carefully the window sill. Then she looked at the cloth and it has turned black from the dirt)	Viola
CULTURE	“I always use, it’s my principle, to clean my house with natural ingredients....I would prefer to cut a lemon from my lemon tree and use the juice from my lemon to clean and replace a chemical product. These are my principles, to clean my house with natural ingredients; this is something that makes me very happy. It is more economical and it is healthier. I use detergents for the washing machine. I wash at low temperatures and I see goo results at low temperature, this is more economical for me and good for the environment.”	(The user is moving her hands while she it talking and she is showing the lemon tree she has planted in her garden. She seems firm about her choices.)	GE.
MISUSES	“You see stains on the clothes that you put in the washing machine...what do you do? If I have white clothes, I apply some bleach … Yes, at first I wet it and rub it where the stain is. And on the colored clothes that have oil stains, I apply hand dishwasher liquid for the dishes.”	(While the user explains how she takes out the stains from clothes using bleach and dishwasher liquid she smiles sneakily)	Kalia
VALUES	“The house is clean because it has to be clean, we are three people living in this house including a small child. We are coming into the house with shoes full of germs underneath, we have dust coming from the windows … the dust has a lot of allergens and germs. So the house has to be cleaned because we have to be healthy. When the house is clean we are also very happy.I have my child and my child plays on the floor, so she also puts her toys on the floor, so I need the floor to be clean where my child sits and plays.”	(She sits on her sofa when she talks about her clean house. The living room is tidy and clean although she has a very young daughter. She looks determined. She smiles now and them)	Stella
WORKAROUNDS	“I will apply the product now. So you put on gloves now? [poses rhetorical question] Yes!”	(The user does not wear gloves when she cleans. Only when she uses the specific product she wears her gloves so as the product not to come in contact with her skin)	Christine.

HUMOR	"So, how do I feel about cleaning? When I clean, I'm feeling a bit tired but I also feel that I am ok, I mean… if I don't do anything and I sit on the couch then I feel useless … and I cannot… I cannot… I cannot, it drives me crazy, it drives me crazy, yes. If I see the house like this, it drives me crazy."	(She laughs when she says that she feels useless.)	Lia
CONTRA DICTIONS	"For the clothes I bought this ball, that says that it cleans without cleaning detergent, it was on offer two for the price of one, I used the one, nothing. And this is my book with recipes for ecological cleaning products. I read it all and I selected those that I wanted but nothing has satisfied me. So I concluded I will use both the supermarket cleaning products and those that are more suitable for my cleaning."	(Although she claims she likes only chemical-free products, her cabinets also contain chemical cleaning products)	Teti

4.5 Methodological Findings

To assess the effectiveness of the video-based narratives as a market research method for the early NPD, we drew firstly on market survey experts' suggestions for assessing data quality (DAMA, 2013). We adopted two criteria from DAMA (2013) to assess the quality of user insights drawn from the study namely *breadth* - comprehensive and extensive information - and *timeliness* - timely availability of information. We also drew upon the foresight theoretical framework of Voros (2003) to assess the forward-looking element of insights namely, *prospection*-future looking/non-articulated/implicit needs. We refer to these findings as user foresights.

Breadth of User Insights. The systematic coding and analysis of the video-based ethnographic narratives revealed the emergence of a wide breadth of total incidents (n=1890) for the nine main elements of user household cleaning and food routines. These elements are presented in Table 8. The frequency of codes showed some elements were more evident such as process (n=348), environment (n=272), uses (n=214), and emotions (n=206). This finding showcases the extent to which emotions and environment are involved in the cleaning and the cooking processes and uses. The importance of this finding is accentuated if it is compared to the findings from the survey data, where emotions do not emerge at all.

Table 8. Field Study: Breadth of User Insights

ENVIRONMENT	272
PROCESS	348
USES	214
EMOTION	206
PROBLEM	179
TRIGGERS	183
ACQUISITION	110
CULTURE	136
MISUSES	54
VALUES	62
WORKAROUNDS	35
HUMOR	25
CONTRADICTIONS	2
TOTAL INCIDENTS	1826

ENVIRONMENT	256
PROCESS	266

USES	169
EMOTION	200
PROBLEM	166
TRIGGERS	118
ACQUISITION	78
CULTURE	130
MISUSES	51
VALUES	62
WORKAROUNDS	35
HUMOR	25
CONTRADICTIONS	2
TOTAL	1558

Timeliness of User Insights. Time is a precious resource and R&D managers require fast results from market research. The field study findings demonstrated that the data collection of the video-based ethnographic narratives was extremely short and quick; the average household cleaning video-recording length was 19.7 min and for food was 20.7 min. Subsequently, the duration of the initial coding was 33 minutes on average per narrative. The survey data collection time on the other hand was 23 days (as stated by the third-party agency). Our experience indicates that the time needed for the video-based ethnography was comparable to the time needed for the survey. However, the video-based ethnography generated a wealth of insights compared to the survey results (n=1890 from the video-based ethnography compared to n=162 from the survey). This contradicts the assertion in the literature that ethnographic fieldwork is long-winded and needing weeks or months (Jeffrey and Troman, 2002; Wolcott, 1995). The field study also demonstrates that video-based ethnography can be an effective method (Table 9), contradicting the practitioner view that it is disorganized, and therefore not actionable during NPD (Creusen et al., 2013

Table 9. Filed Study: Timeliness of User insights *(No color printing)*

Video-Based Ethnographic Narratives		DURATION OF RECORDING	DURATION OF CODING	TOTAL TIME
H/H USERS	n=14	275',72''	432'	707',72''
FOOD USERS	n=9	186,33''	340'	526.33
TOTAL USERS	n=23	444',05''	772'	1216',05''
				appr. 5 days
Survey				
TOTAL USERS	n=600			23 days

Table 10. Field Study: Prospection in the Ethnographic and Market Survey Data*(No color printing)*

		TOP LEVEL CODES							UNDERLYING CODES					EMERGENT CODES		
Video-Based Ethno		USES	MISUSES	WORKAROUNDS	PROBLEM	PROCESSES	ACQUISITION	TRIGGERS	ENVIRONMENT	EMOTION	HUMOR	CONTRADICTIONS	CULTURE	VALUES	NEW SOLUTIONS	TOTAL INCIDENTS
H/H USERS	n=14	192	48	13	101	237	96	130	173	126	8	1	64	36	45	1270
FOOD USERS	n=9	22	6	22	78	111	14	53	99	80	17	1	72	26	19	620
TOTAL USERS	n=23	214	54	35	179	348	110	183	272	206	25	2	136	62	64	1890
Survey																
TOTAL USERS	n=600	29	0	0	5	50	24	54	0	0	0	0	0	0	0	162

From User Insights to User Foresights. Table 10 compares the coding of the ethnographic and narrative data with the codes identified from the market survey data. As it is evident from the table, there are considerable differences in the findings. From 600 users/respondents, the analysis of the market survey exhibited the following codes: uses (n=29), problems (n=5), processes (n=50),

acquisitions (n=24), and triggers (n=54). In total, the market survey exhibited n=162 instances of user insights.

When compared to the survey, the household cleaning ethnographic narratives elicited a much higher number of codes: uses (n=192), problems (n=101), processes (n=237), acquisitions (n=96), and triggers (n=130) from a significantly smaller number of participants. Similarly, the analysis of the household cleaning ethnographic narratives elicited many codes including misuses, (n=48), workarounds (n=13), environment (n=173), emotions (n=126), humor (n=8), contradictions (n=1), culture (n=64), values (n=36) and new solutions (n=45). Taking both ethnographic investigations there were a total of n=1890 codes assigned and from these n=1109 were foresights (implicit needs/ not articulated in the survey; forward-looking product related solutions).

The foresights revealed that the users were influenced by 'green', environmental factors, especially in the household cleaning sector. There was an interest in eco-friendly cleaning products which reflected a desire for simpler, more natural lifestyles and products. There was also a greater appreciation of wellness and well-being through the products used at home for cleaning or cooking. As Georgina said:

> "I'm worried for the future of the environment and our health. We may have a temporary good effect when cleaning with chemical products, but I have my reservations with regards to the long-term effects. I would prefer to cut a lemon from my lemon tree and use it for cleaning. Cleaning is very important for me and my family. We all take care of it to live better in a healthier home environment. When I see that everything is clean, I'm happy, I feel that I have offered value to myself and to my family: we live well and happy."

Users were looking for safer, healthier choices for whatever products they were using in their homes, which might also have the added benefit of being less expensive. In the food study, Sara bought fruit and vegetables from the open market because they were healthier and cheaper. Mary used products that were grown in her village so they were fresh and costless. There was overall a preference for local ingredients and flavors. Led, for example, used to buy cheese from the local corner shop instead of the super market and she sourced olive oil from a small town that is famous for the high-quality oil. Similarly, Jean preferred locally-produced parsley and vegetables that would give a unique flavour to his novel recipes. There was also an emphasis on a 'made it myself'. Katrina, for example, did all the cooking for her family often seeks ways to adjust and enhance old recipes.

4.6 What Happened: From User Foresights to New Products

The rich emic data from the ethnography and the ideas for new products from ordinary users (user innovation) inspired both BUs at the FMCG company to take the ideas further towards product development. Each BU took concrete steps to generate use cases and product concepts.

The household cleaner business unit organized a workshop with a mix of company managers (from different functions) and ordinary users, facilitated by a moderator (see Sakellariou, et al. 2017). Initially, the participants were divided into three small groups and the results of the video-based ethnographic narratives were shared with them. Then each group brainstormed on the ethnographic findings and came up with product ideas, which they subsequently presented to the other groups. For example, the user foresight that "ordinary users clean out of love for the environment" led one of the groups to discuss new formulas that would have strong cleaning properties without aggressive, harmful for the environment ingredients. This in turn inspired the development of a new idea about a new home cleaning product highly efficient but gentle to the

surfaces and the environment. All of the groups' ideas were then evaluated based on: a) uniqueness/novelty, b) market potential, and c) relevance to the brand vision. The winning ideas were developed into use cases by an industrial designer. At a later stage, the use cases were tested quantitatively with potential users. Those which were well received by a sufficiently large numbers of users, were then approved by management for development into new products.

In the food business unit, the findings from the video-based ethnographic narratives were supplemented with data on global food trends, stemming from online reports and cookery magazines, and menus from leading restaurants. This wide-ranging set of information on users was then shared with managers from different functions in an insight workshop. With the help of an expert moderator, the managers selected what they considered to be the foresights that were most relevant for the brand's vision. These foresights were then evaluated and further refined in two consumer focus groups. For example, one such user foresight was:

> 'Authenticity is about being real and honest - absolutely trustworthy. Regional food is authentic because it uses locally grown ingredients which are cooked in the traditional way. Only authentic food is able to deliver the true taste'

Building on the outputs of the focus groups, next, an ideation workshop was conducted. Managers from different areas including R&D and marketing were joined by professional chefs to develop more sophisticated use cases, which matched aspects of the users' needs to the company's technological strengths. For example, the identified need for authenticity and the importance of authentic recipes and locally grown ingredients led to the development of a new line of packaged food based on authentic local recipes, without preservatives but using only locally grown products for the authentic taste. At a next stage, the use cases were evaluated quantitively by a large sample of users; wherever there was a positive response management approved investment in NPD.

Both BUs found that video-based ethnographic narratives gave them a much deeper level of user understanding than they were typically accustomed to, based on survey-led research. In both BUs, new products have already been introduced, whereas others are near the end of the pipeline. For reasons of confidentiality, further details cannot be provided.

5. Discussion and Theoretical Contribution

The field study conducted for the purposes of this research project is unique, in that it took an ethnographic approach based on narrative theory (Gaydos, 2005; McQuillan, 2000; Ramage and Bean, 1998), supplemented with user innovation. In contrast to most previous studies of user innovation, which have employed surveys and lab experiments (e.g. Stock et al., 2015; Kristensson and Magnusson, 2010; Kristensson et al., 2004), this study investigates the issues ordinary users face and the ideas they have for addressing them, thus generating a rich, complex data set. The comparison of video-based ethnographic narratives to market survey reports shows that numerous user insights and user foresights can be generated by this new approach.

In the area of user innovation, our study makes a number of contributions. Firstly it supports the view of scholars who advocated the importance of learning from lead and ordinary users' experiences (Fuller et al., 2011; Kristensson and Magnusson, 2010; Schreier and Prügl, 2008; Luthje and Herstatt, 2004; Jeppesen and Molin, 2003; Thomke and von Hippel, 2002). Lead user studies show that users' technological expertise is crucial (e.g. Lüthje and Herstatt, 2004) and their creativity is based on their technical skills (Amabile and Pratt, 2016; Amabile, 1998). Our study, in contrast, showed that ordinary users without any specific technological knowledge or

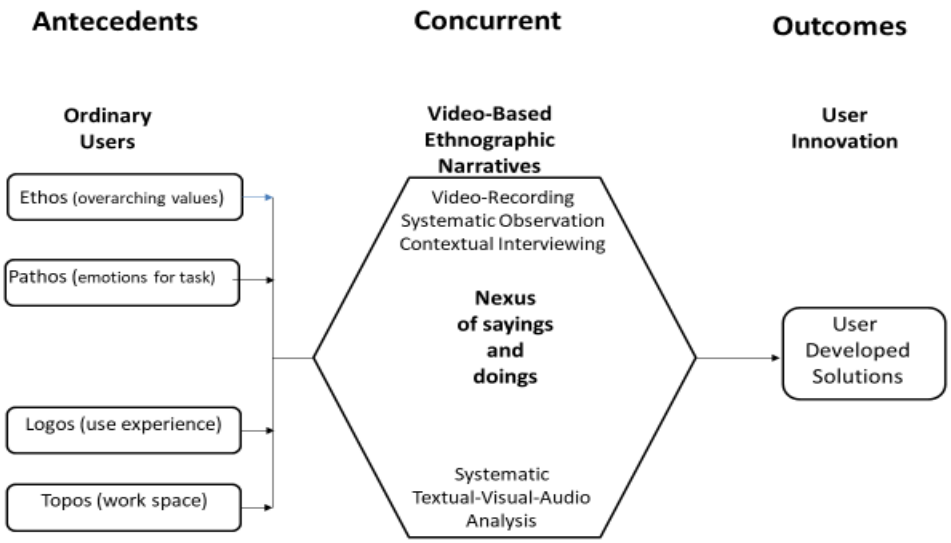
skills can support innovation, through their creative ideas, and contradicts the suggestion that ordinary users will be passive (Hienerth and Lettl, 2016).

Previous work has shown that users' emotions play a role in user innovation—for example, users' passion in addressing problems and challenges, or their dissatisfaction with current product performance (Amabile, 1998; Lüthje and Herstatt, 2004). Our study demonstrated that uncovering emotions are intricately related to users' daily routines can be instrumental in generating and surfacing innovative ideas.

Most user innovation research has assumed that users will consciously articulate ideas for innovation efforts in lab settings (e.g. Moretti, 2019; Schuurman, 2015), or on digital platforms (e.g. Tirabeni and Soderquist, 2018; Bilgram et al., 2008). Our study shows the importance of users discussing their everyday tasks in their normal environment (topos), and that ordinary users can be better understood by analyzing their logos (in use experiences), pathos (emotions relevant to the task), ethos (overarching values), and topos (the physical space). By narrating and demonstrating daily tasks (either household cleaning or food preparation), users explored and articulated issues related to the typical issues they face. Our observations on the role of topos lends empirical support to the work of organizational creativity scholars, who have suggested that the creativity of individuals is dependent on the context in which it takes place (Amabile and Pratt, 2016; Amabile, 1988).

Based on our findings and reflections, a tentative conceptual framework was developed (Figure 1). This shows that the logos, ethos, pathos, and topos can be viewed as antecedents; these are the precursors of innovative ideas, whereas video-based ethnographic narratives act as a facilitating mechanism to uncover them. As the model is tentative, further investigation is needed.

Figure 1: Tentative Conceptual Framework for Ordinary User Innovation



6. Methodological Contribution

Our study contributes to the field of market research conducted for NPD purposes. It empirically investigated a new approach that advances ethnographic research. It presents video-based ethnographic narratives as a novel and enhanced form of ethnographic market research. The use of video-recording in contextual observation (emic perspective) reveals novel and detailed understandings. The adoption of pre-existing coding and sharing of interpretations (etic perspective) results in establishing more general patterns and relationships between antecedents and outcomes. This approach therefore stimulates both emic and etic perspectives that complement each other.

As the results of the two studies indicate, video-based ethnographic narratives achieve both breadth (comprehensive and extensive) and timeliness (quick availability) of user insights, addressing thus a longstanding concern of both ethnographic researchers and practitioners (Creuden, 2013, DAMA, 2013). The results of the study show that video-based ethnography generated a wealth of insights compared to the survey results (n=1890 from the video-based ethnography compared to n=162 from the survey), even though the time needed for the video-based ethnography was comparable to the time needed for the survey.

Most importantly, the video-based ethnographic narratives managed to elicit user foresights (implicit needs and forward-looking product-related solutions) that led eventually to the generation of use cases and new products for the company. The usefulness of video-based ethnographic narratives lies in capturing implicit user behaviors and future-oriented product solutions in real time and in context. The application of the contextual interviewing technique enables a more in-depth understanding of the set of activities and the meanings assigned on to them by the users. The ability to capture emotions and understand users' values was found to be

very important in generating novel insights and particularly foresights. The use of video recording also has a critical role, as facial expressions and body language were very important for understanding emotions and the videos captured subtle, sub-conscious emotional reactions, which are impossible to elicit through questionnaires. Overall, video-based ethnographic narratives can uncover novel user behaviors, which can form the inspiration for products that are new to the market.

Our study contributes further to market research by revealing the strengths of video-based ethnographic narratives for identifying otherwise invisible ordinary user innovation. By recording user practices in the physical environment where they are applied and combining emic and etic perspectives, facilitated the efficient elicitation of ordinary user innovation. Also, the findings drawn from the field study are both detailed and demonstrably actionable, which answers the criticisms that ethnographic insights can be vague and non-presentable (Arnould et al., 2014). The method can therefore serve as a tool to uncover ordinary user innovation and contributes to the stream of literature on open innovation practices (e.g. Moretti, 2019; Tirabeni and Soderquist, 2018; Schuurman, 2015; Bilgram et al., 2008).

7. Managerial Implications

The study offers clear guidelines to managers wanting to apply video-based ethnographic narratives in NPD. Firstly, managers should appreciate that the integration of emic and etic perspectives through the lens of the method of video-based ethnography enhances the analysis, clarity, and actionability of user insights and user foresights. Secondly, because this method can be conducted through short-field visits, managers can use it widely as a mechanism for generating customer insights andforesights. The results generated can then be shared among functional managers during workshops (e.g. with customers, Sakellariou, et al 2017). Such workshops have been identified within the strategic management and NPD streams of literature as effective venues in which to envision future products (Rohrbeck and Kum, 2018; Publication of Authors, 2017; Plowman et al., 2009). Thirdly, because the video-based ethnographic method achieves breadth (comprehensive and extensive) and timeliness (quick availability) of user insights and user foresights (non-articulated/hidden needs) it can be used by companies focusing on both incremental and breakthrough and radical innovation.

8. Limitations and Further Research

There are a number of limitations to our study, which need to be acknowledged. Several of these limitations lead directly to ideas for further research. As the field study was only based on two product categories in two BUs of the same multinational FMCG company, the results cannot be generalized. Further research needs to apply video-based ethnographic narratives in different contexts, with different types of companies. This would facilitate a better understanding of the advantages and boundaries of the method.

In our study, our access to the FMCG company was mainly focused on the application of video-based ethnographic narratives and less on the way this impacted subsequent product development projects. So, future research needs to collect broader data on how user foresights are utilized within companies—how managers make sense collectively and act upon them. We fully concur with Schwietzer et al (2019) that user foresights can be transformed into a competitive advantage, if appropriate management decisions are made. The process by which managers move

from user foresights to strategic product decisions is crucial. To understand this process, scholars will not only need to develop novel ways of conducting their research but will also need to gain exceptional levels of access to understand how senior managers and NPD teams exploit user foresights. Real challenges await researchers in this exciting area.

The most widely used methods for market research remain the focus group and the survey. Therefore, the efficacy of video-based ethnographic narratives needs to be compared with these traditional methods. Here, studies are needed that would apply different methods in parallel with comparable groups of users (such as lead users). Such studies should also look at the practical aspects of the time and resources required to design, conduct and analyze very different market research methods. In the age when many companies are focusing on big data, the way that qualitive approaches like video-based ethnographic narratives can be combined with quantitative approaches to add a deeper user understanding needs to be better understood.

Ordinary user innovation can be an effective method for generating new product ideas. Obviously, ordinary user innovation is dependent on the characteristics of the users involved and their cognitive style (Amabile and Pratt, 2016). The impact of cognitive styles on the way user innovation happens and on the quality of the ideas produced are other important angles for research.

The study was focused only on ordinary user innovation. Lead user innovation has also the potential to enhance foresight results. A potential and interesting avenue for further investigation could be the application of lead user and video-based ethnographic narratives to elicit user foresight in NPD.

9. Conclusions

Our study shows that video-based ethnographic narratives is an approach that can inform and complement market survey (quantitative) approaches. It can elicit ordinary user innovations and generate user insights and user foresights, which can then be verified using quantitative methods. The approach is effective and efficient and so managers can generate and share ethnographic data as a means to stimulate innovation. Video-based ethnographic narratives can help companies move from user insights (incremental ideas based on current needs) to user foresights—enabling them to develop breakthrough and radical products (based on future needs).

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APPENDIX A: Interview Protocol

What is the purpose of the activity?
• When do you use this product or service?
• Why do you use this product or service?
• How does this product or service help you do your work?
• How do you feel about the product or service?
• Who else benefi ts from this product or service?

What has to be done before the product or service can be used?
• Can you tell me what you need to prepare in advance before you use the product or service?

What procedures are used?
• Can you explain to me how you use this product or service?
• What makes the activity easier (or harder) to complete?
• Are there different ways of doing this?

What are the time and space requirements for the activity?
• How long does this typically take?
• Can you do this somewhere else?
• What is this/what are these for (other devices observed)?

What are the personnel requirements for the activity?
• Who do you need to help you do this?
• What skills do they require?

What is the nature of the social organization around the activity?
• Who else uses this product or service?
• What is the relationship between these people?

What are the occasions for performing the acti*vity?*
• When do you need to do this?
• How often?
• Who else uses this product or service?

What happens after you have completed the activity?
• What must happen?
• What needs to be verified?
• What concludes the activity?

Is there any the new activity?
• What is new?
• What is this?
• How is it used?

Source: Augmented from Goffin, Vaernes, Koners, and Van Der Hoven, 2012

APPENDIX B: Coding Scheme and Operational Measures

Uses All of the different uses to which product or service is put
Misuses Uses of the product or service in a way other than that intended by the manufacturer or provider
Workarounds Ways in which product/service limitations are overcome by the user through, for example, modifications of the product
Problems Issues encountered in using the product or service
Processes The process by which the product or service is used
Acquisition Reasons and methods for acquiring the product or service
Triggers Reasons for using the product or service at a particular time
Contradictions When customers do something different from what they have claimed in interviews, or where they gloss over problems

Source: Adapted from Goffin, Vaernes, Koners, and Van Der Hoven, 2012 and augmented from the findings of the study

Saying: Talking on camera
Doing: Acting
Who: Subject's visual characteristics, demographic, behavioristic characteristics

Source: Sanders and Dandavate (1999)

User Logos
User experience Accumulated in use experience, times a week, number of years

User Ethos
Values Aspects about the values of the groups (e.g., customer segments) that use the product or service. How are users organized (formally or informally)?

User Pathos
Emotions Emotions observed in using the product or service, including satisfaction, enthusiasm, frustration, etc.
Humor Smiles and jokes often give clues that customers are thinking something different from what they are saying

User Topos
Physical environment Observations of the environment in which the product is used, including the physical space and other equipment involved

Source: Developed and augmented from Goffin et all., 2012; Gaydos, 2005; McQuillan, 2000; Reckwitz, 2002; Ramage and Bean, 1998

Breadth of Insights
Comprehensive/Extensive: Number and frequency of systematic observation codes

Timeliness of Insights
Quick Availability: Time calculated from the time of data collection until data analysis is completed

Prospection of Insights (Foresights): Number of systematic observation codes not identified in the survey (hidden)

User Innovation
User Developed Solutions: Question in the Contextual Interviewing guide "Is there a new activity?"
Question in the Contextual Interviewing guide "How is the new activity used?"; Enactment of new activity on camera

Source: Adapted from Stock et al., 2015; DAMA 2013

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