Looking at innovation through CCT glasses: Consumer culture theory and Google glass innovation

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Abstract. Current innovations can be so radical that common models of innovation diffusion might not be enough for the understanding of innovation adoption. The success of an innovation relies on the functional features of the new product and on how consumers shape the meaning of that innovation. Consumer Culture Theory can help innovation managers by highlighting the cultural determinants of consumer behaviour related to innovation adoption. The work provides a preliminary analysis of how consumers are creating the cultural platform that will determine the success of Google Glass. These glasses are equipped with a computer that connects the user to the Internet and shows layers of information on the display. The findings suggest that consumers are shaping the meaning of this product through two contrasting ideas: that Google Glass will empower users or that it will detach them from reality. The work provides suggestions for innovation managers, including a stronger focus on cultural aspects in innovative thinking.

Keywords. Consumer culture theory, Innovation, Consumer behaviour, Google glass

1   Introduction

Digital technology, biology, robotics, nanotechnology and genomic sequencing: these and other fields are sources of innovation for consumers that go beyond the mere renovation of products or the creation of new products altogether. Today, some innovations are futuristic solutions that take the form of marketable products. For instance, the web-based service 23andMe (www.23andme.com) provides genetic testing to anyone. This service transforms a complex process executed in scientific labs into a marketable service. The possible applications and outcomes of this innovation are numerous, groundbreaking and relate to the cultural paradigms of consumers. Would consumers view marketable genome testing as an empowering tool for medical treatments, as a threat to privacy, or as a technological wonder? Different cultural paradigms can exert their influence on an innovation and define its meanings. This is particularly true when the innovation concept is richer, in terms of meanings and possible applications, than the product or service through which it is conveyed to the market. The innovation of 23andMe concerns human genomes, thus it may cause a debate about the very nature of human being (free will vs. rules, body vs. soul, etc.), which is a key cultural debate.

The work presents two main aims. First, it provides a short review of selected papers on Consumer Culture Theory (CCT) to understand its contributions to innovation. By

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no means does this review pretend to be complete. It is rather an overview of selected literature to stimulate further discussion of innovation and CCT. Second, the work applies culture theory to Google Glass, a radically innovative product with complexities far beyond its technical features and in need of a cultural assessment. The work conducts a preliminary analysis on some key ideas raised by consumers regarding Google Glass.

2 CCT and innovation

The influence of culture on consumer behaviour has been researched extensively. In the past, many scholarly and managerial contributions focused on countries' cultures (e.g. the pivotal work on cross-cultural differences by Hofstede, 1980, 2001). These contributions considered the differences among national cultures essential to defining competitive international marketing strategies (Porter, 1990, 1998; Usunier, 1992). Differences in consumers' cultures were attributed to differences in national or country cultures. Cultures were considered environmental factors. During this time (approximately up to the '90s), studies about the influence of culture on consumer behaviour were part of the discipline of international marketing. Then national cultures experienced a process of fragmentation into a myriad of subcultures (some local, others transcending country boundaries). The concept of culture extended its boundaries outside the strict domain of country or national culture and included any cultural factors affecting consumer behaviour. Consumer behaviour became a more independent discipline with respect to marketing (though the link is still strong; see MacInnis and Folkes, 2010) and consumer culture became a focus of research, adopting sociology, anthropology and ethnography as methodological lenses.

CCT is an essential part of this evolution. Arnould and Thompson (2005) provide a seminal contribution by analysing twenty years of consumer research and defining the key concepts of CCT, a "family of theoretical perspectives that address the dynamic relationships between consumer actions, the marketplace, and cultural meaning" (Arnould and Thompson, 2005, p. 868). Through markets, consumers access some of the symbolic and material resources that define their identity projects. Consumers' cultures shape market-based resources and vice versa. Consumers are interpretive agents, both individually and collectively (Cova et al., 2007). They rework symbols and update, change or confirm the meanings associated with brands, products and market resources.

2.1 Innovation adoption as a cultural interaction between innovator and consumers

A key contribution that a CCT perspective can provide to innovation studies and practice is a deep understanding of the cultural underpinnings of innovation adoption. Innovation literature sometimes does not take into full consideration those cultural factors. This is due to an understandable interest in the product itself and a view of the consumer as a mere adopter of the product, not as a cultural agent. As to the former, a technological view of innovation considers the success of adoption as being largely due to the technical qualities of the product. Very innovative products are irresistible

and the market will react, eventually buying groundbreaking innovation. Innovators look at consumers not as cultural agents but as adopters of innovation in a variety of stages, such as early adopters or late adopters. This simplified view profiles the adopters according to their socio-demographic traits. The consideration of consumers as adopters frames consumers in a narrow way. Consumers do not act as mere adopters, in the sense of purely rational agents deciding the adoption of an innovation. A holistic and more realistic view of consumers as cultural agents would consider the adoption of an innovation as a process that is embedded in a wider cultural background.

Arnould (1989) describes how the cultural setting determines the pattern of diffusion of an innovation. Models of innovation diffusion (Bass, 1969; Gatignon and Robertson, 1985), which are apparently universal, undergo a process of adaptation to local cultures. In an extensive ethnographic and anthropological work, Arnould (1989) illustrates the case of the Hausa-speaking inhabitants of the Zinder Province in the Niger Republic. In this pre-market context, the adoption of innovation was determined by cultural paradigms that differed from those adopted in common market societies. Facing an increase in their discretionary income due to the industrialization of their society, Zinder inhabitants became consumers without replicating *in toto* the Western pattern of consumption. They went from a gift-based economy—in which some goods are exchanged freely or are bought to be exchanged—to a market-based economy, in which the consumer has to exert his or her free choice to purchase products from unknown merchants. Cultural conventions of modesty and the subordinate position of some subjects prevented a quick adoption of novelties. The sense of self that is so strong in Western society was not central among Hausa, who included their network of relatives in the decision-making process regarding a purchase. Surrogate consumers who substituted for the subject in some consumption choices also exhibited this network-based behaviour. Recurring market meetings routinized consumer behaviour acts with the aim of confirming social expectations and ties, rather than simply buying products. Arnould (1989) suggests a revision of the classical propositions of innovation adoption that are universally held and are somewhat culturally sensitive and ethnocentric. For instance, some life-cycle milestones, such as marriage, require the showing of some culturally based "brilliance" from subjects. This compresses the time of adoption of innovation, jumping directly from a pre-cognitive choice to the acquisition of the good. One of the key components of innovation studies is to profile the consumers, searching for pioneers and innovators among them. Personal traits such as income, education and attitude toward risk can be used to describe the innovator. This profiling reassures marketing managers, since the adoption of innovation depends on the presence of a viable segment of innovators. To find those personal traits is to grant the diffusion of innovation. Arnould (1989) deconstructs this proposition by showing that personal traits express themselves in different ways according to the context; thus, they are not associated with a fixed attitude towards innovative products. This study suggests that culture matters for innovation.

The behaviour of Zinder people is not a case limited to a region and a time of the past. This case illuminates the effects that culture exerts on innovation adoption. Each region and each cultural context—even the cultures that are more similar to that of the observer—have their own specificities. Innovators and innovating companies should

see diffusion through emic eyes to see the mind-set and cultural roots of the observed subjects, in addition to their own etic eyes. They should understand those specificities. For instance, observers could consider why mobile applications are diffused in one culture more than in another.

Universal rules to understand and manage innovation adoption do not exist. On the contrary, adoption models should be adapted to local situations. We should not look at innovation just as an effect of a technological novelty or as a new idea by a company that is adopted by consumers. Innovation is an interactive process, where the new product meets the new needs of consumers. These new needs come from a change in the social relationship that breaks the equilibrium of reciprocal social status (Arnould, 1989). When there is a discussion around meanings that were once taken for granted, there is space for innovation. For instance, one of the drivers of widespread diffusion of social media is the new social structure that, in many countries, emphasizes the individual contribution to social debates. In the past, mass media filtered this participation. A new technology and system like social media meets this new need for participation.

A contrast between the cultural background of the company and that of the local market can radically affect innovation. Varman et al. (2012) describe the case of a technological innovation aimed at supporting poor farmers in India. The innovation consists of providing a computer connected to the Internet to selected wheat farmers, who act as coordinators for a cluster of villages. The intention of the promoters of this innovation is that the system would enable better market conditions by leveraging the personal entrepreneurship of local farmers. The initiative is based on the assumption that it is possible to alleviate poverty through private profit-seeking entrepreneurship and limited government intervention. The success of this innovative system is limited because the rich farmers get access to the computerized system, while poor farmers do not get many benefits (Varman et al., 2012). The current power structure affects the outcome of the innovation. Similarly, Miller (2010) studies the introduction of mobile phones into a poor community in Jamaica. The aim of the initiative was to enable small local entrepreneurs to manage their relations with suppliers and customers to enhance their businesses. Instead, local users employed their new mobile phones to keep in contact with family and friends and to manage the complex network of micro-loans on which their economic welfare was based. Instead of stimulating entrepreneurship, the introduction of the mobile phones enhanced the existing structure based on an informal system of micro-credit. These cases show what can happen when a well-designed innovation is employed in a culture that does not necessarily match the cultural context where the innovation was first introduced. The "outgoing" cultural assumptions of the innovator and the receiving cultural context of the consumers do not necessarily overlap.

Markets do not adopt innovations as such. Consumers re-work innovation, as the extensive literature on consumer co-creation shows (Prahalad and Ramaswamy, 2004; Vargo and Lusch, 2004; von Hippel, 2005). This consumer action is not limited to changing the product and adapting it to one's personal needs (even hacking the product). It also includes the negotiation of meanings of new products. Innovation is a process of market-making (Humphreys, 2010) in which consumers play a major role. Giesler (2012) describes the contested meaning of the brand Botox, a cosmetic

remedy to fight wrinkles and the ageing process. During its diffusion, Botox has overcome different waves of controversy drawn from various aspects of the basic cultural opposition of artificial technology against nature (Giesler, 2012). The brand created different stories during its diffusion. Born as hedonic remedy, some portions of the market marked it as a potentially deadly poison. To fight against this perception, the brand repositioned itself as a highly sophisticated medicine. This was contrasted by the idea that Botox would prevent the natural expressions of a face, like smiles. Thus, the company emphasized the fact that with Botox women could truly express their inner emotions. Those who opposed Botox argued that it would create a Frankenstein rather than a human being. Further cycles pinpointed the diffusion of Botox. Consumers opposed the Botox brand positioning based on the cultural opposition between technology and nature. The adoption of an innovation is not a one-time process but an evolving story made of meanings and counter-meanings that accompany the brand in its story.

The contrast between nature and technology is an essential contradiction around which the Botox arguments revolve. The same opposition of nature vs. technology accompanies many innovations. Technological evolution is the source of radical changes in our lives, leading consumers to envisage an era of cyborgs (Campbell et al., 2010; Giesler and Venkatesh, 2010) that seems possible if one considers current innovations like Google Glass. The contradiction between nature and innovation may be a key obstacle for the diffusion of innovation. After ethnographic research of the surfing culture, Canniford and Shankar (2013) show that nature is not just a reality that is given and external to the individuals. The concept of nature is also part of an on-going cultural discourse that shapes it. Consumers try to view the concept of nature through its three essential features: the sublime, the sacred and the primitive (Canniford and Shankar, 2013). However, these features are constantly challenged by contrasting experiences. For instance, a too calm sea with no waves to surf is a betrayal of the idea of a wild and primitive nature. The boring wait for the next wave is far away from the sense of sacred that one should experience when in contact with nature. Individuals overcome these challenges and preserve their sense of nature through cultural strategies (Canniford and Shankar, 2013). The calm sea becomes the confirmation that nature is independent from human control and is pristine. The contemplation of the sea and searching for a good wave becomes a sacred experience. These examples suggest that consumers can accept the contradiction between nature and technology and can save the sense of natural even when contrasting evidence is present. Innovation managers should not try to solve this contradiction, or any other contradiction, that technology may raise. The market can help solve the contradiction and embed the innovative product, even if intensely tech-based, in consumers' daily lives.

Innovation is expressed in tangible products. In addition, the very concept of innovation is part of a cultural system. Kozinets (2008) analyses the ideological dimensions that accompany the idea of technology in the mind of consumers. Consumers assume four distinct ideological positions (or a dynamic combination of them) when facing the notion of technology (Kozinets, 2008): *techtopian* ideology, which considers innovation as inherently good; *green luddite* ideology, which is opposed to *techtopian* ideology and exalts a pristine state of nature that technology would spoil; *techspressive* ideology, which sees technology as a tool for

self-expression and hedonism; and *work machine* ideology, which employs technology as an effective and productive working tool for personal economic improvement and entrepreneurship. These four ideological poles add a further layer to the introduction of an innovation into a market or cultural context. Consumers view innovations through the lenses of their personal technological ideology and through the surrounding cultural context.

2.2 Consumers: Adopters and cultural agents

To summarize, a key contribution from CCT to innovation thinking is that innovators can address consumers on two levels:
1. Rational agent: the consumer adopts an innovative product thanks to its new features, which are superior to those of competitors. Diffusion models work best under this scenario.
2. Cultural agent: The consumer is an individual embedded in a culture and holds a specific ideology regarding technology and innovation. This cultural shell filters and elaborates the technical features of the new product. For instance, the value of a new mobile application for time management depends on cultural concepts, such as time, opposition of working time and leisure time and the degree of familiarity with the smartphone.

The innovating company interacts with the customers through the product's functional features and through the cultural underpinnings of the innovation concept. As to the former, the user rewards innovative features by adopting them and spreading the word to those around them. The consumer can also improve those technical features if the product supports open innovation, which has been the case for many recent innovations. As to the former—cultural interaction—consumers interpolate the cultural foundations of the innovative product, positioning the product on their cultural map.

Functional and cultural interactions between innovators and consumers result in consumer practices, which are the day-to-day expression of innovation adoption. The common measures of an innovation's success are revenues generated from sales, market share, market growth and similar measures of performance. Other parameters, based on a qualitative assessment of the innovation success, are also useful if one adopts a CCT-based framework. Innovators should look at whether the innovation becomes part of consumers' practices and how these practices shape and modify the innovation. Social practices are the execution of a culture through actions, understandings, implicit how-to knowledge and objects (Reckwitz, 2002; Schatzki, 1996). Products are part of those practices (Warde, 2005; see Echeverri and Skålén, 2011 and Schau et al., 2009) for applications of practice theory in consumption). The practice of taking tea, for instance, means arranging actions (having a conversation, following the ritual of serving tea to the guest) and goods (cups, tea, furniture and environment) in a meaningful way. Innovative products reshape practices while, at the same time, practices shape the current use of new products. Practices can also give new functions and uses to old products (Shove and Pantzar, 2005). For instance, the mobile app WhatsApp is an instant messaging system. Its diffusion was very quick. The launch was in 2009 and today it handles an astounding 10 billion messages per day. WhatsApp is a strong competitor for SMS services offered by mobile operators.

WhatsApp has been able to enter the existing social practice of text messaging, both confirming its key characteristics and eliminating some of the limits of traditional SMS services. At the functional level, WhatsApp delivers an enhanced SMS service at zero cost. The deep roots of its success are in its integration in current practices. The SMS address book of a smartphone usually lists relatively few numbers of friends and colleagues, because the social practice of text messaging implies that users will contact people they already know. WhatsApp overcomes this limit by opening the phone book to an unlimited number of people. A WhatsApp user can extend her/his social circle, as well as keep the contacts from the existing circle. WhatsApp enables the user to employ tones, tricks and understanding of the SMS practice in an extended and richer way. WhatsApp has become part of and enriches the SMS messaging practice.

Figure 1 synthesizes the relations between innovator and consumers and the resulting consumer practices emerging from these interactions. Consumers are both rational and cultural agents. As rational agents, consumers evaluate the technical and functional features of the innovation, and then they rationally decide whether they will adopt the innovation. As cultural agents, consumers elaborate the meanings of the innovation, by referring to their own culture, sub-culture, technology ideology and practices. The specific consumer practices regarding the innovation spring from these two rational and cultural processes.
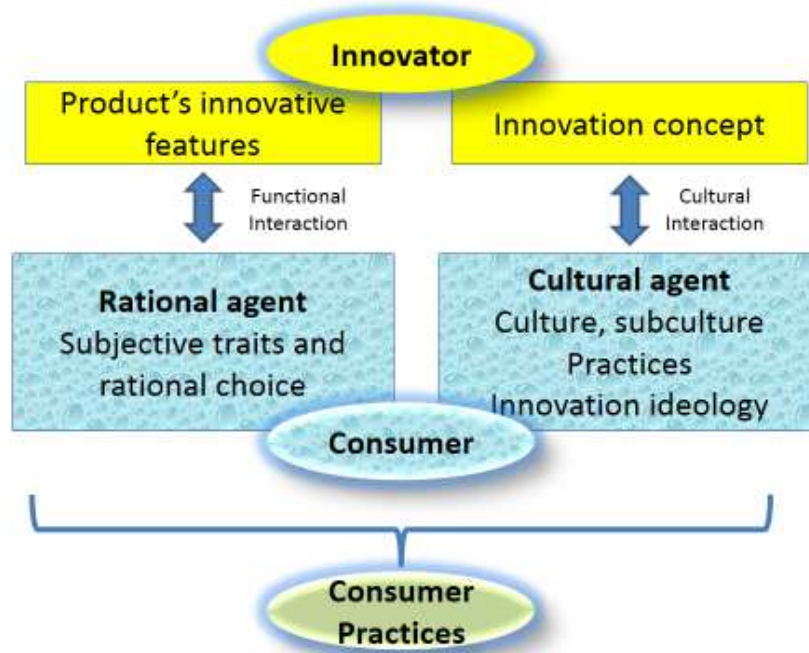

Fig. 1. Innovators view consumers as rational and cultural agents, resulting in consumer practices

3   Methodology

To conduct the empirical analysis on the consumer discourse surrounding Google Glass, social media are particularly useful. Consumers freely and extensively share their feelings and thoughts about products in social media. Thus, social media is an ideal repository of qualitative data to analyse. As earlier research in CCT suggests, the analysis of consumer Web interactions can provide a comprehensive framework to understand some consumer behaviours. Kozinets (2010), for instance, has introduced and developed netnography as a qualitative method that can be employed to get a full understanding of a given issue. For this preliminary analysis of Google Glass, this work focuses on YouTube as a primary source of insights (Pace, 2008). By using "Google Glass" as search keyword in YouTube, one obtains a list of more than 2.2 million videos. This work analysed 50 user-made videos, using the highest ranked in terms of popularity (i.e. number of views) plus other randomly selected videos. The analysis consisted of extracting the key themes of each video and the overarching story that the video conveyed (Pace, 2008). The analysis proceeded until a reasonable level of conceptual saturation about the main conceptual themes regarding Google Glass was reached (Strauss and Corbin, 1998). Documents available online—such as news articles, company press releases, websites and blogs—complemented the analysis.

With reference to Figure 1 above, the analysis of Google Glass explores the consumer as cultural agent and examines the meanings that consumers create around the innovation concept behind Google Glass. The key research question leading the analysis is determining which cultural poles consumers adopt to shape the meaning of Google Glass.

4   The case of Google glass

In this section, the work conducts a preliminary exploration of a radical innovation whose aim is to change consumer behaviours: Google Glass. By adopting a CCT framework, one can get an understanding of the possible evolution of this new technology. Google Glass is at its initial stage of diffusion and the product is not a widespread innovation yet. Consumers can help define the future applications of Google Glass even though the product is not widely available yet. Consumers are already engaged in imagining possible uses of Google Glass. Consumers share their thoughts and shape a cultural platform that lays the groundwork for the introduction of Google Glass, determining the degree of its future success.

Google Glass is an augmented reality glass. Google Glass enhances the function of eyeglasses by integrating them with a wearable and connected microcomputer. The display shows information to the users, who can interact with Google Glass with their voice. Google aims to introduce augmented reality in our daily life. The potential applications are abundant. For instance, one can look at a product in a supermarket and Google Glass would show data around the package; a tourist can visit a city while following an interactive guide displayed in front of her; a runner can monitor in real time the meteorological conditions and other data related to his run; and an architect

can look at alternative renderings for a project.

Google Glass is an innovation that will likely spark further innovation as applications emerge. Google Glass could be the new platform to integrate or even replace current devices such as smartphones and tablets. As with many radical innovations, Google Glass is waiting for problems to solve through its creative applications. Similar to other platforms—like the iPhone, for instance—Google considers Google Glass as an ecosystem that entrepreneurs and developers can contribute to with their own ideas. Google is thus inviting external entrepreneurs and innovators around the world to imagine applications and services to deliver through Google Glass. As Bill Maris (managing partner of Google Ventures) states, "the truth is, no one can honestly predict where this new technology will take us. Not yet. And that's exactly what's exciting. We do know that smart entrepreneurs and engineers are going to develop amazing experiences through Glass. Glass will evolve quickly…" (2013). Venture capitalist John Doerr adds that the "best ideas for the Glass platform will come from entrepreneurs—they always do" (2013). Marc Andreessen, another partner on the project, confirms that "as with the Internet and smartphones, a huge amount of work will be done by third-party developers to fully realize the Glass vision. Glass brings developers a new springboard for creativity and an amazing new platform to build the defining services of the future" (2013).

These statements, released by the company and its partners, confirm that Google pursues a strategy primarily based on external developers. Thus, developer and entrepreneurs are key actors in the evolution of Google Glass. Consumers, on the other end of the spectrum, can also play a major role. It is interesting that consumers can affect Google Glass even though the product is not fully commercialized yet. Consumers shape the cultural landscape where Google Glass will be integrated. Thus, consumers are the gatekeepers of the success of this innovation. What can consumers imagine doing, thanks to Google Glass?

The user-generated videos posted on YouTube are varied. Some of them are parodies of the product, as often occurs on social media platforms, where funny videos achieve popularity and are a popular and recurring genre.

Table 1 provides a synthesis of some of the analysed videos. It lists and classifies the most popular user-made videos regarding Google Glass.

Table 1. Google Glass videos: the most popular user-generated videos.

Title	Author	Views (million; approximate)	Genre	Plot and morale
GOOGLE GLASS S**S!	Smosh	3.9	Parody	Google Glass obstructs, rather than empowers, common daily activities (walking, waking up, ordering food). Google Glass is depicted as intrusive and detached from real occurrences.
How Guys Will Use Google Glass	DartanionLondon·	2.9	Parody	A romantic date goes astray due to the incorrect use of Google Glass. The video shows the impossibility

				of matching the hard data and soft skills needed in human relationships.
Google Glasses: A New Way to Hurt Yourself (parody of Google's Project Glass)	Tom Scott	2.6	Parody	The user keeps bumping into light poles and other obstacles while walking, because Google Glass displays distracting data that obstructs the view.
Windows Project Glass: One day too...	vlakkeland	2.4	Parody	Google Glass keeps popping up windows that ask check questions (e.g. confirming actions, running anti-virus), in the same way laptops do. The pop-ups do not help the user in his daily routines. The video ends with the user falling down because an error message obstructs the screen.
Battlefield 5 on Google Glasses (the Marine revenge)	ThereIsaCanal	1.9	Commercial (promotion of a videogame	The video promotes a multi-player war videogame by showing how it could be paired in a real environment using Google Glass. Google Glass can provide game players an immersive experience. It can substitute virtual environments with real environments augmented by Google Glass, where the player can move and play.
I used Google Glass	TheVerge	1.7	Product expert review	Interviews with engineers and developers of the product. A key issue raised in the interviews is how to make technology unobtrusive and put the technology "out of the way" but still present when it is needed. Ideally, the user would live her/his normal life empowered by Google Glass. Another issue raised is the contrast between being human and wearing a robot-like object.
GOOGLE GLASS and ALL THAT A$$	sxephil	1.2	Product review	The product review is a short part of a self-made news show. Google Glass is described as helpful for producing and keeping memories. It may be a little weird as someone may look like a cyborg.
Google Glasses (how it works)	taoistflyer	1.1	Product review	The tone of the video is sober. A professional voiceover illustrates the technical features of Google Glass while a 3D rendition of

				Google Glass is shown. The possible applications of Google Glass are many and the future will make them real.
ADmented Reality - Google Glasses Remixed with Google Ads	rebelliouspixels	0.9	Critical remake of the official commercial	The user reworks the official trailer by Google, adding possible ads that would characterize the experience with Google Glass. For instance, in a scene the main character plays a guitar and ads for guitars shops pop up in his view. The video expresses the idea that, in addition to useful data being shown, Google Glass would also show commercial data
St. Patrick's Day [through Google Glass]	stuntbear	0.9	Parody	The video is a parody of a young person who is arrested for drunkenness. Google Glass acts as a sort of mute witness, showing to the watcher the events that bring the main character to jail. The video depicts a scenario where the options that Google Glass offers would be employed for funny and silly purposes, without really improving the daily life of the user
Project Glass - Trampoline Video	Jason O. Gilbert	0.8	Reality video	It is a 15-second video where a user wears Google Glass while doing backflips on a trampoline. No music or voices are present. The video simply shows the perspective of a person doing movements on a trampoline.

A main theme that can be drawn from the user-generated YouTube videos analysed is the offline/online (dis)integration. Google Glass raises the issue of whether the digital life and the offline life are integrated or opposed. This is a lively debate comparing augmented reality to digital dualism (Jurgenson, 2011). The augmented reality discourse would advocate the idea that "the digital and the physical, media and humans, have imploded and augmented each other. We cannot focus on one side, be it human or technology, without deeply acknowledging the other" (Jurgenson, 2012, p. 84; see also www.cyborgology.com). The augmented reality discourse applied to Google Glass exalts the empowered human being. Google Glass enhances one's life through various functions, demonstrated in one of its official trailer videos, "How It Feels [through Glass]" (Google, 2013):

- *Memory of experiences*. The installed video camera is always ready to record any moment of the day. Google Glass is a silent witness of 1) exceptional moments, like hang gliding in the sky or parachuting; 2) memorable moments, like a dance recital; and 3) normal family memories, like a birthday.
- *Interaction*. Video-calls are richer and more experiential. The listener can

watch the same scene experienced by the Google Glass user. They can share the same experience as it unfolds in front of the subject.

- *Information*. Driving a car in an unknown city is easier thanks to the navigation system; catching a plane is stress-free thanks to real time information; and visiting a shop is more informative. Google Glass provides interactive information for any circumstance.

These functions can be combined together, as in the example of diving in an ocean among beautiful fishes (a memorable experience) and asking for information about the species (information).

Google Glass promises a smooth experience of augmented reality, achieving a state of a cyborg living a normal—though empowered—life. Figure 2 shows some of these augmented experiences, either ordinary or extraordinary.
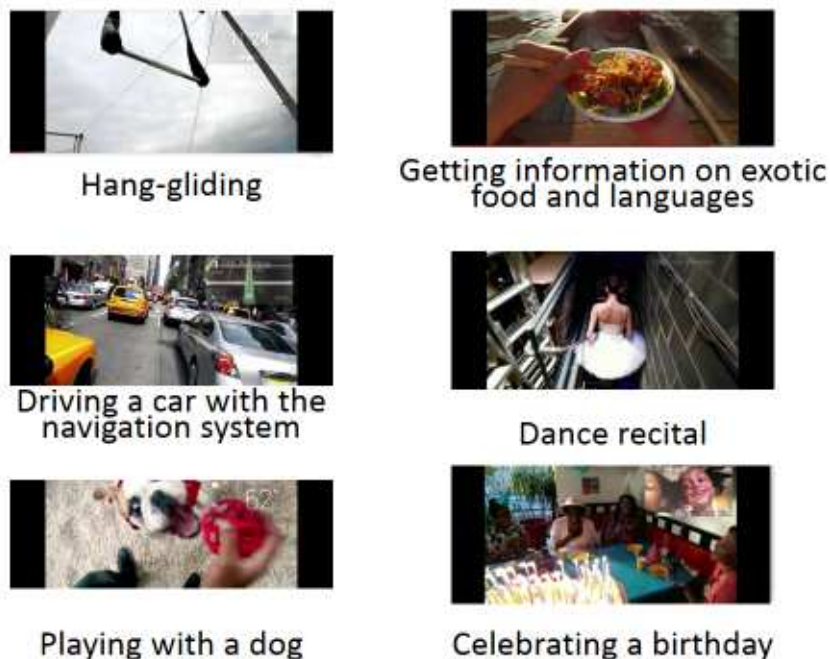

Fig. 2. Empowering (extra)ordinary moments with Google Glass (Screenshots from the Google Glass trailer "How It Feels [through Glass]").

Contrasting the idea of an augmented reality, the digital dualism discourse sees the limits of Google Glass. According to digital dualism, the "real" world is offline, while the online realm is a shadow of that reality. The digital world brings some risks to our life. The digital dualism discourse would frame Google Glass as a synthesis of those risks, as the following themes suggest:

- *Invasive technology*. Falling down, hitting a pole and other incidents are part of the parodies related to the product. According to this perspective, Google Glass can obfuscate the user's view, rather than empowering it. In addition to the humorous effect, this recurring theme encourages the idea that digital

technology can be an intrusive presence in real life and hampers common daily activities like walking around. The natural function of human eyes is not empowered by this innovation. The interactive display of Google Glass becomes the symbol of the separation between digital and real life. Instead of being a transparent screen with useful information, it is framed as an opaque wall filled with useless data.

- *Disjunction between human and machine*. The digital dualism view emphasizes that humans and machines cannot be combined yet. The screen is described as being filled with a deluge of unmanageable information. The interaction between humans and machines is not smooth. The computer regularly misunderstands the human who is trying to manage the system with simple instructions. The image of a real body disconnected from its electronic glass contrasts with that of a well-functioning cyborg where electronic and organic parts would be perfectly integrated.
- *Out of fashion*. The product is sometimes presented as uncool or too "nerdy" to compete with common eyeglasses. The design reminds consumers of technical equipment instead of a fashion accessory.

The three themes indicated above would frame Google Glass as an innovation that does not integrate itself into the normal cognitive and bodily functions of a human being. In addition, this innovation would break the intangible rules of fashion. These themes are rooted in the idea that digital and "real" are still far away from each other. This idea is at the core of the digital dualism discourse.

Other meanings surround Google Glass. The opposition between digital dualism and augmented reality does not represent all of the cultural underpinnings of this innovation. However, this opposition may contain a relevant part of the debate around the product and may shape the evolution of the Google Glass innovation.

5   Conclusions

Most of the literature on innovation focuses on how consumers collaborate on radical or incremental innovation. This work emphasizes instead the role of consumer culture for innovations (like Google Glass) that are so groundbreaking that they can be considered futuristic. For these innovations, the cultural mechanism through which consumers mould the innovation meanings is particularly relevant. Consumers' culture provides a shared cultural thread that may define which of the many potential applications of the innovation will likely emerge. The many applications of Google Glass lead to various questions, including the following: Can Google Glass be used for professional purposes or it is a product for entertainment, and is it a form of empowering users or an example of corporate control over users? A cultural analysis can help answer these types of questions by examining how individuals imagine and create the cultural platform that will host Google Glass. One can apply the same approach to other groundbreaking innovations.

Google Glass illustrates how consumers, outside the company, create part of the meanings surrounding innovation. As suggested by CCT, consumers create the meanings of the innovative product by using cultural poles such as augmented reality

and digital dualism (Jurgenson, 2011, 2012) that are part of a wider and lively debate. Consumers adopt a general attitude towards technology (Kozinets, 2008) and from that perspective they work through the possible meanings of the innovation. Through this cultural mechanism, consumers accommodate or reject the innovation into their cultural landscape.

The company is part of this process. The company has a variety of tools to accompany its innovation in the cultural landscape. The company can

- *Launch the idea before the prototype is ready*: The evolution of an innovation is a story of an idea that gradually takes the form of an object. Google understands this process. To make the story unfold, the company launched the idea of Google Glass before its full commercialization. Early in the innovation process, individuals can start creating stories and imagining future uses of the product.

- *Let consumers participate as cultural agents*: In collaborative projects, consumers contribute and define technical aspects and features of the product. Most of the extant literature focused on this consumer role. Consumers can also work at a more abstract level, by detailing and negotiating the meanings of an innovation. The resulting outcome is the position of the product within the appropriate cultural background.

- *Adapt the meaning of the innovative product*: Well-designed communication campaigns and marketing strategies can place the innovative product in a more appropriate cultural background and then let users develop further meanings from that starting point. Google positions Google Glass in the cultural realm of products that revolutionize lifestyles and mark a leap forward from the past. The company has ample room to enrich these meanings by co-creating them with consumers.

- *Observe on-going consumer conversations around the product*: The creation of meanings by consumers does not stop at the product's launch. Consumers continue their conversations around the product in a variety of forms, from debates in specialized forums to videos posted in YouTube. The trajectory of the product life cycle can be adjusted according to this discourse. For instance, in the future, the conversation around Google Glass might hypothetically turn towards the literacy of consumers and the skills required to use the product. By observing the emergence of tutorials on how to use the product, Google might enter this conversation with its own tutorials. This move can be made only through a continuous monitoring and cultural analysis of consumers.

The present study can be further improved and its limitations can be overcome in three areas: 1) extend the study of Google Glass with an on-going longitudinal study, wherein future researchers may observe how Google Glass will spread and which consumer practices will gain a foothold; 2) to fully understand the consequences of new technologies entering the market, future researches can explore other groundbreaking consumer technologies that, like Google Glass, extend the abilities of consumers; and 3) conduct interviews with users on their inner experiences and with managers to understand their implicit expectations and strategies.

The emerging figure of the innovation manager today must be richer than in the past. The innovation manager should be a professional with a wide range of competencies.

The innovation manager should possess technological and managerial skills and some anthropological knowledge and sensitivity towards cultural issues. As the case of Google Glass suggests, offering an innovation to the market necessitates a clear understanding of the cultural underpinnings through which consumers will accept or reject the innovation. In order to create this "enhanced" curriculum the following steps could be taken: 1) business schools, in their courses on innovation, could provide educational resources and lectures based on anthropology and the CCT literature; and 2) innovation managers could organize forums and occasions to exchange ideas regarding general trends in consumer cultures, regardless of specific industries and sectors; this exchange of ideas would benefit innovation thinking in general.

References

"Glasscollective.com". Accessed 29th April 2013. http://www.glasscollective.com.

Andreessen, M. (2013). *Glass Collective. Funding innovation through Glass.* Accessed 10th April 2013. http://www.glasscollective.com/.

Arnould, E. J., & Thompson, C. J. (2005). Consumer culture theory (CCT): Twenty years of research. *Journal of Consumer Research*, *31*(4), 868-882

Arnould, E. J. (1989). Toward a broadened theory of preference formation and the diffusion of innovations: Cases from Zinder Province, Niger Republic. *Journal of Consumer Research, 16*(2), 239-267.

Bass, F. M. (1969). A new product growth for model consumer durables. *Management Science*, *15*(5), 215-228.

Campbell, N., O'Driscoll, A., & Saren, M. (2010). The posthuman: The end and the beginning of the human. *Journal of Consumer Behavior, 9*(2), 86-101.

Canniford, R., & Shankar, A. (2013). Purifying practices: How consumers assemble romantic experiences of nature. *Journal of Consumer Research, 39*(5), 1051-1069.

Cova, B., Kozinets, R.V. & Shankar, A. (2007). *Consumer Tribes*. Oxford: Elsevier.

Doerr, J. (2013). *Glass Collective. Funding innovation through Glass.* Accessed 10th April 2013. http://www.glasscollective.com/.

Echeverri, P., & Skålén, P. (2011). Co-creation and co-destruction: A practice-theory based study of interactive value formation. *Marketing Theory*, *11*(3), 351-373.

Gatignon, H., & Robertson, T. S. (1985). A propositional inventory for new diffusion research. *Journal of Consumer Research, 11*(4), 849-867.

Giesler, M. (2012). How doppelgänger brand images influence the market creation process: Longitudinal insights from the rise of botox cosmetic. *Journal of Marketing, 76*(6), 55-68.

Giesler, M., & Venkatesh, A. (2005). Reframing the Embodied Consumer as Cyborg: A Posthumanist Epistemology of Consumption. In G. Menon & A. R. Rao (Eds.), *Advances in Consumer Research, Volume 32*, (pp. 661-669). Duluth: Association for Consumer Research.

Google. 2013. *How It Feels*. http://www.google.com/glass/start/how-it-feels.

Hofstede, G. H. (2001). *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations across Nations*. Thousand Oaks: Sage Publications.

Hoftstede, G. H. (1980). Culture's Consequences: International Differences in Work-related Values. London: Sage Publications.

Humphreys, A. (2010). Megamarketing: The creation of markets as a social process. *Journal of Marketing, 74*(2), 1-19.

Jurgenson, N. (2011). *Digital dualism versus augmented reality*. Cyborgology. http://thesocietypages.org/cyborgology/.

Jurgenson, N. (2012). When atoms meet bits: Social media, the mobile web and augmented revolution. *Future Internet, 4*(1), 83-91.

Kozinets, R. V. (2008). Technology/ideology: How ideological fields influence consumers' technology narratives. *Journal of Consumer Research, 34*(6), 865-881.

Kozinets, R. V. (2010). *Netnography: Doing Ethnographic Research Online*. London: Sage Publications.

MacInnis, D. J., & Folkes, V. (2010). The disciplinary status of consumer behavior: A sociology of science perspective on key controversies. *Journal of Consumer Research, 36*(6), 899-914.

Maris, B. (2013). *Introducing the Glass Collective*. Google Ventures Blog. Accessed 10th April 2013. http://blog.googleventures.com/glass-collective-2013-04-10.

Miller, D. (2010). *Stuff*. Cambridge: Polity Press.

Pace, S. (2008). YouTube: An opportunity for consumer narrative analysis? *Qualitative Market Research: An International Journal, 11*(2), 213-226.

Porter, M. (1990). The competitive advantage of nations. *Harvard Business Review, 68*(2), 73-93.

Porter, M. (1998). *The Competitive Advantage of Nations*. New York: The Free Press.

Prahalad, C. K., & Ramaswamy, V. (2004) *The Future of Competition: Co-creating Unique Value with Customers*. Boston: Harvard Business Press.

Reckwitz, A. (2002). Toward a theory of social practices: A development in culturalist theorizing. *European Journal of Social Theory, 5*(2), 243-263.

Schatzki, T. R. (1996). *Social Practices: A Wittgensteinian Approach to Human Activity and the Social*. New York: Cambridge University Press.

Schau, H. J., Muniz, A. M. Jr., & Arnould, E. J. (2009). How brand community practices create value. *Journal of Marketing, 73*(5), 30-51.

Shove, E., & Pantzar, M. (2005). Consumers, producers and practices: Understanding the invention and reinvention of Nordic walking. *Journal of Consumer Culture, 5*(1), 43-64.

Straus, A., & Corbin, J. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks: Sage Publications.

Usunier, J.-C. (1992). *Commerce entre Cultures: Une Approche Culturelle du Marketing International*. Paris: Presses Universitaires de France.

Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing, 68*(1), 1-17.

Varman, R., Skålén, P., & Belk, R. W. (2012). Conflicts at the bottom of the pyramid: Profitability, poverty alleviation, and neoliberal governmentality. *Journal of Public Policy & Marketing, 31*(1), 19-35.

von Hippel, E. (2005). Democratizing Innovation. Cambridge: The MIT Press.

Warde, A. (2005). Consumption and theories of practice. *Journal of Consumer Culture, 5*(2), 131-153.