BEAUTY FITTING ROOMS: THE IMPACT OF VIRTUAL TRY-ON CONSUMERS'ATTITUDES AND BEHAVIOURAL INTENTIONS

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BEAUTY FITTING ROOMS: THE IMPACT OF VIRTUAL TRY-ON ON CONSUMERS' ATTITUDES AND BEHAVIOURAL INTETIONS

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Introduction

Context

Thanks to the advance of immersive technologies, the virtual and real worlds were brought closer together (Rauschnabel, 2019). Accordingly, the main immersive disruptors are Augmented Reality (AR) and Virtual Reality (VR), and Mixed Reality (MR). In 2018, all three were ranked as the top 10 strategic trends for 2018 (Gartner, 2017). As a more recent technology, AR gained particular interest in the last few years and by 2023, there will be an estimated 2.4 billion mobile AR users worldwide. Also, more than half surveyed customers revealed in a study by Digital Bridge on AR in retailing (2017), that they will be more willing to purchase from companies who include an AR application.

AR seamlessly merges between the virtual and real worlds where virtual content is integrated with displays of the real-world. In fact, instead of suppressing the reality, AR enhances it and makes its users even more connected with it. Therefore, management expert Michael Porter urges companies to adopt AR, stating that "every company needs an AR strategy" (Porter and Heppelmann, 2017). Today, the AR Market is growing by 46% and is forecasted to carry this trend by 48.6% for the period of 2021-2028 (Statista, 2021). Accordingly, AR is anticipated to grow by an annual rate up to 135% in market retail spend between 2018 and 2023 (IDC, 2019).

AR is gaining momentum in the consumer Market, and is becoming one of the most in demand digital Marketing Technologies (Azuma et al., 2001; Porter and Heppelman, 2017). Consequently, AR is adding value to Marketing from different aspects. First, AR leverages Marketing through enhancing customer experience (Chylinski et al., 2020). In this context, customer experience refers to the "multidimensional construct focusing on a customer's cognitive, emotional, behavioral, sensorial and social responses to a firm's offerings during the customer's purchase journey" (Lemon and Verhoef, 2016, p. 71). In 2019, 58% of companies saw customer experience as a primary competitive differentiator (Statista, 2019). AR leverages this competitive advantage through the addition and subtraction of information in the

customer's perception of the physical environment. For example, the supermarket's 'Dent Reality' allows customers to navigate through the supermarket, where they could easily find a product they're looking for. As a result, they are actively oriented in their decision making (Hilken et al., 2017).

Additionally, AR is considered to strengthen consumer engagement with the support of its sensory marketing elements such as audio, graphics, and human-computer touchpoints, (Sung, 2021). In this vein, customer engagement is key to nurture the relationship that companies entertain with customers and maintain competitive advantage (Brodie and al., 2013). AR is particularly effective in this matter since it allows entangling branded content within consumer social and physical environments, which offers companies the opportunity to be a part of consumer's conversations (Scholz et al., 2018). As a result, AR creates an opportunity for brands to bond with consumers. For example, the AR shopping application of the beauty retailer Sephora allows consumers to create their own beauty space with looks suggestions and tutorials that support the provided looks. Consequently, some users of the applications stated that it became "part of their personal space" (Scholz et al., 2018).

Due to its widespread use of smartphones and tablets, AR gradually penetrated numerous industries such as tourism, entertainment, education, retail and real estate (Hackl and Wolfe, 2017). Indeed, AR is particularly changing the online shopping landscape, making it one of the main applications of the technology. In 2021, e-retailing is considered as one of the most popular online activities in 2021 and is expected to grow to 5.4 trillion US dollars in 2022 (Statista, 2021). However, the Market Research report by Temkin Group (2017) showed that 54% UK customers were unsatisfied with their recent experiences. One of the main concerns raised by customers in e-retail is their inability to try-on the products online (Pachoulakis and Kapetanakis, 2012). In fact, this issue could lead to cart abandonment and product returns (Hilken et al., 2017). As a result, they have to constantly switch between online and offline channels (Wolny and Charoensukai, 2014). For instance, customers would find it laborious to research a product then go to the store to try it. This inability to try-on products carries the name of the "fit, suit and match" dilemma (Pachoulakis and Kapetanakis, 2012). After several years of addressing the issue, AR could solve this major obstacle to online retail thanks to its

Virtual-Try-On tool (VTO) (Lin and Wang, 2015) making it today one of the most prominent AR applications in e-retail.

VTO permits the simulation of the fitting process through manipulating the product in a virtual environment (Fiore and al., 2005). It is deemed that VTO will become the future of online retailing (Greene, 2011). VTO enables customers to imagine what products would look like before purchasing them via virtual display (Pantano and Servidio, 2012). Thus, it plays a major role in their purchase decision making (Merle et al., 2012).

Additionally, the e-retail landscape offers elements that are absent in the physical store such as the large product choice, abundance of digital information, customizability and social media connectivity (Hilken et al., 2017). In this vein, VTO is gaining popularity among social media platforms, and companies are taking advantage of this opportunity to connect with customers. Accordingly, linking the immersive experiences to social media would allow consumers to share it with their social circle which builds a bond between consumers and companies (Tom Dieck ad Han, 2021). As a result, consumers who exchange recommendations would feel empowered. In return they would adopt more positive purchase intentions (Heller et al., 2020). Notable Tech companies are now aware of this business opportunity and are shifting towards VTO as a purchasing technology. For instance, the social media applications Instagram, Facebook and Snapchat facilitated the introduction of VTO to companies, by enabling consumers to try-on products such as Make up and shoes and then directly process to purchasing it in its commerce platform.

Indeed, beauty brands benefit considerably from social media platforms (Statista, 2019). Also, they are one of the most common users of VTO solutions in retail next to clothing (Zhang et al., 2020). For example, 200 beauty brands partnered with the social instant messaging application Snapchat to provide shoppable VTO through a solution developed by the AR expert Perfect Corp (Retail Dive, 2020). Accordingly, campaigns that have shoppable VTO had 2.4 higher purchase intentions (Retail Dive, 2020).

Although beauty VTO seems to benefit widely from social media, many brands still choose to build their own VTO solution or directly partner with a Tech Company to create it on platforms other than social media. For instance, the French beauty products retailer Sephora chose to collaborate with the Augmented Reality specialist Modiface in 2017 to integrate a VTO solution. Subsequently, the actual beauty worldwide leader L'Oréal (Statista, 2021) acquired Modiface in 2018 to include VTO to its Marketing strategy. The following year, the group saw an increase of 52% in its ecommerce sales (L'Oréal Finance, 2019). However, L'Oréal also partnered with Facebook for a social VTO in 2021 (L'Oréal, 2021). Indeed, the question arises about the influence of social VTO in a Marketing context.

Considering the importance of VTO in today's e-retail landscape, there is still little academic research on it. However extant literature has investigated AR impact on online decision making from various viewpoints (Zhang et al., 2019). Thus, the main focus of AR research was the hedonic and utilitarian components of the technology (Hilken et al., 2017; Yim et al., 2017). Indeed, this latter stated that the hedonic and components of AR would positively impact the attitudes towards it and the behavioural intentions (Rauschnabel and al., 2018; (Hilken et al., 2017). Additionally, AR seemed to be aligned with previous suppositions of technology acceptance as attitudes favorably impacted behavioural intentions (Rese and al., 2017. Hilken et al, 2017). However, no further insights were provided in regard to the impact of socialization in AR as well as the applicability of previous findings to the beauty industry. Hence, social AR was suspected to provide engaging experiences by empowering consumers through the social factor (Beck and Crié, 2018). Scholz and Smith (2016) state that brands could benefit from social media for instance by leveraging their virtual social circle. Since consumers are greatly influenced by peers when interacting with products and services (Churchill and Moschis, 1979), then the adoption of the VTO tool could be facilitated through the process of socialization.

Problem statement

First, this research will investigate the impact of socialization on consumers' perceptions and attitudes. Precisely, it will explore whether perceived usefulness and perceived enjoyment mediate the relationship between the VTO condition solution and the consumer attitudes. The VTO condition will be represented by two types of VTO, where a group of participants will be

invited to virtually try-on a beauty product on a social media platform, while the other group will try it on a website.

Second, the study will look into the extent to which previous findings in retail VTO could be extended to the beauty industry context.

Contributions

In line with these two purposes, the study will fill the academic research related to the VTO in the beauty context.

First, the research will assess the eventual benefits of social VTO. In this vein, it will attempt to understand the role of socialization in VTO by exploring the supposed middling role that both hedonic and utilitarian constructs play. Currently, socialization was solely investigated in the context of AR as an antecedent of attitudes by Zhang et al. (2019) in the online clothing context, which did not reveal a significant impact on attitudes. Still, companies are collaborating with social media platforms to integrate a VTO solution and research states that companies could benefit from linking immersive experiences to social media (Tom Dieck and Han, 2021). As a result, the study will determine whether the results of the previously mentioned study (Zhang et al., 2019) fit the beauty context. Also, the results will be explained by the hedonic and utilitarian constructs as main predictors of attitudes in this context since Kang et al. (2020) stated that when the hedonic value of "playfulness" is salient, then it is less likely to be perceived as a purchasing tool. Thus intentions towards adopting the social VTO are weaker. Additionally, the research will try to understand the effect that VTO implies on consumers' attitudes towards the technology and behavioural intentions in the beauty context. Accordingly, the paper will verify the extent to which the findings of previous research in different contexts (Lee et al., 2006; Kim and Forsythe, 2008) apply to beauty VTO.

Approach

In order to answer the research purpose, a literature review on AR and VTO will be presented. Then, the main concepts and theories explained as well as the resulting hypotheses. Further, the applied research design will be detailed and the data collection process will be defined.

After, the data collection techniques will be determined and the results communicated. Following the findings, a discussion will be exhibited. Lastly, the theoretical and managerial implications will be displayed along with the recommendations and insights about future research.

This section will present a summary of the current research about Augmented Reality and Virtual-Try-On in the Marketing context. First, both concepts will be introduced, then the theories on which the study is based will be explained. Lastly, the hypotheses will be characterized and commented.

1. Introduction to Augmented Reality and Virtual-Try-On

The last decade has been prosperous in AR research regarding numerous industries and application domains. However, AR found its roots earlier in 1977, particularly in the field of computer science interface research (Sutherland and Mead, 1977). In his valuable work on AR, Azuma (1997, p.375) defined AR as "3-D virtual objects integrated into a 3-D real environment in real time". Due to its limited context, this definition was updated (Azuma et al., 2001, p.43) by emphasizing the three main properties of AR as: "the combination of real and virtual objects in a real environment, a system that registers virtual and real objects with each other and that runs interactively in real time".

According to Azuma (1997), AR is considered as a Virtual Reality (VR) variation, and that appeared after several VR projects from 1960 to 1990 (olmedo, 2013). In the same fashion, Milgram defined AR within the context of his Reality Virtuality Continuum, which spans the real environment and the virtual environment (1995). Milgram situates AR and Virtual Reality (VR) as in between the two worlds, where AR is closer to the real world and VR as closer to the virtual world. In fact, VR enables users to be completely immersed in a virtual environment, where they cannot see the real world around them. However, AR users could still see the virtual world being overlaid on the real world (Milgram, 1995). Wherefore, AR can be seen as technology that elevates user experience by superimposing digital content onto users' real environment.

1.1. Augmented Reality in Marketing

AR emerged in Marketing practice in the late 2000s (Javornik, 2016), creating new opportunities to draw consumer behaviour via integrating digital information into individual perceptions of the physical world (Hilken et al., 2017). As a result, branding, sales and customer service saw a positive impact (Sung, 2021).

Chylinski et al. (2020, p.12) characterized Augmented Reality in Marketing as "the process that enhances customer experience and decision making through creating, communicating and distributing digital affordances in the physical environment". In this vein, digital affordances refer to the characteristics of the environment that ease interactions including interactive, adaptive and shareable content such as images and videos (Greeno, 1994). The aim of these affordances is to facilitate the customer experience along with decision making (Hilken et al., 2018).

Also, AR offers customers customized and interactive information in the offline retail context (Yim et al., 2017). For example, the fashion brand Nike allows customers in a Paris store to visually design sneakers using AR and then visualize it in real time. In this context, AR integrated applications proved to enhance the fitting process via in-store digital screens, smart mirrors or holograms. As a result, AR provided consumers with more persuasive offline experiences compared to non-AR ones (Baek et al., 2018).

Additionally, AR could leverage consumer engagement (Scholz and Smith, 2016) in various industries including advertisement (Yaoyuneyong et al., 2016), mobile Marketing (Javornik, 2016b) and retailing. Indeed, retail embraced AR vigorously and was considered to be an early adopter of the technology (Centric Digital, 2017). For instance, numerous retail brands created AR apps for customers to use; in the furniture (e.g., Rese et al., 2014), eyewear (e.g., Hilken et al., 2017; Poushineh and Vasquez-Parraga, 201; Rese et al., 2017), and beauty industries (e.g., Centric Digital, 2017). As a result, they saw their revenues significantly increase (Caboni and Hagberg, 2019).

Hence, AR adds value to retailing and selling in digital channels, with the help of interactive showrooms and applications that offer a consumer interface like smart dressing rooms, enabling product trials (Wedel et al., 2020). Consequently, high returns along with card abandonment rates are decreased (Dacko, 2016). In this regard, a multitude of virtual try-on tools (VTO) appeared, providing customers with vivid contextual information (Yim et al., 2017).

1.2. Virtual try-on

VTO technologies are defined as "website features that enable the creation and manipulation of product or environment images to simulate (or surpass) actual experience with the product or environment" (Fiore, Kim and Lee, 2005, p. 39). Thanks to VTO, customers are able to imagine what products would look like before purchasing them via virtual display (Pantano and Servidio, 2012). Also, many consumers expressed a need to touch the product prior to purchasing it (Liu et al., 2017). In order to fulfill this need, consumers would go to the store after researching a product, making the purchasing experience divided in an online and offline setting (Verhoef et al., 2007).

Thanks to VTO, this gap is addressed, resulting in research time efficiency and less channel switching (Willems et al., 2007).

2. Theoretical framework

Recently, AR research in Marketing is gaining attention from scholars. However, it is strongly oriented towards extracting knowledge about user experience. This latter refers to "how people use an interactive product: the way it feels in their hands, how well they understand how it works, how they feel about it while they are using it, how well it serves their purposes, and how well it fits into the entire context in which they are using it" (Alben, 1996, p. 5). Indeed, user experience is evaluated through combining three elements. First the self, in regard to the individual characteristics of the person interacting with the product. Then the place where the interaction occurs with the product as AR permits multiple locations of use. Lastly, the product itself in terms of the provided information by the AR (Poushneh and Vasquez-Parraga, 2017).

In this vein, user experience was studied from different perspectives. Most importantly, the inner drivers of consumers were investigated through a utilitarian and hedonic value (Hilken et al., 2017; Yim et al., 2017).

2.1. Technology acceptance

The predominant theory that investigated utilitarian and hedonic benefits of technologies is the technology acceptance model (TAM) (Huang and Liao, 2015; Spreer and Kallweit, 2014; Pantano et al., 2017). This latter (TAM) was a first attempt to apply psychological factors to information systems adoption (Rese et al., 2017). This theory supposes that two constructs were at the origin of an individual's attitude towards using a technology, mainly referring to the utilitarian benefits of the technology. Indeed, an individual will maintain a positive attitude towards a technology when he or she perceives it as easy and useful (Davis et al.,1992). In this regard, "perceived usefulness" and "perceived ease of use" were deemed to be the utilitarian constructs. In regard to the study's context, the utilitarian construct "ease of use" won't be considered. One one hand, (Yuen and al., 2017) found that it did not play a significant role in predicting consumer's intention to use the virtual fitting technology they developed in an online retail context. Additionally, "ease of use" did not demonstrate a significant overall impact on attitudes in the context of social commerce (Bounkhong and Cho, 2017).

Lastly, the technology acceptance model continued including new constructs to the equation such as the hedonic component, named as "perceived enjoyment". As a result, both utilitarian and hedonic constructs are considered as impactful factors on attitudes and behaviours towards the technology (Teo et al., 1999).

2.2. Perceived usefulness

According to Davis (1992), perceived usefulness refers to the extent to which an individual believes that a system will support them in their work. In other words, perceived usefulness embodies the extrinsic motivation for using a technology (Ariely, 2000). In the context of online shopping, usefulness refers to how effective the media is at information search to ease product evaluation (Yim et al., 2017). In this case, the increased interactivity and vividness of

AR allow an effective assembly of information about products (Ariely, 2000). Thanks to the visual display of products, the mental effort is minimized.

As a tool that facilitates information search, AR enhances consumer knowledge significantly in comparison to direct product experiences (Lombard and Ditton, 1997).

In the work of Romano et al., (2020) on AR customer journey, they advanced that the intention to use AR is driven by perceived usefulness. In this regard, a study on AR glasses revealed that consumers are more likely to use the glasses for functional benefits such as efficiency (Rauschnabel and al., 2018) and social benefits (Uniqueness, display of personality traits).

2.3. Perceived enjoyment

Venkatesh et al. (20008, p:16) characterize perceived enjoyment as the 'the activity of using a specific system that is enjoyable in its own right, aside from any performance consequences resulting from system use'. In this vein, Ariely (2000) presents perceived enjoyment as an internal source of motivation.

Past research revealed that two factors could enhance enjoyment in the context of AR, including interactivity and vividness of the experience (Yim et al., 2017). To illustrate, when consumers are totally immersed they experience more pleasure provided by the experience (Kim and Forsythe, 2008).

Similarly, to perceived usefulness, perceived enjoyment was associated with elevated levels of intention to use the technology in previous research (Hilken et al., 2017). For instance, the gaming application Pokémon Go showed that the attitudes towards the AR were mainly influenced by a combination of emotional benefits such as nostalgia and enjoyment, along with social factors (Rauschnabel et al., 2017. Lastly, perceived enjoyment was found to have a stronger impact than other constructs such as perceived usefulness on brand engagement in the context of branded AR (McLean and Wilson, 2019).

2.4. Attitudes towards the technology

Attitude is defined as a psychological tendency expressed by evaluating a particular entity, with some degree of favour or disfavour (Lee et al., 2003). Regarding technology, attitude refers to the extent to which a consumer likes or dislikes the technology. It also indicates the effort that the individual would invest in the behaviour (Ajzen and Fishbein, 1991). In technology acceptance, general customer attitude was defined by three elements: the attitude towards the technical infrastructure, the attitude towards the technology and the attitude towards the risk. In their research about AR in retail, Yim and Sauer (2017) clarify that the attitude towards the AR was mainly defined by the media enjoyment and the media usefulness. Indeed, attitudes could be predicted by hedonic and utilitarian constructs of the technology (Lee et al., 2003).

Indeed, numerous researchers found that in the context of AR the dominant effect on attitudes was perceived usefulness (Dacko, 2017).

However, the difference between the impact of the hedonic and utilitarian constructs could also be traced via the primary motivation of adoption (Yim and Sauer, 2017) and the type of AR application (Rese and al., 2017). Indeed, the context in which AR is applied would determine the attitudes formation. For instance, the extent to which utilitarian and hedonic constructs are impactful differs from a marker-based AR application and a marker-less application (Rese and al., 2017). Also, previous research shed light on the utilitarian features of AR that impact on attitudes. For instance, self-augmentation applications, the augmentation quality, interactivity and utility were the primary satisfaction criteria (Poushneh and Vasquez-Parraga, 2017).

In this vein, augmentation quality is enhanced thanks to: an elevated quality of provided information, a relevant mapping of the virtual content in the real-world, and the support provided to the customer. The features that offer hedonic benefits were also studied including aesthetic quality and entertainment, which showed that they also had an impact on AR user experience (Poushneh and Vasquez-Parraga, 2017). Additionally, other factors were responsible for enhanced attitudes in previous research, including vividness and realism of the content (Yim et al., 2017).

Lastly, attitudes towards an online shopping medium proved to be responsible for predicting the degree to which users will accept that medium (Shih et al., 2004). In the same vein, attitude towards the online shopping medium favourably impacted future purchase intention (Crespo et al., 2008).

2.5. Behavioural intentions

According to the theory of reasoned action (TRA) by Fishebin and Ajzen (1975), behavioural intentions refers to the factors that motivate behaviour, when the strength of the intention would determine the willingness to perform the behaviour. Intention is considered to be the subjective individual probability that will lead the individual to perform a particular behaviour (Fishbein and Ajzen, 1975). Both the theory of reasoned action (TRA) of Fishbein and Ajzen (1975) and the technology acceptance by Davis (19898) stipulate that beliefs and attitudes predict future behaviours. Behavioural intention is said then to be influenced by attitudes towards the behaviour, subjective norms and perceived behavioural control (Ajzen, 1991). These behavioural intentions could be related to different behaviours such as the intention to use the technology or the intention to promote it via word-of-mouth.

2.6. Intention to use the technology

The intention to use the technology refers to the individual's desire to use the technology in the future. This latter was found to be a reliable determining factor of actual technology usage (Ajzen, 1991).

2.7. Word-of-mouth intention

Word-of-mouth (WOM) is defined as an interpersonal communication between consumers who share their impressions about their experiences of consumption (Brooks, 1957).

2.8. Socialization

The theory of reasoned action suggests that the intention to perform a behavior is determined by both attitudes towards the behavior and subjective norms. In fact, subjective norms are the social pressure exerted upon an individual to perform or not perform a behaviour (Ajzen, 1975). Despite being inspired from this theory (Ajzen, 1991), the technology acceptance model was not sufficiently adapted to integrate a social perspective (Hilken et al., 2017). Indeed, social psychologists recognize that the social context of an individual is prompt to changing his perceptions (Seidman, 2013) Also, he explains that a social setting could push consumers to adopt a certain behaviour that fits their context.

In the work of Sung (2021) on AR Viral Marketing, using AR on social media might carry remarkable benefits for companies. Accordingly, AR suffered from lack of social features in its early stages which limited the technology's proliferation (Javornik, 2016). First, this limitation was addressed through "extended" AR experiences in recent applications. This model of AR consists of co-creating a "shared" customer experience where peers are invited to modify and share AR images and videos through integrating recommendations from other users and enhancing active contribution of peers in the AR experience (Hilken et al., 2018). For instance, consumers could invite their social circle to co-create an experience by collaboratively providing a visible recommendation such as color or item change. This form of iterative feedback enables customers to go from a state of passiveness to becoming an active part of the shared experience (Scholz and Smith, 2016). Also, Extended AR created valuable experience by enabling customers to develop social relationships with other users, while exchanging the used artifacts (images, videos). As a result, consumers build their identities through social interactions (Scholz and Smith, 2016). For example, greek chocolate brand Lacta enables specific groups of users to collaboratively augment the chocolate bar packaging with private messages shared with the user's social circle to gather feedback. This initiative strengthens links between users and adds value to the AR initiative since it creates conversations that could be extended to deeper personal relationships.

In the context of VTO, smart mirrors and social try-on rooms permit consumers to engage in virtual try-ons and browse different colours and sizes, then share pictures of the items via social media (Beck and Crié, 2018). Indeed, social media are increasingly adopting VTO while

creating a context for “consumer socialization”. This latter refers to the process by which individuals learn skills, knowledge, and attitudes from others through communication, which supports their functioning as consumers in the Marketplace (Ward, 1974). Traditional socialization happens among consumers with their social environment such as family and friends (Wang, 2012). Today, social media offer a new way of socialization via “virtual communities” that exchange stylized photos or videos. As a result, social media socialization is emerging as a new ecommerce opportunity where brands benefit from the formed “virtual communities” (Scholz and Smith, 2016). These latter are characterized as “social aggregations that emerge from the Internet when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace” (Rheingold, 1993, p.5). In social media, the virtual communities’ gatherings practice influence on the consumers purchase decisions through peer communication. Indeed, these interactions about products/services among consumers predicts that it affects cognitive, affective and behavioral attitudes (Ward, 1974).

3. Hypotheses development

Building on the previous research, the hypotheses of the study will be presented below.

First, perceived enjoyment and perceived usefulness revealed strong association with the usage and website revisit in the context of retail shopping behavior (Forsythe and al., 2008). According to the work of Pachoulakis and Kapetanakis (2012), the shopping experience provides enjoyment for customers when the hedonic value is demonstrated.

Past research demonstrated that one of the main concerns in offline retail is the physical effort provided for trying products, which is not usually enjoyable (Barnes et al., 2016). In their work, Hao Suan Samuel et al., 2015 proposed that online shopping has the ability to overcome this issue. via VTO, providing a more enjoyable and playful experience (Kang et al., 2020). In the context of VTO, the hedonic element lies in the choice it offers to consumers in terms of products which reinforces the reassurance in decision making (Hilken et al., 2017).

Additionally, online shopping behaviour research revealed that consumers are not purely utilitarian, but that they also seek hedonic and social relationships and enjoyment (Kim, 2002).

Nevertheless, there is paucity of knowledge about the socio-emotional support that is present in the VTO retail context, and particularly in the beauty industry.

In this context, VTO would enable feedback exchange between consumers, and reduce the dilemma that consumers could face when faced with a variety of choices. In the social media context, individuals generally have the same centers of interest which would facilitate exchanging feedback (Lee and Robbins, 1995). Consequently, enjoyable interactions arise between individuals who in return experience higher connection when they share opinions and similarities (Cho & Son, 2019). In the beauty context, external feedback could enhance the customer experience. Since beauty products answer by nature a social motivation (Tajeddini and al., 2014), a condition where beauty VTO is used on social media would enhance how enjoyable consumers perceived the technology to be, supporting the first hypothesis:

H1a: The VTO condition positively impacts perceived enjoyment

Along with perceived enjoyment, perceived usefulness enhances customer perceptions in the holistic shopping experience (Poncin and Mimoun, 2014). The utilitarian construct in VTO lies in its ability to offer an enhanced version of product information (Poushneh and Vasquez-Parraga, 2017). Thanks to the visualization of products, the mental burden of imagination is replaced by reality. Consequently, consumers go through an effective experience that targets their informativeness needs (Javornik, 2016).

In order to maximize the provided usefulness, Mueller (2019) stated that in the context of AR uncertainty should be tackled to fill the information gaps. In other words, the tool should optimize the amount of information it offers in order to reduce uncertainty among users. For example, uncertainty could be reduced through providing consumers with various information sources (Mueller, 2019). Indeed, Ahuja and Galvin (2003) in their work on virtual communities, found that thanks to socialization, new members can quickly learn task-related knowledge and obtain skills while they interact with others. In this case, the main source of information is the interaction between the virtual community members. In beauty VTO without a social setting, information is usually provided by the VTO context where consumers would visualize the product and build a mental image. Since social media are perceived as a source of information that consumers would consult for various consumption related decisions (Lueg

et al., 2006) then the social VTO would enable extracting additional insights from peers about their personal use and experience with the product. In this case, these exchanges lessen the information uncertainty. As a result, the virtual community members might perceive the technology as more useful.

H1b: The VTO condition positively impacts perceived usefulness

In their work on situated cognition, Semin and Smith (2013) stated that customers' judgments and actions are impacted by elements present in their physical and social environment. When applied in the Marketing context, this theory would imply that customers' attitudes and behaviours are elevated in a context where they can share product experiences with other customers (Chylinsky et al., 2020). In this vein, when VTO is integrated into a social media platform, it offers the opportunity for shared experiences. For example, consumers are offered the opportunity to test beauty products in different colors and shades, all while being able to share the results with their community members. In the online retailing context, consumers are greatly influenced by peers when interacting with products and services (Churchill and Moschis, 1978). As a result, their perception of the medium is also impacted by their peers (Hilken et al., 2017). Additionally, Coker et al. (2014) investigated social rewards in social commerce and found that interactions between consumers positively attitudes towards the social shopping medium. In regard to these findings, the VTO condition would impact consumers' attitudes towards the VTO. (1)

According to Yim et al., (2017), positive consumer responses to technology would influence the formation of their attitudes towards a particular technology. To illustrate, if a consumer sees that the VTO technology will make their shopping experience more enjoyable and useful, they are likely to form positive attitudes towards it. For example, Ducoffe (1996) research on web advertising found that when users perceive the web as entertaining and informative, they are prompt to adopt a positive attitude towards it. Additionally, Zhang et al., (2019) study about clothing online retailing stated that both perceived usefulness and perceived enjoyment directly affect the attitudes towards the VTO. Hence, no evidence was provided that the perceived usefulness and perceived enjoyment of a VTO provide enhanced attitudes towards the

technology in the beauty context. (2)Along with the previous findings about perceived usefulness and perceived usefulness forming attitudes towards technologies (Lee et al., 2003).

Also, in their study on e-commerce retail, Pantano et al., (2017) confirm that perceived usefulness and perceived enjoyment directly impact consumer's attitudes towards an augmented reality system. (3)

Based on the following suppositions:

VTO condition impact attitudes towards the VTO

VTO condition directly impacts perceived usefulness and perceived enjoyment.

Perceived usefulness and perceived enjoyment are direct antecedents of attitudes towards VTO.

We could support that:

H2: Perceived enjoyment mediates the relationship between VTO condition and attitudes towards the VTO

H3: Perceived usefulness mediates the relationship between VTO condition and attitudes towards the VTO

According to the theory of reasoned action, an individual is more likely to perform a behavior when they have a positive attitude towards it (Ajzen and Fishbein, 1980).

In the context of online shopping, Cho and Son (2019) found that consumers who perceive an online shopping medium positively are more likely to proceed with their intended transactions. Also, according to the work of Kim and Forsythe (2008), positive attitudes towards VTO in online apparel shopping enhance consumer's behavioural intentions towards it.

Regarding the intention to use, Kim and Forsythe (2009) along with Lee et al., (2006) state that intentions to use an online retailing website are related to online consumers attitudes towards it. Furthermore, Rogers (1995) along with Moore and Benbasat (1991) support that an individual's attitude towards an innovation is considered to be at the root of his or her intended use of it. According to the work of Kim and Forsythe (2008), positive attitudes towards VTO

in online apparel shopping enhance consumer's intention to use it. Despite the sufficient evidence between the direct positive impact of attitudes towards a technology and the intention to use it, research is lacking in beauty VTO. In this context, studying the impact of attitudes on the intention use is crucial since the VTO would enable solving the Makeup fitting issue while using it. As a result, the VTO could easily become their medium of purchase in the future.

Concerning word-of-mouth, it is also motivated by favorable attitudes in technology acceptance, since it is a behavioural intention (Ajzen, 1991; Fishbein & Ajzen, 1975). According to Dacko (2016), AR offers the means to reach positive behavioural outcomes including purchase behavior and word of mouth. Pantano et al., (2017) found that the few eyewear retailers who introduced AR to support shopping saw positive effects on consumer's purchase decisions on short term and loyalty, as well as word-of-mouth on the long term.

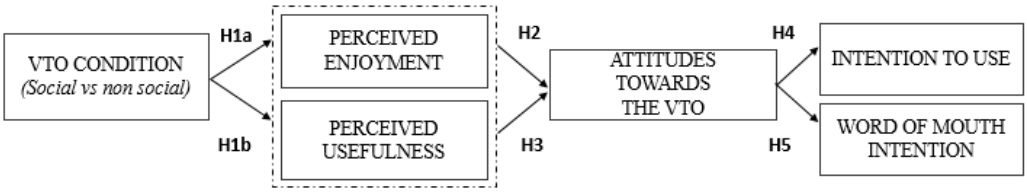

Figure 1- Graphical model

In the beauty context, assessing word-of-mouth would be important since the use of VTO on social media is becoming more common. In this vein,

As a result of the previous findings on the link between attitudes and behavioral intention:

H4: Attitudes towards the VTO positively impact intentions to use the VTO

H5: Attitudes towards the VTO positively impact WOM intentions

This section will present the research design of the study, including the methodology, the data collection instrument and the measurements of the survey.

1. Methodology

As a reminder, the main objectives of the study are: (1) Understanding the impact of VTO condition (social vs non-social) on the perceptions and attitudes towards the VTO; (2) Exploring the impact of attitudes towards VTO on behavioural intentions in the beauty context. In order to test the formulated hypotheses, a causal research design was developed. According to (Malhotra, 2017), causal research has the merit to demonstrate evidence of cause-and-effect relationships when wanting to understand the cause variables and the effect ones of a phenomenon. In the context of this study, the chosen research design aims to demonstrate the relationship between VTO condition, perceived enjoyment and usefulness, attitude towards VTO, intention to use the VTO, and word of mouth intention. Consequently, the causal relationships will be evaluated via an experimental design.

1.1. The experiment

The experiment comprised a between-subjects' laboratory design where each participant was assigned to one of the two experiment conditions. The laboratory design offers the advantage of control and time efficiency for respondents. Hence, they were asked to only answer questions related to their assigned condition which enhanced their attention. Additionally, the internal validity of this design is elevated thanks to the randomization of the two conditions and the inclusion of other causal variables (Malhotra, 2017). In this case, taking into consideration brand attitude helped understand its impact on the assumptions and other variables during the after-fact examination.

1.2. The treatments

Therefore, two VTO conditions were attributed to participants, depending on VTO perceived socialization, as the control variable. Supposedly, a social VTO condition (High condition), and a non-social VTO condition (Low condition).

First, the high condition treatment consisted of a social VTO, integrated in the social media application Instagram. Moreover, social media websites enable peers to connect by joining a common network which eases communication (Zhang et Daugherty, 2009). These latter contribute to an innovative channel that facilitates consumer socialization (Okazaki 2009). The process of socialization on social media occurs through virtual communities of individuals who know each other and strangers (Lueg et al. 2006; Okazaki 2009). The virtual space on social media offers people the opportunity to exchange and communicate, which might be the root of consumer socialization (Zhang et Daugherty, 2009). Thanks to the interactions between the network members, knowledge and socialization are facilitated in virtual communities (Ahuja and Galvin, 2003). Additionally, the network members act as socialization agents by quickly offering their evaluations of the products (Gershoff and Johar, 2006).

Instagram was selected as the social networking platform for the VTO as it is the fourth most popular social network, with roughly one billion monthly active users (Statista, 2021). The social network was created in 2010 with the aim of sharing media-both pictures and video. With the rise of Instagram among young people who are highly active on social media, the platform slowly shifted to an e-business oriented activity. First, Instagram introduced social commerce functionalities with “Instagram Shopping” which allows brands to expose their products. In 2019, Instagram took a novel business orientation by including an AR functionality in the form of “try-on” ads (SMD, 2019). Consequently, this tool had the purpose of engaging users in real-time by trying the selected product and proceeding to purchase. Practically, participants were invited to login their Instagram account and try a lipstick Filter by the cosmetics brand L’Oréal. The chosen brand is not anodyne but was elected thanks to its ubiquitous presence and successful adaptation to the omnichannel retail environment.

On one hand, L'Oréal is the worldwide leader in the cosmetics industry with an annual turnover of 28 million dollars, and 5.4 million dollars of sales in e-commerce (L'Oréal, 2021). With a large portfolio of brands covering different market segments, participants were more likely to be acquainted with the brand, which offered the opportunity to test the impact of brand attitude on the research. On the other hand, l'Oréal is one of the first beauty brands to acquire an Augmented Reality entity called "Modiface" in 2018 in the context of the group's digital acceleration. Modiface developed sharp technologies for cosmetic products virtual try on, supported by tracking (L'Oréal, 2021).

In the online context, the solutions offered by Modiface range from the brand's VTO on website, to an integration of the VTO in e-commerce and social media platforms like the cosmetics website Sephora and Facebook. Secondly, the low condition was represented by a VTO on a website developed by l'Oréal via Modiface using facial recognition to overlay makeup on the participants face. ThiS is considered as the low condition since it was not embedded in an environment favouring the exchange between members of a virtual community like social media, thus the absence of socialization.

Subsequently, participants were directed to try the l'Oréal's lipstick "Rouge Signature" following a link which directly requests participants for permission to use their camera before proceeding to the VTO. After virtually applying the lipstick in real time, participants could take a picture of the result (Appendix B).

Both conditions were equivalent to compare between subjects which minimises bias in experiments (Malhotra, 2017). They both presented the same product for the VTO (A signature Lipstick) from the same brand (L'Oréal) and both were accessible from mobile.

1.3. The questionnaire

Afterwards, a survey was used as the data collection instrument. This latter had the mission of translating the needed information to questions that assess the hypotheses, and test the relationships between the variables. The survey was characterized by a structured design as the primary measuring instrument in survey research (Bethlehem, 2009).

The questionnaire was built online on the Qualtrics Software program, which offered many benefits. First, online questionnaires can easily eliminate bias thanks to skip patterns and randomization of questions (Malhotra, 2007). Additionally, it was appropriate given the respondents profiles since the research studied AR as an emergent technology, commonly present on social media in the form of filters. In this vein, the two conditions required access to both the VTO website and Instagram application which was more convenient online.

Expectedly, it was challenging to reach the required number of participants for the experiment all while obtaining a high completion rate. Thus, online survey administration supported the visibility of the survey thanks to sharing it on social media.

The survey was structured in three sections, arranged according to a fixed order. All questions were closed to ensure fluidity in participants' answers. Furthermore, closed questions are less time consuming and encourage the participants to complete the questionnaire. The participants were forced to answer all questions, as a way to prevent non-response errors (Malhotra, 2017).

After briefly introducing the research topic, participants were asked a filter question about gender. Given that the online experiment concerned beauty products, only women were allowed to participate. In case this criterion was not answered, the participants were automatically conducted to the end of the questionnaire. Afterwards, three questions were asked to evaluate participants' familiarity with technologies, familiarity with the brand (l'Oréal) and their attitude towards it.

Moreover, the participants were randomly assigned to one of the two conditions (social vs non-social). In order to control both conditions, participants were asked about the product they just tried, where only participants who chose lipstick were kept.

Afterwards, the post-experiment section evaluated the independent variable "VTO condition", along with the dependent variables : (1) perceived enjoyment (2) perceived usefulness, (3) attitudes towards the VTO (4) Intentional behaviours and (5) word of mouth. The last section of the questionnaire extracted the socio-demographic data in terms of age, level of education and current occupation.

1.4. Survey distribution

Before officially sharing the survey, an initial test was done by distributing it to 8 respondents. This phase was considered a fine-tuning step with the help of Marketing Research related participants (4 Marketing students and 4 academic/professional supervisors). As a result, three shortcomings were revealed: the formulation of a question that seemed ambiguous, the environmental control and a reported issue with the social condition instructions. Thanks to this step, the survey was optimized and officially launched. Lastly, the survey was distributed via Qualtrics through an invitation with an URL using convenience sampling on social media. The survey publication was posted by a third party account on social media, since anonymity ensures that the answers won't be biased (Andrews et al., 2008). After three weeks, 184 answers were collected.

2. Scales and measures

2.1. Independent variables

Thanks to the randomization of the two conditions (Social vs non-social VTO), the independent variable "VTO condition" was controlled. The two conditions were expected to differ in terms of "socialization" levels, which needed further confirmation from the subjects. Regarding the evaluation of both VTO conditions (Instagram vs Website), a socialization scale developed by Kim (2011), and adapted to the VTO context from the work of Zhang et al. (2019). This latter was especially constructed for the AR context where little literature researched social scales.

2.2. Mediating variables

The first mediating variable "perceived usefulness" was assessed with the help of the scales proposed by Pantano et al. (2017) and adapted from Rese et al. (2014). Additionally, the evaluation scale of the second mediating variable "perceived enjoyment" was extracted from the work of Kim and Forsythe (2009), and adapted by Zhang et al. (2019). Both adaptations took into consideration the AR context as it was the focus of both researches.

2.3. Dependent variables

In order to assess the dependent variable of “attitudes towards the VTO”, the survey relied on a scale constructed by both Ahn et al. (2004). This scale was accustomed to the AR context by Rese and Donthu (2006). Moreover, the “behaviour intention” variables were divided in two variables. First, the dependent variable “intention to use” was appraised thanks to the work of Ahn et al. (2004) and its adaptation by Rese et al. (2017). The last dependent variable ``word of mouth intention” (WOM) was constructed by Zeithaml et al. (1996) and adapted from the work of Hilken et al., 2018).

2.4. Control variables

As stated previously, Malhotra (2017) reveals in his work the importance of evaluating other causal factors, as a process of understanding the remaining variables that could potentially influence the model. In the study context, the first control variable was the familiarity of the participants with the use of new technologies. The reason behind assessing this variable was that participants who heavily use new technologies could be more acquainted with them. Thus, subjects who were less familiar with new technologies, could have higher levels of attention and curiosity towards the VTO (Yang et al., 2020). The level of familiarity towards new technologies was evaluated through an ascending 5-point continuous rating scale ranging from “not familiar at all” to “extremely familiar”.

Additionally, brand familiarity and brand attitude were assessed in order to (1) validate the supposed high familiarity of the brand among the sample, and (2) establish the link between the brand familiarity and attitude, (3) as well as their impact on the model. Regarding (2), the link between both variables was crucial since the familiarity of the participants does not necessarily impact their brand attitudes. For example, subjects might well be acquainted with L’Oréal products, but their attitudes could still be negative or neutral (Rauschnabel and al., 2019). Brand familiarity was assessed with an ascending 5-point continuous rating scale ranging from “not familiar at all” to “extremely familiar”. On the other hand, brand attitude relied on the work of Li et al. (2002) and adapted in AR

context by Smink et al. (2020). The variable was measured via a 5 point-likert scale.

Lastly, socio demographic data was collected for profiling including: age, education level and occupation.

Construct	Scale	Item	Statement
Socialization (Kim, 2011; Zhang et al., 2019)	5-point Likert scale from "Strongly disagree" to "Strongly agree"	soc1	This VTO allows me to share my look with others
		soc2	This VTO allows me to socialize with others
		soc3	This VTO allows me to exchange information with others
Perceived enjoyment (Kim and Forsythe, 2009; Zhang et al., 2019)	5-point Likert scale from "Strongly disagree" to "Strongly agree"	enj1	Using the VTO was entertaining
		enj2	Using the VTO was enjoyable
		enj3	Using the VTO was fun
		enj4	Using the VTO was exciting
Perceived usefulness (Pantano et al., 2017; Rese et al., 2014)	5-point Likert scale from "Strongly disagree" to "Strongly agree"	use1	I think that the VTO has great value
		use2	I think that the VTO provides beautiful ideas for lipstick
		use3	I think that the VTO is inspiring in terms of lipstick ideas
		use4	I think that the VTO could help me come to a decision in choice of lipstick
Attitudes towards VTO (Ahn et al., 2004; Rese et al., 2014)	5-point Likert scale from "Strongly disagree" to "Strongly agree"	att1	I am positive about the VTO
		att2	I want to learn about the VTO
		att3	It makes sense to use the VTO
		att4	The VTO is a good idea
		att5	Other people should use the VTO
Use intentions (Munar & Jacobsen, 2014; Chu and Kim, 2011)	5-point Likert scale from "Strongly disagree" to "Strongly agree"	ui1	Using the VTO if I want to purchase a lipstick
		ui2	Giving the VTO a priority over the offline shop
		ui3	Giving the VTO and the online shop a priority over the offline shop
		ui4	Regularly using the VTO before purchasing in the future
word of mouth (Zeithaml et al., 1996; Hilken et al., 2018)	5-point Likert scale from "Strongly disagree" to "Strongly agree"	wom1	Talking about the VTO with friends or family
		wom2	Sharing the content of the VTO with friends or family
		wom3	Recommending the VTO to my friends or family

Table 1- Scales and measures

Except for the control variables, all the questionnaire's variables were assessed using five-point Likert scales. This type of non-comparative scale relates the degree of agreement from 1 (strongly agree) to 5 (strongly disagree). It also offers the advantage of a simple construction and is considered as easy to understand and administer (Malhotra, 2017). The following table summarizes the various items and scales used to evaluate the independent, dependent and mediating variables.

Results

In this section, data analyses will be explained in a three step process. The first step consists of a preliminary analysis where normality, validity and reliability were tested to ensure that the data is fit. Afterwards, the manipulation checks were verified.

Lastly, the hypotheses were tested and the relationships between variables assessed.

Respondents

The online questionnaire was answered by 184 individuals. However, only 70 answers were kept, due to the incomplete answers and the selection criterion (only female respondents were admitted). Additionally, respondents under the average response time of 120 seconds were not taken into account. Consequently, 33 answers were considered for the high condition (VTO on Instagram) and 37 answers for the low condition (VTO on website). Participants were aged between 16 and 28 years old, with 67% of respondents aged between 20 and 25 years old. The majority of the respondents (68%) were students, and their education level was mainly a Master's degree (62%).

Education level	Less than High school	0%
	High school degree	10%
	Bachelor's degree	24%
	Master's degree	63%
	Doctorate degree	3%
Occupation	Student	68%
	Employed	23%
	Home maker	4%
	seeking opportunities	4%
Average age	22	

Table 2- Population description

1. Preliminary tests

Prior to the data analysis, tests were conducted to assess the normality, the reliability and the validity of the scales that were already validated in the literature.

First, the Shapiro-Wilk test did not validate the null hypothesis ($p>0.05$), stating that the data diverges from a normal distribution (Appendix C).

Additionally, normality was assessed via calculating the kurtosis and skewness (Appendix D). Both metrics were situated between -2 and 2, with a slightly left skewed distribution. According to Georges and Mallery (2010), this is an acceptable range to support that the data is normally distributed.

Given that the used scales were validated by previous literature; the consistency of the constructs measures was assessed via a confirmatory factor analysis. This latter revealed that the pattern matrix shows a cross loading of the second attitude towards VTO item (att2). In other words, this item was loading on another component than attitudes towards VTO, where the other items loaded. Despite a high factor loading (0.7), the item removal increased the reliability of the variable (The alpha's Cronbach went from 0.9 to 0.92). This increase led to the removal of att2 to enhance the scale's reliability. Second, the constructs of VTO use intentions loaded on different components (bi1 and bi4 as a group, bi2 and bi3 in a distinct component). The items bi1 and bi4 were removed since they both had the lowest factor loadings. Hence, this removal significantly increased the reliability of the scale (The alpha's Cronbach went from 0.86 to 0.9) (Appendix E)

Lastly, the validity of the scales was measured item-wise, where all item coefficients (Pearson's product moment) were compared to a critical value from the critical table searched on the table product (Freedman et al.,2007), where DF:68 (N-2) and a 5% significance level. All items were significantly higher than the critical value (c:0.232).

2. Manipulation checks

In order to assess that the manipulation of the two treatments is correct (The VTO on social media vs the non-social condition; on the brand's website), a social construct named socialization was used as part of the questionnaire. Since the social media condition is supposed to be the high one, the socialization level should be more elevated than the socialization level in the Website condition (Low condition). For this matter, a T-test for independent samples was conducted to compare between the means of the two groups (social vs non social). In the social VTO condition (Instagram), the subjects perceived that the VTO enables more: looks sharing (soc1 means: 4.2 vs 2.4), socializing (soc2 means: 3.9 vs 2), and information exchange (soc3 means: 4 vs 2.9). Additionally, a compounded mean of combining the three items was calculated to test socialization between groups. Consequently, the supposed high condition scored higher than the low condition (4 vs 2.46). These differences between conditions were statistically significant ($p<0.001$), resulting in a successful manipulation. The differences between the means are summarized in the table below:

	Soc1	Soc2	Soc3	Perceived socialization
High condition- VTO on Instagram	4.2	3.9	4	4
Low condition-VTO on Websites	2.4	2	2.9	2.46
Significance	$p<0.001$	$p<0.001$	$p<0.001$	$p<0.001$

Table 3- Preliminary checks results

3. Hypotheses testing

First, the direct links (H1a, H1b) were tested using the T-test for independent variables to check the mean differences between the two conditions (High condition: VTO on social media; low condition: VTO on website). Afterwards, the mediating links (H2, H3) of the conceptual model were calculated using PROCESS macro for SPSS. This method consists of calculating mediation models for each dependent variable (attitude towards the VTO), with the VTO condition as the independent variable, and perceived enjoyment and usefulness as mediators.

Subsequently, the impact of attitudes towards behavioural intentions was assessed using correlation and regression analysis. Lastly, the other potential causal links were tested using correlation and regression analyses.

3.1. Direct links

First, the VTO condition was expected to positively impact perceived enjoyment and perceived usefulness of the VTO. The results of the T-test analysis between the two conditions (social vs non-social) revealed that the participants perceived more enjoyment in the VTO on the website (mean: 4.1), in comparison to the social condition (mean : 4). Hence, this link between the two conditions was not significant ($p>0.05$). As a result, the impact of VTO condition on perceived enjoyment hypothesis (H1a) was not supported by the data.

Additionally, the VTO condition was expected to positively impact perceived usefulness. The analysis revealed that the low condition (mean: 4.2), scored higher than the social condition (mean: 3.6). However, no further deductions could be extracted from this finding due to the non-significance of the result ($p>0.05$). Consequently, H1b was rejected.

3.2. Indirect links

3.2.1. The mediation effect of perceived enjoyment

The expected effect of perceived enjoyment was to mediate the impact of VTO condition on attitudes towards the VTO (H2). First, no significant link was demonstrated between VTO condition and perceived enjoyment (c:-0.368,p:0.958,se:0.195). Nevertheless, perceived enjoyment positively predicted attitude towards VTO (c:0.612, $p<0.001$,se:0.082). In other words, participants who had higher levels of perceived enjoyment, were more likely to have a better attitude towards the VTO. Finally, the indirect effects of VTO condition on the attitude, via perceived enjoyment, were not significant (c:-0.36,p:0.08,se:0.132). Hence, perceived enjoyment did not mediate the relationship between VTO condition and attitude, which resulted in the rejection of H2.

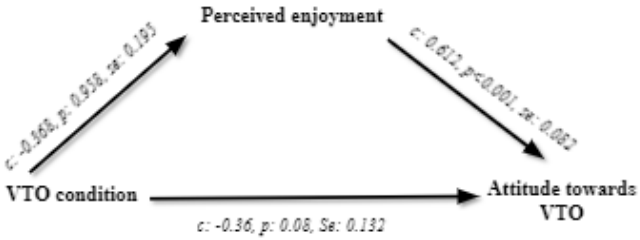

Figure 2- Mediation results of perceived enjoyment

3.2.2. The mediation effect of perceived usefulness

Perceived usefulness was expected to mediate the relationship between product VTO condition and attitude towards the VTO. After examining the direct effects between VTO condition and perceived usefulness, the data showed no significance in the link, c(c: -0.61,p<0.001,se:0.015). Additionally, perceived usefulness could positively and directly impact behavioural intention using VTO (c:0.74, p<0.05, se:0.138). Finally, the indirect effects analysis showed that perceived usefulness does not mediate the relationship between VTO condition and attitude towards VTO (c: -0.03, p:0.813, se:0.128), resulting in invalidating H3.

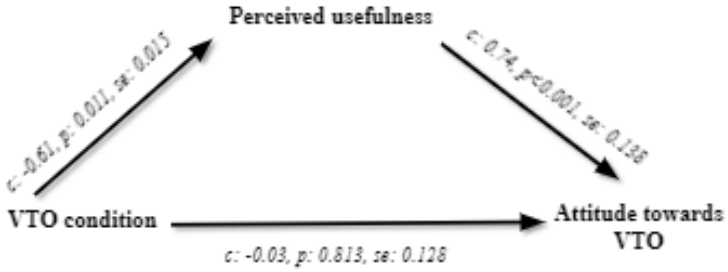

Figure 3- Mediation results of perceived usefulness

4. Attitudes towards the VTO and behavioural intentions

Later, the impact of attitudes towards the VTO on behavioural intentions (use intention and word-of-mouth intention) was tested using both correlation and regression analyses.

First the correlation analysis demonstrated that attitudes towards the VTO significantly and positively impact intentions to use (r:0.52, $p<0.05$). Additionally, the regression analysis showed that attitudes towards VTO could directly and positively impact the participants' intended use of VTO following the linear equation F (1;68) =25. In this case, the participants' attitudes towards the VTO are responsible for 27% (R^2:0.27) of variations in use intentions. As a result, respondents who had positive attitudes towards the VTO were more likely to use the VTO in the future. Consistently, the hypothesis H4 is validated.

Second, the expected results from H5 was that attitudes towards the VTO will positively impact word-of-mouth intentions. The results showed that attitudes towards the VTO and word-of-mouth intentions were significantly and positively associated (c:0.5, $p<0.05$). In the same fashion, the participants' attitudes towards the VTO could significantly predict their intentions to promote the VTO via word-of-mouth (R^2:0.25). The two variables showed an association represented by the linear equation F (1;68) =25. As a finding, the supposition in H5 is confirmed.

4.1. The links between the variables

4.1.1. Attitudes towards the VTO

Another finding was that perceived enjoyment was strongly (compared to other correlations in the model) and significantly associated with the attitude towards the VTO (r:0.7,$p<0.05$). Consequently, participants experiencing higher levels of enjoyment had an enhanced attitude towards the VTO. A linear regression confirmed these results (r:0.7,$p<0.05$), stating that a change in perceived enjoyment would lead to a variation of 43% (R^2:0.43) in the attitude towards the VTO. Furthermore, perceived usefulness was significantly and positively correlated with attitudes towards the VTO (r:0.75,$p<0.01$). A regression was conducted showing that perceived usefulness variation was responsible for 57% (R^2:0.57) of changes in levels of attitude towards the VTO.

4.1.2. Behavioural intentions

On average, participants were more predisposed to use the VTO when they perceived it as useful ($r:0.4, p<0.05$), than when they perceived the tool as enjoyable ($r:0.4, p<0.05$). However, participants experiencing higher levels of enjoyment showed more willingness to communicate about the VTO through word of mouth ($r:0.68, p<0.05$). Consequently, a significant regression link supported that perceived enjoyment was responsible for 48% ($R^2:0.48$) variation in word-of-mouth intention. Second, word of mouth intention was also positively correlated with perceived usefulness ($r:0.46, p<0.05$). In other words, subjects perceiving the product VTO as more useful were more willing to promote it through word of mouth. The regression supported this significant link, where a change in the perceived usefulness levels could predict 21% variations in word-of-mouth.

4.1.3. Combined effects of perceived enjoyment and perceived usefulness

Interestingly, the analysis covered a significant association between perceived enjoyment and perceived usefulness where they were both positively correlated ($r:0.6, p<0.005$). As a consequence, when participants viewed the product VTO as useful, they were more likely to perceive it as enjoyable, and vice-versa. In order to explore this relevant finding, a multiple regression was conducted to understand how combining both perceived enjoyment and usefulness will impact attitude towards the VTO.

First, a model including perceived usefulness and perceived enjoyment as predictors, and attitude as the dependent variable was evaluated. As a result two model simulations arised: the first one where the only predictor was perceived usefulness, and a second one where both independent variables predict the dependent variables. The model of combined independent variables could contribute to a variation of 63% ($R^2:0.64$) in attitudes towards the VTO. In other words, there are external factors other than perceived enjoyment and perceived usefulness that are not part of the model responsible for 27%($R^2:0.27$) changes in attitudes.

Nevertheless, The better prediction model of attitudes was the one where the only predictor is perceived usefulness ($F:87, p<0.001$). This latter displayed a significantly better representation

than the model including both perceived usefulness and perceived enjoyment as predictors (F:57, $p<0.001$). Consequently, we could affirm that perceived usefulness is a stronger predictor of attitudes towards VTO.

4.1.4. Brand familiarity and brand attitude

Half of the participants reported that they were familiar with new Technologies (50%). Also, high levels of familiarity with the brand L'Oréal were revealed (60%) and the largest part of the participants expressed a positive attitude towards the brand (65%).

Further, there was no significant brand familiarity difference between participants in the social condition (r:3.9, $p>0.05$) and the website one (r:4.1, $p>0.05$) . Brand familiarity was solely significantly and positively related to brand attitude (r:0.23, $p<0.05$). Concretely, participants had an enhanced brand attitude when they already were familiar with it. After evaluating the difference between both conditions (social vs non-social) in terms of brand attitudes, their means both scored high (in comparison to other variables), yet, no significant differences showed between the groups.

Furthermore, no significant correlation was demonstrated between on one hand: brand familiarity, brand attitude, and the other variables. Expectedly, these findings reveal a homogeneous brand familiarity, and a dominating positive brand attitude as supposed previously. Lastly, no significant link was exposed between age, occupation, education level and other variables.

Hypothesis	**Variables**	**Results**
H1a	VTO condition->PU	Rejected
H1b	VTO condition->PE	Rejected
H2	VTO condition->PU->ATT	Rejected
H3	VTO condition->PE->ATT	Rejected
H4	ATT->IU	Validated
H5	ATT->WOM	Validated

Table 4- Summary of results

1. Socialization and technology acceptance

The AR literature covered a need for further inclusion of the social dimension (Baron & Kenny, 1986). Indeed, previous studies in technology acceptance revealed that platforms like social media represent a potential opportunity for ecommerce, since consumers interact with each other and share information through the process of socialization. As a result, enjoyable interactions arise (Baron & Kenny, 1986) and the informativeness needs of consumers are answered through information exchange (Javornik, 2016). In the context of AR, the hedonic and utilitarian constructs were expected to be enhanced with the introduction of socialization. In order to test this supposition, the VTO was presented in two conditions: a social media condition and a website one.

However, the results (H1, H2) did not acknowledge the link between VTO condition on one hand, and both perceived enjoyment and perceived usefulness on the other hand. In order to understand this disparity with the hypotheses, close attention was paid to the study methodology.

After scrutinizing the results of the first hypothesis (H1), the main reason behind the rejection of the hypothesis was the non-significant link between the VTO condition and both perceived enjoyment and perceived usefulness. In this case, the source of the inconsequence could lie in the sample size that was calculated using the Hair et al. (2010) method. This latter consists of attributing five respondents to each variable. As a result, the study slightly exceeded the required minimum (30 per condition). Thus, there is a probability that the effects of the investigated phenomenon were too underpowered to be detected. Additionally, the social dimension representation via socialization was chosen based on one previous study that investigated social dimensions in VTO (Zhang et al., 2019). Indeed, scarce literature showed interest for social scales development in the AR context, which reflected on the limited three-items scale of socialization (Zeithaml et al., 1996; Hilken et al., 2018). Despite the favourable results of the confirmatory analysis, the robustness of the control is questioned. Nevertheless, the suspicions towards the methodological aspects were lightened after researching about the sources of the inconsistency.

In this vein, previous research in the context of AR showed that using the tool on social media could carry negative effects. Accordingly, Kang et al., (2020) state that when AR has a "playfulness" component, consumers seek to interact more with the technology for fun. Consequently, they are less likely to purchase the product. In fact, this component does not play in favour of AR's credibility since the tool is perceived as a game. This finding exposes one of the main concerns of VTO, which is the difficulty to draw the line between its use as a retailing tool and as an entertainment tool.

Also, even if the between-conditions results are not significant, the difference between the two groups in their usefulness perception was close to significance (0.06). In fact, the group that was exposed to the non-social condition of VTO on the website, showed (insignificant) higher average mean in the independent T-test. Despite their non-concluding effects, these findings raised doubts about the impact of social VTO on perceived usefulness and whether they truly elevated the experience. The previous suppositions presented in the literature review supposed that the social VTO was supposed to be allowing more informativeness and usefulness (Lueg et al., 2006). Against expectations, the utilitarian value was also questioned in a few researches.

In their work on hedonic and utilitarian values of a technology, Adams et al. (1992) exposed that the strength of each factor depends on the nature of the technology. In other words, if the main task that a technology is trying to achieve is utilitarian, then the utilitarian construct would have a stronger influence than the hedonic construct. Accordingly, VTO finds its roots in a purely utilitarian context where it aims to provide retailers with a solution to the "fit suit and match" dilemma (Pachoulakis and Kapetanakis, 2012). In the context of the experiment, the nature of the VTO was not clearly expressed since participants were just asked to try a product, without a purchasing request afterwards, or an indication about the context.

In this regard, the social media VTO seemed to pursue more hedonic benefits since it included other functionalities on the platform, such as the video and photo sharing options, in comparison to the website which clearly emphasized the VTO functionality.

However, even the hedonic construct did not show a significant difference between groups, which also raises doubts about if the VTO assuredly enhances consumer perceived enjoyment as precised by previous studies (Cho & Son, 2019).

In the same fashion, a study conducted by Yaoyuneyong et al. (2014) acknowledged that even if research mainly focuses on the positive constructs of a technology medium such as enjoyment, there is little investigation on the negative ones. For instance, they concluded that "irritation" could negatively influence attitudes. This latter characterizes the control, offensiveness and distraction that consumers express while interacting with the technology medium. In their work, Yaoyuneyon et al. (2014) investigate web irritation as the extent to which a website would use techniques that are manipulative and annoying, which would lead to negative responses to the website.

Consequently, a new factor could be at stake in the context of the study, which is the participants' attitude towards Instagram as a brand since it is also a platform that promotes different types of content that could be perceived differently by consumers.

A question covering Instagram brand attitude could have been insightful in order to explore if there were any negative brand associations impacting the model.

2. The mediating effect of perceived usefulness and perceived enjoyment

As supported by the second and third hypotheses, perceived enjoyment and perceived usefulness were anticipated to mediate the relationship between VTO condition and attitudes towards the VTO. This supposition was refuted because VTO condition did not significantly impact both perceived enjoyment and perceived usefulness. The divergence with the expected results could be affiliated to two main elements. Above all, no research previously investigated the impact of socialization on the underlying mechanisms of technology acceptance, particularly in the beauty VTO context. This said, the mediation supposition was approximated via combining research from various theories, based on previous antecedents and outcomes (Fishbein and Ajzen, 1975; Davis et al., 1996, Semin and Smith 2013) and adapted to the context of socialization (Hilken et al., 2017, Wang et al., 2012). In this matter, studies mainly assessed the social dimensions as a direct precedent of attitudes towards the technology. For instance, Zhang et al. (2019) investigated the effects of four constructs including: perceived usefulness, perceived enjoyment, perceived socialization and perceived product risk as

antecedents of attitude towards VTO. As a result, all three constructs showed significant impact on attitudes towards VTO except for perceived socialization.

Further, the literature review revealed that the impact of "ease of use" in the social context was refuted since its overall impact was deemed insignificant (Bounkhong and Cho, 2017). However, its assessment could have explained better the shortcomings of H2 and H3. As the results of the VTO online garment study showed (Zhang et al., 2019), ease of use affected directly and significantly perceived enjoyment and perceived ease of use. Consequently, including ease of use in the research would have given insights about the mediation insignificant results.

3. Attitudes towards the VTO and behavioural intentions

Although the mediation hypotheses were rejected, they did not prevent the positive link between both perceived usefulness and perceived enjoyment on one hand, and attitudes on the other, from being validated. Consequently, the study proved that in the beauty context, both perceived usefulness and perceived enjoyment affect positively the attitudes towards the VTO. Not only they confirmed this link, but they also revealed to what extent both values are distributed in the beauty VTO. Perceived usefulness (57%) proved to have more positive influence over attitudes towards VTO in comparison to perceived enjoyment (43%). This finding aligns with the previous study investigated by Adams et al. (1992). Accordingly, this work confirms the utilitarian nature of beauty VTO as consumers would seek more task related benefits, such as experiencing with the colors and new products to make a purchase decision. In fact, the utilitarian value in the beauty context was not deeply investigated. In this regard, understanding the researched utilitarian value from the VTO would enable an approximate answer about the tool's nature. Also, it would allow the exploration of consumer's researched utilitarian values, such as seeking a particular product-related information. Additionally, the context of the VTO should be taken into consideration. In other words, the utilitarian features could vary across industries and applications. In fact, the choice of a particular shopping channel is defined by consumers' shopping motivation (Hilken et al., 2017).

Consequently, the consumers' motivations should be reliably understood and integrated to the VTO solution so it fits their needs and requirements. Thus, the strong link between perceived usefulness and perceived enjoyment shows that both could be balanced in order to provide an enhanced VTO experience. Accordingly, the context is key in determining whether an aspect or another should be emphasized.

In line with previous research related to behavioural intentions (Kim and Forsythe, 2009; Lee et al., 2006; Cho & Son, 2019), the study also confirmed that consumers' favourable attitudes would enhance their behavioural intention in the beauty VTO context.

First, participants who expressed a positive attitude towards the VTO showed more willingness to use the tool in the future. This conclusion joins previous research that supports this positive link between attitudes and intentions to use a website in online retailing (Lee et al., 2006) and Kim and Forsythe (2009). As a result, these effects could be replicated to the beauty VTO context.

Additionally, the attitude towards VTO revealed a positive influence on word-of-mouth intentions. In contrast with the predominant utilitarian effect on both attitudes and intention to use, word-of-mouth intention was revealed to be more determined by the hedonic construct. In this regard, research supports this finding as consumers who enjoy an experience will be more willing to communicate about their expressed pleasure during the activity (Cho & Son, 2019). Consequently, they would be drawn to share their knowledge and experiences with their social environment as proof of the elevated experience (Barnes et al., 2016).

Also, the analysis showed that there are other constructs than perceived usefulness and enjoyment that explain attitudes. A suspected factor is the “novelty” of the technology. Novelty in AR differs from its conventional definition that is related to the newness and uniqueness of a thing. Admittedly, AR novelty refers to the way AR displays content by presenting unique, personalized and novel stimuli that consumers would experience (Javornik, 2016). According

to Ferraro et al. (2017), consumers might want to try VTO for its novelty, but its effects would fade in the long term.

Conclusion

1. Short summary

The work at hand explores VTO in the beauty industry in two phases. First, the VTO condition (Instagram vs Website) impact on attitudes and perceptions. Then, the research assesses whether using a VTO in the beauty industry reflects a positive effect on attitudes and behavioural intentions. Both relationships are explored via a hedonic construct "perceived enjoyment" and a utilitarian construct "perceived usefulness".

To fully understand the relationships between these stated variables, a between-subjects design was used. Participants were randomly assigned to separate groups where the first one virtually tried on a lipstick of the beauty brand L'Oréal on the social media platform Instagram, and the second one was directed to L'Oréal's VTO website. The online survey was created and distributed online for data collection.

Afterwards, the collected data was scrutinized which shed light on various findings.

First, the VTO condition (social vs non-social) showed no significance on the participants' perceptions of the tool including enjoyment and usefulness. Additionally, perceived usefulness and perceived enjoyment did not mediate the relationship between the VTO condition and the attitudes towards it. However, the participants' attitudes towards the VTO seemed to significantly and positively impact their intentions to use it and promote it via word-of-mouth.

Consequently, the inconsistency with the social hypotheses could be attributed to the scarce research on social VTO along with the sample size. However, the hedonic construct "playfulness" seemed to negatively impact VTO in a social setting (Kang et al., 2020). Moreover, previous findings about the positive association between attitudes and behavioural intentions (Kim and Forsythe, 2009; Lee et al., 2006; Cho & Son, 2019) are confirmed in the beauty VTO context. Lastly, the utilitarian construct strongly influenced attitudes and intentions to use, while the hedonic construct had greater impact on word-of-mouth intentions.

2. Theoretical implications

The results did not show both the positive and significant impact of socialization in VTO on perceived enjoyment and perceived usefulness, along with their mediating role between the VTO condition and attitudes towards it. However, past research confirmed the potential positive effects of social contexts such as social media, on immersive technologies (Tom Dieck ad Han, 2021). Meanwhile, the study conducted by (Zhang et al., 2019) showed that socialization did not impact attitudes nor the tested model. In this case, the suspected disparity should be tested with a larger sample and further research about the VTO social constructs.

On the other hand, the generalizability of previous research on VTO regarding attitudes and behavioural intentions could be extended to the beauty context (Kim and Forsythe, 2008; Lee et al., 2006). Indeed, attitudes towards the VTO positively and significantly impact the participants' intention to use the VTO and promote it through word-of-mouth. Moreover, the utilitarian construct seemed to be a better predictor of the attitudes towards the VTO than both constructs combined. Further, perceived usefulness impacted more intention to use the VTO than the perceived enjoyment. Hence, this indicates that VTO in the beauty context leans towards being a utilitarian tool.

On the other hand, the hedonic construct was strongly associated with the intention to promote the tool via word-of-mouth. Accordingly, word-of-mouth could be an insight to investigate further social VTO.

3. Managerial implications

The present research provides valuable insights about beauty VTO. Indeed, the VTO on social media did not prove to be an efficient tool to leverage perceptions and attitudes towards the tool. The supposedly fruitless effect of socialization in the context of beauty VTO could be linked to the concern that the it might be mistaken for an entertainment tool. Additionally, the abundance of information on social media could achieve less usefulness, and make the user experience "irritating".

Later on, beauty VTO was proved to positively impact attitudes and behavioural intentions. Indeed, the utilitarian nature of VTO in beauty retail manifested since the utilitarian factor was deemed to be a better predictor of the attitudes towards the VTO, as well as the intentions to use it. In this vein, Marketers should be aware of the predominant utilitarian aspect of the beauty VTO while building a solution. For instance, they could emphasize utilitarian features to make it clear that it is a purchasing tool, such as the provided information quality and the mapping of the virtual content in the real-world.

However, this does not prevent beauty marketers from leveraging its hedonic features in case they aim to promote the VTO via word-of-mouth. In this regard, managers should be aware of what they are trying to achieve through the VTO before implementing it, instead of "building it until they come".

In other words, they should be able to identify the right features for the right context. For instance, while the hedonic construct items of the study (entertaining, fun, enjoyable, exciting) seemed to strongly impact the VTO intended word-of mouth promotion, other hedonic constructs such as "playfulness" were proved to make the tool seem like its main purpose is entertainment.

Consequently, building the right solution requires further research on VTO features that embody more the hedonic or utilitarian constructs and their impact. For instance, understanding to which extent using different augmentation qualities on the same product would predict the use intention. Indeed, managers do not need to conduct rigorous research to identify these features since they have access to different metrics on VTO platforms, which will enable insights extraction regarding which features would lead to more purchasing, intended use, or in the context of social VTO, positive word-of-mouth. As a result, they could create a taxonomy of features. Thanks to this latter, Marketers could draw the line between the entertainment and purchasing context.

For example, if a beauty brand is launching a new collection and the aim of providing a virtual fitting is to obtain insights about the most tried products or colour shades, then they should be aware that the primary objective here is not to enhance purchase behaviour. In this case, they could choose engaging hedonic constructs to make data collection more pleasing.

In fact, managers should constantly keep in mind the primary goal of the VTO before building it. Accordingly, they will be able to efficiently leverage AR and adapt it to different settings in the beauty industry and then clearly communicate their technical feature requirements to developers.

4. Limitations and suggestions for further research

While these research findings provide future research with insightful managerial and academic findings about VTO, they should be perceived with respect to certain limitations.

First, the context of the research did not provide significant results in regard to socialization impact. Indeed, the paucity of knowledge in social VTO constituted a first obstacle towards building the right theoretical framework as well as choosing the right variable to represent the social dimension. In this vein, further research is called for concerning the social VTO topic and its adapted social framework.

Regarding the experimental design, limited control was possible since both VTO solutions were built externally and the only way to know if the participants eventually used the tool was to ask about the product type. An optimal way to have more robust control is to test the suppositions in an environment that offers more control.

Additionally, there was a slight difference between both conditions since the website VTO was more easy to access than the VTO on social media, which required to follow the instructions. In this vein, the participants were not assisted throughout the process, which explains the difference between complete answers in both conditions. Accordingly, including ease of use in future research could explain better the level of difficulty experienced with the tool in each condition.

Also, the sampling method used was a convenience sampling, which is not recommended for causal research because of its weak generalizability (Malhotra, 2017). Accordingly, the survey

was distributed on social media and primarily to female Instagram users who were students. Future research could rely on a more diversified sample.

In this regard, they could have been already aware of the VTO's existence, while the website could have been a novel tool that participants were exploring for the first time. In this case, a new factor could be at hand including past experience with the VTO. A question that could have grasped this aspect. Also, the analysis revealed that there were external factors explaining attitudes other than perceived enjoyment and perceived usefulness and a number of variables could be studied to explore this matter. First, the negative constructs such as "irritation" to understand to which extent the variable impacts attitudes, and especially in a social setting. Second, other hedonic variables like "playfulness" could also be assessed for future research. Finally, the attitude towards social media as a brand was not evaluated. Thus, it could have been interesting to include it in the research to test if the social media choice would impact perceptions.

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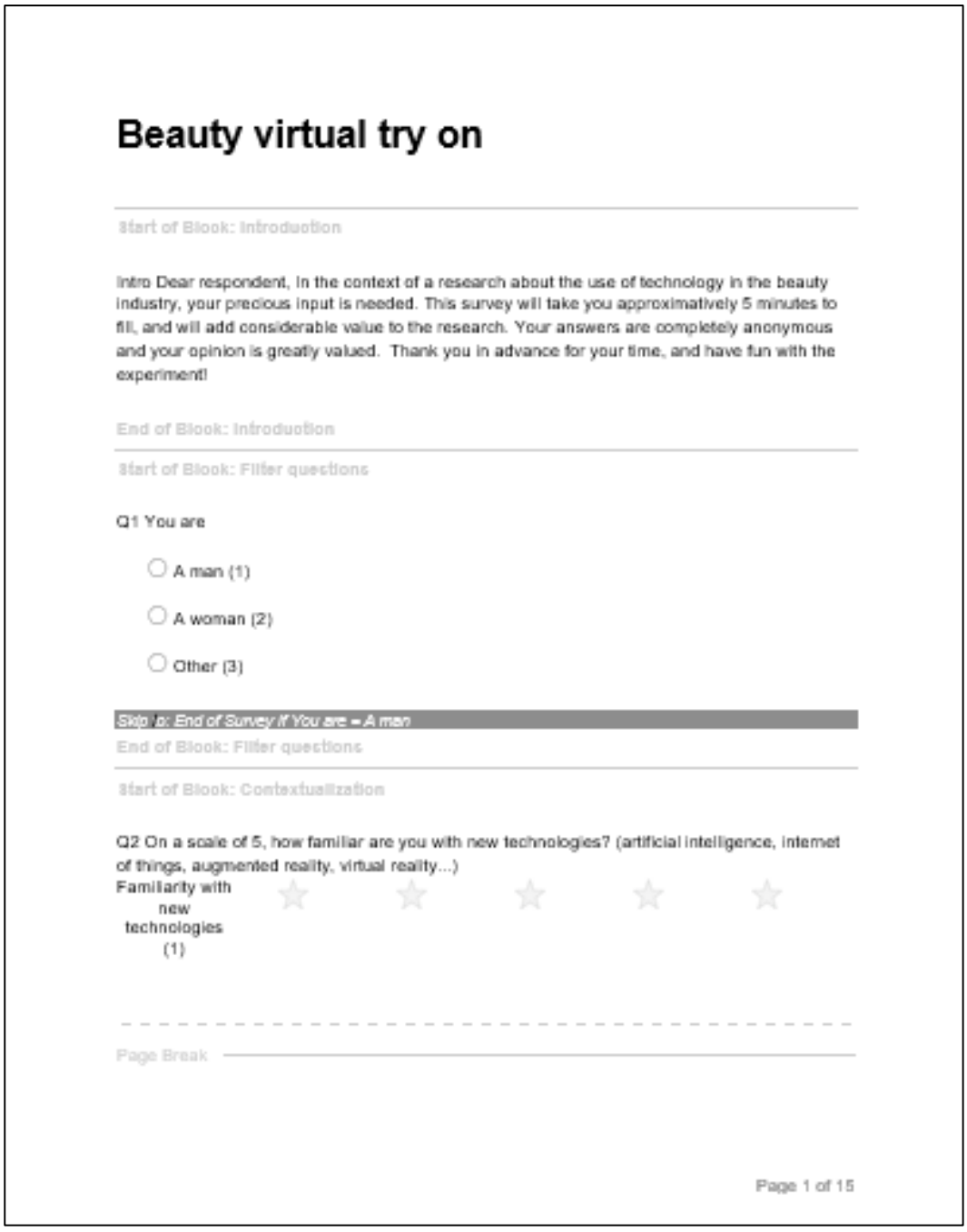
Appendix A: Survey of the research

Survey of the research-page 1



Beauty virtual try on

Start of Block: Introduction

Intro Dear respondent, In the context of a research about the use of technology in the beauty industry, your precious input is needed. This survey will take you approximatively 5 minutes to fill, and will add considerable value to the research. Your answers are completely anonymous and your opinion is greatly valued. Thank you in advance for your time, and have fun with the experiment!

End of Block: Introduction

Start of Block: Filter questions

Q1 You are

- A man (1)
- A woman (2)
- Other (3)

Skip To: End of Survey If You are = A man

End of Block: Filter questions

Start of Block: Contextualization

Q2 On a scale of 5, how familiar are you with new technologies? (artificial intelligence, internet of things, augmented reality, virtual reality...)

Familiarity with new technologies (1)

Page Break

Page 1 of 15

Survey of the research-page 2

Q3 How familiar are you with the brand L'Oréal?

Familiarity with the brand (1)

Q4 In your opinion, the brand L'Oréal is:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree or disagree (3)	Somewhat agree (4)	Strongly agree (5)
Appealing (1)	○	○	○	○	○
Good (2)	○	○	○	○	○
Likeable (3)	○	○	○	○	○

End of Block: Contextualization

Start of Block: Condition 1: Social VTO

Cond1 Now the fun part! We would like you to virtually try on a beauty product and then come back to share your experience.
Please log in the following link on a separate page and click on "live try on"
: https://www.lorealparis.com.au/rouge-signature/matte-lip-ink-liquid-lipstick-115-i-am-worth-it?tryon=true

Page Break

Page 2 of 15

Survey of the research-page 3

End of Block: Condition 1: Social VTO

Start of Block: Condition 2: Non-social VTO

Cond 2 Now the fun part! We would like you to virtually try on a beauty product and then come back to share your experience.
Please open Instagram and follow these instructions :1- Open the camera and swipe left through the filter icons (browse) until you reach a magnifying glass icon. Tap it and search for "love yourself loreal" 2- Now the filter will appear. Try it then please get back to the survey for your feedback.

Page Break

Q5: Which product did you just try on?

- ○ Foundation (1)
- ○ Eyeshadow (2)
- ○ Lipstick (3)
- ○ Mascara (4)

Now, it is your turn to share your opinion! Please rate the extent to which you agree with the following statements.

Q6: This virtual try on allows me to :

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree or disagree (3)	Somewhat agree (4)	Strongly agree (5)
Share my look with others (1)	○	○	○	○	○
Socialize with others (2)	○	○	○	○	○
Exchange information with others (3)	○	○	○	○	○

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Q7 : Using the virtual try on was :

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree or disagree (3)	Somewhat agree (4)	Strongly agree (5)
Entertaining (1)	○	○	○	○	○
Enjoyable (2)	○	○	○	○	○
Fun (3)	○	○	○	○	○
Exciting (4)	○	○	○	○	○

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Survey of the research-page 6

Q8] think that :

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree or disagree (3)	Somewhat agree (4)	Strongly agree (5)
The virtual try on has great value (1)	○	○	○	○	○
The virtual try on provides beautiful ideas for lipstick (2)	○	○	○	○	○
The virtual try on is inspiring in terms of lipstick ideas (3)	○	○	○	○	○
The virtual try on could help me come to a decision in choice of lipstick (4)	○	○	○	○	○

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Q9: Please rate the following statements

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree or disagree (3)	Somewhat agree (4)	Strongly agree (5)
I am positive about the virtual try on (1)	○	○	○	○	○
I want to learn more about the virtual try on (2)	○	○	○	○	○
It makes sense to use the virtual try on (3)	○	○	○	○	○
The virtual try on is a good idea (4)	○	○	○	○	○
Other people should use the virtual try on (5)	○	○	○	○	○

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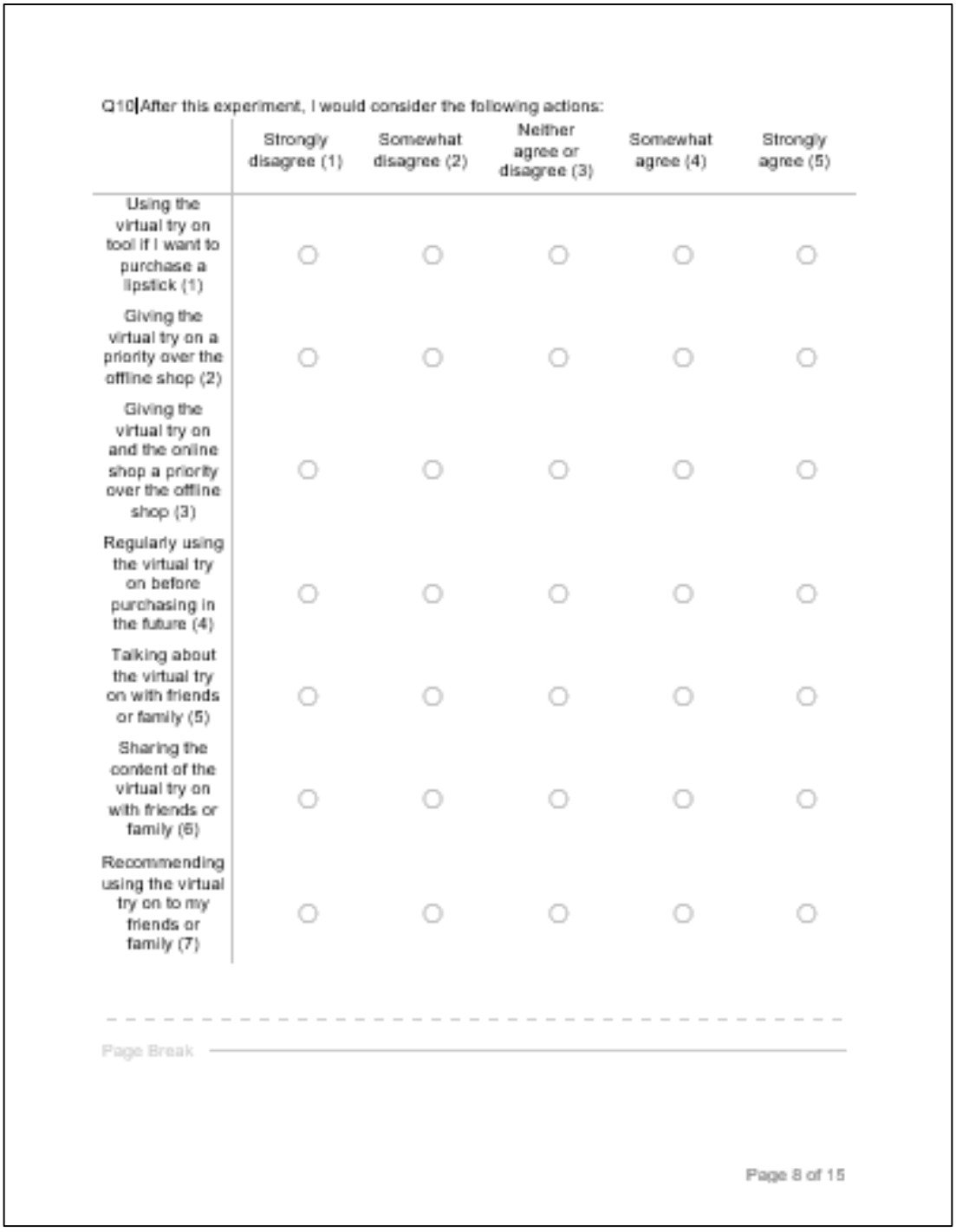
Survey of the research-page 8



Q10 After this experiment, I would consider the following actions:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree or disagree (3)	Somewhat agree (4)	Strongly agree (5)
Using the virtual try on tool if I want to purchase a lipstick (1)	○	○	○	○	○
Giving the virtual try on a priority over the offline shop (2)	○	○	○	○	○
Giving the virtual try on and the online shop a priority over the offline shop (3)	○	○	○	○	○
Regularly using the virtual try on before purchasing in the future (4)	○	○	○	○	○
Talking about the virtual try on with friends or family (5)	○	○	○	○	○
Sharing the content of the virtual try on with friends or family (6)	○	○	○	○	○
Recommending using the virtual try on to my friends or family (7)	○	○	○	○	○

Page Break

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End of Block: Condition 2: Non-social VTO

Start of Block: Demographics

Finally, we would like to know some information about you. How old are you?

_____

educ What is your level of education?

- Less than high school (1)
- High school (2)
- Bachelor's degree (3)
- Master's degree (4)
- Doctorate degree (5)

occup What is your current occupation?

- Student (1)
- Employed full time (2)
- Employed part time (3)
- Home maker (4)
- Seeking opportunities (5)

End of Block: Demographics

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Appendix B: Links to the VTO

Access to the Website VTO:
https://www.lorealparis.com.au/rouge-signature/matte-lip-ink-liquid-lipstick-115-i-am-worth-it/?tryon=true

Access to the Instagram VTO:
Please open Instagram and follow these instructions:

1- Open the camera and swipe left through the filter icons (browse) until you reach a magnifying glass icon. Tap it and search for "love yourself loreal"

2- Now the filter will appear. Try it then please get back to the survey for your feedback J

Appendix C: Results of the Shapiro-Wilk test for scales normality

Scales	Items	Shapiro-Wilk statistic	p-value
SOC	soc1	0.87	<0.001
	Soc2	0.88	<0.001
	Soc3	0.86	<0.001
ENJ	enj1	0.79	<0.001
	enj2	0.81	<0.001
	enj3	0.78	<0.001
	enj4	0.83	<0.001
USE	use1	0.85	<0.001
	use2	0.82	<0.001
	use3	0.76	<0.001
	use4	0.84	<0.001
ATT	att1	0.81	<0.001
	att2	0.81	<0.001
	att3	0.79	<0.001
	att4	0.88	<0.001
	att5	0.89	<0.001
UI	ui1	0.89	<0.001
	ui2	0.88	<0.001
	ui3	0.87	<0.001
	ui4	0.88	<0.001
WOM	wom1	0.82	<0.001
	wom2	0.82	<0.001
	wom2	0.8	<0.001

Appendix D: Skewness and Kurtosis results

Scales	Items	Skewness	Kurtosis
SOC	soc1	-0.34	-1.15
	Soc2	-0.79	-1.27
	Soc3	-0.65	-0.6
ENJ	enj1	-1.26	1.23
	enj2	-0.78	-0.08
	enj3	-1.15	1.53
	enj4	-0.57	-0.51
USE	use1	-0.851	0.01
	use2	-0.96	0.42
	use3	-0.87	-0.15
	use4	-1.18	0.38
ATT	att1	-0.85	0.32
	att2	-0.66	0.40
	att3	-0.51	-0.47
	att4	-0.83	-0.25
	att5	-0.73	-0.26
UI	ui1	-0.58	-0.50
	ui2	0.61	-1.24
	ui3	-0.24	-1.35
	ui4	-0.69	0.06
WOM	wom1	-0.86	-0.29
	wom2	-0.69	-0.83
	wom2	-1.05	0.22

Appendix E: Confirmatory Factor Analysis results

Scales	Items	Factors loading
SOC	soc1	0.802
	soc2	0.82
	soc3	0.78
ENJ	enj1	0.6
	enj2	0.55
	enj3	0.55
	enj4	0.64
US	us1	0.74
	us2	0.93
	us3	0.93
	us4	0.82
ATT	att1	0.56
	att2	0.73
	att3	0.57
	att4	0.63
	att5	0.61
UI	ui1	0.6
	ui2	0.73
	ui3	0.9
	ui4	0.61
WOM	wom1	0.62
	wom2	0.81
	wom2	0.65

Executive Summary

Thanks to the advance of new technologies, online retailing has continued to thrive in the last decade. Hence, technologies like Augmented Reality (AR) revolutionized the customer experience, particularly the Virtual-Try-On technology (VTO). This latter remarkably filled the need for trying the product that the online context always failed to provide. As a result, the online purchasing experience became seamless. Although VTO is still in its infancy in consumer markets, it is becoming more common thanks to social media which enabled brands to integrate VTO into their platforms. However, there is paucity of knowledge about social VTO. Also, the beauty industry is one of the precursors of VTO adoption in retailing. Nevertheless, a few studies investigated VTO impact on attitudes and behavioural intentions in this context.

First, this research examines the influence of socialization in VTO, on both perceptions and attitudes. Later, the study investigates the general impact of attitudes towards the VTO on behavioural intentions. The study was based on an experimental design where no significant link was demonstrated between VTO condition (social vs non-social) and the utilitarian and hedonic constructs of technology (perceived usefulness and perceived enjoyment). Further, the study confirmed previous positive links between attitudes towards the technology and behavioural intentions in the beauty industry. Lastly, the paper provided insights for further research and the resulting implications.

Keywords:

Virtual-Try-On, Socialization, Utilitarian, Hedonic, Attitude towards VTO, Behavioural Intentions