The Evolution of Interactivity in the Context of Social Commerce: A Multi-Faceted Investigation

Almahdi, Maryam

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Maryam Husain Almahdi

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Abstract

At the beginning of this research project, a number of gaps pertaining to the investigation of interactivity in the current online social environment were highlighted. They can be summarized in terms of inconsistencies in identifying the relationship between structural interactivity and outcome variables, including interactivity perceptions, in addition to shortcomings in presenting an updated perspective of interactivity that appropriately captures the evolution of social technologies witnessed today. This leads to the choice of social commerce websites as the empirical setting in this thesis, as they are expected to facilitate their consumers' interactivity in new and unique ways. Following this choice, further gaps in the social commerce literature were uncovered, particularly in regard to limitations in defining the concept, outlining its different types, and pinning down where it departs from related concepts such as social media and e-commerce.

Using two empirical studies, the researcher worked towards bridging the aforementioned gaps by (1) examining the contested relationships between structural interactivity and its expected outcome variables (including perceived interactivity) in a highly sociable and engaging social commerce setting (i.e. a consumer-managed fan community), (2) focusing on consumer-consumers and content creation interactivity, alongside the widely studied human-website navigational interactivity, in order to illustrate a comprehensive picture of the concept as it stands today, and by (3) facilitating the two dimensions of structural interactivity (i.e. human-human and human-website) to develop a typology of social commerce platforms that is parsimonious, robust, and extendable. In other words, throughout this thesis the researcher's aim was to update the understanding of interactivity through investigating it in a novel social commerce context, while simultaneously exploring the under-researched concept of social commerce through the lenses of the interactivity theory (which was determined appropriate for this goal based on the literature review).

Consequently, results from study 2 uncovered that the higher the use of structural interactive features on the consumer-managed fan community the higher the interactivity, engagement, and sociability perceptions of this community. While this may seem intuitive, the findings shed a new light on the inconsistently-reported relationship between structural interactivity and perceived interactivity in past research, in addition to its relationship to other outcome variables. Indeed, the use of the highly interactive social commerce as the research setting informs these findings, mitigating the shortcomings of the empirical contexts used in prior

research which are limited in interactivity and relevance to the consumers' interests (e.g. health-related websites). Moreover, findings from study 1 highlighted that human-human structural interactive features influence the effectiveness of the websites more significantly than human-website interactive features. This is at least in part due to human-human interactivity being less common (and therefore more enticing) than human-website interactivity across the sample of social commerce websites analysed in the study. Finally, study 1 contributed to the social commerce literature by introducing a four-category empirical typology of 73 social commerce websites based on the extent to which they facilitate human-website and human-human interactivity.

This thesis offers useful insights informing both website developers whose goal is to capitalize on the current momentum and expected future growth of social commerce, in addition to marketing practitioners aiming to turn their social commerce activities into a profitable venture and implement effective strategies to achieve this goal. This inquiry concludes with recommendations on how to develop online presences that are capable of attracting their customers' attention among a sea of competitors, facilitating their self-efficacy, and immersing them in sociable and interactive social commerce experiences.

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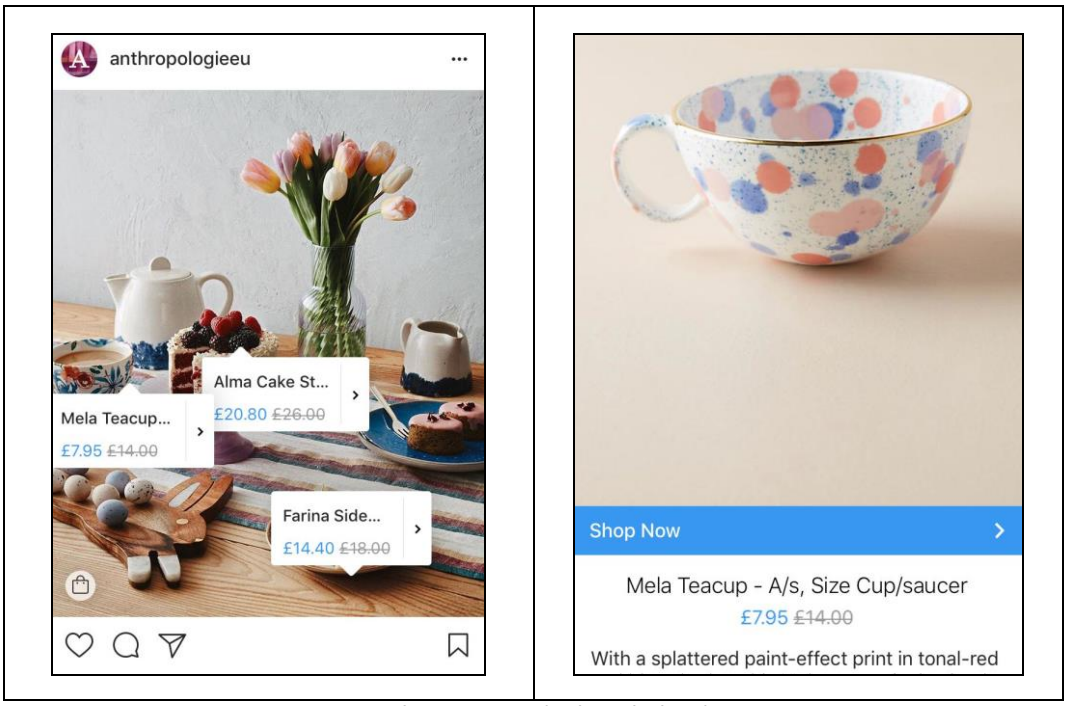
1. Introduction

The recent growth in popularity and influence of social technologies is observed in the number of websites lately joining the social commerce current. They are further motivated by the promise of direct social commerce revenues in the US climbing to the 100-billion-dollar mark in the coming years (Howard, 2016). An interesting embodiment of this direction of social commerce adoption is Instagram, which in its core is a photo-sharing social networking site. In 2013, Instagram declared on its 'Frequently Asked Questions' page that it does not encourage using the platform to carry out buying and selling activities. However, in March 2018, Instagram rolled out shopping in the UK, a feature which allows brands to use their Instagram accounts as a window to their online shops, as posts showcasing their products are tucked seamlessly within the dynamic social timelines of their followers (Figure 1.1).

Figure 1.1: Shopping on Instagram



Source: instagram.com/anthropologieeu/

Mary Meeker, social media expert and former Wall Street analyst, suggests that the direction of social media embracing e-commerce functionalities is contributing to blurring the lines between the social and commercial on the Internet, as content is becoming the store and social adverts the transaction (*ibid*, 2017). Capturing the essence of what it is like to shop on social media, New York Times technology reporter Jenna Wortham (2014) describes her experience shopping on Instagram:

> *"For me, Instagram resembles a modern-day bazaar . . . A huge part of the appeal is that the goods I'm perusing are sandwiched in my Instagram feed, in between my friends' selfies and pictures of snow-covered spots where they've stopped during the day. Stumbling across an unexpected and gorgeous find . . . on a social app like Instagram brings with it the excitement of discovery, not unlike the thrill you get when coming across a rare find at a flea market".*

The urgency of developing social commerce strategies and presences can be observed across the Internet, as social media platforms continue to incorporate shopping functionalities (as seen in the above example and in Facebook's recently-introduced consumer-consumer marketplace), as e-commerce websites keep investing social features (e.g. Etsy groups, forums, and communities), and as newer social commerce applications are being introduced as a hybrid of the two (e.g. Vero, a subscription-based social networking site). This growing trend, reflective of the convergence between two technologies prominent on the online sphere: online shopping and social media, is responsible for creating social commerce as it is known (and sought after) today (Liang et al., 2011, Shen, 2012, Turban et al., 2016).

Despite its growing potential, however, social commerce research is still at its early stages, held back by limitations in its conceptualization and inconsistencies in identifying its different types (Yadav et al., 2013, Liang and Turban, 2011, Huang and Benyoucef, 2015). Moreover, marketers are uncertain on how to capitalize on the constantly evolving interactivity of social commerce to achieve marketing outcomes and relationship building goals (Cecere, 2010, Meeker, 2017). To bridge these gaps in this thesis, the researcher explores social commerce through the lenses of the interactivity concept, which has long been alluded to in the social commerce literature but never fully examined (e.g. Wang and Zhang, 2012, Huang and Benyoucef, 2013; 2015). Consequently, the first empirical study in this thesis utilizes the two dimensions of structural interactivity (i.e. human-human and human-website interactivity) to present a theoretically-sound typology of social commerce websites. This typology mitigates the limitations in the extant social commerce research by outlining four categories of social commerce which are parsimonious, explanatory, and extendable as recommended by Nickerson et al. (2013).

However, before attempting to utilize an interactivity scale to examine social commerce (or any other social technology), it is key to recognize that the interactivity concept as it exists

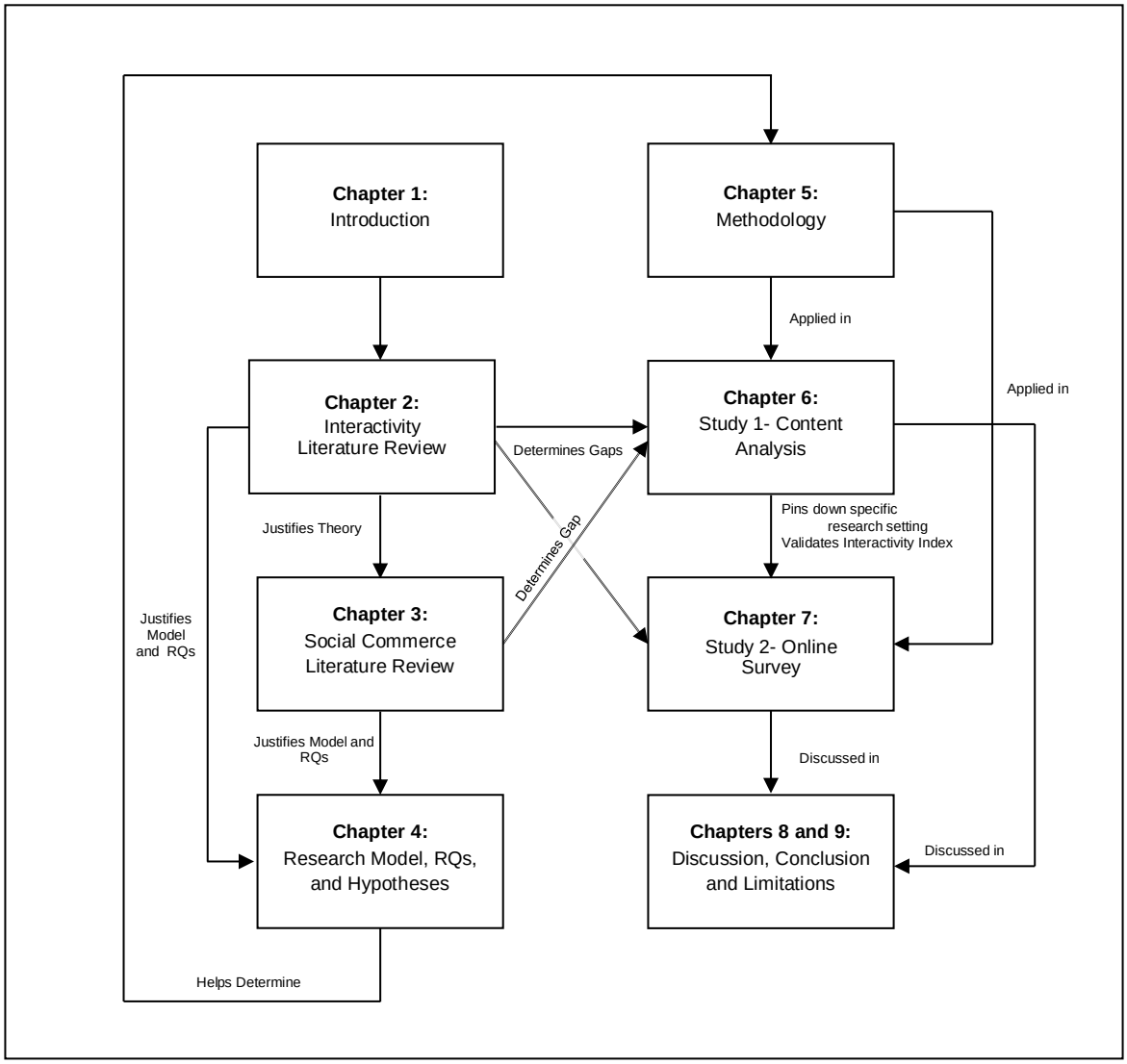
today is in need of further development if it is to illustrate an accurate picture of the growing phenomenon of social commerce. This is due to the dynamic nature of interactivity, which means that it is constantly evolving to reflect changes in technologies and in users' expectations (Kim et al., 2012, Voorveld et al., 2011). Consequently, the Interactivity Index (Ghose and Dou, 1998) is updated in this thesis, to reflect the evolution of interactivity in a social commerce setting, by incorporating consumer-consumer and content creation items.

Another shortcoming persisting in interactivity research relates to inconsistently identifying the outcomes of interactivity. In other words, scholars are yet to be certain of whether more interactivity will lead to positive or negative consumer responses, or no responses at all (Oh and Sundar, 2015, Voorveld et al., 2011, Bucy and Tao, 2007). The researcher bridges this gap in this thesis by first examining the relationship between structural interactivity and objective outcome variables (i.e. time spent in the website and pages viewed) in study 1. In study 2, she utilizes the Stimulus-Organism-Response framework (S-O-R), an environmental psychology paradigm introduced by Mehrabian and Russell in 1974, to investigate if the structural interactivity of a website (the stimulus in this model) influences perceived interactivity, engagement, and sociability (the organismic states that the consumers experience), and whether satisfaction (the response) results from both the structural interactivity and perceptions of the interactive experience. The researcher additionally explores whether the organismic experiences (i.e. perceptions of interactivity, engagement, and sociability) mediate the relationship between the stimuli and the response in this model.

Consequently, in this thesis the researcher asks the questions of whether investigating interactivity in the novel and highly engaging context of social commerce will (1) shed new light on the relationships in a comprehensive conceptual model of interactivity (including both structural and perceived interactivity, in addition to a number of objective and perceptual outcome variables), and whether such investigation will (2) aid in understanding social commerce and identifying its different types. Indeed, the overarching aim of this thesis is to explore social commerce through the lenses of the interactivity concept, while concurrently developing interactivity through investigating it in the context of social commerce. To achieve that, the researcher facilitates an abductive research approach of theoretical and empirical iterations going between the two concepts, which will ultimately aid in developing each.

By following these steps, the researcher contributes to both the theoretical knowledge and practice relating to social commerce and interactivity. Indeed, presenting an understanding of what social commerce involves will aid future researchers in pinpointing the appropriate settings for their empirical investigations and will help marketers and practitioners in understanding the idiosyncrasies of different social commerce types in order to develop the right strategies for them. Similarly, updating our understanding of interactivity theory in the context of social technologies will aid researchers in depicting more accurate relationships in their future interactivity models and will also inform practice in terms of understanding how manipulating different interactivity features can help marketers achieve desired results, such as engaging and satisfying their consumers. Figure 1.2 outlines the chapters included in this thesis, how they are connected to one another, and how the empirical study chapters are informed by the gaps uncovered in the literature review chapters.

Figure 1.2: Thesis' Chapter Plan



2. Theory: Interactivity

Introduction

Interactivity is a multi-dimensional construct that is approached from different viewpoints concurrently (Downes and McMillan, 2000, Oh, 2017). At its core, excluding any media or systems, it is an interpersonal communication concept closely related to face-to-face conversations or the interaction between people who share a physical space (Durlak, 1987, Wu, 1999). When a medium, which allows for some level of interpersonal communication, is introduced (e.g. the telephone and later the Internet), we are left with varied forms of mediated interactivity (Burgoon et al., 2002, McMillan, 2002b, Kiousis, 2002).

A user's interaction with the medium, which is responsive to his or her inputs, is additionally considered a type of interactive communication (Heeter, 1989, Jensen, 1998, Wang et al., 2007). Thus, even if a user is simply surfing the web without communicating with other people, his or her actions are still conceptually viewed as interactive (Bezjian-Avery et al., 1998, Fiore et al., 2005, Sutcliffe and Hart, 2017).

Although interactivity includes both mediated and unmediated communication (Rafaeli, 1988, Heeter, 2000), it is considered a defining characteristic of new media (McMillan and Hwang, 2002, Song and Zinkhan, 2008, Johnson and Kaye, 2016). Thus, it is suggested that interactivity should be used exclusively to describe mediated rather than unmediated exchanges (Kiousis, 2002, Johnson and Kaye, 2016), with the aim of " [discouraging] its wanton application as a universal descriptor of all forms of dialogue" (Bucy, 2004, p. 376). Accordingly, this direction of approaching interactivity solely through its mediated form is followed in the current thesis.

Another important consideration in research relates to identifying the locus of interactivity (Bucy and Tao, 2007). As illustrated in Figure 2.1, interactivity can be approached as an objective concept either residing in the communication setting or in medium's attributes. The first is examined through observing the connectedness of the messages exchanged between the communication parties (Rafaeli and Sudweeks, 1997), while the latter is analysed by counting the number of interactive features on a certain technological platform (Voorveld et al., 2011). Subjectively, the concept can be assessed through users' interactivity perceptions. These convey a person's innate feelings and thoughts toward the interaction (Bellur and

Sundar, 2017), and can be assessed by asking the consumers about their personal interactive experiences on the platform (Song and Zinkhan, 2008).

Figure 2.1: Locus of Interactivity

Where interactivity resides		
Objectively		**Subjectively**
In message connectedness	In the medium's attributes	In the participant's perceptions

Consequently, interactivity is defined as "the degree to which a communication technology can create a mediated environment in which participants can communicate . . . and participate in reciprocal message exchanges . . . With regard to human users, it additionally refers to their ability to perceive the experience as a simulation of interpersonal communication" (Kiousis, 2002, p. 372).

Interactivity has been (and still is) frequently researched in a variety of contexts, including business websites (Coyle and Thorson, 2001, Teo et al., 2003, Voorveld et al., 2011, Sutcliffe and Hart, 2017), online adverts (Bezjian-Avery et al., 1998, Sicilia et al., 2005, Johnson et al., 2006, Oh and Sundar, 2015), and electronic shopping platforms (Merrilees and Fry, 2003, Dholakia and Zhao, 2009, Jiang et al., 2010, Yoo et al., 2015, Beuckels and Hudders, 2016, Yoon and Youn, 2016). Researchers have defined interactivity and outlined its dimensions (Rafaeli, 1988, Steuer, 1992, Newhagen et al., 1995, Hoffman and Novak, 1996), created scales to measure it (Liu, 2003, Ghose and Dou, 1998, Wu, 1999), and investigated the expected outcomes of implementing it in mediated environments (Bezjian-Avery et al., 1998, Song and Zinkhan, 2008, Shih and Huang, 2012, Vendemia, 2017, Yu et al., 2017).

Indeed, interactivity is characterized by "its continued prominence in scholarly thought despite technological changes" (Rafaeli and Ariel, 2007, p. 71).This stems from its effective role in informing practice (Steuer, 1992), as marketers are willing to learn more about the concept in order to capitalize on its potential to satisfy their customers and gain a competitive advantage (Li et al., 2014, Chen and Yen, 2004). Therefore, more refined empirical investigations into interactivity will give the marketers insights into their consumers, how

their behaviours are influenced by the attributes of the communication technologies (Yadav and Varadarajan, 2005, Oh and Sundar, 2015), and how these technologies can be manipulated to achieve desired effects (Johnson et al., 2006, Bucy and Tao, 2007).

Thus, it becomes more important to continue explicating the concept in newer contexts, and to keep investigating its predictors and outcomes (Ksiazek et al., 2016, Vendemia, 2017, Oh and Sundar, 2015, Voorveld et al., 2011). This especially true as interactivity is a dynamic construct evolving over time to reflect changes in technologies and in users' experiences with and expectations of the technology (Kiousis, 2002, Kim et al., 2012, Voorveld et al., 2011, Tremayne, 2005, Shin et al., 2016, Vendemia, 2017, Cano et al., 2017a).

In fact, the earliest studies on mediated interactivity were prompted by the significant evolution of new media, including (but not limited to) the invention of the Internet (Jensen, 1998). This evolution altered the traditional mass communication model, giving consumers more control over the dialogue and changing their roles from passive receivers to active participants (Hoffman and Novak, 1996, Bezjian-Avery et al., 1998, Ha and James, 1998, Johnson and Kaye, 2016, Shin et al., 2016). These advancements highlighted the need for the elaboration of existing communication paradigms and the development of new ones to keep up with the vast changes in communication technologies (Durlak, 1987, Rafaeli, 1988, Kiousis, 2002, Rogers and Chaffee, 1983, Williams and Rice, 1983).

Rafaeli (1988), the author of one of the earliest and most influential research papers on interactivity, discusses this view:

> "*The common feeling is that interactivity . . . is something you know when you see it. This familiarity explains the fascination in studying interactivity, the attraction in finding more about qualities associated with new [media] arrangements*" (p.111).

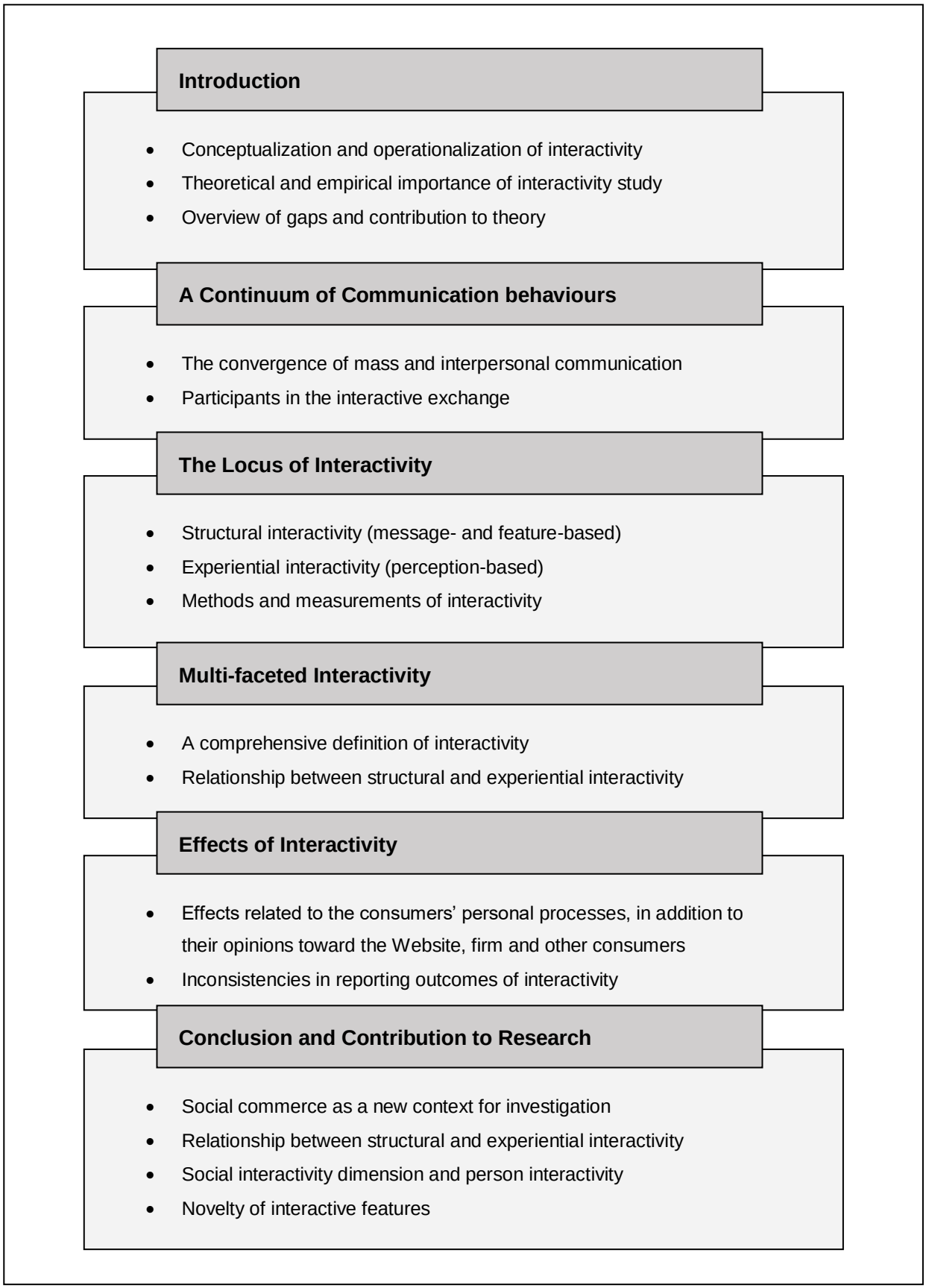
Analogously, the need to re-evaluate the concept of interactivity re-emerges with the growth of Web 2.0-based social and mobile technologies (Wolff, 2013). Web 2.0, a user-driven technological ecosystem, has changed online communication behaviours drastically (Wolff, 2013, Wilson et al., 2011, Murugesan, 2007). While earlier incarnations of the web were mostly static, and allowed for little participation (Rosen and Phillips, 2011, Butterfield and Ngondi, 2016), interactivity is integral to Web 2.0, as users are empowered to socialize (Ng, 2013), collaborate (Murugesan, 2007, Wilson et al., 2011), create content (Chandler and Munday, 2011), and share information and opinions with markers as well as with other consumers (Turban et al., 2016, Berthon et al., 2012).

One could question the urgency of investigating interactivity in the context of social technologies when the aforementioned capabilities for participation and contribution are not exactly a brand-new development. In fact, some of these functions have been around for at least the past 20 years (Curty and Zhang, 2011). However, a major limitation in both the seminal and recent of interactivity research papers is that they approached the concept either in contexts, or through methods, that allow for little human interaction, content creation, and engagement (e.g. Sicilia et al., 2005, Coyle and Thorson, 2001, van Noort et al., 2012, Sutcliffe and Hart, 2017, Bellur and Sundar, 2017). Even in the studies that addressed human relationships, the researchers usually focused on the consumer's interactions with the marketer and not with other consumers; therefore, neglecting to shed light on the social aspect of the interactive experience (e.g. Ha and James, 1998, Song and Zinkhan, 2008, Yu et al., 2017, Yoon and Youn, 2016).

The purpose of this chapter, then, is to present a theoretically grounded explication of interactivity, and use it to determine the research gaps that will act as a starting point to justify the empirical studies in the current thesis. This expansive discussion of interactivity will additionally aid in determining the contexts, dimensions, outcome variables, and methods of the upcoming studies.

As displayed in Figure 2.2, this chapter starts with discussing several communication paradigms and using them as a basis to conceptualize interactivity. The locus of interactivity is then introduced, along with three main approaches of operationalizing interactivity (i.e. message-connectedness, medium features, and participants' perceptions). An overarching framework of interactivity dimensions is presented, and methods for gauging interactivity are highlighted. After that, a comprehensive definition of the concept is discussed, followed by the expected outcome variables of interactivity. Finally, the research gaps which are addressed in different points throughout the chapter are listed and linked to the overall contribution of the present thesis.

Figure 2.2: Organization of the Literature Review Chapter



1. From Mass Communication to Interactivity: A Continuum of Communication Behaviours

Because mediated interactivity is fundamentally a communication concept (Steuer, 1992), several communication theories are considered in the literature tracking the origins of interactivity and its growth in new media. Particularly, an understanding of the mass and interpersonal communication perspectives, and how they relate to one another, promises to provide useful insights on the nature and development of interactivity (McMillan, 2002). This is especially important as "interactive communication represents a historical turning point away from the one-way mass transmission" (Rogers and Chaffee, 1983, p.56).

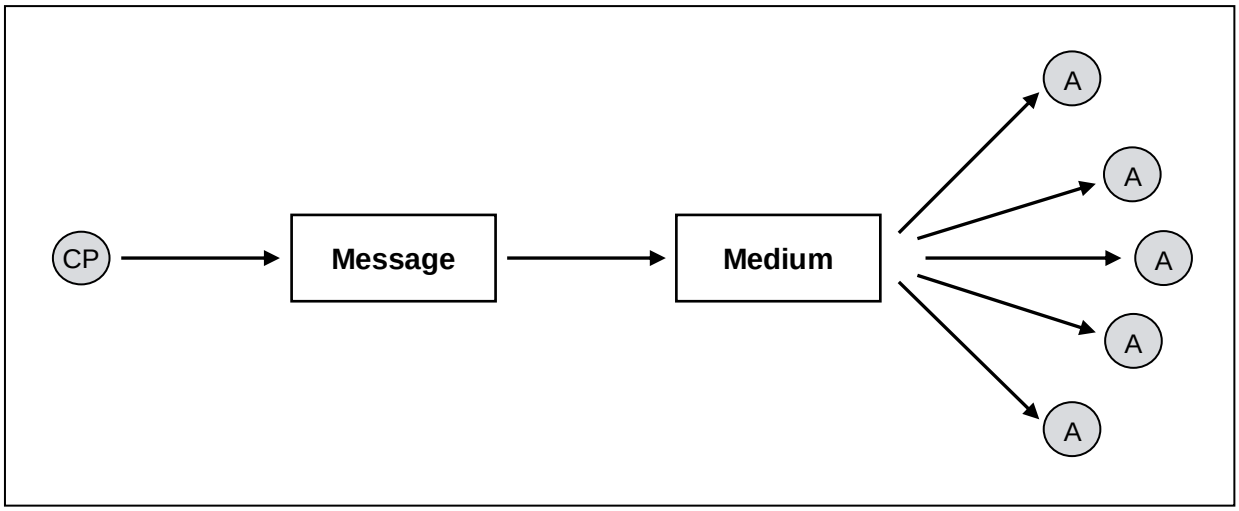
1.1 Mass Communication

Mass communication is "the propagation of a single message from a central point to a large highly dispersed audience, with no ready means for viewer response" (Newhagen et al., 1995, p.165). The aforementioned central point, which creates and sends the messages, could be a firm targeting current and potential customers through advertising (Hoffman and Novak, 1996), or a television network presenting a program to its viewers (Heeter, 2000).

The traditional model of mass communication played a major role in communication research and practice for a long time, especially as the available technologies (e.g. printed media and television) did not include built-in feedback channels (Jensen, 1998). Even if the possibility of feedback could somehow be incorporated into the mass communication framework, like listing a mailing address to the newspaper editor, the communication would still not considered interactive (Heeter, 1989, Rafaeli, 1988). In such a situation, control over the exchange remains with the original message broadcaster (Ariely, 2000), as the ability to send a letter to the editor does not necessarily mean that the latter will provide a meaningful response to it (McMillan, 2002b). Consequently, "the cost and inconvenience associated with such a simple interaction prevent both the newspaper and its readers from interacting on a large scale" (Wu, 2005, p. 30).

Figure 2.3 depicts a simplified mass communication model, in which a message is generated by a central point (CP) and disseminated through the medium to a mass audience (A). As already discussed, in this model, the messages move in one direction from sender to receiver and a feedback option is usually non-existent (Heeter, 1989, Ha and James, 1998).

Figure 2.3: Model of Mass Communication



Note: CP= Central Point; A= Audience. Adapted from Hoffman and Novak (1997)

1.2 Interpersonal Communication

A new paradigm emerges when forms of interpersonal conversations, which have traditionally been unmediated, are facilitated by new communication media (Heeter, 1989, Cho and Cheon, 2005). Here, two or more people are able to send and respond to messages through the medium, "eliciting information from both parties and attempting to align interests and possibilities" (Bezjian-Avery et al., 1998, p.23).

Interpersonal communication differs from mass communication in two main ways; (1) its integration of feedback channels that encourage the *responsiveness* of the communication parties (Hoffman and Novak, 1996, Schultz, 1999), and (2) the communication participants' *control* over the timing, content and structure of the conversation, as they assume the interchangeable roles of senders and receivers (Williams et al., 1988, Rogers and Chaffee, 1983). Consequently, *responsiveness* and *control* are regarded as two key characteristics of mediated interpersonal conversations. This is a stark contrast to role of the audience in the mass communication paradigm, which sees them as passive receivers of messages with limited opportunity to respond (Newhagen et al., 1995).

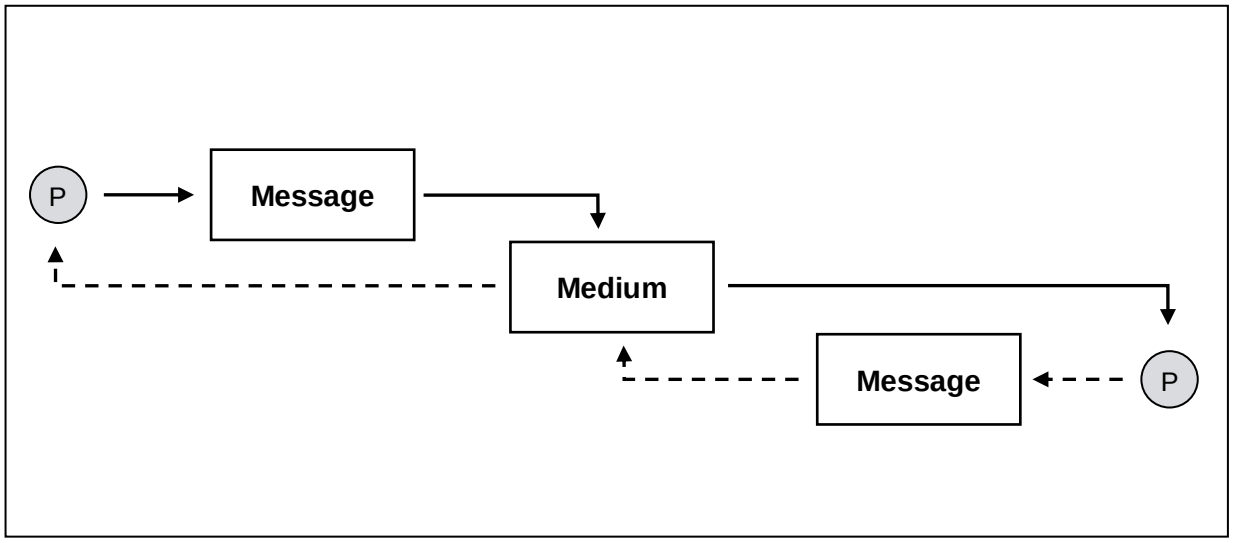
Table 2.1 highlights the two main elements that set these two paradigms apart, namely; the distribution of *control* between the participants and *responsiveness* of messages in the conversation.

Table 2.1: A Comparison of Interpersonal and Mass Communication

Characteristic	Interpersonal Communication	Mass Communication
Distribution of control	Equal control for all communication participants	Control lies with the central point of communication
Direction of messages (Responsiveness)	Two-way (Responsive)	One-way (Passive)

Figure 2.4 depicts a simplified model of interpersonal communication, in which two participants (P) exchange messages through a mediated environment (Jensen, 1998). In this model, the messages move back and forth between the two communication parties, as illustrated by the solid and dashed arrows (Hoffman and Novak, 1996).

Figure 2.4: Model of Intepersonal Communication



Note: P= Participant. Adapted from Hoffman and Novak (1997)

1.3 A Continuum of Communication Behaviours

Because they have always existed in different types of media, the mass and interpersonal communication paradigms were traditionally studied in separate university departments and examined using different methods within the realm of communication research (Jensen, 1998, Rogers and Chaffee, 1983). Specifically, experimental and survey methods were used to gauge mass communication, while observational methods were used to investigate interpersonal communication (Rogers and Chaffee, 1983). However, with the advancements

in communication technologies, the differences between these two are diminishing as they occur side-by-side in new media and borrow attributes from one another (Vendemia, 2017, Williams and Rice, 1983, Yadav and Varadarajan, 2005).

For instance, a promotional advert posted by an organization on social media could be regarded as mass communication, as the organization is targeting an undifferentiated audience with a unified message. At the same time, the replies and conversations that ensue (whether between consumers or between consumers and the organization) as a result of this advert fit the description of interpersonal communication (Figure 2.5).

Figure 2.5: The Convergence of Mass and Interpersonal Communication in Social Media

Source: facebook.com/tesco/

This convergence between the mass and interpersonal perspectives (Rafaeli and Ariel, 2007) presented a challenge to researchers when it came to conceptualizing communication in new media, because these two concepts have always been researched separately (Jensen, 1998). Indeed, the need arose for new and updated paradigms to help understand interactive communication, as the existing theories appeared to be insufficient (Rogers and Chaffee, 1983). As a result of this, researchers like Durlak (1987), Rafaeli (1988), and Williams and Rice (1983) suggested that instead of approaching them independently, the mass and interpersonal paradigms should be investigated as a part of a continuum of interactive communication behaviours.

Hence, in the context of mediated communication, if the impersonal mass communication is one extreme of the continuum (Bucy and Tao, 2007), is interpersonal communication in the other extreme, and a synonym to interactivity? To some researchers, the answer appears to be yes; interactivity is a form of mediated interpersonal communication (Ha and James, 1998, Morris and Ogan, 1996, Zhao and Lu, 2012). In other words, interactivity echoes the interpersonal model in terms of facilitating responsive communication exchanges between two or more people who are of equal control over the exchange (McMillan and Hwang, 2002). From this perspective, face-to-face conversations are considered the ultimate ideal for mediated interactivity (Williams et al., 1988, Fortin and Dholakia, 2005, Sundar et al., 2016) because of their "same-time, participative, [and] informationally rich" nature (Burgoon et al., 2000, p.558).

However, it is worth noting that to consider face-to-face exchanges as the standard to which interactivity is compared, is to disregard important attributes of mediated interactivity, such as the possibility of asynchronous communication (Ha and James, 1998, Liu and Shrum, 2002). The face-to-face conversation ideal also harbours the potential of being surpassed by upcoming communication technologies, which are expected to facilitate higher and more complex levels of interactivity (Burgoon et al., 2000, Williams et al., 1988). Moreover, defining interactivity from a strict interpersonal, face-to-face perspective overlooks the existence of different types of communication participants. Alba et al. (1997) proposes that interactivity "captur[es] the quality of two-way communication between two parties" (p.38). These two parties can be, according to Williams et al. (1988), "at least one individual communicating with at least one source of information, or two or more individuals using a common medium" (p.11).

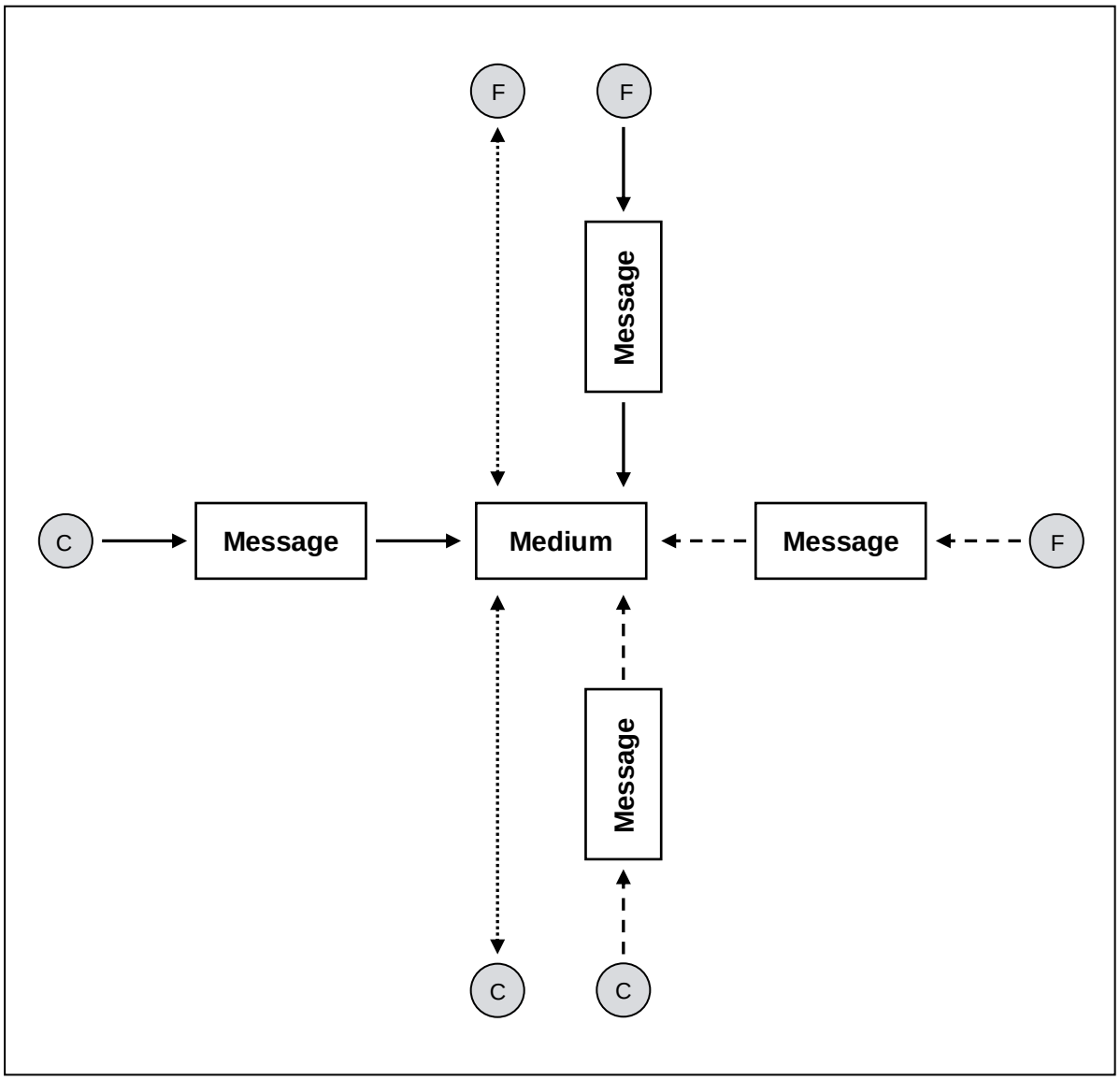
Therefore, a participant's interactions with a medium or system are similarly considered a form of interactive communication (Heeter, 1989, Ariely, 2000, Oh and Sundar, 2015, Wang et al., 2007, Kiousis, 2002, Durlak, 1987, Sundar, 2007). In such a communication exchange, the participant has the freedom to navigate the system and even contribute to it (Steuer, 1992, Jensen, 1998, Lombard and Snyder-Duch, 2001), while the system is expected "to 'talk back' to the user, almost like an individual participating in a conversation" (Rogers, 1986, p. 34 as cited in Jensen, 1998). Interestingly, the two defining characteristics of interpersonal interactivity (i.e. control and responsiveness) apply in this situation, but with the medium as the other participant in the communication. Challenging the position which considers emulating face-to-face communication the ultimate goal of interactivity (Sundar et al., 2016), researchers regard participant's communication with a system as interactive as a conversation he or she would have with another person through it (Stromer-Galley, 2004). It is a different type of interactivity that adds value by capitalising on the responding medium's own unique attributes (Liu and Shrum, 2002, Williams and Rice, 1983).

Based on this discussion of the communication-based perspective, interactivity is conceptualized as:

> "*The degree to which a communication system can allow one or more end-users to communicate alternatively as senders or receivers with one or many other users or communication devices . . . where the content, timing and sequence of the communication is under control of the end-user*" (Fortin and Dholakia, 2005, p. 388).

Figure 2.6 illustrates the various interactive communication choices available on new media, as carried out by different participants (Hoffman and Novak, 1996). The convergence between the mass and interpersonal paradigms is observed, as human participants (e.g. firms and consumers) have the power to send messages to an audience through the medium (solid arrows). However, with the capabilities of new media, participants in the communication are able respond to messages sent by others (dashed arrows) and communicate back and forth with the medium (dotted arrows). The interactive communication model, hence, encapsulates one-to-one, one-to-many and many-to-many communication perspectives, both with the medium itself and with other human participants through the medium (Kiousis, 2002).

Figure 2.6: Model of Interactivity in New Media



Note: F= Firm; C= Consumer. As Adapted from Hoffman and Novak (1997)

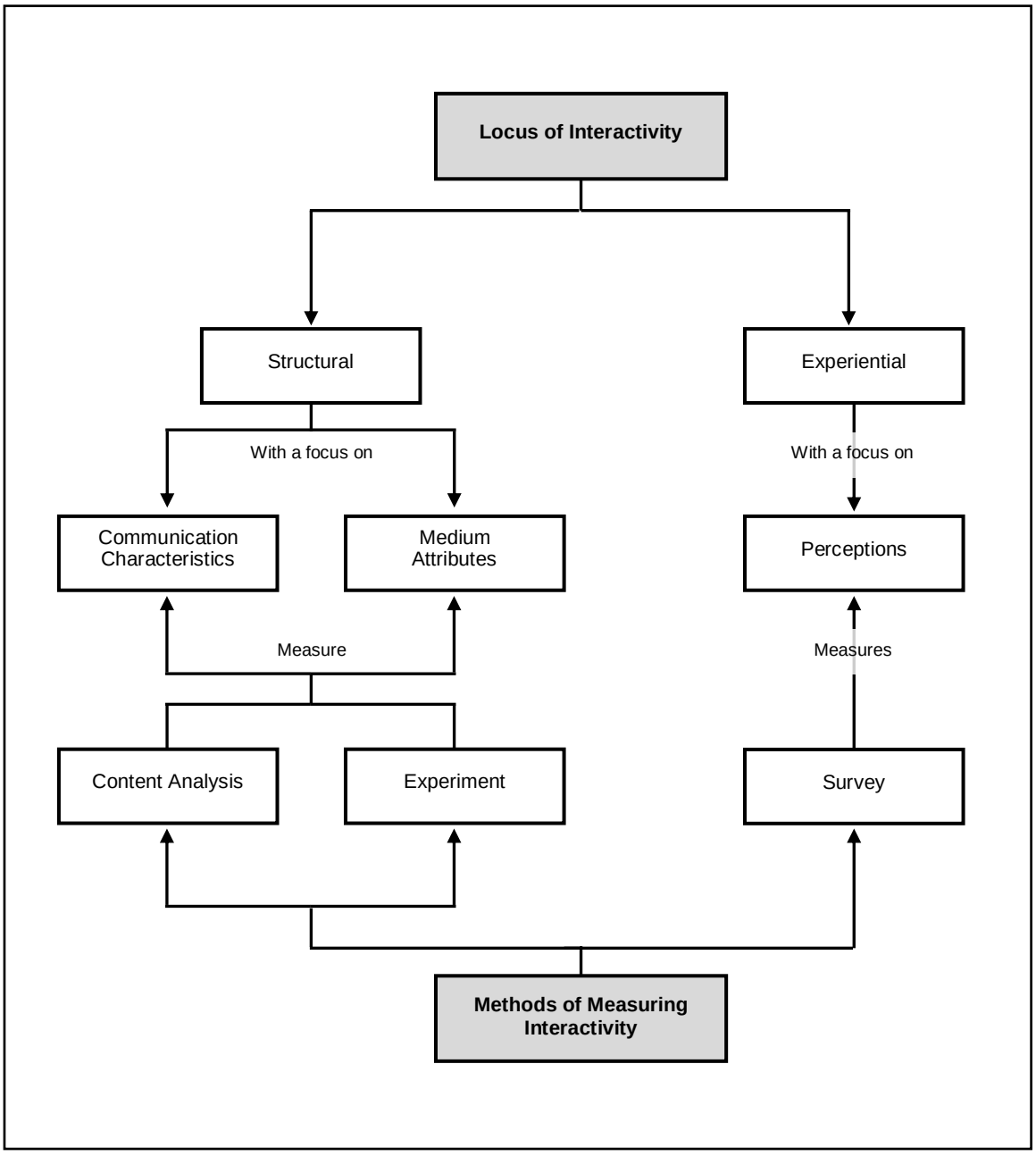
2. The Locus of Interactivity

Thus far, it has been established that interactivity involves communication happening between participants through, as well as with, the medium. The next critical point to address is where interactivity resides, and subsequently its unit of measurement (Liu and Shrum, 2002, Bucy, 2004). Any ambiguity relating the operationalization of interactivity is an indication of problems in defining the concept and could lead to unreliable research findings (Bucy and Tao, 2007, McMillan and Hwang, 2002, Liu, 2003).

According to past research (Figure 2.7), interactivity can be approached from a structural point-of-view, as either involving communication processes or medium features (Kiousis,

2002, Liu and Shrum, 2002). In the first, interactivity is examined by observing the connectedness of the messages exchanged between the communication participants (Rafaeli and Sudweeks, 1997), while in the latter; the focus is on system properties that facilitate the interactive communication (Stromer-Galley, 2004). From the structural perspective, interactivity is probed objectively using experimental and content analysis methods. Interactivity can be additionally approached from an experiential viewpoint as users' perceptions of their interactive experiences (Wu, 1999). From this perspective, researchers use survey methods to gauge interactivity as it resides in the consumers' minds (Kiousis, 2002, McMillan, 2000a).

Figure 2.7: Operationalizations of Interactivity



2.1 The Structural View of Interactivity

2.1.1 Structural Interactivity: Characteristic of Communication

In this research tradition, interactivity is regarded as a characteristic of the communication exchange and is investigated by adopting a message-centric perspective independent of devices and technology (Dholakia et al., 2000, Yadav and Varadarajan, 2005, Rafaeli and Ariel, 2007). Particularly, it focuses on how the reciprocal messages within a communication episode relate to each other, both in the cases of synchronous and asynchronous communication (Fortin and Dholakia, 2005, Liu, 2003, Sundar et al., 2014, Kiousis, 2002).

Expanding on this view, Rafaeli (1988) points out three levels of interactivity as a characteristic of communication; full interactivity, quasi-interactivity, and no interactivity. He, then, compares between these three levels in terms of (1) the extent to which they facilitate the participants' control over the conversation, and (2) the level of responsiveness of these conversations. It's key to note that these two criteria (i.e. control and responsiveness) correspond to the defining characteristics of interactive communications, discussed earlier in this chapter.

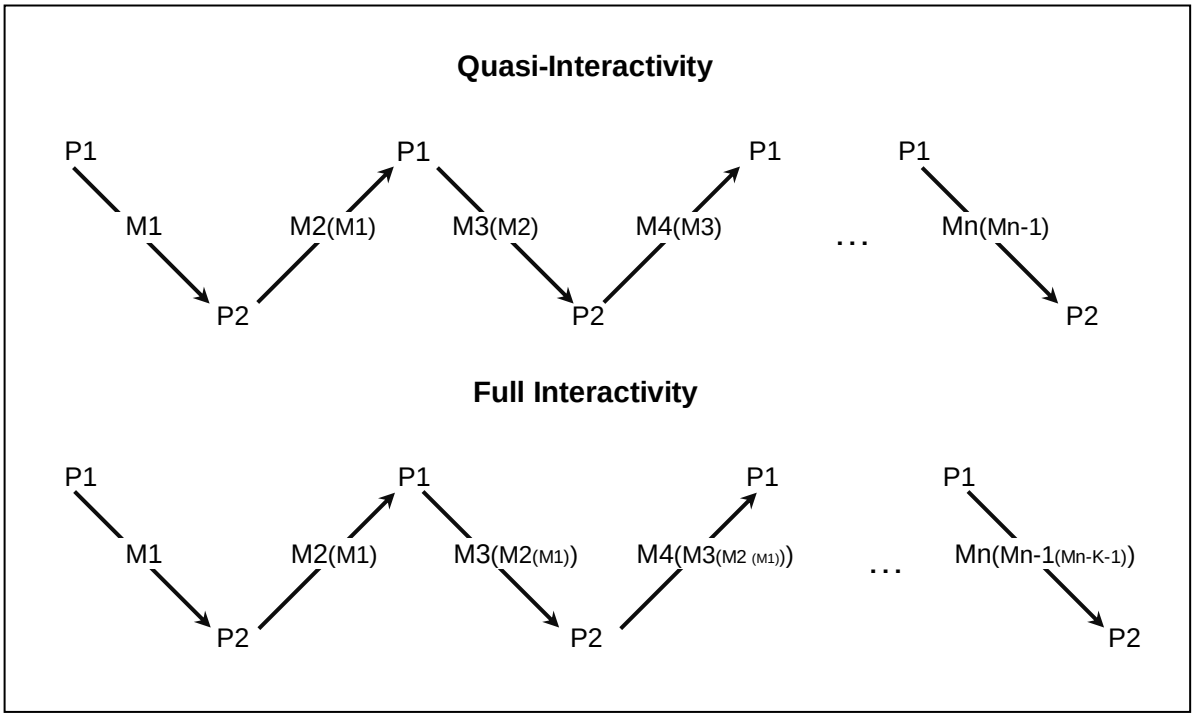
Indeed, according to Rafaeli (1988), if a consumer has no control over the online conversation, then it cannot be characterized as interactive. However, when the control condition is fulfilled, the conversation can be characterized as either fully interactive or quasi-interactive. What sets the two apart is the content of the exchanges within each.

In a fully interactive conversation, the messages exchanged will display continuity by citing content and information from earlier messages, while the content of a quasi-interactive conversation will not necessarily be connected (Yadav and Varadarajan, 2005, Williams et al., 1988, Rafaeli and Sudweeks, 1998). From this perspective, interactivity is approached as "the extent that in a given series of communication exchanges, any third (or later) transmission (or message) is related to the degree to which previous exchanges referred to even earlier transmissions" (Rafaeli, 1988, p. 111).

Figure 2.8 depicts a comparison between quasi- and fully-interactive communication from the message-based viewpoint. In the quasi-interactivity example, the messages (M) flow back and forth between the two conversation participants (P), meaning that the condition for control is fulfilled. Still, the content of the messages in this here is not determined by earlier conversations, and therefore message dependency is not achieved. In the full interactivity

example, however, not only do the communication participants have equal control over the conversation, the content of the messages they exchange is contingent on prior communication. Consequently, this case fulfills both conditions for achieving full interactivity from a communication perspective.

Figure 2.8: A Comparison between Quasi- and Full Interactivity



Note: P= Participant, M=Message. Adapted from Rafaeli and Sudweeks (1998)

Critique of the communication-based view of interactivity:

As discussed in the beginning of this chapter, interactivity was prompted by the emergence of new media that required the re-evaluation of the existing communication paradigms and the introduction of new ones (Sundar et al., 2016, Rogers and Chaffee, 1983). Still, the message-based perspective asserts that interactivity is not a characteristic of the mediated environment, but that of the communication exchange.

Rafaeli (1988) minimizes the role of media in facilitating interactivity, maintaining that they "may set upper bounds, remove barriers, or provide necessary conditions for interactivity levels. But potential does not compel actuality" (p.119). Bretz (1983) similarly contends that the "effectiveness of a message depends on how well the message is expressed by the sender and understood by the receiver, and usually only secondarily on the characteristics of the medium" (Bretz 1983, p.26 as cited in Durlak, 1987). Finally, Rafaeli and Ariel (2007) assert

that studying interactivity within a specific new technology "does not necessarily create new concepts, although it can highlight some" (p.71).

This notion of overlooking the role of new communication technologies is criticized in the literature as presenting a restricted and outdated approach to interactivity (Steuer, 1992, Kiousis, 2002). This especially striking, as the applicability of the message-based perspective is not necessarily limited to conversations happening between human participants. According to Oh and Sundar (2015), to achieve full interactivity in human-to-medium communications, the medium is expected to "be capable of accounting for previous messages from the user as well as those preceding them so that it can contingently respond to user's input" (p.217).

Another major shortcoming in investigating interactivity as a characteristic of communication is the way it is empirically tested in prior research. Although the literature clearly states that this view is established in message dependency; its empirical operationalizations fail to capture this prerequisite. A number of prior research papers locate their investigation in the context of messages sent from consumers to an organization. They then observe the existence (or lack thereof) of a reply to the consumers' messages (Brewer et al., 2016, Lee and Park, 2013) and the extent to which those replies are personalized (Song and Zinkhan, 2008, Li et al., 2014, Burton and Soboleva, 2011, Lee and Shin, 2012). In other cases, the number of comments on social media posts is used as an indication of the level of message-based interactivity (Ksiazek et al., 2016, Jahng and Littau, 2016).

Clearly, the abovementioned examples investigate quasi-interactive exchanges consisting of a message and reply instead of reflecting a "fully interactive communication [that] only takes place when reference to a message can be traced back two messages earlier in a communication stream" (Newhagen, 2004, p.397). These difficulties faced by researchers in locating the concept might be due to the fact that the message-based view sets a remarkably high standard for interactivity (Bucy, 2004). Indeed, the strict rules of message interconnectedness renders most communication exchanges only quasi-interactive and turns interactivity into a rare, unattainable concept (Bucy and Tao, 2007).

Because of the challenges in operationalizing message-based interactivity in prior research, in addition to its propensity to discount the role of new technologies in influencing the consumers' interactive behaviours, this perspective will not be considered when operationalizing interactivity in the thesis's empirical studies. This decision is further

supported by the fact that the researcher aims to offer a contextual contribution in terms of examining social commerce through the lenses of interactivity, on top of the theoretical contribution of investigating the evolution of interactivity and its influences in social technologies.

Consequently, in place of message-based interactivity, the other two views of interactivity which are subsequently discussed in this chapter (i.e. as an attribute of the medium and as a perception) are adopted to examine the concept of interactivity in this thesis' empirical studies.

2.1.2 Structural Interactivity: Attribute of the Medium

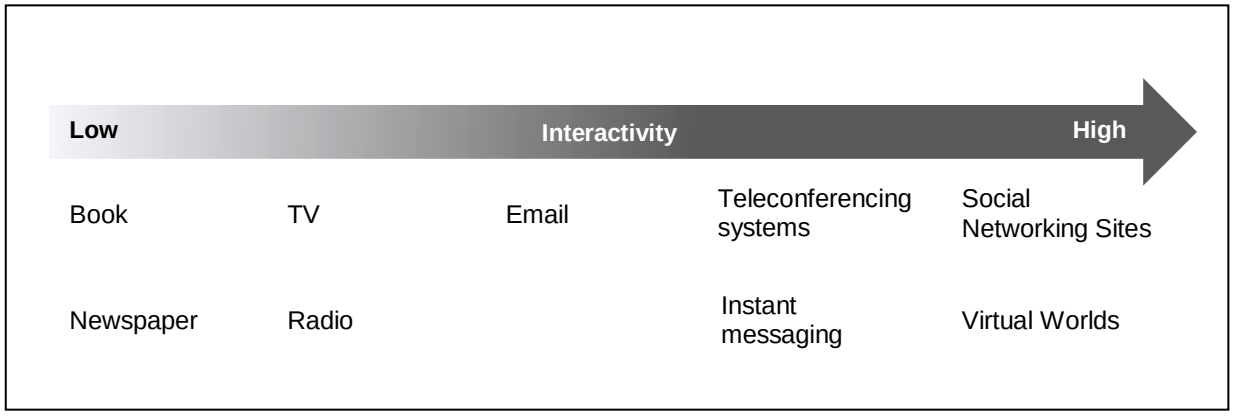
This perspective is alternatively termed the technical (Rodríguez-Ardura and Meseguer-Artola, 2016), device-centric (Yadav and Varadarajan, 2005), or feature-based interactivity (Song and Zinkhan, 2008).

While the message-based view focuses on the characteristics of the communication exchange and minimizes the role of media in facilitating interactivity (Rafaeli, 1988), the feature-based view is a "stimulus driven variable, . . . determined by the technological structure of the medium" (Steuer, 1992, p.14).

The feature-based perspective was similarly prompted by the advent of new communication technologies and their potential of enabling high levels of interactivity (Lombard and Snyder-Duch, 2001, McMillan, 2002). Accordingly, it is suggested that different communication media will facilitate different levels of structural interactivity; depending on the quality and quantity of the interactive features they carry (McMillan and Hwang, 2002, Steuer, 1992, Wu, 2005).

As depicted in figure 2.9, while email facilitates relatively limited interactivity in the form of asynchronous written conversations, social networking sites present an immersive interactive experience with a variety of options to navigate and modify the environment, and to socialize with other participants.

Figure 2.9: Communication Media Classified by Interactivity



Adapted from Steuer (1992)

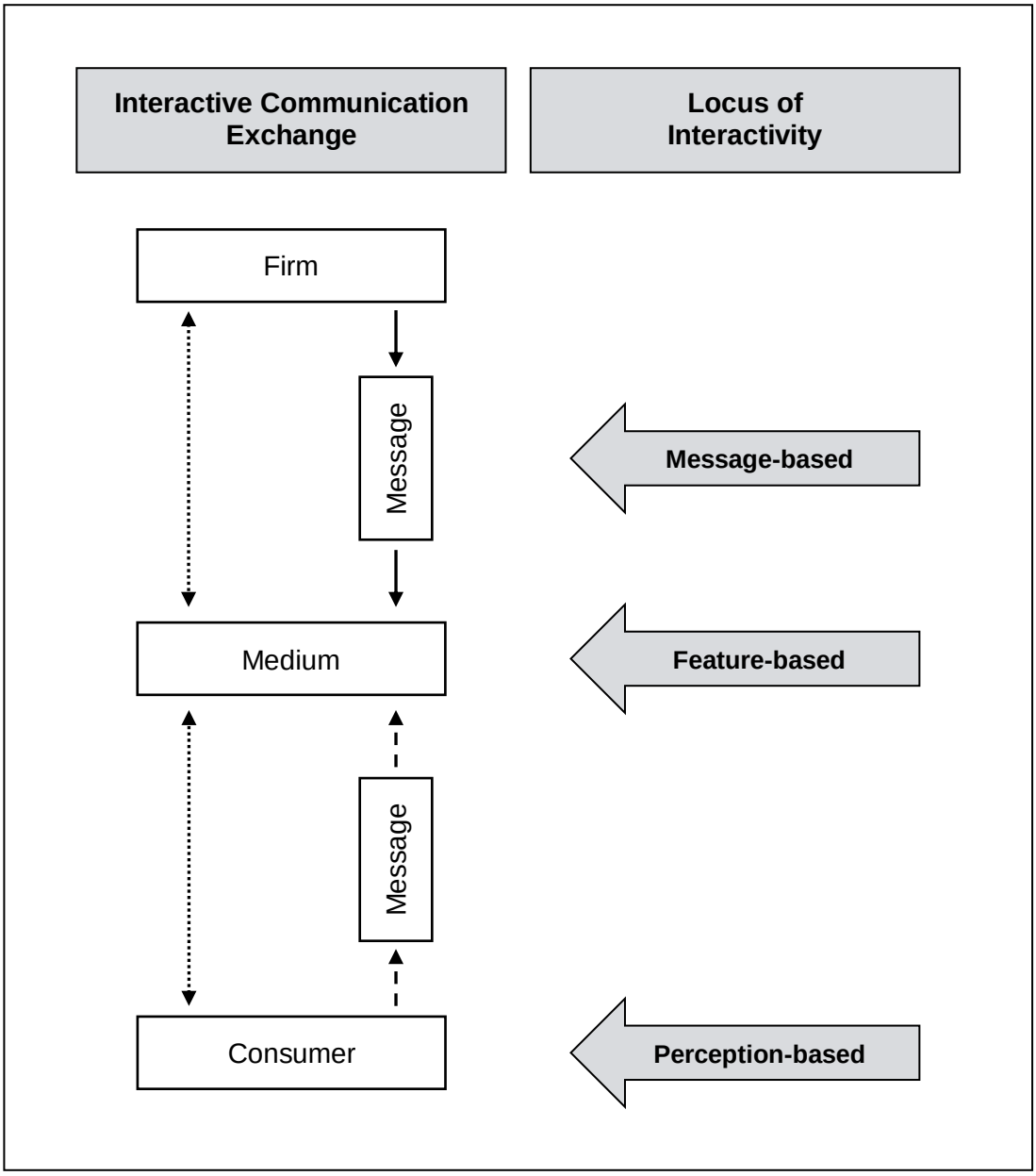
It is interesting to note that the interactive features examined from a technical perspective reflect different types of relationships as they occur between the participants in the interactive communication. For example, in their investigation of interactivity in global brand websites, Voorveld et al. (2011) analyse these websites for the existence of interactive features that reflect a consumer's interaction with the firm (e.g. feedback form, live customer service), as well as with other consumers (e.g. user group, online game against other players). They additionally explore the availability of features that facilitate the interactivity between a consumer and the website, in terms of choice and navigation (e.g. drop-down menus, choice of colour and font).

The notion of separating the discussion regarding the interactive communication participants (i.e. humans, systems) from the discussion relating to the locus of interactivity (i.e. structural, experiential) helps avoid falling in the trap of confusing the two. Indeed, several earlier studies made the mistake of limiting the applicability of message dependency to conversations happening between human participants (e.g. Rafaeli, 1988), and restricting technical interactivity to interactions occurring between a person and a medium (e.g. Steuer, 1992). However, as already highlighted in this chapter, both the message- and feature-based views can be applied to conversations transpiring between people with each other, as to those between people and communication media.

Figure 2.10 illustrates that an interactive conversation, be it occurring between human participants through the medium (solid and dashed arrows) or with the medium (dotted arrows), can be empirically approached by (1) examining the connectedness of the messages exchanged in the interactive conversation, (2) quantifying the interactive features of the medium in which the interactive exchange is happening, or (3) asking the communication

participants about their interactivity perceptions. Perceptions are the third view of operationalizing interactivity and will be discussed later in this chapter.

Figure 2.10: Conceptualizations and Operationalizations of Mediated Interactivity



Critique of the feature-based view of interactivity:

One of the arguments against examining interactivity as a property of the medium is that it has "a tendency toward obsolescence and being quickly out-dated by technological developments" (Jensen, 1998, p.192). However, technical interactivity scholars assert that this is to be expected in this direction of study (Durlak, 1987), because "communication

research has largely been one of response to technological innovation" (Rogers and Chaffee, 1983, p. 20).

Interactivity will certainly evolve with the introduction of new media (Voorveld et al., 2011, Kim et al., 2012), which will necessitate continuous efforts to understand its most novel attributes and how they impact consumers' perceptions and behaviours (Bucy, 2004, Vendemia, 2017, Coursaris and Sung, 2012). In the same vein, McMillan (2002) contends that some of the earlier message-based studies fail to recognize the role of the medium in defining interactivity mainly because they were authored before the prevalence of highly interactive new media, such as the Internet.

Another critique directed at the feature-based view is that it sidelines the human communication participants and overlooks their contribution to understanding interactivity (Rafaeli, 1988, Wu, 1999). This limitation is overcome by adopting a multi-faceted operationalization of interactivity; including both the medium's objective attributes and the participants' subjective perceptions (Kiousis, 2002). The multi-faceted approach to interactivity is discussed later in further detail in this chapter.

2.1.3 Dimensions of Structural Interactivity

In her theoretical discussion of the concept, Heeter (1989) suggests six key dimensions of structural interactivity; complexity of choice, efforts users must exert, responsiveness to the user, monitoring information use, ease of adding information, and facilitation of interpersonal communication. In his respective study, Steuer (1992) proposes that interactivity should be operationalized using a different set of dimensions, namely; speed of response, range, and mapping. An evaluation of the literature reveals numerous other dimensions suggested by researchers as imperative in establishing the concept; navigability (Chan and Li, 2010), accessibility (Lee et al., 2004), modifiability (Lombard and Snyder-Duch, 2001), and media richness (Koolstra and Bos, 2009) are some of them.

This multiplicity of the suggested dimensions complicates the efforts of operationalizing interactivity, especially when they are presented in research with vague boundaries and little theoretical reasoning (Johnson et al., 2006, Kiousis, 2002, Jensen, 1998, McMillan and Hwang, 2002). For example, Ha and James (1998) present choice, playfulness and connectedness among the five interactivity dimensions they observed in business websites. They define choice as the options available for interaction and navigation on a website, and

playfulness in terms of a website's "games and curiosity arousal devices" (p.461). Moreover, they approach connectedness as the user's ability to jump from one place to another using the hyperlinks available on the website. Based on their description, it appears that playfulness and connectedness can be encompassed within the choice dimension, as together they represent options for interaction and navigation.

It is similarly problematic when authors use the same dimension to allude to different concepts, which could lead to confusion in hypothesizing and inconsistent research findings. For example, Johnson et al. (2006) approaches reciprocal communication as "the number of exchanges [the participant] had with the web page" (p.50); while Liu and Shrum (2002) defines the same concept in terms of two-way communication between human participants.

Accordingly, the need arises for a theoretically driven, parsimonious framework combining the different structural interactivity dimensions, while steering away from overlap and contradiction (McKelvey, 1975). The main goal of such a framework is to ultimately guide the researcher in operationalizing interactivity in the empirical studies, presented later in the thesis.

As already discussed and depicted in Figure 2.10, both forms of structural interactivity (i.e. message- and feature-based) are used to approach interactivity; as it occurs between people through the medium, or between people and the medium itself. These communication participants act the criteria for categorizing the many dimensions of structural interactivity. Based on their conceptualization and operationalization (as quoted from their original papers) the different interactivity dimensions are arranged in a matrix comprised of two axes. Each axis represents the two parties that are able, according to theory, to partake in mediated interactive communication (Williams et al., 1988).

The matrix (Table 2.2) illustrates that the interactive dimensions, cited in prior research, can be sorted into three main categories; (1) human-to-human interactivity (including consumer-to-consumer, consumer-to-marketer, marketer-to-consumer), (2) human-to-system interactivity (including consumer-to-features, consumer-to-content), and (3) system-to-human interactivity. A fourth, more controversial category, i.e. system-to-system interactivity, is also briefly discussed in the literature. This categorization follows the tradition of a number of past research papers which similarly identified their dimensions in terms of the different parties participating in an interactive conversation (e.g. Cho and Cheon, 2005, Ko et al.,

2005, Zhao and Lu, 2010, Liao and Keng, 2013, Hoffman and Novak, 1996, Chang and Wang, 2008).

Note that in Table 2.2, a few researchers' names appear underlined. This is to distinguish the studies that investigate interactivity from a message-based perspective from the rest of the papers, which approach the concept as an attribute of the medium. Interestingly, the vast difference between their respective numbers, as observed in Table 2.2, reflects the fact that structural interactivity is the leading objective interactivity perspective in current research. Indeed, several researchers go as far as using the term 'objective interactivity' to solely refer to the structural perspective rather than to the message-based perspective of interactivity (e.g. Stromer-Galley, 2004).

In accordance with the classification development recommendations by Nickerson et al. (2013), this matrix represents an overarching framework that is able to accommodate the many interactivity dimensions suggested through years of study, and those which will be proposed as interactive technologies grow. This way, no dimension is excluded or narrowly conceptualized to fit a limited predefined category. For example, in the matrix, reciprocal communication falls in both the human-to-human and human-to-system dimensions depending on how it is defined in different research papers. Thus, the potential of each dimension in informing research is recognized and appreciated (Stromer-Galley, 2004).

Finally, this categorization allows the researchers to adjust their operationalizations of interactivity to fit to their specific contexts of investigation. For example, in the second empirical study in the thesis, the researcher gauges a consumer-managed online community as a specific type of social commerce and therefore utilizes consumer-to-consumer interactivity dimensions. She excludes the consumer-to-marketer and marketer-to-consumer categories as they are beyond the scope of the study. The different categorizations in the matrix are explained next.

A: Human-to-human interactivity:

From the many dimensions introduced in the literature, human-to-human interactivity (or person interactivity) emerges as a major contributor to mediated interactivity, mainly reflecting the interpersonal communication perspective (Zhao and Lu, 2012).

Reciprocal conversations occurring between human participants through the medium are explored in this section (Teo et al., 2003, Bucy, 2004b, Hoffman and Novak, 1996, Fortin and

Dholakia, 2005); whether these conversations are among consumers, or between consumers and marketers (Cho and Cheon, 2005). In this sense, a consumer is the general every-day user of the communication platform, as opposed to the marketer, whose main goal of using the platform is to propagate marketing messages and engage the consumers with them.

Consumer-to-consumer interactivity is any communication or interactions happening between two or more consumers mediated by the platform (Ksiazek et al., 2016). These interactions can take the form of one-to-one online chats, one-to-many blog posts, and even multi-user online games (Kiousis, 2002), and are expected to help the consumers achieve connectedness by "build[ing] a sense of community" with each other (Dholakia et al., 2000, p.8).

It is key to note that this type of interactivity has long been overlooked in the literature, in comparison to the widely researched consumer-to-marketer interactivity (Cho and Cheon, 2005, Vendemia, 2017). This could be due to the fact that communication technologies did not facilitate a high level of consumer-to-consumer interactions until the recent growth of social media (Kietzmann et al., 2011). Since consumer-focused social commerce is the context of the present thesis, the researcher prominently features consumer-to-consumer elements when empirically operationalizing interactivity, thus contributing to bridging the aforementioned research gap and shedding light on the evolution of interactivity in social technologies.

Consumer-to-marketer interactivity is similar to the previous sub-category, but with the mediated interactivity occurring between a consumer and a representative of the firm (Wu and Chang, 2005). From this perspective, the customer approaches the firm asking questions or providing feedback and information (Liu and Shrum, 2002, Ko et al., 2005), starting "a reciprocal communication loop" between the two (Ha and James, 1998, p.463). After that, it is up to the firm to facilitate their consumers' interactivity by responding to their queries and messages (Massey and Levy, 1999). This leads to the next category.

In *marketer-to-consumer interactivity*, the marketer or the firm is the initiator of the interactive conversation. As opposed to most of the other categories already discussed (and which will be discussed shortly), this perspective extends beyond the average consumer's interactivity through (and with) the system. Instead, marketer-to-consumer interactivity focuses on how the firm can facilitate the interactive functionalities available on the medium to communicate with, and learn more about, their customers. From this perspective, marketers aim at engaging their customers with the content and information they offer them.

They facilitate several features to monitor their customers' online interactivity (Heeter, 1989, Liu and Shrum, 2002), and then use the information collected in "tailor[ing] messages to the interests and prior knowledge levels of the audience" (Ha and James, 1998, p.463).

B: Human-to-system interactivity:

Within this category of interactivity, the system offers "not only the possibility for idiosyncratic navigation within the site but also opportunities to engage with the medium in a myriad ways" (Sundar, 2007, p. 90).

Indeed, the dimensions that fall in this category describe different attributes related to a person's relationship with the communication medium. They can be further classified into dimensions describing the person's use of the system's interactive features (Bucy, 2004b), and his or her ability to contribute to or modify the content available on the medium (Teo et al., 2003). Again, since the thesis approaches the concept from an average consumer's point-of-view, the focus in the present research on the consumer's (and not the marketer's) interaction with the system.

Consumer-to-features interactivity describes how the consumers manage their navigation and deal with the various choices afforded to them by the system. Jensen (1998) discusses systems that are high in interactivity in terms of choice, explaining that these systems are "characterized by the user having the frequent ability to act, having many choices to choose from, choices that significantly influence the overall outcome" (p.196). This type of interactivity is gauged from a feature-based perspective as the existence of different options in the website for the consumer to choose from, including a personal choice helper, virtual reality display, and interactive games (Cho and Cheon, 2005).

In *Consumer-to-content interactivity,* the user's relationship with the medium can be manifested in their interactions with the content (Ko et al., 2005). From this perspective, the level of a medium's interactivity is gauged on the one hand "by the diversity of the content it serves to consumers" (Massey and Levy, 1999, p.140), and on the other hand by the consumer's ability to modify and contribute to the content presented in the system (Cho and Cheon, 2005, Liu and Shrum, 2002, Steuer, 1992, Sundar et al., 2014).

Human-to-system interactivity has been long examined in terms of the variety of features and content available for the consumers to explore (McMillan, 2000a, Ariely, 2000, Teo et al., 2003, Jiang et al., 2010), and less by the consumers' ability to modify and contribute to

content (Larsson, 2011, Chung, 2008) . Again, this might have been because the capabilities of earlier technologies didn't afford such attributes. To contribute to bridging this gap, and in line with this thesis' evolution of interactivity theme, the researcher includes a variety of content creation options when operationalizing structural interactivity in the empirical studies of the current thesis.

C: System-to-human interactivity:

So far, the researcher examined the human participants' activities facilitated by the interactive system; their communication with other humans (be it with other consumers or with marketers), and their interactions with the system (be it their ability to choose from different features or to manipulate content). However, from the system-to-human perspective, the focus is on the system's reactions to the human's actions while using it.

An important part of this category lies in the system's responsiveness to the users' inputs, or "the degree to which a communication exchange [between a person and a medium] resembles human discourse" (Heeter, 1989, p.223). A related dimension here is speed, which refers to the rate at which the system processes the consumer's inputs and responds to them (Alba et al., 1997, Steuer, 1992). Although some researchers suggest that real-time responsiveness is the highest level of interactivity there is (Alba et al., 1997, Dholakia et al., 2000); other researchers note that consumers might prefer the freedom allowed by asynchronous communication (Downes and McMillan, 2000). The system-to-human interactivity is an important category in research. However, since the thesis at hand is not experimental, the researcher will not be able to empirically test the responsiveness and speed of the system. Therefore, the system-to-human interactivity will also be excluded from further operationalization of the concept.

D: System-to-system interactivity:

Kiousis (2002) views system-to-system interactions as a type of interactivity, maintaining that it is a controversial notion which has been debated at length in the informatics literature. He asserts, however, that system-to-system interactions could encompass the conditions necessary for interactivity to occur; including the interchangeable roles of sender and receiver, and the responsiveness of the system (*ibid*, 2002). Again, as the focus in this thesis is on the consumer's use and perceptions of the interactive systems, the system-to-system view and the discussions around it are of little relevance to this investigation.

Table 2.2: The Matrix of Structural Interactivity Dimensions

	Human	System
Human	***Consumer-to-Consumer Interactivity (C-C)*** • **Connectedness** (e.g. Dholakia, Zhao, Dholakia, & Fortin, 2000) • **Control** (e.g. Teo, Oh, Liu, and Wei, 2003) • **Interpersonal communication** (e.g. Heeter, 1989; Massey and Levy, 1999) • **Message interactivity** (e.g. Brewer et al., 2016) • **Playfulness** (e.g. Dholakia, Zhao, Dholakia, and Fortin, 2000; Lee, Lee, Kim, and Stout, 2004) • **Reciprocal (two-way) communication** (e.g. Liu and Shrum, 2002; Sally J McMillan, 2002; H. Voorveld, Neijens, and Smit, 2010; H. A. M. Voorveld, Neijens, and Smit, 2011; van Noort, Voorveld, and van Reijmersdal, 2012; Yadav and Varadarajan, 2005; L.-L. Wu, Wang, Wei, and Yeh, 2013) • **Relationship** (e.g. Lee, Lee, Kim, and Stout, 2004) • **Responsiveness** (e.g. Alba et al., 1997; Dholakia, Zhao, Dholakia, and Fortin, 2000; S Rafaeli, 1988; Sheizaf Rafaeli and Sudweeks, 1997) • **Other C-C interactive features** (e.g. Cho & Cheon, 2005; Coursaris & Sung, 2012; Ghose & Dou, 1998; T. J. Johnson & Kaye, 2016; Ksiazek, Peer, & Lessard, 2016) ***Consumer-to-Marketer (C-M)*** • **Message type and frequency** (e.g. Brewer et al., 2016; Burton and Soboleva, 2011; Jahng and Littau, 2016; H. Lee and Park, 2013; Song and Zinkhan, 2008) • **Reciprocal (two-way) communication** (e.g. Chen and Yen, 2004; Ha and James, 1998; Jiang, Chan, Tan, and Wei Siong, 2010; Lee and Shin, 2012; Li, Li and Jansen, 2014; Liu and Shrum, 2002; S. J. McMillan, 2000; J McMillan, 2002; Saffer, Sommerfeldt, and Taylor, 2013; van Noort, Voorveld, and van Reijmersdal, 2012; H. Voorveld, Neijens, and Smit, 2010; H. A.	***Consumer-to-Features (C-F)*** • **Accessibility** (e.g. Lee, Lee, Kim, and Stout, 2004) • **Choice** (e.g. Chen and Yen, 2004; Ha and James, 1998; Koolstra and Bos, 2009; Massey and Levy, 1999) • **Control** (e.g. Bezjian-Avery, Calder, and Iacobucci, 1998; Dholakia, Zhao, Dholakia, and Fortin, 2000; Jiang, Chan, Tan, and Wei Siong, 2010; Kirk, Chiagouris, Lala, and Thomas, 2010; Liu and Shrum, 2002) • **Image interactivity** (e.g. Beuckels and Hudders, 2016; Fiore, Kim, and Lee, 2005) • **Mapping** (e.g. Coyle and Thorson, 2001) • **Media Richness** (e.g. Koolstra and Bos, 2009; Lee et al., 2004) • **Modifiability** (e.g. Lombard and Snyder-Duch, 2001) • **Navigability** (e.g. Lee et al., 2004; Chan and Li, 2010) • **Number of clicks** (e.g. Song and Zinkhan, 2008) • **Playfulness / entertainment** (e.g. Chen and Yen, 2004; Dholakia et al., 2000; Ha and James, 1998; Lee et al., 2004) • **Range** (e.g. Coyle and Thorson, 2001; Lombard and Snyder-Duch, 2001; Steuer, 1992) • **Reciprocal (two-way) communication** (e.g. Johnson, Bruner Ii, and Kumar, 2006; Kirk et al., 2015; van Noort et al., 2012; H. A. M. Voorveld, Neijens, and Smit, 2011) • **Sense of place** (e.g. S. J. McMillan, 2000) • **Synchronicity** (e.g. Voorveld et al., 2010) • **Other C-F interactive features** (e.g. Cho & Cheon, 2005; Chung, 2008; Coursaris & Sung, 2012; Dholakia and Zhao, 2009; Ghose & Dou, 1998; Guillory and Sundar, 2014; Häubl and Trifts, 2000; T. J. Johnson & Kaye, 2016; Kim, Spielmann, and McMillan, 2012; Ko, Cho, and Roberts, 2005; Ksiazek, Peer, & Lessard, 2016; Larsson, 2011; Oh and Sundar, 2015; Shin et al., 2016; S. Shyam Sundar and Kim, 2005; S Shyam

	M. Voorveld, Neijens, and Smit, 2011; L.-L. Wu, Wang, Su, and Yeh, 2013) • **Responsiveness** (e.g. Alba et al., 1997; Massey and Levy, 1999; S Rafaeli, 1988) • **Relationship** (e.g. Lee, Lee, Kim, and Stout, 2004) • **Other C-M interactive features** (e.g. Cho and Cheon, 2005; Chung, 2008; Coursaris and Sung, 2012; Dholakia and Zhao, 2009; Ghose and Dou, 1998; Kim, Spielmann, and McMillan, 2012; Ko, Cho, and Roberts, 2005; Larsson, 2011; Schultz, 1999; Shyam Sundar, Bellur, Oh, Jia, and Kim, 2014; J.-J. Wu and Chang, 2005) ***Marketer-to-Consumer (M-C)*** • **Information collection** (e.g. Chen and Yen, 2004; Ha and James, 1998; Heeter, 1989) • **Reciprocal (two-way) communication** (e.g. Liu and Shrum, 2002; H. A. M. Voorveld et al., 2011) • **Responsiveness** (e.g. Dholakia, Zhao, Dholakia, and Fortin, 2000; Heeter, 1989)	Sundar, Bellur, Oh, Jia, and Kim, 2014; Sutcliffe and Hart, 2017; Wang, Baker, Wagner, and Wakefield, 2007) ***Consumer-to-Content (C-CON)*** • **Activity** (e.g. S. J. McMillan, 2000) • **Choice** (e.g. Heeter, 1989) • **Control** (e.g. Ariely, 2000; Jiang et al., 2010; S. J. McMillan, 2000; Teo et al., 2003) • **Ease of adding information** (e.g. Heeter, 1989; Massey and Levy, 1999) • **Other C-CON interactivity features** (e.g. Chung, 2008; Dholakia and Zhao, 2009; Larsson, 2011; G. Wu, 2005)
System	***System-to-Consumer (S-C)*** • **Correspondence** (e.g. Lombard and Snyder-Duch, 2001) • **Mapping** (e.g. Lombard and Snyder-Duch, 2001; Steuer, 1992) • **Message interactivity** (e.g. Bellur and Sundar; 2017) • **Personalization** (e.g. Dholakia et al., 2000; Liu and Shrum, 2002; Merrilees and Fry, 2003) • **Responsiveness** (e.g. Heeter, 1989; G. J. Johnson et al., 2006; Liu and Shrum, 2002; Massey and Levy, 1999; Yoo, Kim, and Sanders, 2015) • **Reciprocal (two-way) communication** (e.g. H. A. M. Voorveld et al.,2011) • **Speed** (e.g. Alba et al., 1997; Downes and McMillan, 2000; Dholakia et al., 2000; Johnson et al., 2006; Lombard and Snyder-Duch, 2001; Steuer, 1992) • **Other S-C interactive features** (e.g. Chung, 2008; Coursaris and Sung, 2012; Ghose and Dou, 1998; Larsson, 2011)	***System-to-System (S-S)*** ▪ **Machine-to-machine interactivity** (e.g. Kiousis, 2002)

2.1.4 The Structural View of Interactivity: Methods of Measurement

Structural interactivity is empirically gauged by using content analysis and experimental methods, as they are able to capture "the hardwired opportunity of interactivity provided during an interaction" (Liu and Shrum, 2002, p.55).

It is important to note that the researcher made the decision of including an overview of the most common methods of investigating both structural and perceived interactivity in this literature review. This is because an explication of these methods is imperative to understanding the current state of interactivity research and to ultimately identifying this thesis' second and third research gaps (i.e. shortcomings in operationalizing and empirically testing interactivity and inconsistencies in reporting the relationship between interactivity and its outcome variables). The specific research methods undertaken in the thesis' studies are discussed in the methodology section and later in their respective study chapters.

A. Content analysis methods:

Content analysis appears to be an intuitive tool of testing structural interactivity; whether it manifests in the connectedness of messages, or in the attributes of media. Within this tradition of investigating interactivity, the researcher typically; (1) chooses a specific number of subjects (e.g. webpages, message threads on an online discussion board), (2) analyses them for the existence (or the lack thereof) of specific attributes of structural interactivity, (3) gauges the reliability and validity of the procedure, and finally (4) links the resulting interactivity score to hypothesized effects (e.g. website quality (Chen and Yen, 2004), perceived interactivity (Voorveld et al., 2011)).

Ghose and Dou (1998) were pioneers in facilitating the content analysis method to produce an interactivity score. They achieved that by counting the number of interactive features embedded in business websites and using them to construct the Interactivity Index; one of the earliest examples of a scale quantifying the interactive features in a website. This scale includes elements reflecting different marketing functions, such as research and promotion. An example of the first is the availability of "a survey designed for measuring customer satisfaction about firm's offerings" and of the latter is the "option to order products online" (p.32). Ghose and Dou (1998) were followed suit, in quantifying the medium's interactive features, by other researchers such as McMillan (2002), Chen and Yen (2004), Cho and Cheon (2005), and Voorveld et al. (2011). They contribute to the literature by either

upgrading the Interactivity Index or creating their own versions of it. In the first empirical study of the current thesis, the researcher similarly presents an updated version of the Interactivity Index, which is applicable to the social commerce context.

Although it is considered a useful first step in exploring the structural interactivity afforded by a mediated environment (Ghose and Dou, 1998, Cho and Cheon, 2005, Schultz, 1999), content analysis is criticized in the literature for conveying a superficial view of interactivity which ignores the consumers' actual use of the analysed medium (Song and Zinkhan, 2008, Voorveld et al., 2011). Therefore, insights from the content analysis carried out in study 1 are supplemented with input from surveys using the actual interactive behaviours (AIB) scale in study 2. The AIB scale is developed by the researcher to reflect the extent of the consumers' actual use of a medium's interactive features.

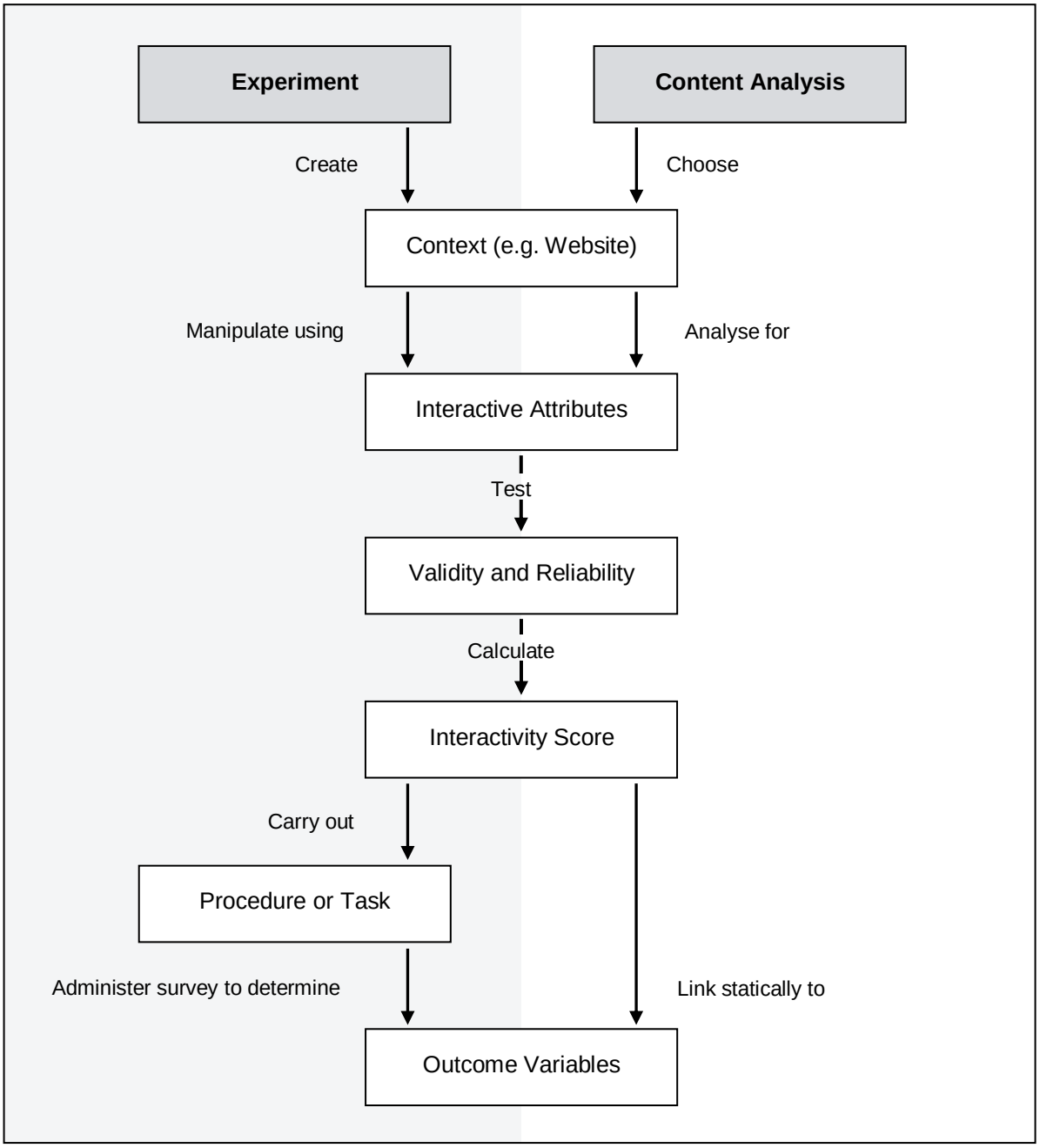
Figure 2.11 demonstrates the steps followed in the interactivity literature when conducting a content analysis study and Appendix A presents a list of past research papers which facilitate content analysis methods to investigate interactivity through message- and feature-based operationalizations.

B. Experimental methods:

Experiments are more widely used, than content analysis methods, for investigating structural interactivity (Rodríguez-Ardura and Meseguer-Artola, 2016). They are considered particularly useful for isolating one or more interactive attributes and gauging their influence on the consumers' opinions and behaviours.

The use of experimental methods in examining interactivity usually follows similar steps across the literature (Figure 2.11), as researchers start by choosing the dimension (or dimensions) of interactivity that they aim to manipulate in their experiment. They then create different versions of their experiment with varying degrees of the chosen interactivity dimension(s), while ensuring that these versions are the same in all other respects, such as content, layout, and design (McMillan, 2000a, Teo et al., 2003). From a message-based perspective, the researcher creates several conversations with varying degrees of message connectedness (Song and Zinkhan, 2008), while from a feature-based perspective, the researcher produces more than one version of the same website but with different concentrations of interactive features (Kim et al., 2012).

Figure 2.11: The Process of Experimental and Content Analysis Methods in Research



Following this step, the constructed experiments are pre-tested to ensure their validity and reliability. The participants in the experiment are then asked to navigate the websites or go through the discussion boards and are often given tasks to fulfil (e.g. buying, sending emails). Finally, the participants are asked to complete a survey measuring hypothesized effects of interactivity (e.g. behavioural intentions (Shin et al., 2016), attitudes toward the websites (Coyle and Thorson, 2001)), which are then correlated with the level of interactivity in each version of the experiment. See Appendix A for a brief list of past research papers which

facilitate experimental methods to investigate interactivity through message- and feature-based operationalizations.

Due to being arranged in advance, laboratory experiments do not always accurately reflect the consumers' normal use of the medium (Cano et al., 2017a), which means that their external validity is limited (Rodríguez-Ardura and Meseguer-Artola, 2016). Therefore, some researchers choose to facilitate pseudo-experimental techniques, in which real-life mediated environments (that vary in their structural interactivity) are used (Ko et al., 2005). Interestingly, the variations in the structural interactivity of these environments are determined through content analysis techniques. Like laboratory experiments, the participants in pseudo-experiments are asked to navigate the websites and then complete a questionnaire that tests outcome variables that are expected to result of interactivity.

It is important to note that the accuracy of experimental methods in capturing human-human interactivity has been questioned in the literature. As Yadav and Varadarajan (2005) explain, having the participants in an experiment "interacting with each other for very limited time periods . . . could account for the relative lack of interpersonal information exchanged [between them]" (p.588). This could bias the findings relating to the interactivity levels and the expected effects of interacting, as the latter similarly requires more consumer engagement than what is afforded by an experimental setting (Li et al., 2014).

As the objectives of the present thesis include investigating consumer-to-consumer interactivity and clearing up the inconsistencies relating to the relationship between the structural and perceived perspectives, experiments are not the ideal choice for investigating interactivity in this context. Content analysis and survey methods are facilitated instead.

2.2 The Experiential View of Interactivity: Perceptions

Experiential interactivity is viewed, through the eyes of the beholder (McMillan, 2000a), as the "the psychological sense message senders have of their own and of the receivers' interactivity" (Newhagen et al., 1995, p.165). As may be expected, interactivity perceptions will vary from one person to another, depending on their engagement with and expectations of the system (Steuer, 1992, Voorveld et al., 2011, Bucy and Tao, 2007). As illustrated in Figure 2.10, this perspective can be used to operationalize interactivity as it occurs between human participants through (and with) the medium (Zhao and Lu, 2012, Hu et al., 2016, Song

and Zinkhan, 2008). Perceived interactivity, therefore, "serves as a clear-cut variable which captures the essence of consumers' interactions" (Wu, 1999, p.16).

2.2.1 Dimensions of Perceived Interactivity

Researchers largely adopt the concept of efficacy when theorizing perceived interactivity (Song and Zinkhan, 2008, Newhagen et al., 1995, Wu, 1999). It is a similarly perceptual construct, identified as the "belief in one's capabilities to organize and execute the courses of actions required to produce given attainments" (Bandura, 1997, p.3 as cited in Eastin and LaRose, 2000). Efficacy is not an indication of how skilled the participants are in their interacting, as much as it is an expression of their beliefs in what they can achieve with the skills they have (Eastin and LaRose, 2000, Brenders, 1987).

Newhagen et al. (1995) suggest that perceived interactivity is comprised of two constructs; internally-based efficacy and externally-based efficacy. The first is explained in terms of how confident the consumers are of their own abilities to manage their experiences on the mediated environment (Kirk et al., 2015), while the latter reflects how confident they are that the other communication participants will be responsive to them (Wu, 1999). It is key to note that internally- and externally-based efficacy parallel the control and responsiveness attributes of the interactive communication, discussed earlier in this chapter.

2.2.2 Critique of Perceived Interactivity:

Perceptions are presented in the literature as the ideal technique to gauge interactivity (McMillan, 2000a, Liu and Shrum, 2002, Wu, 2005), because "whether people actually perceive a medium/vehicle as interactive is the only valid criterion for judging its interactivity" (Sohn and Lee, 2005, p. 3). Indeed, the feedback provided by the consumers about their interactive experiences is expected to guide the marketers in developing interactive environments that satisfy them and fulfil their needs (Wu, 1999, Wu, 2005).

For this reason, many highly regarded research papers solely focused on perceptions when operationalizing interactivity (e.g. Animesh et al., 2011, Zhang et al., 2014, Chan and Li, 2010, Zhao and Lu, 2012). In their respective research models, these authors consider perceived interactivity as the independent variable and interactivity effects (e.g. intention to purchase) as the outcome variables. However, as highlighted in the S-O-R framework, it is conceptually problematic to regard interactivity perceptions as a proxy to the environmental

stimuli when in fact they are more likely to be a psychological response to it (Bucy and Tao, 2007, Eroglu et al., 2003, Baker et al., 2002).

Consequently, the insights offered by interactivity perceptions are limited without the knowledge of how they are achieved (Ksiazek et al., 2016). Indeed, Bellur and Sundar (2015) explain that "theorizing solely on such subjective perceptions of interactivity can be misleading, and, further still, unhelpful in aiding design and [website] development goals" (p. 43). Along these lines, the literature suggests considering structural interactivity as a possible predictor to perceived interactivity and observing how manipulating features of the mediated environment can affect the consumers' interactivity perceptions (McMillan, 2002, Bucy and Tao, 2007, Wu, 2005). More about how structural and experiential interactivity relate to one other is discussed later in this chapter.

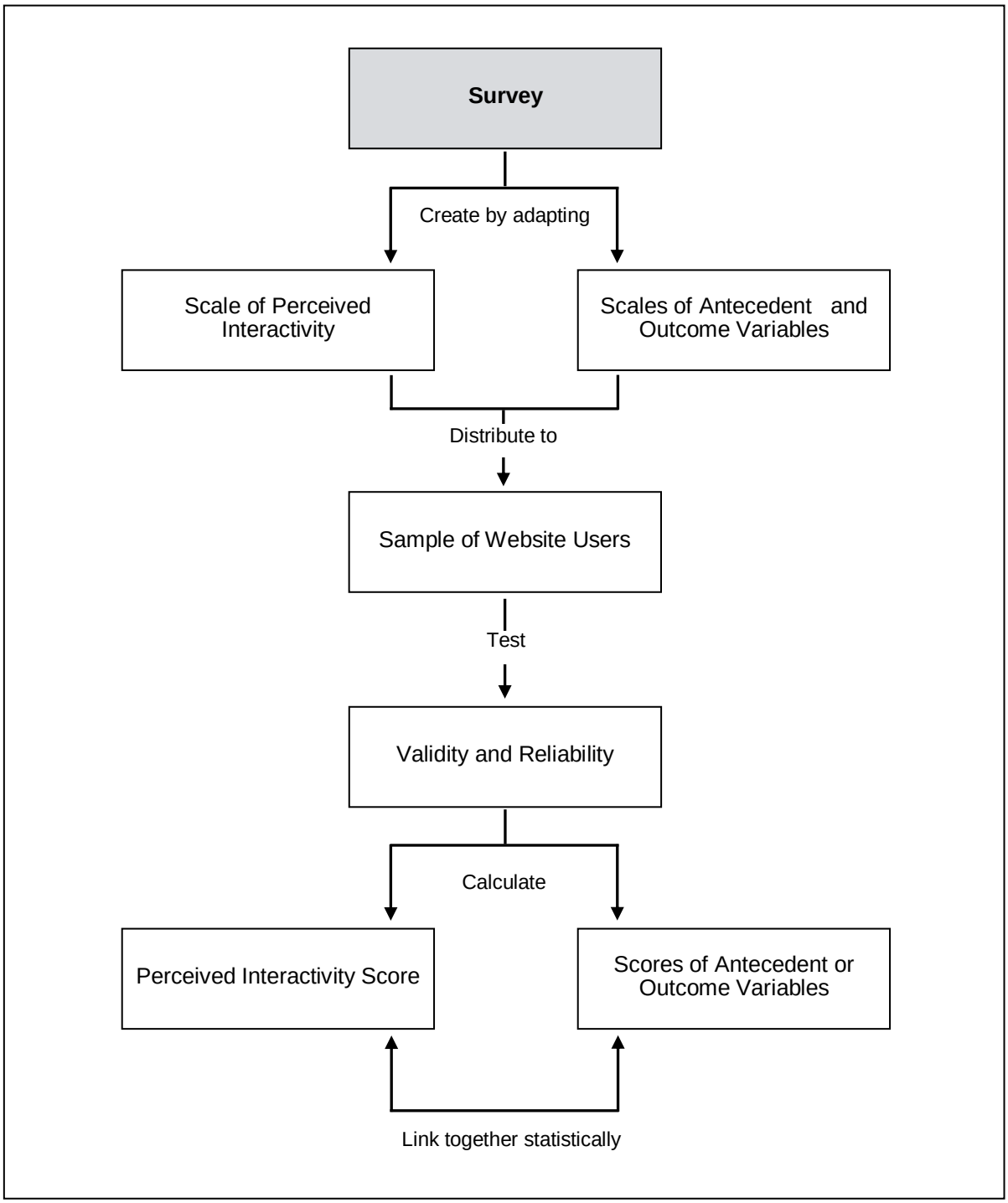
2.2.3 Perceived Interactivity: Methods and Measurements

In the literature, the respondents' interactivity perceptions are gauged using survey methods. Surveys are often used on their own right and filled out by a sample of website users based on their past interactive experiences (e.g. Animesh et al., 2011), or facilitated as a part of laboratory (e.g. Song and Zinkhan, 2008) or pseudo-experiments (e.g. Wu, 1999).

Figure 2.12 displays a summary of the survey process as it is carried out in past interactivity studies, and Appendix A presents a brief list of research papers that use survey methods to investigate perceived interactivity.

The questions in a survey are usually adapted from scales of perceived interactivity devised by past researchers. Wu (1999) was one of the first researchers to create a scale to measure perceived interactivity. In her scale, she introduces items that specifically reflect the concept of efficacy; internally-based efficacy is expressed in the consumer's impression of their navigational abilities on the website (e.g. "While I was on the site, I was always able to go where I thought I was going" (p.11)), while externally-based efficacy is expressed in the consumers' belief of the website's ability to facilitate their interactive experiences (e.g. "The visual layout was like a roadmap during my exploration of the site" (p.11)). Other highly cited research papers (e.g. Liu (2003), McMillan and Hwang (2002), and Song and Zinkhan (2008)) followed suit in creating perceived interactivity scales based on the concept of efficacy.

Figure 2.12: The Process of the Survey Method in Interactivity Research



A common misconception relating to measuring interactivity perceptions is observed when researchers ask the survey respondents about the existence of specific structural interactive features in the medium investigated. For example, Animesh et al. (2011) include the following item in their perceived interactivity scale; "a large number of objects in [the medium] can be manipulated by users" (p. A2). Similarly, Lee (2005) asks his respondents whether "[the medium] enables [them] to order products or service that are tailor-made for

[them]" (p.172). Because they disregard the concept efficacy as the theoretical foundation for perceived interactivity, such items are more suitable to analyse the structural features of a medium than to gauge interactivity perceptions.

In addition to using them to determine a perceived interactivity score, surveys are additionally facilitated to gauge other variables theorised as antecedents or outcomes of the interactive experience (Bucy, 2004). Statistical methods are then applied to support the expected relationships between said variables.

3. A Multi-Faceted Approach to Interactivity

The discussion, thus far, has demonstrated that interactivity can be operationalized either objectively as the structural properties of interaction or subjectively as the consumers' interactivity perceptions. But which of these routes is the right one to pursue when empirically investigating interactivity?

According to research, interactivity is best understood when equally considered from both perspectives because the insights they offer are reconcilable (Chen et al., 2005, Kiousis, 2002, Downes and McMillan, 2000). By following this direction of operationalizing interactivity, the researcher is able to present complete picture of the concept which is generalizable across different technologies and interactive situations (Johnson et al., 2006, Kiousis, 2002, Liu and Shrum, 2002, Sohn, 2011, Wu, 2005).

3.1 Inconsistencies in reporting the relationship between structural and experiential interactivity

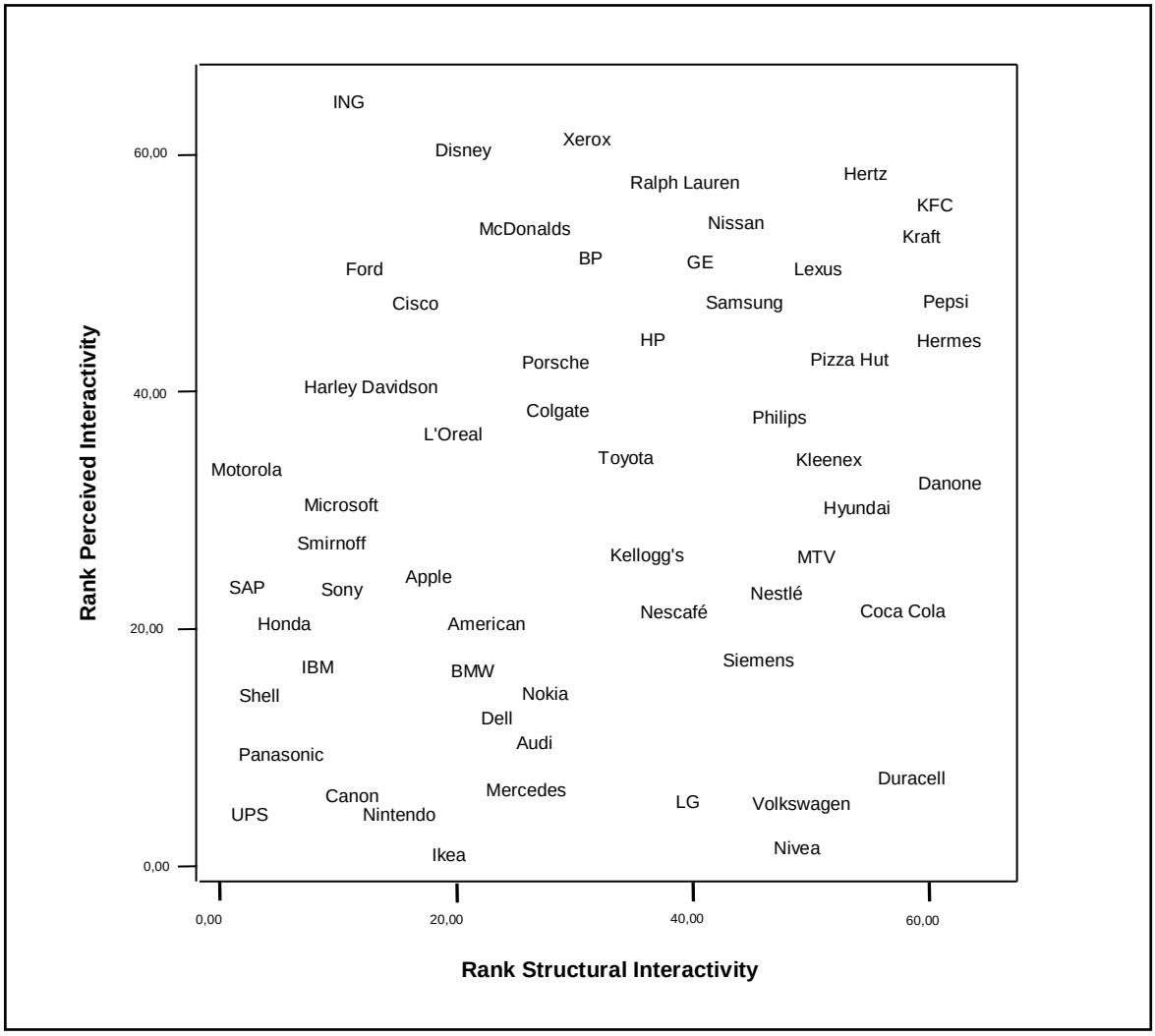
It has been established earlier that it is possible to investigate the same interactive exchange concurrently through structural and experiential perspectives. However, does that mean that their results will correspond? In other words, will a website that maintains a high level of structural interactivity influence its users to perceive it as highly interactive?

It seems logical to assume that the answer is yes. Still, research findings of this relationship remain inconsistent (Rodríguez-Ardura and Meseguer-Artola, 2016). While one direction of research suggests that by adding more interactive features to the medium, higher interactivity perceptions will result (Coyle and Thorson, 2001, Johnson et al., 2006, Sicilia et al., 2005, Wu, 2005); another research direction explains that the structural interactivity of the medium will not necessarily translate into interactivity perceptions (McMillan, 2002, Voorveld et al., 2011, Johnson and Kaye, 2016, Bellur and Sundar, 2017). These incongruities in the

relationship between structural and perceived interactivity represent a further gap in interactivity research.

Figure 2.13 is adapted from the research paper by Voorveld et al. (2011) and it depicts the inconsistency in the relationship between structural and perceived interactivity as found in their study. To create this figure, the authors ranked the structural interactivity scores of 65 brand websites (attained using content analysis) against the perceived interactivity scores of the same websites (achieved through surveying respondents who spent five minutes browsing a number of the 65 websites) (*ibid*, 2011). As clear from the graph, these rankings do not correspond, communicating inconsistencies in the relationship between structural and perceived interactivity in. The possible reasons for these inconsistencies are discussed in the following section.

Figure 2.13: Inconsistencies in the Relationship between Structural and Perceived Interactivity



Adapted from Voorveld et al. (2011)

3.2 Reasons for the inconsistencies in reporting the relationship between structural and experiential interactivity

The reason behind the discrepancy in the relationship between the two concepts as reported across the literature could be that it varies depending on the context of interaction (Kim et al., 2012, Furner et al., 2014). It is, therefore, interesting to note that prior research examined this relationship in contexts where the website is not of high relevance to the customers' interests, where structural interactivity is not very engaging to the consumer, and where not a wide variety of social options is offered. Examples of such contexts are official brand websites (Voorveld et al., 2011) and health-related websites (McMillan, 2002, Oh and Sundar, 2015). The researcher combats these shortcomings by investigating the relationship between structural and perceived interactivity in the context of social commerce, due to its growing popularity, facilitation of social interactions, and the important role it plays in engaging the customers and influencing their shopping and buying activities (Anderson et al., 2011, Marsden, 2010, Meeker, 2017). In line with the role of highly engaging websites in facilitating interactivity outcomes, the concept of user engagement is additionally gauged in the model of the second study, as it is expected shed light on how this relationship is formed (Bucy and Tao, 2007). This line of inquiry becomes more relevant as engagement is deemed an under-researched but important concept, both in its own right and in relation to interactivity (Hollebeek et al., 2014, Oh and Sundar, 2015, Ksiazek et al., 2016). Indeed, Cano et al. (2017) discuss the "research need for investigating user engagement in different contexts" (p. 411) and "in response to different . . . software stimuli" (*ibid*, p. 407), while O'Brien and Toms (2010) highlight that "designing for engaging experiences is an oft-cited goal of interactive system development in many disciplines, yet there are no guidelines to channel designers' efforts to make things engaging" (p. 2).

Another possible reason leading to the inconsistency between the two perspectives are the limitations associated with the methods of measuring feature-based interactivity (discussed earlier in this chapter). Indeed, when researching the relationship between structural and experiential interactivity, researchers typically use a combination of two methods. First, they facilitate content analysis or experiments to reflect the structural interactivity of the medium, and then survey the consumers about their interactivity perceptions of that medium.

However, the content analysis methods are limited because they merely convey the existence of the interactive features on a medium and not the extent to which the consumers are using

them (e.g. Voorveld et al., 2011). This could be the reason why the interactivity scores resulted from content analysis do not correspond to perceived interactivity scores achieved through surveys (Lee et al., 2004, Song and Zinkhan, 2008, Voorveld et al., 2011, Oh, 2017, Shin et al., 2016, Bucy and Tao, 2007).

In experimental methods (e.g. McMillan, 2000a), the respondents are similarly not afforded the time to engage with the interactive features on the medium, and therefore might not perceive them as highly interactive (Li et al., 2014, Bucy and Tao, 2007). Additionally, experimental studies often limit their procedures to navigational tasks (Yadav and Varadarajan, 2005) and overlook other types of activity, such as communicating with other users or contributing to the content of the website. However, in order to be effective in influencing interactivity perceptions, "interactive features should significantly change the way users access the core message that the medium aims to deliver, rather than merely increase navigational activity" (Oh and Sundar, 2015, p. 214).

The researcher deals with the gaps resulting from these methodological issues in a variety of ways. In the thesis, structural interactivity is gauged both through content analysis (study 1) and survey of actual interactive behaviours (study 2). By measuring both the existence of the interactive features and the extent of their use by the consumers, the researcher presents a detailed operationalization of the concept, one that stands a better chance of being accurately linked it to outcome variables. Moreover, items that reflect content creation and consumer-to-consumer communication are incorporated to the measures of structural interactivity, hence averting the risk of being limited to the navigational view.

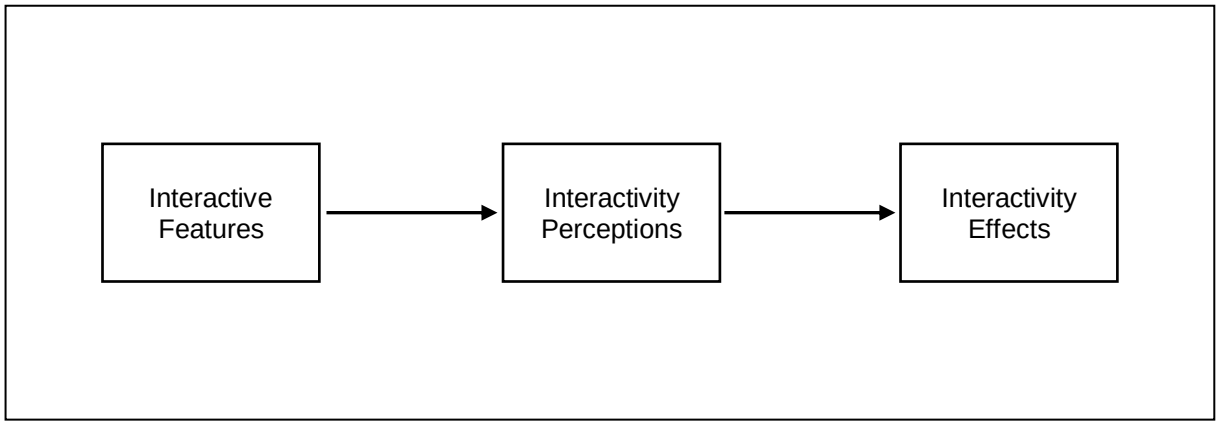
Beyond the discrepancies resulting from the users not having the chance to substantially use the interactive features; an additional cause for the inconsistency in the relationship between structural and perceived interactivity might be the "the lack of enticing interactive features" on the medium (Johnson and Kaye, 2016, p. 142). Along this line, Voorveld et al. (2011) questions whether "some interactive web site functions, such as hyperlinks, might have become so common that they are no longer perceived as interactive" (p.80).This leads to the question of whether the websites users are now so conditioned to interactivity that it fails to catch their attention and engage them (Li et al., 2014). Facilitating social commerce as the context in this thesis will aid in addressing these questions. Indeed, social commerce is considered the result of the convergence between e-commerce and social media, and therefore consists of properties that reflect both the traditional (e.g. wish lists, automatic

recommendations) and the novel (e.g. social content timeline, friend lists) sides of interactivity. The traditional and novel features will be compared and contrasted in this thesis in terms of their effect on the consumers' use and perceptions of the websites (Study 1).

The urgency to resolve these inconsistencies stems from the fact that understanding how features and perceptions relate to one another will affect the way researchers explain interactivity effects (Bucy and Tao, 2007). Indeed, it is suggested that perceived interactivity should act as a mediator between structural interactivity and its outcome variables. In this dynamic, a significant correlation between interactivity perceptions and outcome variables means that the analogous relationship between structural interactivity and its outcomes "would weaken to the extent that it becomes insignificant" (Wu, 2005, p.32). This is not dissimilar to the Stimulus-Organism-Response (S-O-R) model; a framework of environmental psychology which holds that the stimuli of a specific environment are capable of impacting the consumers' responses toward it through influencing their organismic emotions and perceptions (Bitner, 1992, Mollen and Wilson, 2010, Fang, 2012, Donovan and Rossiter, 1982). More about the expected outcomes of interactivity is discussed in the next section.

Figure 2.14 depicts the mediation model of interactivity, in which the consumers' perceptions mediate the effects of the interactive environment on their experiences and attitudes toward the website, the firm, and other consumers. Interactivity effects are discussed in more detail in the next section.

Figure 2.14: The Mediation Model of Interactivity



Adapted from Bucy and Tao (2007)

4. Effects of Interactivity

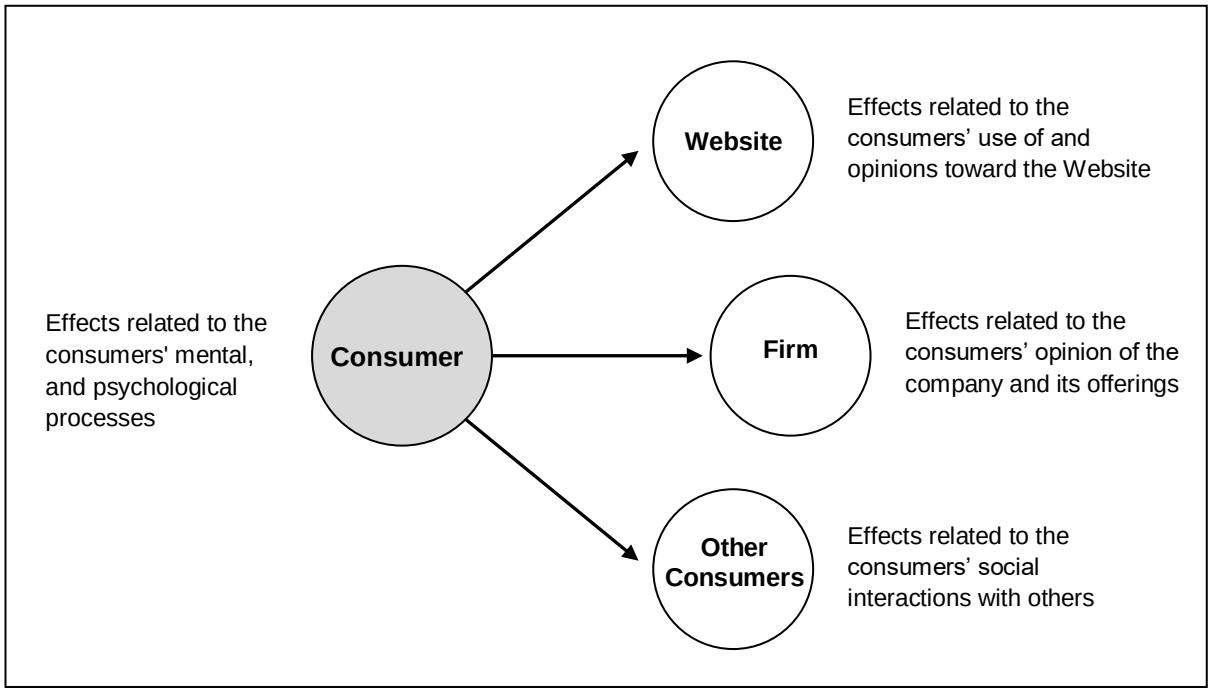
Numerous outcome variables, depicting different aspects of the interactive experience, have been linked to interactivity over years of investigation (Figure 2.15, Appendix B). Many of them relate to the consumers' perception of the website; its overall quality (Chen and Yen, 2004, Ghose and Dou, 1998, Yoo et al., 2015), ease-of-use (Coursaris and Sung, 2012, Sutcliffe and Hart, 2017), effectiveness and efficiency (Cyr et al., 2009, Teo et al., 2003), and how involving it is to the user (Johnson et al., 2006, Jiang et al., 2010).

Other interactivity effects considered in the literature reflect the consumers' relationship with the firm; their loyalty toward it (Song and Zinkhan, 2008, Yoo et al., 2015, Lee et al., 2015), their perceptions of its credibility (Johnson and Kaye, 2016, Jahng and Littau, 2016, Li et al., 2014), and their evaluation of the products and services it offers (Sundar and Kim, 2005, Sicilia et al., 2005).

A third categorization of interactivity effects includes variables related to the consumers' psychological and mental processes resulting from interacting on the mediated environment. Attention (Lee and Shin, 2012), pleasure (Wang et al., 2007), affect (Vendemia, 2017), confidence (Ariely, 2000), learning (Liu and Shrum, 2002), and information processing (Sicilia et al., 2005) are some of them.

A fourth and final categorization of interactivity effects is viewed in the light of the consumers' social interactions on the mediated environment. Outcome variables reflecting this categorization include belonging (Shih and Huang, 2012), participation (Hu et al., 2016), reciprocating behaviours (Chan and Li, 2010), and social support (Zhang et al., 2014). Evidently, variables relating to the consumers' online social interactions have been long overlooked in the interactivity literature; only recently garnering some attention (Wu et al., 2013b). Like the case of consumer-to-consumer interactivity, this could be because of the relatively recent evolution of communication technologies facilitating social interactions (Kietzmann et al., 2011). One exception is social presence, which has been highlighted as a possible outcome of interactivity in a few earlier research papers (e.g. Dholakia et al., 2000, Fortin and Dholakia, 2005, Lombard and Snyder-Duch, 2001). However, social presence merely reflects the users' recognition of the existence of others in a virtual environment and not their mutual social interactions (Cui et al., 2010).

Figure 2.15: Types of Interactivity Outcome Variables



In the current thesis, the researcher contributes to bridging this gap by considering sociability, as a possible effect of feature- and perception-based interactivity. Indeed, an under-researched concept (Wu et al., 2013b, Animesh et al., 2011), sociability reflects "the nature of social interaction in an online community" (Preece, 2001, p. 354). This direction of inquiry responds to a call for research by Kirk et al. (2015), in which they suggest that researchers uncover "the degree in which interactivity is relevant to the relationship-building elements present in social media platforms" (p. 11).

4.1 Inconsistencies in reporting outcomes of interactivity

The reporting of interactivity effects in the past literature is often inconsistent or "enigmatic" as Rafaeli and Ariel (2007, p.84) describe it. Indeed, despite the many positive outcomes of interactivity discussed in prior research (presented earlier in this section), several researchers highlight possible negative results of interactivity, including hindering communication (Rafaeli, 1988), interrupting the persuasion process in the website (Bezjian-Avery et al., 1998, Oh and Sundar, 2015), and diverting the consumers' attention from interactive messages (Lee and Shin, 2012).

Echoing the discussion in the previous section regarding the inconsistencies in reporting the relationship between structural and perceived interactivity, this discrepancy in reporting the outcomes of interactivity could be due to shortcomings in the contexts of investigation in

prior studies (including low levels of user engagement with the interactive features (Bucy and Tao, 2007)) and the methods used to investigate the relationship between interactivity and its outcomes (including flaws in the experimental methods in terms of the limited time the consumers' have when interacting with the context of the experiment (Yadav and Varadarajan, 2005)).

The researcher contributes to bridging this gap by testing whether higher levels of structural interactivity in social commerce will have an effect on the consumers' actual online behaviours and use of the website (Study 1), in addition to their perceptions of the environment; specifically, in terms of their perceived interactivity, sociability, engagement, and satisfaction (Study 2). Additionally, as already highlighted in the previous section, the novelty of the interactive features will be investigated in both studies in relation to outcome variables, to uncover their role in influencing the outcomes of interactivity.

Conclusion

This chapter theoretically investigated interactivity; its many conceptualizations, operationalizations, and methods of empirical investigation. It introduced interactivity through an understanding of the convergence between the mass and interpersonal communication models and highlighted the importance of control and responsiveness in defining the concept. The chapter additionally explained that both human and system participants can partake in an interactive communication exchange, and that such an exchange can be empirically approached as a characteristic of the communication setting, an attribute of the medium, and a perception.

Each of the abovementioned operationalizations were discussed in regard to their roles in informing interactivity, their dimensions, and their methods. The shortcomings of each of the perspectives were debated and then linked to the objectives of the present thesis, specifically in terms of the researcher's decision to investigate interactivity through the lenses of communication- and perception-based interactivity which she determined (based on the literature review) is the best fit for the aims of this thesis.

Through an extensive evaluation of the interactivity literature, the researcher was able to uncover three general areas that are in need of further academic contribution. Those will be the motivation for the thesis' empirical studies.

First, the researcher highlights the need to examine interactivity as it evolves in response to the constant change in technologies and in consumers' expectations and experiences. This includes taking into account the role of consumer-consumer interactivity, content creation, and the social effects of the interactive experience. Indeed, these areas of research are mostly overlooked in the extant interactivity literature despite their expected importance in informing the practitioners' decisions when designing their marketing activities to fit the highly social climate of today (Animesh et al., 2011, Zhang et al., 2014).

Second, through an explication of the methods, scales, and empirical settings facilitated in prior investigations of interactivity, the researcher highlights several shortcomings pertaining to their ability to reflect an authentic picture of the interactive experience. Experimental methods are particularly critiqued in terms of their limitations in communicating an accurate depiction of the nature of human-human interactivity (Yadav and Varadarajan, 2005, Oh and Sundar, 2015). This is attributed to: (1) their artificial settings that do not reflect real life interactions with the communication platforms, (2) the short duration of time allowed for the subjects to use the experimental platforms before reporting their opinions about them, and (3) the researchers' reliance on navigational tasks (rather than content creation and conversational tasks) when exploring the nature of interactivity and its influences in experimental setting.

A related limitation is the use of measures that only skim the surface of what interactivity in prior research; an example of which is utilizing a scale that simply reflects the existence or absence of interactivity features on a website without shedding light on actual use of these interactive features. Other shortcomings falling within this gap is the facilitation of low-engagement and low-sociability research settings to gauge the interactivity models and considering perceived interactivity a proxy to the stimulus in such conceptual models.

A third gap, which recurs in the extant interactivity literature, is reflected in the inconsistencies in reporting the relationship between interactivity and its outcome variables (including interactivity perceptions) in prior research. Indeed, scholars are still uncertain if interactivity leads to positive or negative outcomes, and practitioners need to be educated regarding how to capitalize on interactivity to achieve desired marketing effects. This gap is expected to be the result of the two gaps discussed earlier. Particularly, outdated interactivity scales and models, inaccurate methods, and low-engagement research settings could

contribute to reflecting inaccurate relationships between interactivity and its outcome variables (Kim et al., 2012, Furner et al., 2014).

To mitigate these three gaps in the current thesis, interactivity is investigated in the context of social commerce; a fast growing technology which is expected to redefine the shopping experience through facilitating social interactions (Stephen and Toubia, 2010, Turban et al., 2016, Cecere, 2010). The choice of such a unique research setting presents an excellent opportunity to analyze the websites' novel interactive attributes, including features that facilitate person interactivity and content creation. The researcher is then able to link these features to relevant outcomes, including the consumers' usage levels of the websites (Study 1), in addition to their engagement with and sociability within social commerce (Study 2).

Furthermore, because it is described to be highly relevant to the consumers' interests (Meeker, 2017), social commerce is expected to inform the discussion about to the relationship between structural interactivity and its outcome variables, including how interactivity perceptions could mediate this relationship. A mixed methods research design is facilitated to test this relationship. Indeed, through this research design, both content analysis and survey methods are used to reflect different viewpoints of interactivity. Moreover, in the survey study, a scale which depicts the consumers' actual use of the interactive features (AIB) is facilitated to complete the picture presented by the content analysis method about the interactive experiences on social commerce.

A literature review of social commerce is presented next.

3. Context: Social Commerce

Introduction

Social commerce is approached in the literature as involving "the delivery of e-commerce activities and transactions via the social media environment" (Liang and Turban, 2011, p.6). Social commerce is a growing phenomenon and novel area of research (Stephen and Toubia, 2010, Kim and Noh, 2012, Lu et al., 2016). It is expected to redefine the shopping experience (Cecere, 2010); assuming an important position among competing shopping channels (Anderson et al., 2011), and influencing the consumer buying decision process (Yadav et al., 2013).

Some social commerce tools and mechanisms have been around since the 1990s (Curty and Zhang, 2011, Indvik, 2013), but the term (as it is known today) was introduced in late 2005 in a blog post by Beach and Gupta. The two Yahoo! Shopping managers used the term 'social commerce' to describe their marketplace's newly added social shopping features that facilitate consumer participation and content creation, an example of which is shopping lists that customers can create, share, and review (*ibid*, 2005). However, it is only recently that social commerce has started to attract the attention of marketers and academics (Baethge et al., 2016), particularly because of the growth in popularity and influence of social media and its interactive technologies (Shen, 2012, Kim and Noh, 2012, Yadav et al., 2013, Lin et al., 2017).

Indeed, social technologies are taking an increasing role in the daily routines of millions of users (Beese, 2016, Kietzmann et al., 2011); guiding their buying and shopping preferences, along with other aspects of their lives (Anderson et al., 2011, Howard, 2016). A 2015 global online-retail survey of 23,000 individuals found that reading product reviews on social media has affected the shopping activities of 45% of the respondents (PWC, 2016). In a 2014 global survey conducted by the same firm, 52% of the 15,000 respondents said that they interacted with their favorite brands on social media, while 48% of them said that they purchased products through social media in the past (PWC, 2014).

Social commerce is shaping up to become "one of the greatest opportunities—and challenges—the retail industry has ever faced" (Howard, 2016, p. 2). It, consequently, represents a thriving research area (Liang and Turban, 2011, Lin et al., 2017), as scholars endeavour to understand the consumers' interactivity with the social commerce platforms as

well as with other consumers using them (Wang and Zhang, 2012). However, despite its promise, social commerce research is still in its early stages, as a consensus is yet to be reached on a precise meaning of the concept, what it involves (Yadav et al., 2013, Shen, 2012, Turban et al., 2016), and how it differs from related concepts such as e-commerce and social media (Mullin, 2016, Sentance, 2016).

These limitations in delineating the essence and boundaries of social commerce are reflected in limitations in defining the empirical settings in prior research. Specifically, research contexts in the past social commerce literature are often chosen with little justification, as researchers seem to take liberties in what type of platforms they regard as social commerce. These conceptualization shortcomings similarly bleed into limitations in practice that render practitioners uncertain about the potential of social commerce as a marketing tool or how capitalize on it to understand and satisfy their customers (Smith, 2016, Turban et al., 2016, Stephen and Toubia, 2010, Yadav et al., 2013, Cecere, 2010).

To address these conceptual shortcomings, a framework of three core themes (i.e. social, commercial, and technological) is presented in this chapter and used to reconcile the past definitions of social commerce. The framework is additionally utilized to distinguish between social commerce, social media, and e-commerce. This is followed by a discussion of social commerce in terms of being the result of the convergence of social media and e-commerce technologies. An overview of the parallel roles of the social consumer and the social enterprise comes after that, with an emphasis on the challenges that marketers face in facilitating the interactive capabilities of social commerce to offer their consumers' seamless and enjoyable shopping experiences. Finally, gaps in the extant conceptualizations of social commerce are highlighted, discussed and linked to the two empirical studies of the thesis.

1. Three Core Themes of Social Commerce

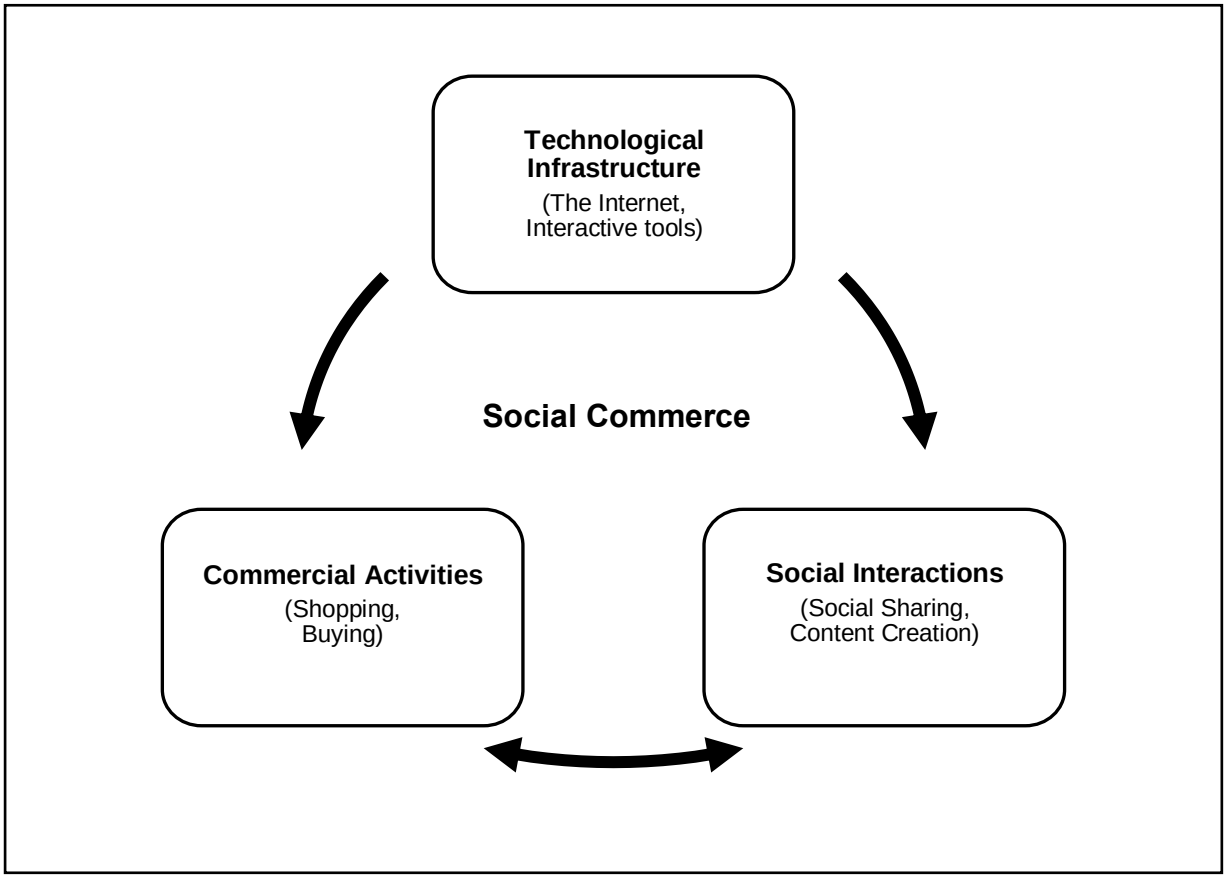
A close examination of a number of past definitions social commerce (Table 3.1) reveals three recurring themes, namely; social interactions, commercial activities, and technological infrastructures (Liang and Turban, 2011). These themes (Figure 3.1) can help attain a preliminary understanding of social commerce, focusing on what the literature has in common rather than on its contradictions.

Table 3.1: A Selection of Academic Social Commerce Definitions

Author(s)	Definitions
Leitner and Grechenig (2008)	“Social commerce is the synonym for the next generation online commerce and is affected by a fast preceding social networking”(p. 322)
Stephen and Toubia (2010)	"Forms of Internet-based “social media” that allow people to participate actively in the marketing and selling of products and services in online marketplaces and communities” (p.215)
Cecere (2010)	“The use of social strategies to anticipate, personalize and energize the shopping experience” (p.7)
Marsden (2010)	“Social commerce is a subset of electronic commerce that uses social media, online media that supports social interaction and user contributions, to enhance the online purchase experience” (p.4)
Curty and Zhang (2011)	“Social commerce can be briefly described as commerce activities mediated by social media. In social commerce, people do commerce or intentionally explore commerce opportunities by participating and/or engaging in a collaborative online environment.” (p.1)
Dennison et al. (2011)	“The combination of a retailer’s products, online content and shoppers’ interaction with that content. It comes in many forms; the most common is allowing online shoppers to submit product ratings and reviews. Put simply, social commerce is word of mouth applied to e-commerce” (p. 2)
Liang and Turban (2011)	“Involves using Web 2.0 social media technologies to support online interactions and user contributions to assist in the acquisition of products and services” (p.5)
Pagani and Mirabello (2011)	“Social commerce is a new form of e-commerce that uses social media networks to support social interaction and user contributions to assist in the online buying and selling of products and services” (p. 41)
Shen (2012)	“A technology-enabled shopping experience where online consumer interactions while shopping provide the main mechanism for conducting social shopping activities. These interactions may result in discovering products, aggregating and sharing product information, and collaboratively making shopping decisions” (p.199)

Wang and Zhang (2012)	“A form of commerce that is mediated by social media and is converging both online and offline environments. Social commerce involves using social media that support social interactions and user contributions to assist activities in the buying and selling of products and services online and offline” (p. 106)
Huang and Benyoucef (2013)	“ An Internet-based commercial application, leveraging social media and Web 2.0 technologies which support social interaction and User Generated Content in order to assist consumers in their decision making and acquisition of products and services within online marketplaces and communities” (p. 247)
Indvik (2013)	“Social commerce, sometimes abbreviated as "s-ecommerce," is a term often used to describe new online retail models or marketing strategies that incorporate established social networks and/or peer-to-peer communication to drive sales”.
Kim and Park (2013)	“a new business model of e-commerce driven by social media (e.g., SNSs) that facilitates the purchasing and selling of various products and services” (p.319)
Yadav et al. (2013)	“Exchange-related activities that occur in, or are influenced by, an individual's social network in computer-mediated social environments, where the activities correspond to the need recognition, pre-purchase, purchase, and post-purchase stages of a focal exchange” (p. 312)
Zhou et al. (2013)	“Involves the use of Internet-based media that allow people to participate in the marketing, selling, comparing, curating, buying, and sharing of products and services in both online and offline marketplaces, and in communities” (p. 61)
Lee et al. (2014)	"As a subset of e-commerce, social commerce integrates traditional management techniques with social media tools, high levels of online interactivity, and user participation” (p.29)
Liu et al. (2016)	“Social commerce involves the application of social media to support social interaction, communication, and user-generated content for assisting consumers in online buying”. (p.307)
Turban et al. (2016)	“The second generation of EC . . . includes what we call social commerce. It is based on the emergence of social computing and on a set of tools, marketplaces, infrastructure, and support theories. All which are socially oriented” (p.5)
Lin et al. (2017)	“Any commercial activities facilitated by or conducted through the broad social media and Web 2.0 tools in consumers’ online shopping process or business’ interactions with their customers” (p.191)

Figure 3.1: The Interrelation between the Three Core Themes of Social Commerce



Indeed, a key theme in prior research is the support the consumers' *social interactions*, with an emphasis on their communication and relationships with others in the online environment (Liu et al., 2016, Liang and Turban, 2011, Yadav et al., 2013, Zhou et al., 2013, Laudon and Traver, 2012). Variables relating to the social theme as examined in past research include social support (Chen and Shen, 2015, Hajli, 2015, Liang et al., 2011, Shin, 2013, Zhang et al., 2014), social ties (Ng, 2013), and reciprocating behaviours (Chan and Li, 2010).

A second major theme covers the customers' *commercial activities* throughout the different stages of their online shopping journey, including pre-purchase, purchase, and post-purchase behaviours (Yadav et al., 2013, Huang and Benyoucef, 2013, Shen, 2012, Pavlou and Fygenson, 2006). Within the commercial theme, researchers investigate variables that reflect the consumers' shopping and buying intentions and behaviours (Kamis and Frank, 2012, Kim and Park, 2013, Liu et al., 2016, Wang et al., 2015, Chen et al., 2007, Wang et al., 2007), in addition to their perceptions of and commitment to the online firm (Chen and Shen, 2015, Hew et al., 2016, Liang et al., 2011, Shin, 2013).

Finally, the literature sheds light on the technological infrastructure essential in facilitating the social and commercial activities, specifically in terms of being built on and enabled by the Internet and its interactive mechanisms (Huang and Benyoucef, 2013, Liang and Turban, 2011, Stephen and Toubia, 2010). Within the social commerce literature, the technological facet is manifest in variables such as ease-of-use (Shen, 2012, Cha, 2009), usefulness (Cha, 2009, Hajli, 2012, Hew et al., 2016, Shen, 2012, Shin, 2013, Zhang et al., 2015), visual appeal (Zhang et al., 2015), personalization (Zhang et al., 2014), and technical features of the website (Chan and Li, 2010).

Appendix C includes a detailed list of the variables investigated in various social commerce empirical studies as they correspond to each of the three themes.

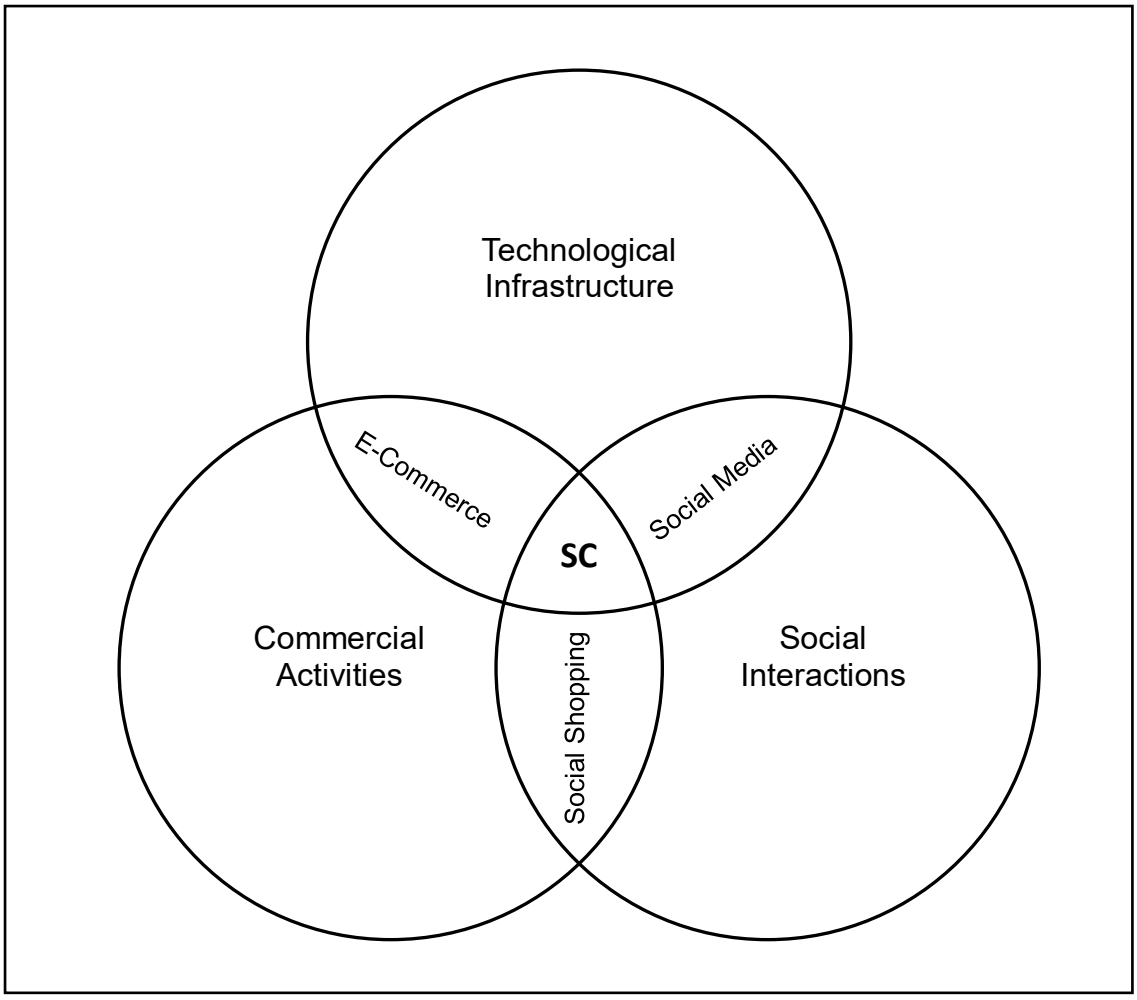
In the context of social commerce, the social, commercial, and technological themes are closely interrelated (Figure 3.1). Researchers explain that the interactive capabilities of the online environment not only support the consumers' online shopping and buying activities (Turban et al., 2015, Liang et al., 2011, Huang and Benyoucef, 2015); they further facilitate their social interactions as they transform from passive audiences to active communicators (Hoffman and Novak, 1996, Shin et al., 2016, Ng, 2013, Liang et al., 2011). This has already been covered in depth in the interactivity literature review (Chapter 2). The consumers' online social interactions, an example of which is seeking product recommendations from their online social network (Chu and Kim, 2011, Chen and Shen, 2015), can in turn influence their shopping experiences and buying decisions in social commerce (Leitner and Grechenig, 2008, Yadav et al., 2013, Anderson et al., 2011, Pagani and Mirabello, 2011). These experiences and decisions, whether positive or negative, will consequently guide the consumers' own opinions and reviews that they might share with others online (Turban et al., 2016, Laudon and Traver, 2012, Ng, 2013, Stephen and Toubia, 2010), thus repeating the cycle.

2. Social Commerce and Related Concepts

In light of the previous discussion, social commerce can be described as the fruit of the interrelation between the technological infrastructures, social interactions and commercial activities (Figure 3.2). Interestingly, examining the overlapping areas of each two themes in the framework presents a useful tool for understanding three concepts closely related to the study of social commerce, namely; social media, e-commerce, and social shopping. Specifically, the intersection between the technological and social themes in the framework is

a visual representation of social media, while the overlap between the commercial and technological themes reflects e-commerce. Similarly, the overlap between the social and commercial themes results on social shopping. In this section, an overview is presented of each of the aforementioned concepts, including a closer look at what it means for each two themes to merge together to create the concept at hand.

Figure 3.2: Social Commerce and Related Concepts



SC = Social Commerce

2.1 Social media

As illustrated in Figure 3.2, social media is the result of the overlap between the technological and social themes of the framework (Fuchs, 2014). It is, therefore, defined as a range of online platforms and applications that implement a variety of interactive mechanisms to facilitate their users' social activities (Correa et al., 2010, Chaffey and Ellis-Chadwick, 2016, Kietzmann et al., 2011). These social activities, according to Fuchs (2014), are manifest in communication, collaboration and communities. Communication and

collaboration respectively refer to the consumers' interactive conversations and cooperative exchanges, and together they contribute to building the consumers' relationships and growing their online social communities (*ibid*, 2014). The 'social' in social media is additionally demonstrated at the personal level in the consumer's desire to control the information that they share about themselves (i.e. social disclosure) and, consequently, the way that others perceive their image online (i.e. social representation) (Kietzmann et al., 2011).

Because of the intertwining nature of the social and technological themes of social media, Kaplan and Haenlein (2010) propose a classification of social platforms based on social and technological criteria (Figure 3.3). To achieve this, the two researchers cite Goffman (1959) and Schau and Gilly (2003), as they utilize the theories of self-disclosure and self-representation to reflect the social perspective in the classification. To represent the technological side of social media, they adopt the theories of media richness and presence, citing Short, William and Christie (1976) and Daft and Lengel (1986), because these theories indicate the extent to which a certain medium is able to facilitates seamless, unambiguous, and reciprocal interactive experiences (Kaplan and Haenlein, 2010).

According to this preliminary typology, collaborative online projects (e.g. Wikipedia) are considered low on both criteria because of their limited text-based mechanisms and the minimal self-representation and self-disclosure they allow. On the other end of the spectrum, social networking sites (e.g. Facebook) are considered high on both the technological and social axis because such environments use a wide variety of rich interactive tools to facilitate intricate social interactions (Kaplan and Haenlein, 2010).

Figure 3.3: A Preliminary Typology of Social Media Based on Technological and Social Criteria

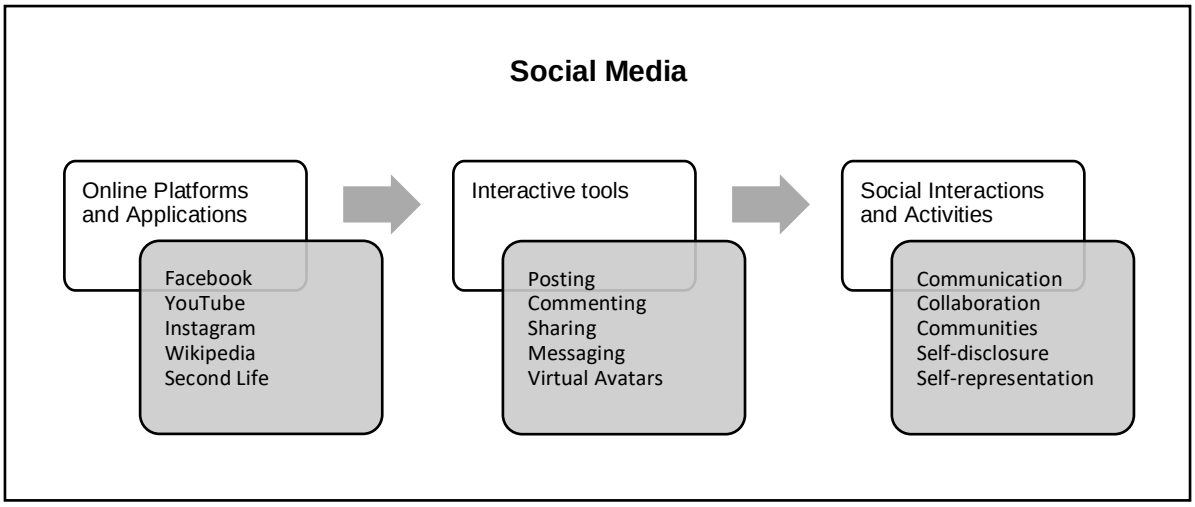
		Technological Mechanisms	
		Low	High
Social Activities	High	• Blogs	• Social networking sites (e.g. Facebook) • Multimedia messaging apps (e.g. SnapChat)
	Low	• Collaborative Communities (e.g. Wikipedia)	• Virtual Game Worlds (e.g. World of Warcraft)

Adapted from Kaplan and Haenlein (2010)

This typology, while not empirical in nature, is useful in terms of illustrating the role of interactivity in the context of social technologies, echoing the discussion in Chapter 2. Indeed, interactivity is an essential topic in social media research, as it is the structural interactive tools of a social platform that facilitate the patterns of social behaviour exhibited by the consumers on said platform (Voorveld et al., 2011, Fuchs, 2014, Liang et al., 2011, Lu et al., 2016). In other words, interactivity acts as a mediator between the technological and social facets of social media (Figure 3.4).

For example, the availability of posting and commenting tools on Facebook creates a global platform for consumers to share their opinions with others about any number of subjects; from politics to brands. As emphasized in Chapter 2, this was inconceivable before the growth of the interactive capabilities of new media which shifted the control to the consumers through the democratization of their communication (Kietzmann et al., 2011, Jensen, 1998).

Figure 3.4: Interactivity as a Mediator between Technological and Social Themes



It is interesting to note that, while being distinctive for enabling social interactions between its users (i.e. interpersonal communication or human-human interactivity), social media is equally able to facilitate one-to-many mass communication models (e.g. online adverts) (Fuchs, 2014, Vendemia, 2017, Chaffey and Ellis-Chadwick, 2016). Additionally, social media inherently incorporates human-website interactive tools and mechanisms (e.g. links, search, and customization) with the aim of engaging its consumers and enhancing their navigation experiences (Zhang et al., 2014, Fuchs, 2014, Mollen and Wilson, 2010).

2.2 Electronic commerce (e-commerce)

As it is evident in Figure 3.2, conducting commercial exchanges in an interactive environment are other words to describe e-commerce (Chaffey et al., 2009). Some scholars suggest that for an e-commerce activity to be considered as such, a full financial transaction has to have transpired online (Laudon and Traver, 2012). However, other researchers consider any and all of the transactional and non-transactional activities related to the consumers' online shopping experiences as a part of e-commerce (Zwass, 1996, Turban et al., 2015, Strauss and Frost, 2001). This includes the different stages of the consumer buying decision process, specifically: need recognition, information search, evaluation of alternatives, actual purchase and post-purchase behaviours (Turban et al., 2015, Pavlou and Fygenson, 2006, Zhang and Benyoucef, 2016). Along the lines of the discussion of the consumer buying decision process, it is key to note that "consumers do not make decisions in a linear manner" (Powers et al., 2012, p.479) and that the different stages of decision-making may occur in "non-linear, iterative loops" (Yadav et al., 2013, p. 315).

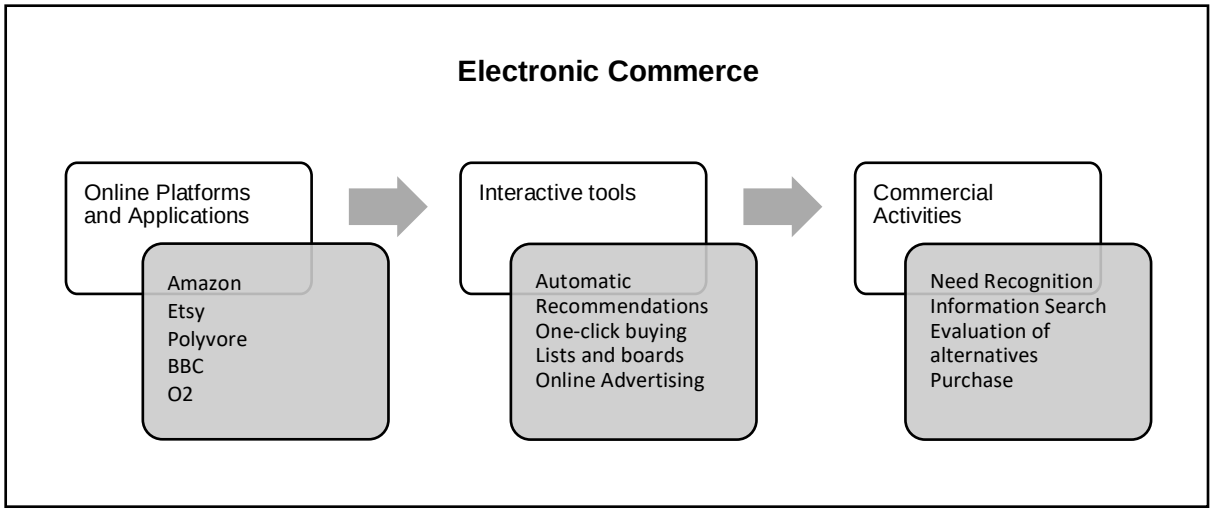
For the purposes of presenting a more inclusive view of the term, and in line with the general direction in social commerce research (e.g. Yadav et al., 2013, Zhou et al., 2013, Shen, 2012), the researcher follows the second path of using e-commerce to involve to "any kind of [online] activity that leads to commercial benefits" (Liang and Turban, 2011, p.7).

Accordingly, the concept of e-commerce includes online presences that support commercial exchanges occurring between businesses, between consumers, between businesses and consumers, and between other types of organizations (e.g. governments) and their consumers (Turban et al., 2015, Strauss and Frost, 2001, Laudon and Traver, 2012). Relevant to the thesis at hand are the business-to-consumer and consumer-to-consumer e-commerce platforms. Examples of these are consumer-to-consumer marketplaces (e.g. Etsy), community-curated marketplaces (e.g. Polyvore), business-to-consumer marketplaces (e.g. Amazon), brand websites (e.g. Dell.com), news websites (e.g. BBC), online banking services (e.g. TSB.com), and online telecommunication services (O2.com).

Similar to the discussion in the previous section, and as illustrated by Figure 3.5, interactive mechanisms have been found to play an important role in connecting the technological and commercial sides of e-commerce (Ghose and Dou, 1998). Indeed, interactivity facilitates the functionalities of each e-commerce platform depending on their respective scopes and goals (Huang and Benyoucef, 2015, Laudon and Traver, 2012). For example, Amazon adopts one-

click buying, sophisticated searches, and personalized recommendations to enhance the efficiency of their consumers' goal-directed shopping experiences (i.e. when they shop with the aim of making a purchase) (Chen and Shen, 2015, Hoffman and Novak, 1997, Shen, 2012). Conversely, Polyvore utilizes style boards and collages, lists, and bookmarking tools to facilitate their consumers' experiential shopping activities, in which they aim to explore brands, products, and offerings for future purchases (Hoffman and Novak, 1997).

Figure 3.5: Interactivity as a Mediator between Technological and Commercial Themes



Notably, while they often enable basic human-human interactivity (e.g. reviews, questions), traditional e-commerce platforms largely facilitate human-website interactivity and mass communication (Ha and James, 1998, Ghose and Dou, 1998, Hoffman and Novak, 1997, Huang and Benyoucef, 2015).

2.3 Social shopping

Figure 3.2 shows that the combination of commercial activities and social interactions will result in social shopping. Indeed, shopping in its core is a social experience (Dennis et al., 2010, Anderson et al., 2011), and social shopping can be understood as the social activity that consists of shopping with other people, whether in the real world or online (Huang and Benyoucef, 2015, Afrasiabi Rad and Benyoucef, 2011). It is worth highlighting that some research papers use the terms 'social shopping' and 'social commerce' interchangeably (Wang, 2013), while others describe its online form (i.e. online shopping with other people enabled by interactive mechanisms) as a subset of social commerce (Afrasiabi Rad and Benyoucef, 2011, Marsden, 2010).

To avoid confusion in this thesis, especially because one of its aims is to explore the concept of social commerce and what it involves, the researcher opts to not use the term 'social shopping' to substitute 'social commerce'. Instead, she follows the direction of research that utilizes it to denote the activity of shopping along with friends on social commerce websites.

3. Social Commerce as the Result of the Convergence between Social Media and E-Commerce

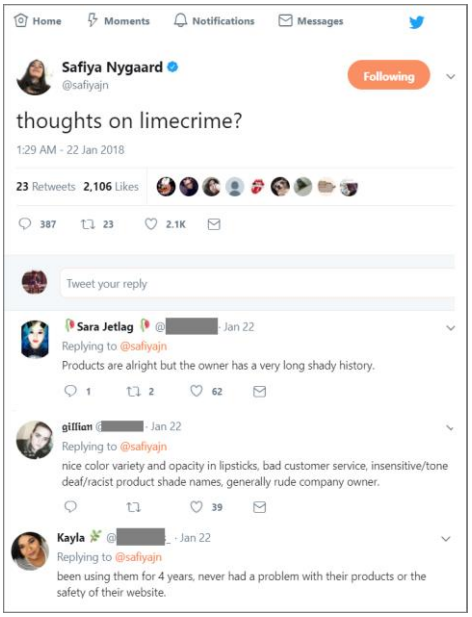
The discussion in this chapter, thus far, has highlighted the three main themes of social commerce (i.e. social, commercial, technological) and how they join forces with one another to shape the concept of social commerce. Moreover, the three-theme framework has been employed to shed light on concepts of particular importance to the understanding of social commerce, including social media and e-commerce. According to the framework, social media is represented in the overlap between the technological and social themes, while e-commerce is the result of the overlap between the technological and commercial themes.

It is key to note that both social media and e-commerce can transform into social commerce if they utilize the appropriate interactive tools to facilitate their consumers' commercial and social interactions, respectively, thus encapsulating all three themes of the framework. Indeed, social media is often viewed as a type of social commerce (Liu et al., 2016, Stephen and Toubia, 2010, Liang and Turban, 2011, Cecere, 2010); particularly when its consumers' social interactions influence the different stages of their buying decision process (Liu et al., 2016, Stephen and Toubia, 2010, Yadav et al., 2013, Pagani and Mirabello, 2011). This can involve connecting with and purchasing from firms via their social media pages, carrying out buying and selling activities with other consumers on social platforms, and seeking and sharing opinions about products and brands in social communities (Liang and Turban, 2011, Shen, 2012, Turban et al., 2016, Wang and Zhang, 2012, Chu and Kim, 2011).

Examples of social media interactions that revolve around products, brands and shopping activities are presented in Figure 3.6. Screenshot (A) depicts a Twitter user asking her social network for opinions about a specific brand, screenshot (B) shows a conversation between customers and a representative of a UK-based supermarket chain on the latter's Facebook page, screenshot (C) portrays a buyable item on Pinterest, and finally screenshot (D) is of a consumer-consumer marketplace on Facebook.

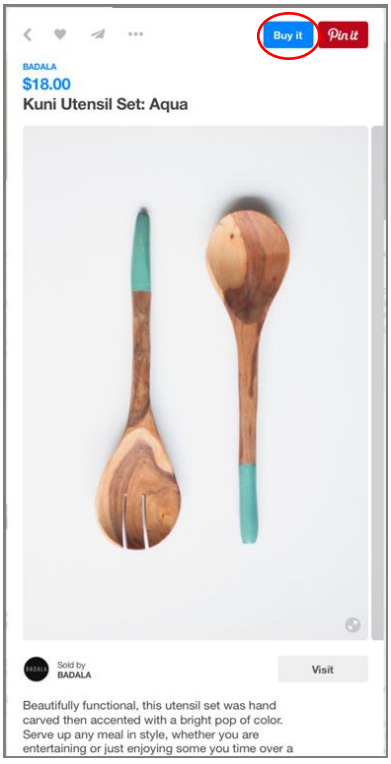
Figure 3.6: Social Media Facilitating Commercial Exchanges

Screenshot (A)

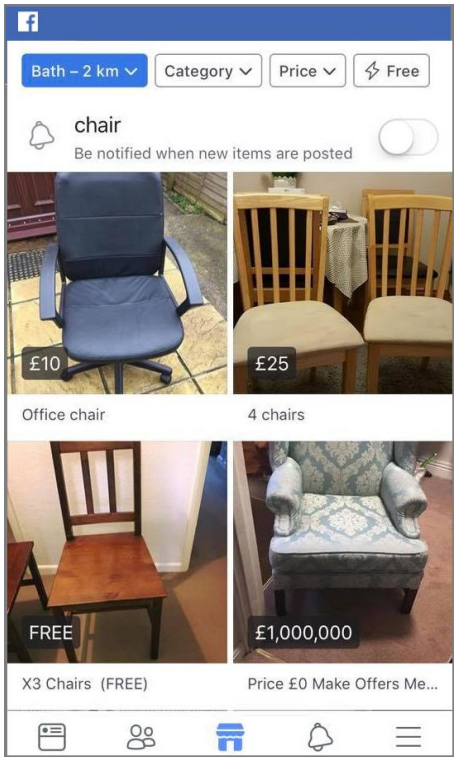


Screenshot (B)

Screenshot (C)



Screenshot (D)



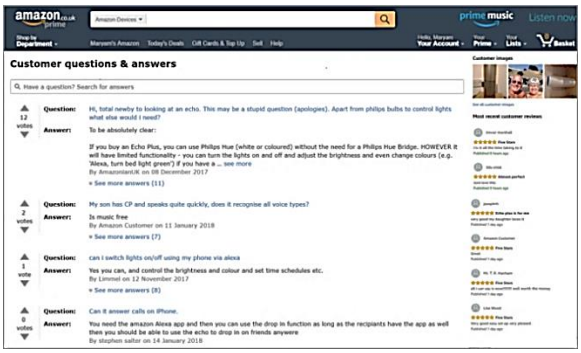
Sources: twitter.com/safiyajn, facebook.com/Waitrose, pinterest.com, facebook.com/marketplace

Similarly, social commerce is closely related to e-commerce, and some definitions go as far as describing the first as a development of the latter (Kim and Park, 2013, Afrasiabi Rad and Benyoucef, 2011, Leitner and Grechenig, 2008, Turban et al., 2016). Indeed, the two are similar in respect to facilitating their consumers' online shopping and buying activities but differ in regard to allowing their social interactions (Mullin, 2016, Huang and Benyoucef, 2013, Lu et al., 2016, Marsden, 2010). As highlighted earlier, e-commerce does not typically incorporate social experiences to their customers' shopping journeys (Turban et al., 2016, Liang and Turban, 2011). However, when they do (e.g. by adding communication, collaboration, and relationship-building tools), they become a type of social commerce (Cecere, 2010, Cha, 2009, Chen and Shen, 2015, Hajli and Sims, 2015, Huang and Benyoucef, 2013, Huang and Benyoucef, 2015, Lu et al., 2016, Shen, 2012, Wang and Zhang, 2012).

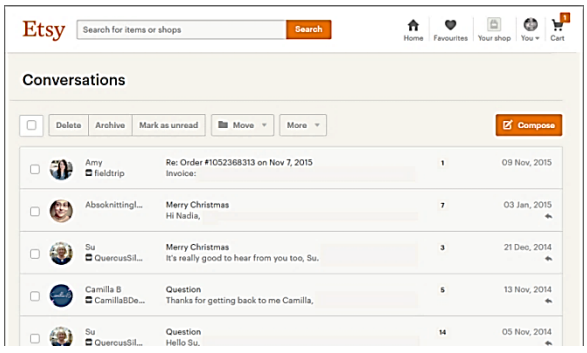
Figure 3.7 depicts examples of e-commerce platforms that enable a variety of social interactions. Screenshot (A) shows product questions and reviews on Amazon, screenshot (B) portrays private messaging tools on Etsy, screenshot (C) demonstrates a social community on E-bay, and screenshot (D) is of ideastorm.com, a collaborative crowdsourcing platform targeting the customers of Dell Computers.

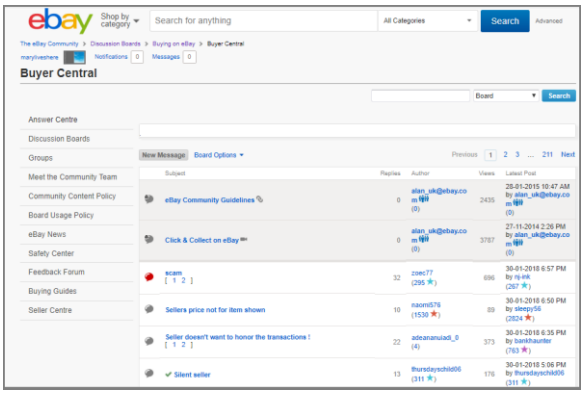
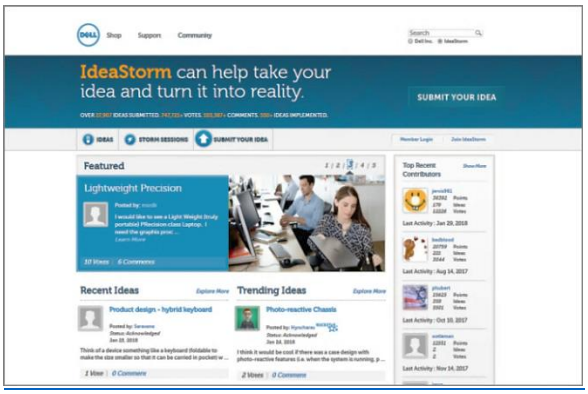
Figure 3.7: E-commerce Platforms Facilitating Social Interactions

Screenshot (A)



Screenshot (B)



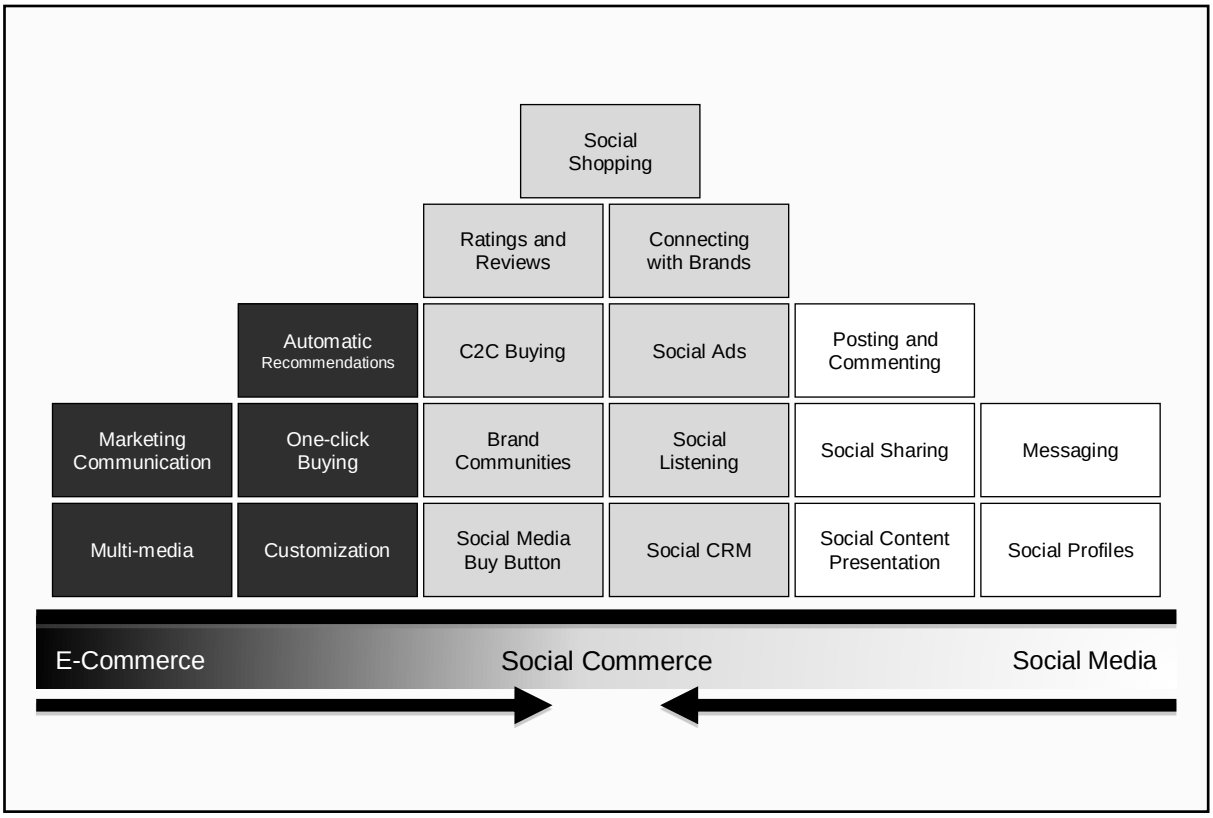
Screenshot (C)	Screenshot (D)
	

Sources: amazon.co.uk, etsy.com/uk/conversations, community.ebay.co.uk, ideastorm.com

Based on the previous discussion, social commerce can be described in terms of the convergence between social media and e-commerce technologies and activities (Cecere, 2010). This is further evident in the fact that social commerce can support both human-human and human-website interactivity. As the grey part in Figure 3.8 demonstrates, social commerce is created when an online platform is made up of interactive mechanisms that facilitate both the consumers' social interactions and shopping and buying activities along the different stages of their buying decision process (Huang and Benyoucef, 2013, Kang and Park-Poaps, 2011, Shen, 2012, Yadav et al., 2013, Zhou et al., 2013, Chaffey and Ellis-Chadwick, 2016, Liang and Turban, 2011).

As discussed in the interactivity literature review (Chapter 2), interactivity was introduced, in the first place, as a response to the convergence between the mass and interpersonal communication perspectives in new technologies, which uncovered the need for a new theory to help understand these technologies (Rogers and Chaffee, 1983). Interestingly, social commerce is comparably the result of the convergence between two types of interactive communication (i.e. human-website and human-human interactivity), as reflected in the fact that it facilitates both the functionalities of social media and e-commerce technologies (Figure 3.8). Therefore, scholars propose that theory should be similarly developed and updated to capture the novel context of social commerce. Indeed, Liang and Turban (2011) maintain that "social media technologies not only provide a new platform for entrepreneurs to innovate but also raise a variety of new issues for e commerce researchers that require the development of new theories" (ibid, 2011, p. 5). This is addressed in more detail in Study 1 of this thesis (i.e. the content analysis study).

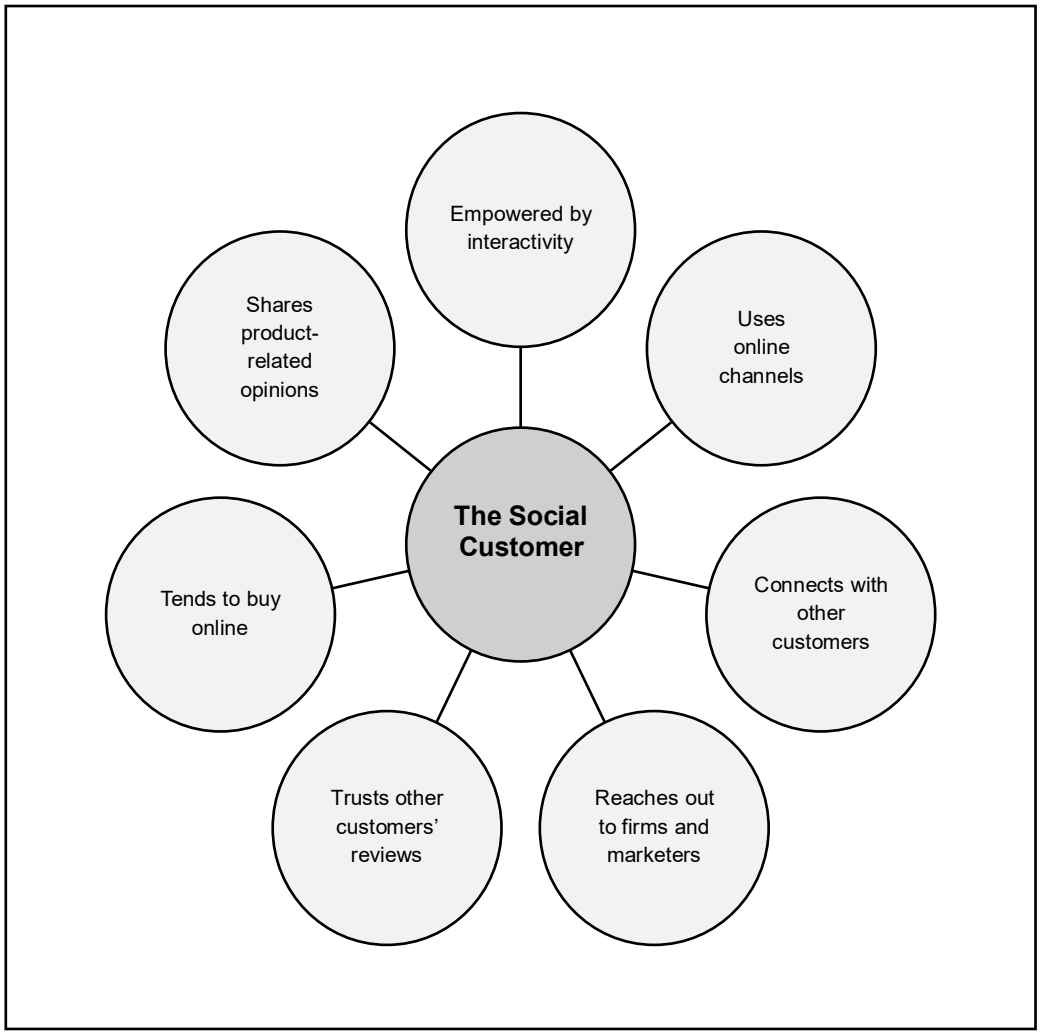
Figure 3.8: Social Commerce as the Result of the Convergence Between Social Media and E-commerce



The social customer and the social enterprise

Emerging from this convergence of social media and e-commerce technologies is the social customer (Figure 3.9), who according to Turban et al. (2016), is "not just a purchaser but also an active influencer" (p.166). The social customer is empowered by interactivity (Kietzmann et al., 2011, Jensen, 1998, Ng, 2013, Powers et al., 2012), enjoys online shopping (Marsden, 2010, Turban et al., 2016), and is willing to contribute, collaborate and interactively communicate with firms and with other shoppers (Huang and Benyoucef, 2013, Liang and Turban, 2011, Shen, 2012, Zhou et al., 2013).

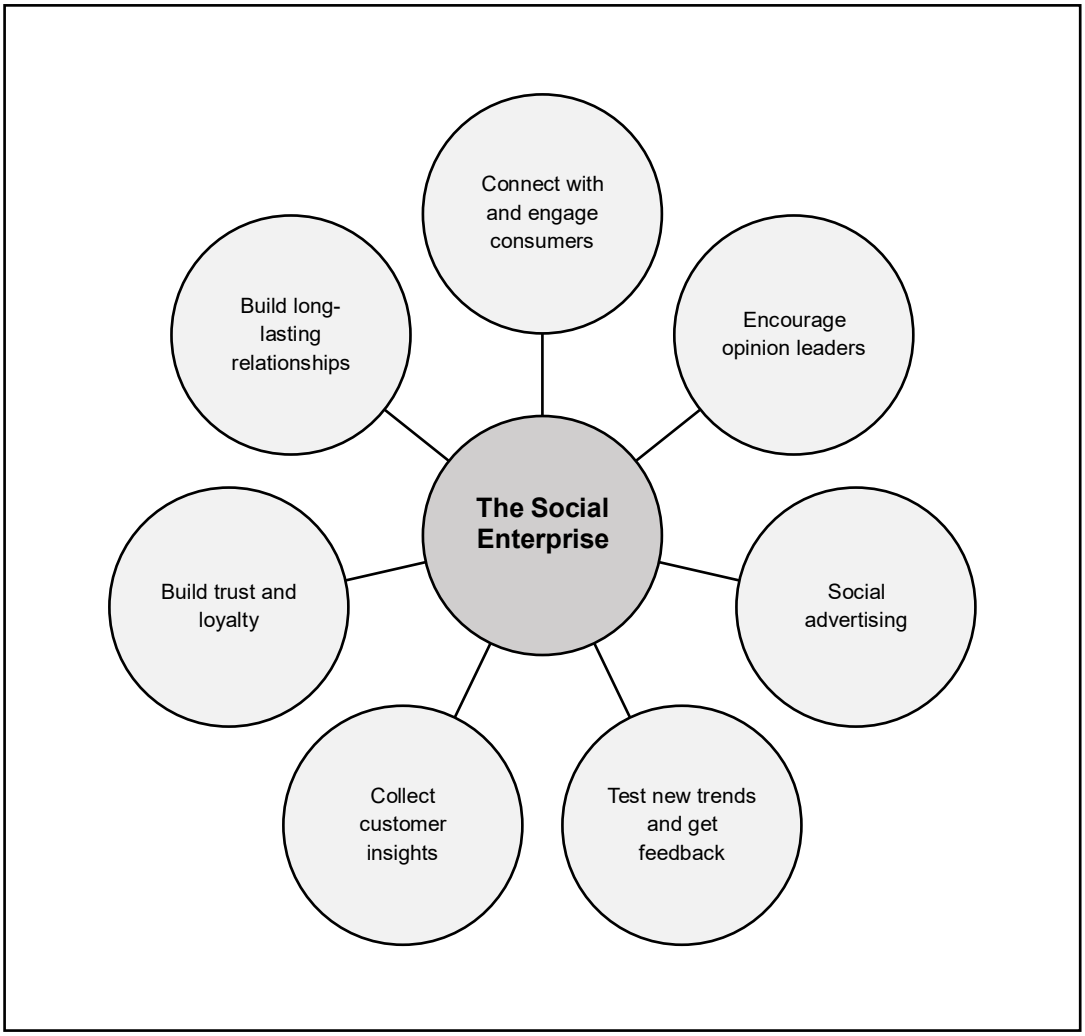
Figure 3.9: Characteristics of the Social Customer



Adapted from Turban et al. (2016)

Marketers recognize the important role of the social customer in determining the success of products and brands in each step leading to the buying decision (Anderson et al., 2011, Price, 2016, Olbrich and Holsing, 2011). They capitalize on this potential by designing social and digital marketing strategies to guide their consumers' shopping behaviours throughout their buying journey (Porcellana, 2016, Yadav et al., 2013, Huang and Benyoucef, 2013), thus becoming social enterprises (Figure 3.10). Indeed, social commerce gives marketers the appropriate tools to connect with their customers (Howard, 2016), engage them (Huang and Benyoucef, 2013, Parker, 2017), and influence their preferences and decisions by collaborating with opinion leaders and influencers to socially share positive feedback about their brand (Marsden, 2010). This aids the marketers in establishing long-term relationships with their consumers that are based on trust and loyalty (Price, 2016, Barwise and Meehan, 2010).

Figure 3.10: Characteristics of the Social Enterprise



Adapted from Turban et al. (2016)

The social enterprise additionally uses social commerce to collect first hand insights about their consumers and members of their social networks via social listening techniques and usage metrics (Anderson et al., 2011, Barwise and Meehan, 2010, Turban et al., 2016, Hanna et al., 2011, Laudon and Traver, 2012). Moreover, marketers facilitate the capabilities of social commerce to test new trends (Porcellana, 2016) and get feedback about their offerings (Parker, 2017). Marketers use this "wealth of user information" (Smith, 2016, p.1) to lead their consumer-centred marketing strategies (Beese, 2016, Porcellana, 2016); an example of which is targeting them with adverts and offers which are optimized to fit their interests and online behaviours (Sentance, 2016, Laudon and Traver, 2012, Liang and Turban, 2011). Carrying out successful social marketing strategies through social commerce will help companies in creating brand awareness, gaining exposure that goes beyond their usual online

reach (Weiss, 2014, Zhou et al., 2013, Beese, 2016, Price, 2016), and ultimately achieving financial success (Parker, 2017).

Adopting social commerce as a part of their overall marketing strategy comes with its own challenges for the social enterprise (Anderson et al., 2011). Despite the consumers' high expectations of this new channel (Beese, 2016, Turban et al., 2016, Powers et al., 2012), marketers have little resources at their disposal to invest in developing their social commerce strategies (Kim and Noh, 2012). Indeed, firms are required to capitalize on the full potential of the newly available, and ever evolving, interactive technologies to create engaging and socially-rich user experiences (Huang and Benyoucef, 2015, Li et al., 2014, Chaffey and Ellis-Chadwick, 2016, Turban et al., 2016). However, in a qualitative study conducted by Cecere (2010), more than half of the 54 marketing practitioners she interviewed expressed uncertainty regarding how to utilize the growing interactive capabilities of social commerce. Consequently, if marketers continue to miss out on adequately understanding and utilizing the interactivity of social commerce, it "may obstruct the development of effective social commerce strategies and platforms" (Huang and Benyoucef, 2015, p.58), negatively affecting the customers' experiences and the possibility of them actually going ahead with their purchases (Kalinowski, 2016, Howard, 2016).

Researchers, therefore, recommend investing more effort into exploring the interactive features of social commerce; specifically with regard to how the consumers use them and perceive them, and how they facilitate or deter social and commercial activities (Huang and Benyoucef, 2015, Lu et al., 2016, Grange and Benbasat, 2010, Liang et al., 2011, Turban et al., 2015, Yadav et al., 2013, Wang and Zhang, 2012). In line with these recommendations, this thesis' empirical studies are designed to investigate how consumers carry out and perceive their social commerce experiences. Particularly, the consumers' experiences will be approached through the lenses of interactivity; including its antecedents and its outcomes.

Table 3.2 illustrates the activities and interactions of the social customer throughout their buying decision process, and the marketing objectives and strategies corresponding to each stage of their social commerce journey.

For example, at the very beginning of their journey, a consumer might become aware of their need for a new camera because of a professional picture on a friend's Instagram page, a sponsored video on YouTube of an influencer using a high-end camera, or from an advert of a camera on Facebook. The first awareness prompt is the result of the consumer's interactions

with their own social network, while the other two are the result of the marketing strategies of the social enterprise. Along the same lines, when they are searching for information about potential camera choices, a consumer could turn to their social community for questions (Liang et al., 2011, Chen and Shen, 2015), check out ratings and reviews on an e-commerce website (Amblee and Bui, 2011), or interact with the brands' representatives on their social media pages (Lu et al., 2016), and so on.

Table 3.2: The Activities of the Social Customer and the Corresponding Marketing Strategies of the Social Enterprise

The Social Customer		**The Social Enterprise**	
Stages of Buying Decision Process	Social Commerce Activities and Interactions	Marketer Objectives	Social Marketing Strategies and Tools
• **Need Recognition**	• E-WOM in the form of other customers' social media pictures and posts • Interactive timeline of social commerce content	• Create awareness of brand and products	• Social and viral adverts • Social recommendations • Collaborating with opinion leaders and influencers
• **Information Search and Evaluation of Alternatives**	• Asking social network for advice and opinions • Joining product or brand social communities • Reading product reviews	• Present detailed information about brand, products, specifications and prices • Interact with consumers • Attract customers and influence decision-making	• Social media presences (e.g. brand pages and profiles) • Direct and interactive communication tools • Collaborating with opinion leaders and influencers • Encouraging positive reviews • Leading social conversations • Social and live videos • Offering exclusive social content • Search engine optimization and social search

• **Purchase**	• Social Shopping	• Facilitate purchase	• Social contests, offers, and promotions • Social media buy-buttons
• **Post-purchase**	• Spreading e-WOM about product and shopping experience • Brand and product social communities	• Satisfy customers • Post-purchase support services • Maintain and grow relationships with customers	• Social engagement metrics • Create, manage and interact with brand communities and fan pages • Social media support and interactions • Personalized content

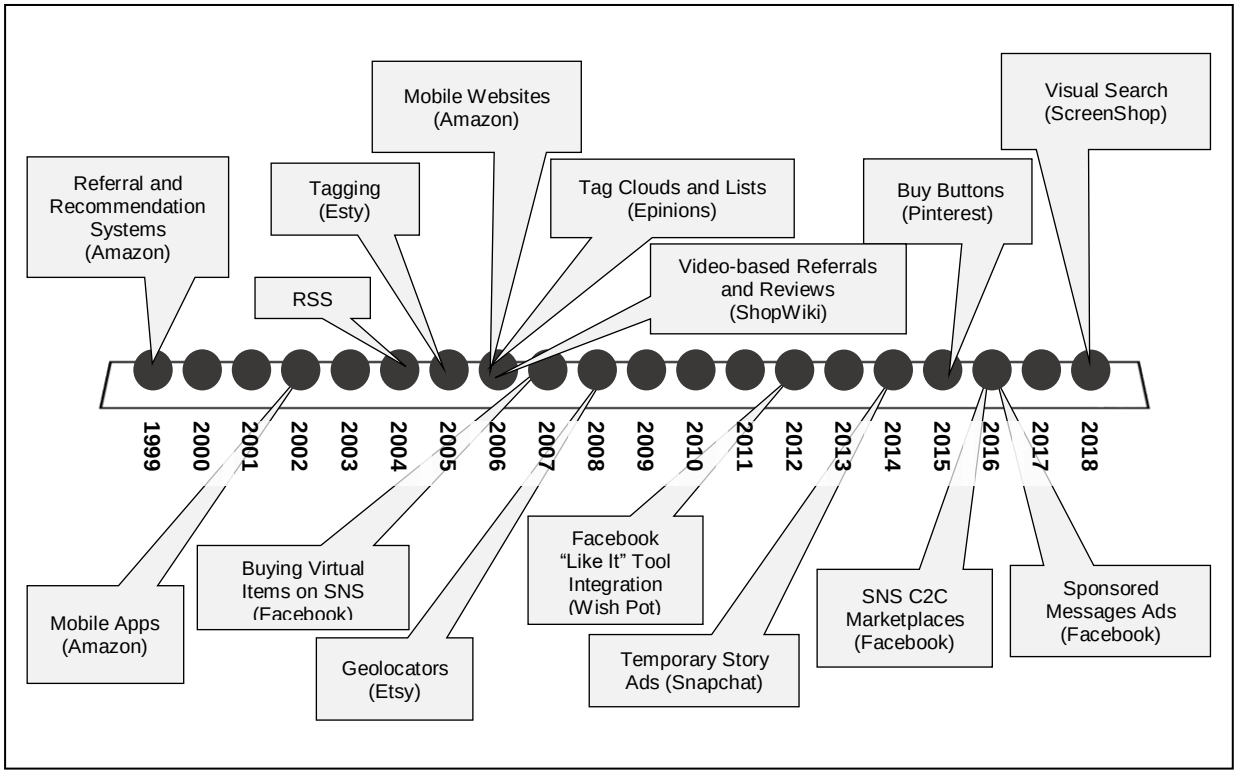
Adapted from Chaffey and Ellis-Chadwick (2016), Laudon and Traver (2012), and Shively and Hitz (2016)

4. Limitations in Conceptualizing Social Commerce

The versatility of social commerce as a concept comes with its own challenges, especially in respect of narrowing it down, categorizing it, and drawing a sure line between social commerce and e-commerce on the one hand, and between social commerce and social media on the other hand. These limitations together make up the fourth gap in this thesis, which is contextual in nature.

As depicted in Figure 3.11, e-commerce websites have capitalized on the sociality of their consumers by enabling reviews and social sharing for many years now, and social platforms have been created around brands and products for quite some time (e.g. Facebook commerce) (Curty and Zhang, 2011, Indvik, 2013, Lin et al., 2017, Fuchs, 2014, Wang and Zhang, 2012). This poses the question of whether social commerce has existed all along (Lin et al., 2017), or if the concept should be reserved to describe websites that harbour certain levels of sociability and interactivity? For example, while Amazon enables social interactions in the form of customer reviews and questions, it offers very limited personal profiles and no built-in direct messaging options. In contrast, the users on Polyvore are able to create detailed and vivid profiles that include information about their followers, favourite items, groups, and collections, in addition to liking and direct messaging options.

Figure 3.11: A Timeline of Social Commerce Interactivity



Adapted from Curty and Zhang (2011)

Along the same lines are a few shortcomings relating the categorizations of social commerce platforms presented in the literature, which are for the most part arbitrary, contradictory, and unscientific. For instance, Indvik (2013) identifies seven types of social commerce, particularly; peer-to-peer, social networks, group buying, peer-recommendations, user-curated, participatory, and social shopping platforms. Similarly, Parker (2017) pinpoints four categories of social commerce, namely; participatory commerce, social shopping, curated shopping, and peer recommendations. However, these and other categorizations proposed in the literature (e.g. Liang and Turban, 2011, Huang and Benyoucef, 2013, Lee and Lee, 2012) are not rooted in theory and their authors do not clarify the basis or the process for coming up with them.

A rare example of an empirical classification of social commerce was presented by Saundage and Lee (2011), who based it on a study of a mere 15 websites and presented two simple categories; pre- and post-transactional social commerce. Evidently, these two categories do not offer much information on social commerce types that can be utilized in future research or practice (Nickerson et al., 2013). Therefore, a major shortcoming in the literature is the ambiguity concerning social commerce, particularly its precise meaning and its different types (Shen, 2012, Yadav et al., 2013, Turban et al., 2016, Mullin, 2016).

These difficulties in pinning down the concept are reflected in the wide range of empirical settings used in prior social commerce research, and consequently in the types of respondents and subjects used (Appendix D). Social commerce studies are set in contexts as varied as social networking sites (Chow and Shi, 2014, Kang and Johnson, 2013, Ng, 2013), online shopping platforms (Curty and Zhang, 2013, Grange and Benbasat, 2010), and websites identified as social commerce without a clear justification of why they were considered as such (Curty and Zhang, 2011, Leitner and Grechenig, 2008). Several other researchers resort to targeting general respondents who happen to be online shoppers or social media users (Hajli and Sims, 2015, Cha, 2009, Kang and Park-Poaps, 2011, Kang and Johnson, 2013, Huang and Benyoucef, 2015). Consequently, when the term 'social commerce' is used in empirical research, it can be actually referring to one of many concepts, presenting a problem that could affect the reliability of research outcomes.

The conceptualization shortcomings are additionally translated into a real-life problem which finds the potential of social commerce unclear, with marketers uncertain of the future success of their social commerce investments (Smith, 2016, Turban et al., 2016, Stephen and Toubia, 2010, Yadav et al., 2013).

On the one hand, a direction of investigation maintains that social commerce is a promising business model and growing phenomenon (Kim and Noh, 2012, Stephen and Toubia, 2010, Turban et al., 2016, Shively and Hitz, 2016), and both reports and predicts a note-worthy increase in use (Mullin, 2016, Amblee and Bui, 2011), influence (Beese, 2016, Sentance, 2016), and profits (Kurt Salmon Digital, 2016, Parker, 2017). On the other hand, some warn of overhyping the concept, and point out reports of exaggerated financial performance (Halzack, 2016, Smith, 2016, eMarketer, 2016). These contradictions are possibly a result of the inconsistency in defining what social commerce means and the types of activities it involves. Indeed, when disclosing social commerce statistics, some experts might be referring to sales from actual purchases using social media buy-buttons (Halzack, 2016, eMarketer, 2016), while others could be including the outcomes of other types of social commerce activities, such as word-of-mouth and referrals (Mullin, 2016, Amblee and Bui, 2011).

Consequently, the social commerce typology, which is the first study in the thesis, is utilized to address these conceptualization shortcomings by presenting an empirical examination and classification of 73 social commerce websites that is rooted in interactivity theory.

Conclusion

To summarize, this chapter highlighted attempts of prior research at conceptualizing social commerce and presented a three-theme framework (i.e. technological, social, commercial) to synthesize prior definitions of the concept. It discussed how social commerce relates to social media and e-commerce, and then defined the concept in terms of the convergence between the two. Moreover, the activities and interactions of the social customer were explained, in addition to the role of the social enterprise and the challenges it in facilitating the interactivity of social commerce. Several conceptual limitations that exist in the literature were stressed, and then used to introduce the reasoning for the two empirical studies of the thesis and the choice of interactivity as the main theory in them.

Indeed, the choice of interactivity as the central theory for understanding social commerce comes for three main reasons.

First, based on this literature review, interactivity is uncovered as a distinguishing characteristic of social commerce. This fact is supported by several highly cited interactivity research papers, which emphasize the importance of the concept within new technologies (Song and Zinkhan, 2008, Voorveld et al., 2011).

Second, the social commerce literature constantly alludes to the role in interactivity within social commerce websites, but never fully examines it (Huang and Benyoucef, 2015). Indeed, interactivity is reportedly named by consumers as an enjoyable aspect of the social commerce experience (Dennis et al., 2010), which is expected to "mitigate the flaws of online shopping . . . such as the lack of social interaction and emotional involvement" (Cha, 2009, p.87). Interactivity is also is expected to "trigger user interest and motivation, making their experiences with specific interfaces satisfying and delightful" (Shin et al., 2016, p. 1139). Still, the investigation of interactivity is never taken any further in social commerce research.

Finally, interactivity presents a fitting perspective to capture the interrelation between the technological, social and commercial themes of social commerce. This is due to the fact that interactivity is a multi-dimensional concept, which connects the structural and social sides of the consumer's online experience (Fuchs, 2014, Turban et al., 2016, Chaffey and Ellis-Chadwick, 2016).

4. Conceptual Model, Research Questions, and Hypotheses Justification

Background

Throughout the discussion in the thesis thus far, interactivity has been established as a distinguishing characteristic of new media (Johnson and Kaye, 2016) and important concept to investigate in the context of social commerce (Lu et al., 2016, Liang et al., 2011, Yadav et al., 2013, Wang and Zhang, 2012). A better understanding of interactivity and its effects will offer marketers insights into their consumers' online behaviours and experiences (Yadav and Varadarajan, 2005), as well as aiding them in capitalizing on interactivity to satisfy their consumers' needs (Johnson et al., 2006). This investigation becomes more relevant as interactivity keeps evolving, mirroring the changes in technology and in the consumers' behaviours and expectations (Voorveld et al., 2011, Vendemia, 2017, Kim et al., 2012).

Throughout the literature review (Chapter 2), the researcher defined a number of gaps in interactivity research which could benefit from further examination of the concept (Table 4.1). One of these gaps reflects the inconsistencies in reporting the relationship between interactivity and its outcome variables on the one hand, and the relationship between structural and perceived interactivity on the other hand. According to the literature, these inconsistencies could be the result of limitations in empirical settings and data collection methods used in prior interactivity research (Bucy and Tao, 2007). These limitations represent another gap in the literature to be addressed in this thesis.

To overcome these shortcomings, social commerce is chosen as the context for this thesis because of its novel nature and because it facilitates high user engagement. These characteristics are expected to positively influence the consumers' opinions and perceptions in the context of social commerce (Anderson et al., 2011). Moreover, a combination of content analysis and survey methods are undertaken in this thesis in order to avoid the pitfalls of the experimental method, discussed earlier in the interactivity literature review.

To uncover whether higher levels of interactivity lead to positive outcomes, structural interactivity is linked to objective usage metrics obtained through desk research in Study 1 (RQ1, Table 4.2), while in Study 2, a deeper cross-sectional investigation of the perceptual processes that determine the relationship between structural interactivity and its outcome variables is conducted (H 1-15, Table 4.2). Specifically, the second study's model examines interactivity perceptions, in addition to utilizing the concepts of sociability and engagement

to represent the perceptual processes that mediate the relationship between interactivity and its effects. This becomes more relevant as these two concepts (i.e. engagement and sociability) are both under-researched and highly relevant to understanding the interactive experience in social commerce (Hollebeek et al., 2014, Wu et al., 2013b). It is also important to note that engagement and sociability are deemed appropriate variables to depict the nature of the convergence between e-commerce and social media in the context of social commerce. Particularly, the concept of engagement mainly corresponds to the human-website experience which traditionally characterises e-commerce (Ghose and Dou, 1998), while sociability reflects the relationship building and communication aspects associated with social media (Correa et al., 2010, Animesh et al., 2011).

In addition to contributing to understanding the relationship between structural interactivity and usage behaviours on social commerce, Study 1 will utilize the results of the content analysis study to create a typology of social commerce websites, based on the extent to which each website facilitates human-system and human-human interactivity(RQ2, Table 4.2). This first-of-its-kind typology make an important addition to the knowledge about social commerce, a field of research that is growing in importance and influence (Turban et al., 2016).

Moreover, study 2 will address a third gap in interactivity research; namely, the relationship between structural and perceived interactivity, which is also revealed to have inconsistent results across the literature (Song and Zinkhan, 2008, Voorveld et al., 2011, Johnson and Kaye, 2016). The choice of social commerce as a context of the study is similarly expected to inform the findings on this relationship.

Study 2 will facilitate the Stimulus-Organism-Response (S-O-R) model, as it represents a useful tool to explain the effects of medium features on outcome variables via an understanding of the consumers' perceptions of their experiences on the medium in question (Koufaris and Ajit Kambil, 2001). Here, structural interactivity features offered by social commerce are considered the stimuli (S), while the perceptions of interactivity, engagement, and sociability are the organismic experiences (O) in social commerce. Finally, satisfaction represents the consumers' response behaviours (R), as influenced by the stimuli and their internal experiences in the website. Accordingly, in addition to establishing the model's different hypothesized relationships in the interactivity literature, the S-O-R framework offers additional support to the model from an environmental psychology perspective.

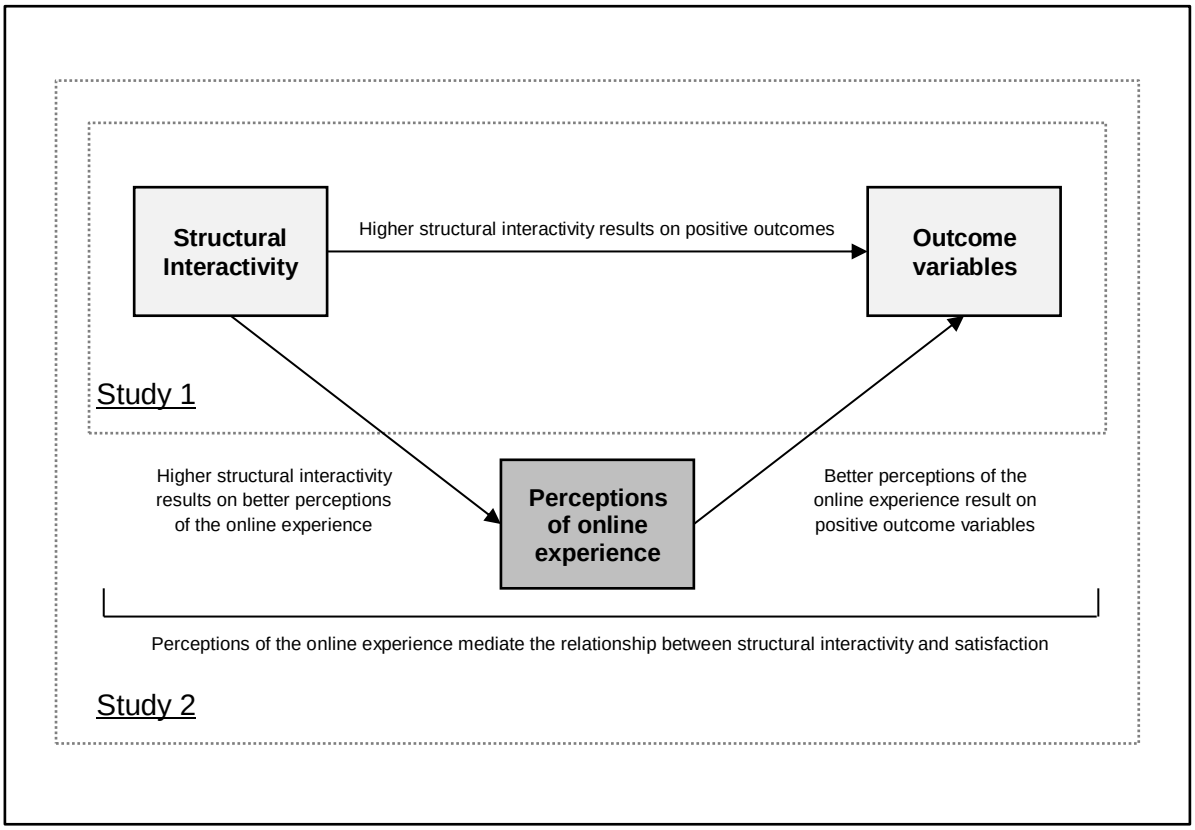
Table 4.1: Gaps in the Literature and how they are Mitigated in the Current Thesis

Research gaps and explanation	How these shortcomings are mitigated in this thesis
Gap 1: The need to understand the evolution of interactivity with the introduction of social technologies Interactivity is a dynamic construct which keeps evolving with changes in the consumers' expectations and experience. This necessitates that researchers continue to evaluate and update our understanding of interactivity and (its influences) with the introduction of new and more enticing technologies. The investigation becomes more relevant as past research falls short in capturing the nature of social technologies and shedding light on consumer-to-consumer and content creation for the benefit of consumer-marketer and navigational activities. Past research also not often includes social constructs as predictor and outcome variables in interactivity conceptual models.	• Investigating interactivity in the context of social commerce, a novel environment and area of research. • Including consumer-consumer and content creation items when operationalizing interactivity. • Investigating sociability in the second study's conceptual model. • Presenting an updated Interactivity Index based on theoretical and empirical content analysis iterations of social environments.
Gap 2: The need to overcome issues in operationalizing and empirically testing interactivity in past research This gap reflects limitations pertaining to the way that interactivity was operationalized and tested in past research. Indeed, methods used in prior research are lacking when it comes to communicating an accurate depiction of the consumers' interactivity. For example, basing an investigation on experimental methods will not capture the nature of consumer-consumer interactivity or properly reflect perceptions of and reactions to the online environment, because of the restricted time and freedom afforded when the respondents	• Using a mixed-methods research design, utilizing both content analysis and survey methods to present a comprehensive picture of interactivity. • Developing the Actual Interactive Behaviours scale (AIB) to shed light on the actual use of structural interactive features. • Utilizing two dimensions of interactivity to reflect both stimuli and perceptions (i.e.

interact in an experimental setting. Similarly, using scales that merely depict the existence or absence of structural interactive features will not reflect the actual nature of interactive behaviours. Another limitation relates to the use of perceived interactivity as a proxy to the environmental stimuli in past research models, depicting a limited view of interactivity	structural and perceived interactivity) in the study's model.
Gap 3: The need to shed light on the incongruities in the relationship between interactivity and outcome variables, including perceived interactivity Gaps 1 and 2 result on inconsistencies in understanding the relationship between interactivity and its outcome variables, including perceived interactivity, because either the methods used, or contexts facilitated do not communicate an accurate picture of the consumers' interactivity. Indeed, the aforementioned relationships are contested in past research and are in need of more research effort to understand them.	• Investigating the relationship between structural interactivity, perceptions, and outcome variables in the context of social commerce, utilizing the updated scales and social items in the conceptual model.
Gap 4: The need to understand social commerce, its boundaries, and how to best utilize it to satisfy consumers Social commerce is yet to be completely understood, specifically in regard to what it involves and how it differs from related concepts, such as social media and e-commerce. This is reflected in the inconsistencies in the empirical settings chosen in past research and in difficulties in recognizing the potential of social commerce for marketers and practitioners. Moreover, marketers are not sure on the best ways of utilizing and manipulating interactivity to connect with, satisfy, and build relationships with their consumers.	• Developing a typology of social commerce websites using two dimensions of structural interactivity (i.e. human-human and human-website). This typology highlights what social commerce involves and where it departs from social media and e-commerce technologies. • Investigating a conceptual model of interactivity and its influences in the context of social commerce, shedding light on interactive consumer behaviours and how they can be managed to achieve marketing goals.

The researcher aims, through this conceptual model (Figure 4.1), to offer fresh and relevant insights into the study of interactivity, specifically by: (1) investigating both the structural and perceived interactivity views in order to present a comprehensive evaluation of the concept, (2) examining the relationships between structural interactivity and both subjective and perceptual outcome variables, (3) presenting an experiential and social perspective to the model, by including engagement and sociability, which reflect the vast interactive potential of social technologies, and finally (4) presenting a theoretically-informed typology of social commerce websites.

Figure 4.1: The Overarching Conceptual Model



It is key to note that instead of approaching the two perspectives of interactivity (i.e. structural and perceived interactivity) at the aggregate level, like many past interactivity research papers (e.g. Animesh et al., 2011, Lee and Shin, 2012, Li et al., 2014, Zhang et al., 2014), their relationships are gauged using their individual dimensions (i.e. human-human and human-website structural interactivity, and perceptions of control and communication) in study 2.

Table 4.2: Research Objectives, Questions, Hypotheses, and Corresponding Studies

Research Objectives	Research Questions	Hypotheses	Corresponding Studies
To uncover how effective structural interactivity is in the context of social commerce.	**RQ 1**: Does higher structural interactivity lead to higher effectiveness of social commerce websites? **RQ 2**: What are the different types of social commerce websites based on their structural interactivity?	- -	Study 1: Content Analysis of Social Commerce
To uncover the extent to which the use of structural interactive features influences the consumers' perceptions and opinions of the social commerce experience.	**RQ 3**: Does higher use of the interactive features on social commerce influence the consumers' perceptions of these websites, in terms of; (1) perceived interactivity, (2) perceived engagement, and (3) perceived sociability?	**H1:** Human-website structural interactivity positively affects perceived control in social commerce **H2:** Human-human structural interactivity positively affects perceived communication in social commerce **H3:** Human-human structural interactivity positively affects perceived control in social commerce **H4:** Human-website structural interactivity positively affects perceived engagement in social commerce **H5:** Human-human structural interactivity positively affects perceived sociability in social commerce	Study 2: S-Commerce Interactivity Survey
	RQ 4: Do the consumers' perceptions of social commerce influence one another?	**H6:** Perceived engagement positively affects perceived control in social commerce **H7:** Perceived sociability positively affects perceived communication in social commerce	

		H8: Perceived sociability positively affects perceived engagement in social commerce	
	RQ 5: Do the consumers' (1) use of the structural interactive features and (2) perceptions of their online experience in social commerce influence their overall satisfaction with these websites?	**H9:** Human-website interactivity positively affects perceived satisfaction in social commerce **H10:** Human-human interactivity positively affects perceived satisfaction in social commerce **H11:** Perceived communication positively affects perceived satisfaction in social commerce **H12:** Perceived control positively affects perceived satisfaction in social commerce **H13:** Perceived engagement positively affects perceived satisfaction in social commerce **H14:** Perceived sociability positively affects perceived satisfaction in social commerce	
	RQ 6: Does the consumers' perceptions in the online environment mediate the relationship between structural interactivity and outcome variables?	**H15a:** Perceived control mediates the relationship between human-website structural interactivity and satisfaction in social commerce **H15b:** Perceived communication mediates the relationship between human-human structural interactivity and satisfaction in social commerce **H15c:** Perceived engagement mediates the relationship between human-website structural interactivity and satisfaction in social commerce **H15d:** Perceived sociability mediates the relationship between human-human structural interactivity and satisfaction in social commerce	

This decision is guided by findings from the first study, which highlights that the different interactivity dimensions vary in the extent to which they influence the outcomes of interactivity. This is also in line with the discussion of Liu and Shrum (2002), who maintain that:

> *"If interactivity is treated as a sum of [its] dimensions, important relations between a[n outcome] variable and a particular dimension may be obscured simply because the other . . . dimensions showed no relation with that variable. . . For these reasons, it is important to isolate and investigate the effects of individual dimensions of interactivity "* (p.60).

Model Justification

1. Structural Interactivity as the Stimulus in Social Commerce Websites

Structural interactivity is defined as the "technological attributes of mediated environments [i.e. social commerce websites] that enable reciprocal communication or information exchange . . . between communication technology and users, or between users through technology" (Bucy and Tao, 2007, p. 674). As evident in this definition, structural interactivity can be broken down to two constructs; human-system and human-human interactivity.

Human-system structural interactivity is defined as the "interactive communication between users and technology that is based on the nature of the technology itself and what the technology allows users to do" (Chung, 2008, p. 660). This point-of-view reflects the way that the consumers are able to "participate in modifying the form and content of a mediated environment" (Steuer, 1992, p. 14).

Conversely, human-human structural interactivity refers to "communication between two or more users that takes place through a communication channel" (Chung, 2008, p. 660). In the context of this thesis, human-human interactivity will be examined in terms of interactions occurring between consumers of the social commerce environment. This is because consumer-consumer interactivity has long been overlooked in interactivity research (Vendemia, 2017), and because it better matches the context of this investigation, namely: consumer-managed social commerce.

It is interesting to note that a number of top information systems (IS) research papers incorrectly identified interactivity perceptions as the stimulus variables in their respective research models (e.g. Chan and Li, 2010, Zhang et al., 2014, Zhao and Lu, 2012). However, since a stimulus is an objective quality of the environment (Bitner, 1992), it is proposed that structural interactive features are the right concept to test as the stimuli in context of the S-O-R model.

1.1 Structural interactivity and website effectiveness:

Marketers and researchers have always been interested in finding out whether structural interactivity is connected to objectively-measured online user behaviours, especially the duration of time spent on the website and the number of website pages viewed during this time (Olbrich and Holsing, 2011, Ariely, 2000, Song and Zinkhan, 2008). Indeed, these two particular metrics "provide a parsimonious representation of the browsing decisions users face in a site visit" (Bucklin and Sismeiro, 2003, p.250), and together are considered a proxy to how effective (Bezjian-Avery et al., 1998, Hoffman and Novak, 1996), involving (Trusov et al., 2009), and 'sticky' a website is (Bucklin and Sismeiro, 2003, Furner et al., 2014). Time spent and pages viewed in a website are linked to several positive marketing-related outcomes, including advertising effectiveness (Rodgers and Thorson, 2000, Strauss and Frost, 2001, Olbrich and Holsing, 2011), purchase intentions (Bridges and Florsheim, 2008, Padmanabhan et al., 2001, Laudon and Traver, 2012), the development of online relationships (Parks and Floyd, 1996, Sohn and Lee, 2005), and most importantly, revenues (Trusov, 2010).

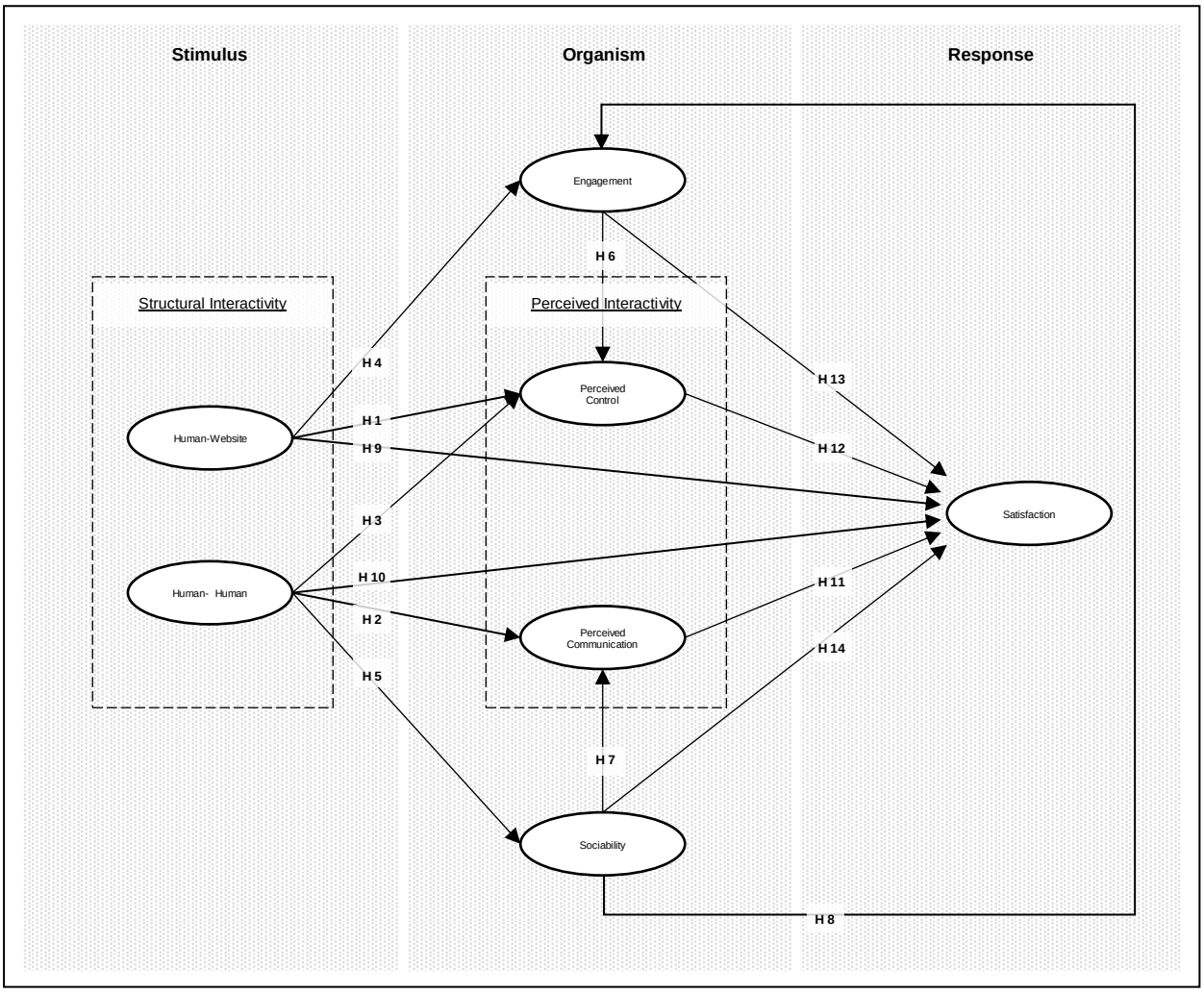
However, inconsistent results are reported in the literature regarding the relationship between interactivity and the aforementioned website usage metrics. On the one hand, researchers like McMillan and Hwang (2002), Teo et al. (2003), Bucy (2004b) and Stutzman (2011) suggest that the more interactive the website is, the longer the time the consumers will spend engaging with it and the higher the page views will be. On the other hand, Bezjian-Avery et al. (1998) find that more interactive features may cut the consumers' time on the system short, and hence "interrupt the process of persuasion" (*ibid*, p. 30). These inconsistencies lead to the following research question:

RQ1: Does higher structural interactivity lead to higher effectiveness of social commerce, as represented by time spent and pages viewed on the website?

1.2 Structural interactivity and perceptual outcome variables

In his highly cited discussion of structural interactivity in the context of new media, Steuer (1992) suggests that an environment's interactive features "will have similar but not identical ramifications across a range of perceivers" (p.11). Thus, in this section, the researcher discusses the expected connections between interactivity features as the stimuli in social commerce websites, and the model's perceptual variables, namely; perceived interactivity, perceived engagement, and perceived sociability (Figure 4.2).

Figure 4.2: Conceptual Model of Study 2



1.2.1 Structural interactivity and perceived interactivity

Early interactivity research has suggested that a mediated environment's structural interactivity will influence the consumers' interactivity perceptions of that environment. Indeed, Steuer (1992) explains that interactivity "bypasses the sense organs completely, presenting its stimuli directly to the perceptual systems in the brain" (p.18). Researchers,

thus, stress the importance of distinguishing between structural and perceived interactivity (Wu, 1999), as "an individual's perception of an object may be independent of the object itself" (Lee et al., 2004, p.63).

Perceived interactivity is "reflected in the extent to which users subjectively experience interactivity"(Bucy and Tao, 2007, p. 653), and Newhagen et al. (1995) define the concept as "the psychological sense message senders have of their own and of the receivers' interactivity" (p. 165). According to the efficacy theory, perceived interactivity can be broken down into two constructs; internally based efficacy (or perceived control) and externally-based efficacy (or perceived communication) (Wu, 1999, Ding et al., 2009). Perceived control occurs when consumers "believe that they have control over their [online] experiences" (Song and Zinkhan, 2008, p. 106), while perceived communication is "the extent to which users believe that the site facilitates two-way communication" (Song and Zinkhan, 2008, p. 106).

The question of the connection between structural and perceived interactivity has been long discussed in research, with the aim of making sense of some of the contradictory reported interactivity outcomes (Wu, 2005, Bellur and Sundar, 2017, Dennis et al., 2009). However, the results appear to be inconsistent. While one direction of research finds that by adding more structural interactivity features, higher interactivity perceptions will result (Coyle and Thorson, 2001, Johnson et al., 2006, Sicilia et al., 2005, Wu, 2005), another research direction explains that a Website's interactive functions do not predict or affect perceived interactivity (McMillan, 2002, Voorveld et al., 2011, Johnson and Kaye, 2016). Along these lines, Mollen and Wilson (2010) explain that "perceived interactivity is the product of an exposure to a dual environment, that of the online medium in which the website is located and its specific properties, and the mechanics and heuristics of the website itself" (p. 923). Therefore, it is proposed that the use of a social environment (i.e. social commerce) as a context to this investigation will facilitate a positive relationship between the two concepts, as social commerce is highly engaging to the consumers and relevant to their needs (Anderson et al., 2011).

The relationship between structural and perceived interactivity is particularly explained in terms of the interplay between their respective dimensions (specifically, human-system and human-human structural interactivity, and control and communication interactivity perceptions).

The literature has discussed how consumers' communication and interactions with a mediated environment can influence their perceived control of that environment (Chung and Zhao, 2004). Liu and Shrum (2002) suggest that structural "interactivity enables users to control their own communication experiences, which potentially leads to higher self-efficacy beliefs" (p.61-62). Similarly, in their discussion of consumers' interactions with virtual worlds, Animesh et al. (2011) propose that "high level of interactivity . . . creates a sense of autonomy and control in the participant's mind" (p.793). Moreover, Webster and Ahuja (2006) finds that human-website structural interactive features (e.g. navigation aids) could "give users a feel for the structure of Web sites as they move through them" (p. 666), hence enhancing their perceived control of the websites.

The S-O-R research reflects the same notion, as it suggests that the facilitation of human-system interactive properties in online shopping websites will "enable Web customers to enjoy higher levels of control" (Koufaris and Ajit Kambil, 2001, p.119) and increase their dominance in the experience (Eroglu et al., 2001). Therefore, it is hypothesized that:

H1: Higher human-system structural interactivity will result in higher perceived control in social commerce websites

It is additionally suggested that human-human interactions through mediated channels will affect both their control and communication perceptions. Yadav and Varadarajan (2005) discuss how "the proliferation of chat rooms and online communities on the Internet has significantly increased consumers' ability to spread the word and has empowered them in fundamentally new ways" (p.594). Moreover, through a number of experiments, Song and Zinkhan (2008) find that "participants who received a personalized message perceived [websites] as more communicative [and] controllable" (p.106).

Research in the S-O-R literature similarly contend that "the unique features of each social media platform . . . [will] facilitate truly interactive communications" (Li et al., 2014, p.660). This view further suggests that when the human-human interactions in the website are not going smoothly, it will lead to lower perceived control. Eroglu et al. (2001) explain that "online shoppers may feel a decreased level of dominance in situations where . . . there is no way to contact the retailer for more information" (p.181). It is therefore inferred that the interactive features that facilitate social commerce activities (whether human-website or human-human) will lead the consumers to perceive these websites as more communicative and controllable. Therefore, it is hypothesized that:

H2: Higher human-human structural interactivity will result in higher perceived control in social commerce websites

H3: Higher human-human structural interactivity will result in higher perceived communication in social commerce websites

1.2.2 Structural interactivity and perceived engagement

Perceived user engagement reflects "a state of complete absorption in a challenging activity with no psychic energy left for distractions" (Hamari et al., 2016), and is considered an important aspect of the consumers' online experience (O'Brien and Toms, 2010).

It has long been alluded in the literature that engagement is a key outcome of structural interactivity (e.g. Rafaeli, 1988, Ha and James, 1998, Teo et al., 2003, Chen and Yen, 2004, Animesh et al., 2011, Bucy, 2004). For example, Liu and Shrum (2002) propose that "two-way, synchronized communication is potentially more engaging than one-way, unsynchronized communication" (p.60). Similarly, Bucy and Tao (2007) explain that "the degree of interactivity, that is, the strength of the media stimulus, varies . . . in terms of their capacity to engage users" (p. 656). However, due to it being a relatively new and under-defined concept in the marketing and IS literature (Hollebeek et al., 2014, Calder et al., 2009, O'Brien and Toms, 2010), little research has addressed this relationship (Oh and Sundar, 2015, Bucy, 2004). Therefore, Cano et al. (2017b) calls for studying "interactivity within the broader field of user engagement and immersion" (p.6). This especially relevant as "a greater understanding of the reasons why some things we encounter "engage" us more than others will help [interactive system] developers . . . produce more successful designs" (Jacques, 1995, p. 49).

Jacques (1995) suggests that users become engaged in a mediated environment "when it holds their attention and they are attracted to it for intrinsic rewards" (p. 58). Lombard and Snyder-Duch (2001) propose that engagement occurs when "a person's perception is directed toward objects, events, and/or people created by the technology, and away from objects, events, and/or people in the physical world" (p. 59). Therefore, research proposes that that having the choice of a variety of interactive features to interact with while using a website will enhance the quality (Webster and Ahuja, 2006, Chen and Yen, 2004) and enjoyment (Cyr et al., 2009, Cano et al., 2017b) of the consumers' online experiences, and therefore

will increase their attention, absorption, and engagement (Oh and Sundar, 2015, Yi et al., 2015, Webster and Ahuja, 2006). Therefore, it is suggested that:

H4: Higher structural interactivity will result in higher perceived engagement in social commerce websites.

It is key to note that term 'engagement' is also used in the marketing and IS literature to refer to engagement with brand (e.g. Mollen and Wilson, 2010, Wang, 2006) and engagement with the virtual community (e.g. Ray et al., 2014). However, in this context of this thesis it is used to reflect absorbed attention in the social commerce environment.

1.2.3 Structural interactivity and perceived sociability

Perceived sociability is "the extent to which [a mediated] environment is perceived to be able to facilitate the emergence of a sound social space with . . . a strong sense of community" (Kreijns et al., 2007, p. 176). A social space is considered sound when it fosters "strong group cohesiveness, trust, respect and belonging, satisfaction, and a strong sense of community" (*ibid*, 2007, p. 179). Prior research postulates that interactivity is connected to sociability (Rafaeli, 1988, Rafaeli and Sudweeks, 1997, Quan-Haase and Young, 2010), and that interactive environments should be designed to "support the initiation and maintenance of social interaction" (Animesh et al., 2011, p. 794). However, similar to perceived engagement, sociability is an under-examined concept, both in its own right and in relation to interactivity (Bucy and Tao, 2007, Wu et al., 2013b, Animesh et al., 2011, Macaulay et al., 2007).

Yoon et al. (2008) suggest that a website which enables the "consumers to communicate bidirectionally may make consumers think of the sites as more accessible, which may also be beneficial for building and sustaining relationships" (p.607). Similarly, Amblee and Bui (2011) expect that when consumers use the interactive environment to "alternately act as information seekers and information providers, social interaction is likely sustained over time through continued discussion" (p. 93). Consequently, Zhang et al. (2014) proposes that in order to increase the sociability in a mediated environment, designers "should provide comfortable and convenient channels of communication for members to build and strengthen relationships" (p. 1026). Therefore, it hypothesized that:

H5: Higher structural interactivity will result in higher perceived sociability in social commerce websites.

2. Perceptions of Interactivity, Engagement, and Sociability as the Organismic Experiences in Social Commerce Websites

In the following section, the elements of the consumers' organismic experiences in social commerce are highlighted (Figure 4.2), and their relationships explained. Indeed, Fiore and Kim (2007) reveal that "each component of the organism [is typically] discussed separately, but it is important to remember that these components are interrelated" (p. 426).

Following this statement, in addition to the recommendations by Voorveld et al. (2011), who expressed that "interactivity perceptions do not remain the same over a period of time, as they are related to consumers' expectations and experiences" (p. 90), the researcher investigates the extent to which engagement and sociability influence interactivity perceptions (and one another) in the context of social commerce.

2.1 Engagement and Perceived Control

A consumer's deep engrossment with the interactive environment is expected to influence their perceived control. Hamari et al. (2016) explain that engagement "is often accompanied with a feeling that the activity is going well [and] that one is being successful" (p.171). Citing Fleming (1998), Webster and Ahuja (2006) explain that "engagement with a Web site will be linked to how successfully the user can move across the pages and through the space" (P. 666). These feelings of success and achievement contribute to the concept of self-efficacy (Bandura, 1997 as cited in Bucy, 2007). Indeed, the consumers' absorption in the website will cause them to be more familiar with it, and therefore interact in it with confidence and perceive it as more controllable. Therefore, it is hypothesized that:

H6: Higher levels of perceived engagement will result in higher levels of perceived control in social commerce websites

2.2 Sociability and Perceived Communication

Sociability is expected to influence the consumers' communication perceptions in the context of online environments (Köhler et al., 2011). Sohn and Lee (2005) suggest that, on the Web, "people's expectations regarding communication activities are formed through their on-going social communication practices" (p.10). Moreover, citing social exchange theory, researchers explain that interacting with others on the social environment will lead the consumers to have positive experiences, and will then compel them to reciprocate the communication with others as a result of these experiences (Liang et al., 2011, Chan and Li, 2010). This is

expected to create a highly interactive social environments characterised by communication (Kreijns et al., 2007). Therefore, it is hypothesized that:

H7: Higher levels of perceived sociability are will result in higher levels of perceived communication in social commerce websites

2.3 Sociability and Perceived Engagement

A connection between sociability and engagement has been suggested in the literature (Animesh et al., 2011, Zhang et al., 2014). Particularly, Burgoon et al. (2000) explain that interactivity "creates an impression of the social, which in turn engenders feelings of engagement" (p.558-559). According to Seedorf et al. (2014), when customers are involved in social relationship in the mediated environment, they are more likely to become engrossed in the environment, thus "forget[ing] their surroundings and focus[ing] on the task at hand". It is, then, suggested that:

H8: Higher levels of perceived sociability will result in higher levels of perceived engagement in social commerce websites.

3. Satisfaction as the Outcome Variable in Social Commerce Websites

In the context of this thesis, satisfaction is referred to as "the customer's evaluation and impression of the website performance across a number of attributes" (Rose et al., 2012, p.312). Satisfaction occurs "when actual performance is better than expected" (Zhao and Lu, 2012, p.826), and is viewed as "an important performance measurement of the system" (Papagiannidis et al., 2013, p.1469). Satisfaction is chosen as the overarching outcome variable in this thesis (Figure 4.2) because of its axiomatic relationship with several important outcomes related to the customers' social commerce experience. Indeed, satisfaction is reported to influence relationship quality and customer retention (Hennig-Thurau and Klee, 1997), loyalty (Yang and Peterson, 2004), trust (Rose et al., 2012), attitude toward a website (Teo et al., 2003), and website revisit and continuance intentions (Zhao and Lu, 2012).

3.1 Structural Interactivity and Satisfaction

Many researchers theoretically identify satisfaction as a logical outcome of structural interactivity (e.g. Rafaeli, 1988, Ha and James, 1998, Szymanski and Hise, 2000). This is in line with the S-O-R environmental psychology perspective, which expects that "increasing

the [interactive] qualities of the online store Web site increases the level of pleasure felt by the shopper" (Eroglu et al., 2003, p.148).

According to Rafaeli (1988), "self-reported preference for media and other information systems was found to be affected by the role users have had in specifying, designing, or otherwise affecting the content or experiences of using it" (p. 122). Along these lines, Teo et al. (2003) explain that "user empowerment in which users have control over their interaction with the Web site [was reported] as one of the factors that contributes to user satisfaction" (p.289). In relation to their choice on their interactive environment, Chung and Zhao (2004) report that "if websites allow consumers greater flexibility in their search, they are likely to be more satisfied with the Website" (p.7). Evidently, increased options for interacting on a website can fulfil the users' needs for information, lead to increased thought production, and therefore result on positive evaluations of the interactive environment (Ko et al., 2005).

H9: Higher human-website structural interactivity will result in higher levels of satisfaction in social commerce websites

Additionally, when a website offers the necessary features for the consumers to freely and seamlessly interact with each other, this will "[reduce] the frustration associated with waiting and feeling ignored . . . , potentially resulting in a more satisfying communication experience" (Liu and Shrum, 2002, p.62). As a result of that, Ko et al. (2005) propose that "Web sites should focus more on human-human interactive functions to generate more positive responses from consumers" (p.67). Therefore, it is hypothesized that:

H10: Higher human-human structural interactivity will result in higher levels of satisfaction in social commerce websites

3.2 Perceived interactivity and Satisfaction

The literature proposes that higher perceived interactivity in the context of social commerce websites will lead to higher consumer satisfaction. Indeed, Compeau and Higgins (1995) propose a link between self-efficacy and positive outcomes of computer use. They explain that "individuals tend to prefer and enjoy behaviours they are capable of performing and dislike those they do not successfully master" (*ibid,* p. 196). Along these lines, Brenders (1987) discusses how "one's perceived control over the process and outcomes of interaction promises to be a powerful determinant of the quality and nature of one's interpersonal behaviour" (p. 86). Similarly, Liu and Shrum (2002) suggest that "by giving users the power

to control their on-line experiences actively, interactivity can enhance users' self-efficacy beliefs and lead to higher satisfaction" (p.62). Additionally, Ding et al. (2009) explain that "because it can generate positive emotional responses in [an online] setting, perceived control can increase customer satisfaction" (p.99). Moreover, it is proposed that while they are interacting with other consumers online, "consumers expect that . . . they will receive an appropriate response. And this perception of two-way communication has a positive impact on their attitudes" (Kirk et al., 2015, p.3). Therefore, it is hypothesized that:

H11: Higher perceived control will result in higher levels of satisfaction

H12: Higher perceived communication will result in higher levels of satisfaction

3.3 Engagement and Satisfaction

Papagiannidis et al. (2013) maintain that "engagement has . . . been empirically shown to predict user satisfaction" (p.1469). Indeed, consumers who have highly engaging online experiences will view these experiences more positively (Van Noort et al., 2012) and find them compelling (Ding et al., 2009). This is because absorption in an interactive environment "leads to loss of self-consciousness . . . , [and] makes the virtual experience playful" (Animesh et al, 2011, p.793), which will ultimately "lead to better evaluations and responses from the consumer" (Sicilia et al., 2005, p.33). Therefore, it is hypothesized that:

H13: Higher engagement will result in higher levels of satisfaction in social commerce websites

3.4 Sociability and Satisfaction

Researchers expect that the sociability of the interactive environment will influence the consumers' reactions to their online experiences on said environments (Brandtzaeg and Heim, 2011, Liang et al., 2011). Indeed, Sohn and Lee (2005) maintain that the consumers' "evaluation of a medium is . . . influenced by the characteristics of the social networks to which s/he belongs" (Sohn 2005, page 7), and Dennis et al. (2009) propose that that "consumer attitude towards an e-retailer will be positively influenced by social factors" (p.1125). Particularly, Animesh et al. (2011) explain that websites "that exhibit higher levels of sociability may . . . create the feeling of affection, trust, belongingness, and warmth" (794). Teo et al. (2003), similarly, suggest that "satisfaction may . . . derive from a sense of community . . . and increased sociability" (p.289). In the S-O-R tradition, it is proposed that

"social elements in the store environment provide cues that consumers use for their quality inferences" (Baker et al., 1994, p.328). Therefore, it is suggested that in a social commerce Website:

H14: Higher levels of perceived sociability will result in higher levels of satisfaction in social commerce websites

4. Mediation

In discussing the most effective approaches to investigating the concept of interactivity and its outcome variables in mediated environments, Bucy and Tao (2007) advocate the use of perceptual variables as mediators in interactivity research models. Indeed, the two authors emphasize that "new insights are likely to come from research postulating how different psychological states mediate the relationship between media stimuli and effects" (*ibid,* p.658).

Similarly, as Agarwal and Karahanna (2000) discuss constructs in their model that mediate the relationship between the stimuli of an online environment and consumers' reactions to this environment, they maintain that:

> "*An understanding of what causes individuals to hold certain beliefs about the target information technology would be of value not only to practitioners responsible for the implementation and deployment of IT, but also to researchers interested in explicating the paths through which technology use behaviour is manifested*" (p. 666).

This discussion is in line with the S-O-R framework, which proposes that the consumers' organismic perceptions and emotional states, resulting from their exposure to environmental stimuli, are expected to be significant mediators of response behaviours within these environments (Spangenberg et al., 1996, Donovan and Rossiter, 1982), whether they are online or offline (Eroglu et al., 2001). Indeed, van Noort et al. (2012) maintains that "only if [the] underlying [processes of interactivity effects] are studied can we fully understand how consumers are influenced by interactivity in online marketing communications" (p. 224).

This discussion leads the researcher to consider exploring whether the consumers' perceptions in the study's conceptual model will mediate the relationship between structural interactivity and satisfaction. Therefore, it is suggested that:

H15: The consumers' perceptions of their experiences on social commerce will mediate the influence of structural interactivity on their satisfaction with s-commerce

Based on the hypothesized relationships discussed earlier, the specific mediating relationships in this model are expected to be as follows:

H15a: Perceived control mediates the relationship between human-website structural interactivity and satisfaction in social commerce websites.

H15b: Perceived communication mediates the relationship between human- human structural interactivity and satisfaction in social commerce websites.

H 15c: Perceived engagement mediates the relationship between human-website structural interactivity and satisfaction in social commerce websites.

H 15d: Perceived sociability mediates the relationship between human-human structural and satisfaction in social commerce websites.

Conclusion

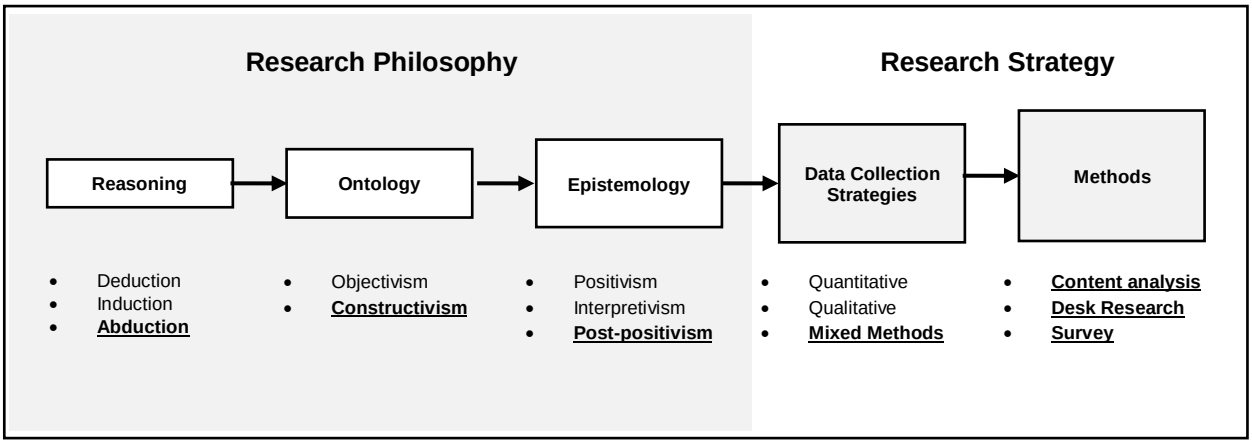
In this chapter, the conceptual model and the hypothesized relationships between its different variables were discussed. It was particularly suggested that the actual interactivity features of social commerce websites represent stimuli which influence the consumers' perceived interactivity, perceived engagement and perceived sociability in the Websites. It was additionally proposed that the aforementioned variables all contribute to the consumers' satisfaction in the context of social commerce. The relationships in the model were mainly explained from a mediated interactivity perspective, while the environmental psychology literature provided further support to the hypotheses.

5. Methodology

Introduction

This chapter outlines the methodology followed in this thesis (Figure 5.1), including a justification of its orientation as an abductive, post-positivistic, sequential mixed methods research project. Moreover, the researcher discusses the characteristics of the specific methods used in the two empirical studies of the thesis (i.e. content analysis and survey research), the reasoning behind these choices, and the data collection plan to be expanded on in the upcoming chapters.

Figure 5.1: Overview of The Methodology Chapter



Note: The underlined concepts reflect the direction followed in the thesis out of the options that will be discussed
Adapted from (Gray, 2013, p. 19)

1. Research Philosophy

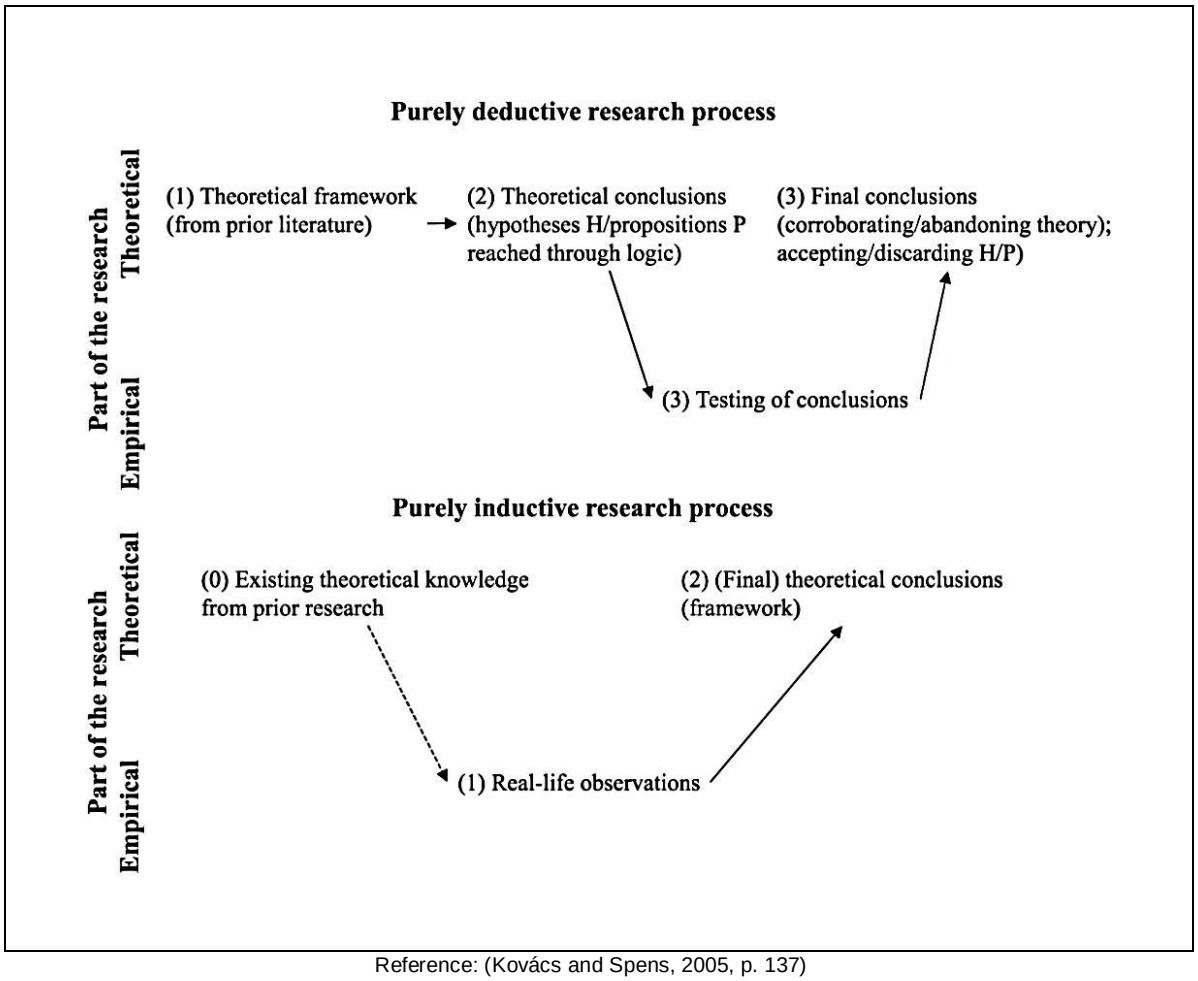
Discussing the important role of theory in social research, Bryman (2012) maintains that it presents "a backcloth and rationale for the research that is being conducted . . . [providing] a framework within which social phenomenon can be understood and the research findings can be interpreted" (p. 20). Indeed, a key first step in carrying out social research is to determine the connection between theory and data, specifically whether the goal of the data collection is to test theory (i.e. deductive reasoning) or to develop it (i.e. inductive reasoning).

1.1 Decuction, Induction, and Abduction

Deductive reasoning is the most commonly adopted of the two and describes the process in which a researcher deduces a hypothesis (or hypotheses) from well-developed theories and concepts, and then empirically examines them through his or her choice of methods and measures (Malhotra and Birks, 2006, Bryman, 2012, Gray, 2013). Conversely, inductive

reasoning describes when a theory is the outcome of research (Bryman, 2012). It particularly "involves the inference that an instance or repeated combination of events may be universally generalized" (Malhotra and Birks, 2006, p.141). Despite their apparent contrast, these two processes of reasoning are sometimes interconnected. Indeed, the last step of deduction often includes induction, "as the researcher infers the implications of his or her findings for the theory that prompted the whole exercise" (Bryman, 2012, p. 24). Similarly, the inductive process entails an element of deduction, because once a researcher reaches a tentative conclusion, he or she could go on to collect more data to confirm the propositions of that theory (Bryman, 2012). Figure 5.2 depicts a comparison between the deductive and inductive processes in the context social research.

Figure 5.2: The Difference between Deductive and Inductive Reasoning



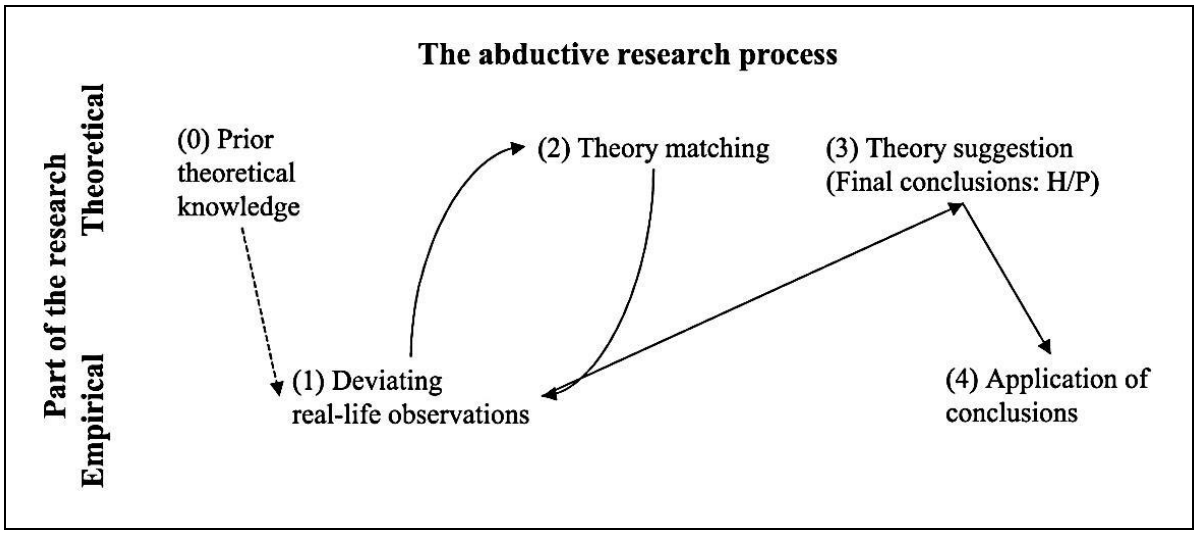
Reference: (Kovács and Spens, 2005, p. 137)

Deductive and inductive reasoning are useful strategies to consider when starting a research project, however, they are rarely as straightforward as is described earlier and depicted in Figure 5.2. Instead, researchers go through many iterations of "weaving back and forth

between data and theory" (Bryman, 2012, p. 26). This type of reasoning is referred to as abduction or systematic combining (Figure 5.3). Dubois and Gadde (2002) define abduction as "a non-linear path-dependent process of combining efforts with the ultimate objective of matching theory and reality" (p. 556). They additionally propose that the process of going back and forth between theory and empirical research is actually beneficial to researchers when their aim is to learn more about both theory and empirical phenomenon (*ibid*, 2002). Kovács and Spens (2005) concur, maintaining that "most great advances in science neither followed the pattern of pure deduction nor of pure induction" (p. 135).

When discussing abductive research, methodology scholars often draw a comparison between abductive and inductive reasoning, highlighting a few characteristics that they have in common (Bryman, 2012, Dubois and Gadde, 2002, Kovács and Spens, 2005). Specifically that they share the main goal of "the generation of new concepts and the development of theoretical model, rather than confirming existing theory" (Dubois and Gadde, 2002, p. 559). Dubois and Gadde (2002) stress the reasoning for their choice of the term 'theory development' instead of 'theory generation' in the aforementioned definition because this view "builds more on refinement of existing theories than on inventing new ones" (ibid, 2002, p. 559). Unlike both induction and abduction, the overall goal of deductive reasoning is to test and confirm theory (Kovács and Spens, 2005).

Figure 5.3: Abductive Research



Reference: (Kovács and Spens, 2005, p. 139)

In this thesis, the researcher opts to follow a process of abduction because it corresponds with the overall aim of her inquiry, which is to contribute to developing the understanding of interactivity and its influences as it evolves in the context of social technologies.

Additionally, abductive reasoning in this thesis is clearly reflected in the researchers' adoption of Nickerson et al.'s (2013) typology development process which includes several empirical and theoretical iterations, and which is discussed in more detail in Study 1. Finally, conducting an abductive research study is in line Kovács and Spens (2005) view of abduction as occurring "through interpreting or re-contextualizing individual phenomenon within a contextual framework, and [aiming] to understand something in a new way, from the perspective of a new conceptual framework" (p. 138). Indeed, reflecting the essence of the thesis at hand, the abductive process of reasoning offers a new outlook to an existing concept (i.e. interactivity) as it investigates it in a new setting (i.e. social commerce) or from an updated angle (i.e. updated structural interactivity scale).

1.2 Research Paradigm

A paradigm, as Punch (2013) explains, is "a set of assumptions about the world, and about what constitutes proper topics and techniques for inquiring into the world" (p.14). This in line with Kuhn's well-known conceptualization of paradigms as "the entire constellation of beliefs, values, techniques and so on shared by members of a given community" (Kuhn, 1970, p. 175). Paradigms are important in academic research because they incorporate the philosophy, ontology, and epistemology of the research, and influence how the study is carried out and how its findings are interpreted (Punch, 2013, Bryman, 2012, Gray, 2013). Two important concepts to highlight when discussing the research paradigm are the ontological and epistemological considerations, which will be expanded on throughout the rest of this section.

1.2.1 Ontological Considerations

According to Matthews and Ross (2010), ontology "refers to the way the social world and the social phenomena or entities that make it up are viewed" (p.24). Put simply, ontology deals with the nature of reality and what reality is like (Punch, 2013, Sarantakos, 2013). Two main ontologies receive focus in social research; objectivism and constructionism. Objectivism "implies that social phenomena confront us as external facts that are beyond our reach or influence" (Bryman, 2012, p. 32). Within this ontological orientation, the researcher's role lies in investigating different phenomena from an objective perspective, independent of his or her own feelings and biases (Sarantakos, 2013). Constructionism, on the other hand implies that social phenomena is continuously changing, and that social orders are not set in stone but are in a constant state of negotiation and alteration by the people acting within them (Bryman,

2012). To put it differently, this ontological consideration accepts that both the researcher and subjects cannot be separated from the research (Johnson and Onwuegbuzie, 2004). Indeed, according to this view "meaning is constructed not discovered, so subjects construct their own meanings in different ways, even in relation to the same phenomenon" (Gray, 2013, p. 20).

Constructionism fits the researcher's approach to interactivity in this thesis in more than one way. Indeed, the proposition of constant change within the constructionism view reflects Voorveld et al. (2011) depiction of interactivity as a dynamic construct, a direction which informs the investigation in this thesis. Specifically, Voorveld et al. (2011) contend that "interactivity perceptions do not remain the same over a period of time, as they are related to consumers' expectations and experiences" (p. 90), thus mirroring the earlier discussion about constructionism. Moreover, relating to the constructionism view that suggests that people create their own meanings of the same phenomena (Bryman, 2012) is the concept of perceived interactivity, which is expected not to be uniform across the users of interactive environments even if they are faced with the same stimuli (Steuer, 1992, Bucy and Tao, 2007).

1.2.2 Epistemological Considerations

No discussion of the research paradigm would be sufficient without outlining the epistemological considerations in research. Gray (2013) defines epistemology as "a branch of philosophy that considers the criteria for determining what constitutes and what does not constitute valid knowledge" (p. 682). In other words, epistemology deals with the nature of knowledge and the relationship between the knower and what is known (Punch, 2013, Sarantakos, 2013). Three types of epistemological considerations are discussed, compared, and contrasted in this section to justify the choice of the epistemology for the thesis. They are positivism, interpretivism, and post-positivism (also known as critical realism).

Positivism as a research position entails the use of the scientific method in social research, wherein the senses, coupled with logic and reason, are set as the basis for all knowledge (Bryman, 2012). Positivism is derived from empiricism, and its proponents believe that the social as well as the natural sciences are subject to definite and unchangeable laws (Bryman, 2012, Malhotra and Birks, 2006). Fitting the objectivist view, positivists are expected to be objective, neutral, and unbiased in measuring variables such as human behaviour (McNeill and Chapman, 2005). Moreover, positivists agree that knowledge is objective, and that

theories should produce hypotheses that are testable (Malhotra and Birks, 2006). Interpretivism takes the opposite position, as its proponents view the social sciences as inherently different from the natural sciences. Hence, interpretivism requires different methods of research that correspond to the subjectivity of humans, and therefore the research concerning them (Bryman, 2012). Gray (2013) proposes that in interpretivism, "there is no direct, one-to-one, relationship between ourselves . . . and the world . . . The world is interpreted through the classification schemas of the mind" (p. 23).

An alternative view to positivism and interpretivism is empirical realism, which is associated with the defining work of Bhaskar (1975) and which maintains that "the way we perceive the world depends, in part, on our beliefs and expectations" (Gray, 2013, p.26). Bhaskar (1975) discusses that "science aims to discover structures and mechanisms underlying observable processes in the world; causality is to be analysed in terms of the tendencies of things rather than the conjunction of events of phenomena" (p. 28).

Critical realism differs from positivism in the sense that instead of deeming the reality depicted in research a faithful reflection of actual reality, it considers it only one way of understanding that reality. In other words, "critical realists recognize that there is a distinction between the objects that are the focus of their enquiries and the terms they use to described, account for, and understand them" (Bryman, 2012, p. 29). Another difference between the two is that unlike positivists, critical realists are content with investigating unobservable variables within their research projects, as long as their effects are observable in the social world (Bryman, 2012).

Because of this, critical realism is consistent with the direction of empirical research in this thesis. This also true because the overarching aim of this thesis is to "[introduce] changes that can transform the status quo" (Bryman, 2012, p. 29) through the investigation of interactivity in the context of social commerce. Moreover, similar to constructionism, critical realism acknowledges the roles of perception, cognition, and expectations in understanding an objectively knowable reality (Tsang and Kwan, 1999). This is reflected in this thesis through the investigation of the perceptions of the online experience as a mediator in the relationship between structural interactivity and its outcome variables. Finally, since critical realism does not exactly follow either deductive or inductive reasoning, it is considered in line with the abductive direction of this research project.

Before this section comes to an end, it is important to note that ontology and epistemology are closely connected in the sense that the former is regarded as the basis of the logic of the latter. Additionally, epistemology influences the methodology, and consequently the research methods and instruments utilized in the research (Sarantakos, 2013). These are discussed in the next section.

2. Research Strategy

This section highlights the justification for the research strategy choices followed in this thesis, including that of the data collection strategy (i.e. mixed research) and the specific research methods (i.e. content analysis and survey methods).

2.1 Data Collection Strategies

As depicted in Figure 5.4, three main types of data collection strategies are widely followed in social research, quantitative, qualitative, and mixed methods research (Bryman, 2012, Johnson and Onwuegbuzie, 2004).

Quantitative research is defined as "research techniques that seek to quantify data and, typically, apply some form of statistical analysis" (Malhotra and Birks, 2006, p.733). According to the purists' approach to quantitative research, it is believed "that social observations should be treated as entities in much the same way that physical scientists treat physical phenomenon . . . [and that] the observer is separate from entities that are subject to observation" (Johnson and Onwuegbuzie, 2004, p. 14). Findings from quantitative research are usually generalizable, allow for quantitative predictions, and are useful when studying a large number of people (Bryman, 2012). Nevertheless, the knowledge produced from quantitative approaches might not be clear or precise enough to be applied properly in real life situations and contexts (Johnson and Onwuegbuzie, 2004).

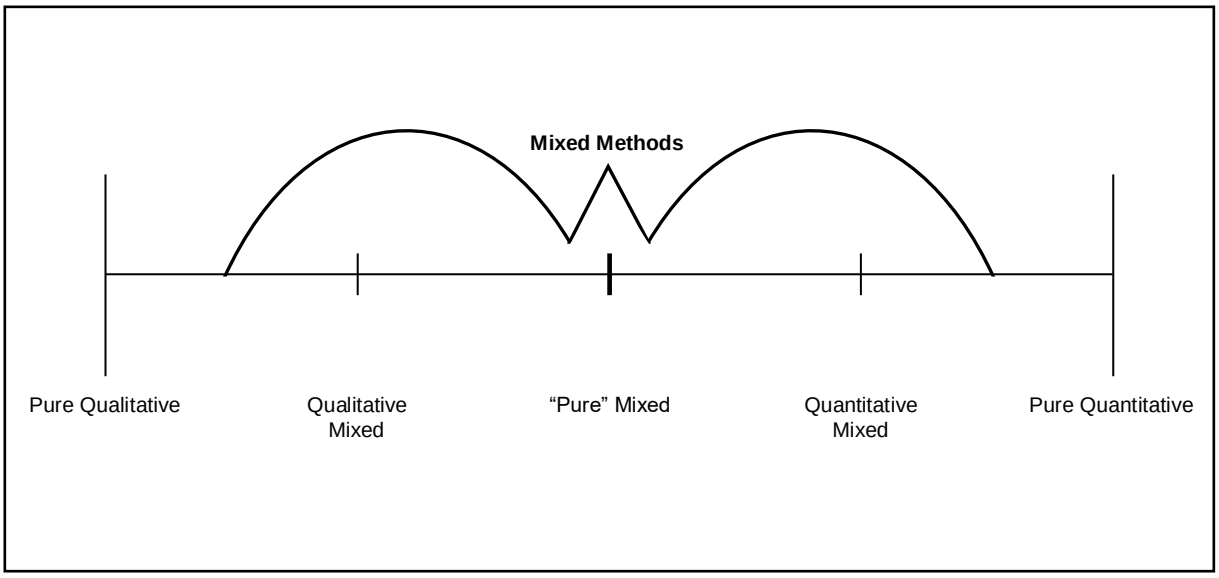
Conversely, qualitative research is described as "an unstructured, primarily exploratory design based on small samples, intended to provide insights and understanding" (Malhotra and Birks, 2006, p.733). Qualitative approaches are useful for extensively probing a small number of respondents and for explaining complex phenomena. According to Johnson and Onwuebuzie (2004), qualitative research purists "contend that multiple-constructed realities abound . . . and that knower and known cannot be separated because the subjective knower is the only source of reality" (p.14). Still, the knowledge produced from qualitative approaches

is usually not generalizable and easily influenced by the researcher's subjectivity and bias (Bryman, 2012, Johnson and Onwuegbuzie, 2004).

To combat the shortcomings of both quantitative and qualitative data collection (McNeill and Chapman, 2005), and because "today's research world is becoming increasingly interdisciplinary, complex, and dynamic" (Johnson and Onwuegbuzie, 2004, p. 15), many researchers opt to follow a mixed methods research. Specifically, one that "allows researchers to mix and match design components that offer the best chance of answering their specific research questions" (*ibid*, 2004, p.15). Using a mixed methods research design is beneficial to achieve data triangulation, which is defined by Wijnhoven and Brinkhuis (2015) in an online setting as using "multiple methods based on different theories of knowledge" (p. 685) to inspect the accuracy of the information collected using the tools offered by the Internet (*ibid*, 2015). Moreover, mixed methods are beneficial when the researchers' aim is to "seek elaboration, enhancement, illustration . . . [and] clarification of the results of one method with the results from the other method" (Greene et al., 1989, p. 259).

Consequently, the researcher makes the decision of rooting the thesis in the mixed methods research tradition. Indeed, although the two types of methods undertaken in this research are mainly quantitative (i.e. content analysis and surveys), they do collect and utilize different data and offer different perspectives to the same concept in the overarching model. As depicted in Figure 5.4, this type of mixed-methods research design is referred to as 'within-methods triangulation' (Denzin, 1978) or 'quantitative mixed methods' research (Johnson et al., 2007). Along these lines, it is important to note the researcher follows Kolbe and Burnett's (1991) recommendation about utilizing content analysis as an introductory or a companion research method in mixed method investigations in order "to enhance the validity of results by mitigating method bias" (P. 244). The researcher consequently adopts a mixed method research approach, aiming to both (1) steer clear of the shortcomings from investigating the concept of interactivity in prior research and to (2) contribute to theory with fresh insights on the concept.

Figure 5.4: Main Research Approaches (Including Variations of Mixed Methods)



Reference: Johnson et al. (2007)

The use of mixed methods in this thesis echoes the discussion in the interactivity literature review (Chapter 2) about the convergence between mass and interpersonal communication that made the investigation of interactivity necessary in the first place. According to Rogers and Chaffe (1983), the mass and interpersonal communication perspectives were traditionally investigated in separate research schools using different methodologies (i.e. experiments and surveys for mass communication and observation for interpersonal communication). However, as newer media are developed, interactivity is expected to combine several models of communication and be approached by a variety of research methods concurrently (*ibid*, 1983). Consequently, in this thesis, the content analysis phase will reflect an objective perspective of interactivity, while the survey phase will communicate a more subjective view of the same construct. Together, these two methods will aid the researcher in painting a comprehensive picture of interactivity in the context of social commerce.

Johnson and Onwuegbuzie (2004) highlight possible limitations associated with mixed method research, including being more time consuming and expensive than single method research, in addition to the possibility of presenting an under-developed paradigm. However, the benefits that mixed methods research will offer to this research (as discussed earlier) are expected to surpass any possible shortcomings. Further, it responds to the recent call for more mixed-methods in information systems literature to enhance the theoretical development of the field (Venkatesh et al., 2013).

2.2 Research Methods

The empirical studies in this thesis utilize both content analysis (Study 1) and survey methods (Study 2) to investigate the concept of interactivity in the context of social commerce. The characteristics of these two research methods are discussed in this section. However, their detailed processes as they are applied in each study are covered in further detail in the research design sections of their respective studies (Chapters 6 and 7).

2.2.1 Content analysis:

The researcher chooses to conduct a content analysis as the first phase in her investigation, because this method has been described in prior research as the most intuitive tool to explore interactivity (Ha and James, 1998, Rafaeli, 1988).

Content analysis is defined as "an observational research method that is used to systematically evaluate the symbolic content of all forms of recorded communication"(Kolbe and Burnett, 1991, p. 243), and is commended due to its high transparency and unobtrusiveness (Bryman, 2012). Indeed, the process of content analysis, if sufficiently reported in research, is easily applied in newer contexts by other researchers. This is clear through the first study of this thesis which joins a line of other highly regarded studies (e.g. Voorveld et al. (2012), Chen and Yen (2004), Cho and Cheon (2005)) that followed Ghose and Dou's (1998) example of exploring structural interactivity in new and relevant technological settings. Moreover, the unobtrusive nature of the content analysis method is reflected in the fact that the researcher is able to observe the content of an environment without interacting with its creators or users, and therefore avoiding contaminating the research process and findings with unnecessary bias (Bryman, 2012).

In addition to the aforementioned reasons, content analysis is determined to be a right fit for the first study because it is considered most appropriate to investigate the effects of environmental stimuli on the consumers' responses to them (Kolbe and Burnett, 1991). Furthermore, content analysis methods are widely utilized to "provide an empirical starting point for generating new research evidence about the nature and effect of specific communication" (ibid, 1991, p. 244). These last two points are reflected in the first study's aims which are (1) to explore the effects of structural interactivity on objective usage metrics, and to (2) pave the way for the investigation of the interactivity model in the second study of the thesis.

Despite all of these advantages, researchers recommend approaching content analysis with caution, because the success of this method depends (to a great extent) on how well the research questions are formulated and how credible their measurements are (McMillian, 2000b, Bryman, 2012). By following the example of a number of highly cited papers in formulating their respective research questions, however, the researcher is expected to mitigate this shortcoming in the current thesis. Another possible limitation of content analysis is that "it is almost impossible to devise coding manuals that do not entail some interpretation on the part of the coders" (Bryman, 2012, p. 306). This is dealt with by (1) following inter-coder reliability recommendations by Kassarjian (1977), Voorveld et al. (2011) and Cho and Cheon (2005) and (2) accepting that a level of interpretation is bound to occur when trying to represent this social reality, as supported by the thesis' post-positivistic orientation.

To minimize the effects of these limitations, the researcher additionally follows the content analysis best conduct criteria outlined by Kassarjian (1977) in terms of presenting an objective, systematic, and quantitative study. According to Kassarjian (1977), the objective condition is achieved through presenting a transparent and detailed discussion of the research process followed by the researcher while conducting the content analysis. Systemization, which aims to minimize biases in the content analysis process, is reflected in "the inclusion or exclusion of communications content or analysis categories . . . according to constantly applied rules" (*ibid*, 1977, p.9). Finally, quantification is reflected in the researcher's ability to produce quantitative data out of the content analysis process which can be tested further using statistical methods. These three criteria are fulfilled in the content analysis (Study 1), which reports the content analysis steps in detail, follows rigorous abductive iterations when updating the Interactivity Index, and presents an overall interactivity score for each of the websites analysed to be used to create a typology of social commerce, and then to be linked to objective outcome variables.

A Final limitation that is identified in line with using content analysis to investigate structural interactivity (as discussed in Chapter 2) is that it merely reflects the existence of the interactive features and not the consumers' actual use or perceptions of these features (Song and Zinkhan, 2008). This consideration leads the researcher to opt to a mixed methods research, complementing the insights of the content analysis with input from survey research; discussed next.

2.2.2 Surveys:

According to past research, a survey has two key functions: (1) it describes the populations' characteristics and opinions through a representative sample, and (2) reports on the investigated variables' relationships (Sutton, 2011, Bryman, 2012). These two functions fit the aim of the second study in the thesis, and thus, a survey method is chosen to investigate the interactivity model in the context of social commerce. An additional reason for the choice of surveys is they represent a quick and relatively inexpensive way to produce large amounts of statistical information about large groups of people (McNeill and Chapman, 2005, Sutton, 2011, Strauss and Frost, 2001).

Surveys can take the form of structured interviews or self-reported questionnaires (McQueen and Knussen, 2002, Bryman, 2012). In this study, the researcher employs a questionnaire instrument, described as "a structured technique for data collection consisting of a series of questions, written or verbal, that a respondent answers" (Malhotra and Birks, 2006, p. 733). The online questionnaire instrument has many strength points, including offering increased anonymity, wider geographical reach, and the ability to remind the respondents about it if needed (Malhotra and Birks, 2006, Sutton, 2011). Moreover, an online questionnaire can be helpful for a researcher who aims to pinpoint and target a specific niche population (Strauss and Frost, 2001).

Still, questionnaires have a few shortcomings, such as low response rates and self-selection bias (Malhotra and Birks, 2006, Sutton, 2011, Strauss and Frost, 2001). The low response rate problem is managed in this study in several ways. In addition to following the design principles outlined by Andrews et al. (2003) and summarized in Table 5.1, the researcher ensured to distribute the questionnaire in a popular online fandom with more than 3 million followers, encouraged its consumers to respond through the help of opinion leaders on the page who have a great influence on their followership, and offered them rewards. The process of attracting respondents will be discussed in more detail later in Chapter 7. The self-selection bias is corrected through taking steps to clean up the data before analysis, also discussed in more detail later in Chapter 7.

Table 5.1: Survey Design Techniques Followed to Maintain Survey Response Rate

1. The survey has been tested across multiple platforms (including mobile) to avoid technical issues
2. The survey is relevant to the participants interests, as it is an online fandom of Game of Thrones
3. Respondent privacy and data confidentiality are assured
4. Incentives are offered
5. Survey progress is communicated to the respondents while answering the questions
6. The respondents are reminded to fill out the survey by posting its advert and link multiple times through the period of a month on the fandom's page
7. Invitation to fill-out the survey is transparent, warm, and personal
8. The survey is customized to suit the target population, with appealing colors, pictures, and appropriate language

Adapted from Andrews et al. (2003)

3. Ethical Considerations

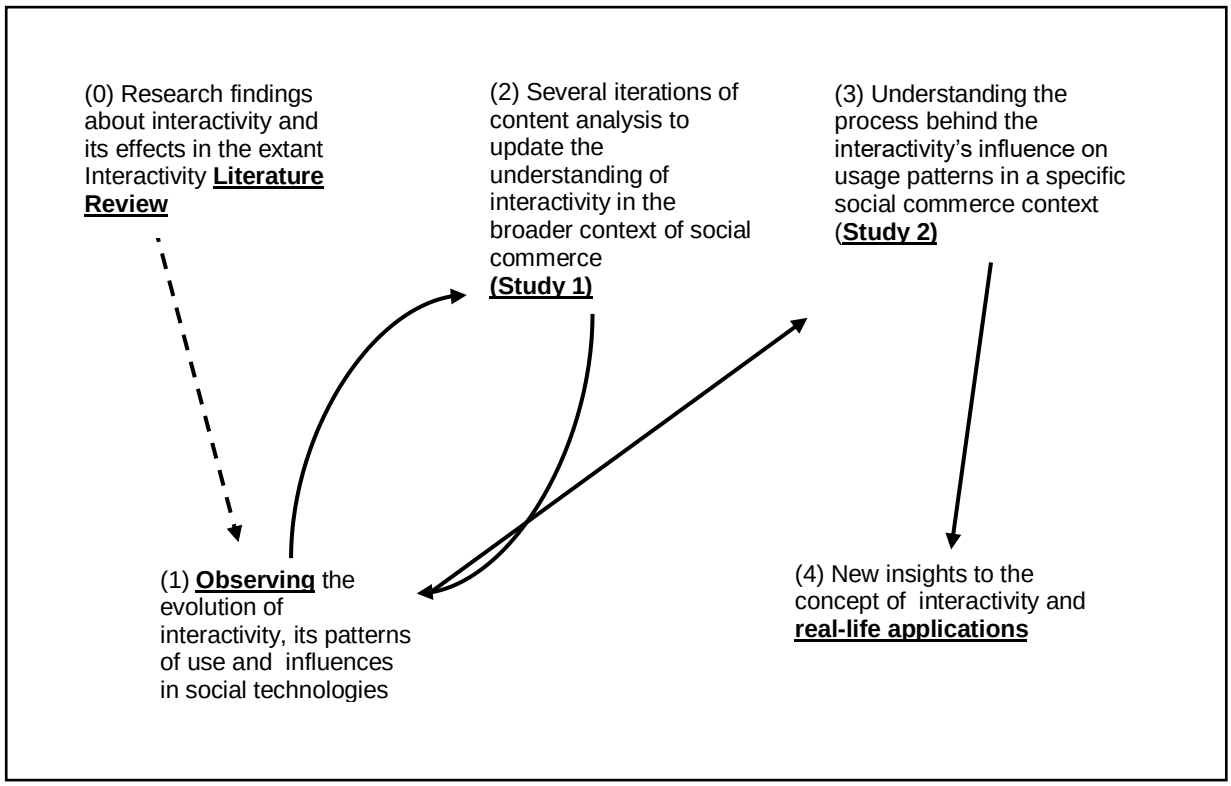
According to McAuley (2003), "the ethics of social research is about creating a mutually respectful, win-win relationship in which participants are pleased to respond candidly, valid results are obtained, and the community considers the conclusions constructive" (p.95 as cited in Matthews and Ross, 2010). Following this statement and the University of Bath Research Integrity and Ethics code, several ethical guidelines were considered when carrying out this research project to ensure transparency in conduct, especially in regard to interacting with the research participants. Indeed, information was collected with the respondents' consent and their privacy and confidentiality was promised and maintained throughout the research process (Strauss and Frost, 2001, Andrews et al., 2003). Additionally, the respondents were assured that they could withdraw from participation at any point if they wanted to (Bryman, 2012).

4. An Overview of the Methods in this thesis

This thesis is exploratory in nature, as it aims to ask questions about interactivity in the lesser known field of social commerce (Gray, 2013). It follows an abductive reasoning process (as illustrated in Figure 5.5) and bases its methods on constructionist and post-positivist orientations. This is due to its focus on understanding the development of interactivity in

social technologies, along with the evolution of its consumers' perceptions, expectations, and experiences which are both a root of and a response to the development of interactivity (Voorveld et al., 2011).

Figure 5.5: The Abductive Process Followed in this Thesis

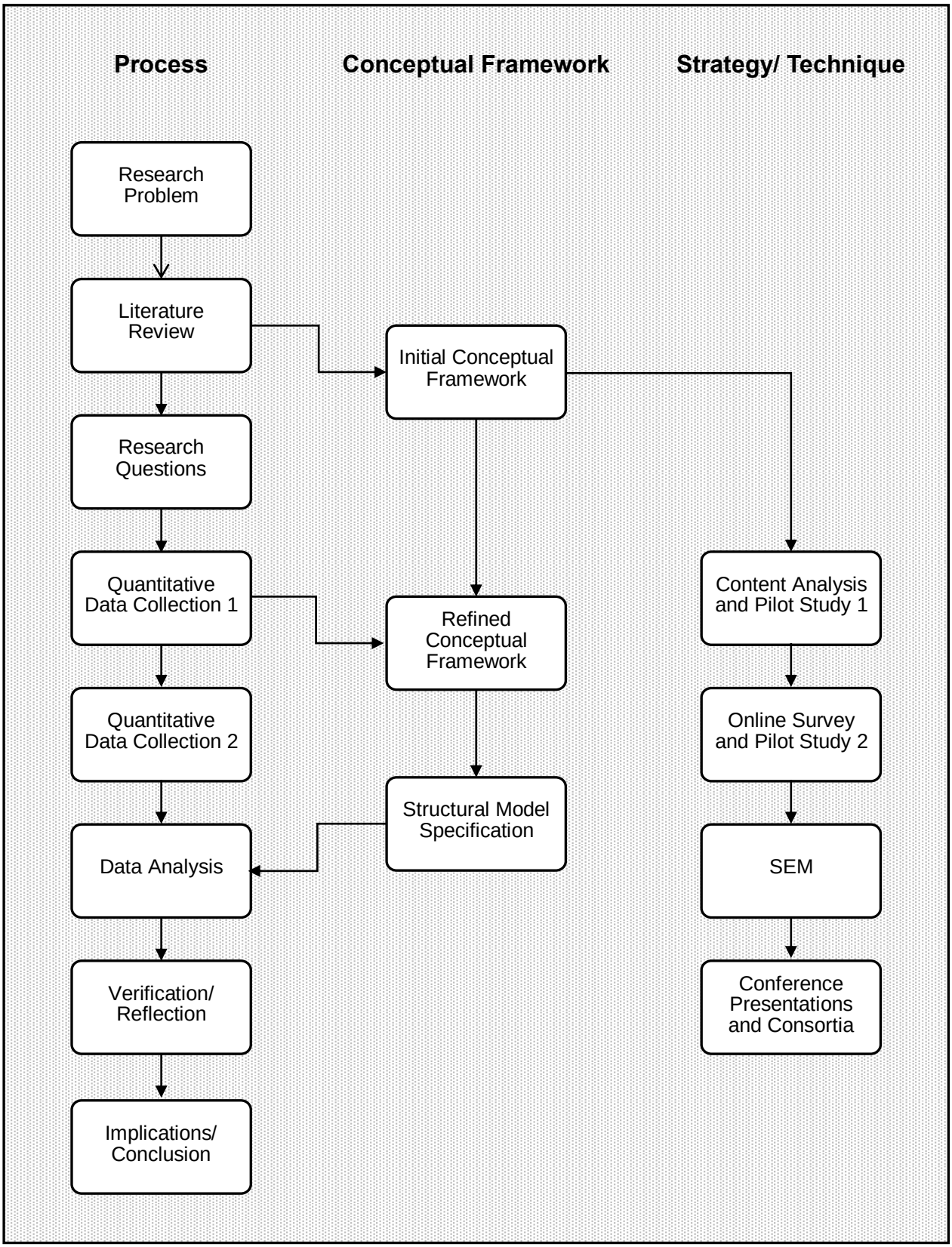


Adapted from (Kovács and Spens, 2005, p. 139)

This thesis contains two empirical studies that (1) collect data from different (albeit related) contexts and that (2) base their conclusions on these different data sets (Figure 5.6). The necessity of these two empirical studies to understand the thesis' research questions is reflected in the overall mixed methods orientation of this thesis. The first study is a content analysis of 73 social commerce websites, which aims to produce a typology of social commerce, based an updated view of Ghose and Dou's (1998) interactivity index. The same study then utilizes the interactivity scores achieved through the content analysis to connect structural interactivity with objective outcome variables (i.e. time spent in the website and pages viewed). The second study utilizes a survey method, and aims to investigate the relationship between structural interactivity and outcome variables that has been found in the first study. It specifically gauges the consumers of a social commerce page in terms of their perceptions of their online experiences, and examines how these perceptions mediate the consumers' reactions and opinions of an online environment. Study 1, a content analysis

investigation, is presented in the next chapter (Chapter 6), while Study 2 (the survey) is presented in Chapter 7.

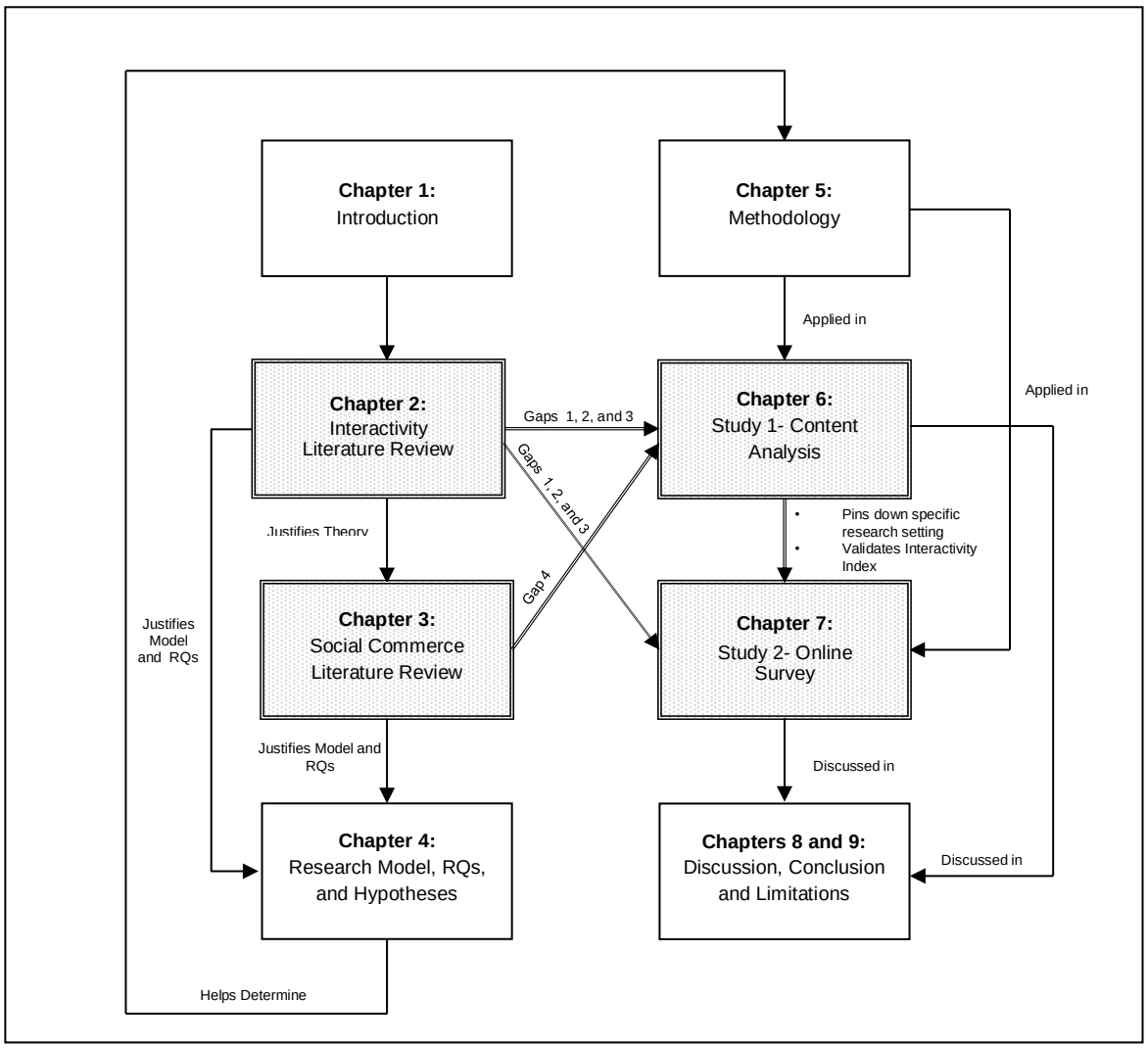
Figure 5.6: Data Collection Plan



6. Study 1: Social Commerce Content Analysis

The first study in this thesis is an exploratory content analysis of social commerce websites. As illustrated in Figure 6.1, this study plays a dual role; (1) it contributes to bridging gaps highlighted in the literature review (Chapters 2 and 3), and (2) it paves the way for conducting the second and main study of the thesis (Chapter 7) in terms of rationalizing the choice of a specific research setting and validating the structural interactive measures to be used in the survey. It is important to note that this chapter builds on a conference paper that was accepted and presented at the Academy of Marketing conference 2015 and published as a part of the conference's proceedings (Almahdi et al., 2015). The conference paper is included in Appendix E.

Figure 6.1: How the Literature Review and Empirical Studies are connected in the Thesis



Note: The chapters with direct relevance to this study and its results are shaded in grey and their connections are emphasized with compound arrows

At the beginning of this thesis, the past literature surrounding social commerce (the thesis' overarching context) was thoroughly discussed (Chapter 3). Indeed, the context chapter shed light on three main themes in social commerce research (i.e. social, commercial, technological) and emphasized its key players, namely: the social customer and the social enterprise. Still, a key gap that relates to understanding the boundaries of social commerce was highlighted in the chapter. Consequently, a theoretically-based typology of social commerce websites is suggested as a viable contribution to bridging this gap and is presented in the first part of this chapter. This typology is rooted in structural interactivity since the latter is regarded a defining characteristic of social commerce (Song and Zinkhan, 2008, Voorveld et al., 2011, Huang and Benyoucef, 2015). 73 websites (identified in past literature as social commerce) are analysed by two coders as a part of this study and interactivity scores are calculated for each of them to create a four-category typology.

Such an empirical typology is the first of its kind in the nascent field of social commerce research. Hence, findings from it are expected to contribute to determining what social commerce involves and where it departs from close concepts such as e-commerce and social media. These findings are beneficial to researchers, as they will aid them in pinning down the most appropriate settings for their empirical studies. They will also help them avoid mishaps committed by past researchers, many of whom chose their empirical settings with little justification as to what social commerce involves, and therefore ended up with results that are not necessarily reflective of the social commerce environment at large. Marketing practitioners are also expected to benefit from the results of the typology, as a better understanding of social commerce can influence their online marketing communications decisions.

In addition to presenting a theoretically-sound typology of social commerce, this study contributes to bridging another major gap outlined in the interactivity literature review (Chapter 2). This gap is manifested in the incongruities in reporting the relationship between interactivity and its outcome variables. Indeed, while many researchers expect that that the higher the interactivity of a website is, the more effective it will be in satisfying the customers and positively influencing their online experiences (Teo et al., 2003, Vendemia, 2017, Chan and Li, 2010), other researchers highlight possible negative outcomes of increased interactivity, such hindering communication and persuasion (Lee and Shin, 2012, Oh and Sundar, 2015).

In this thesis, however, it is suggested that higher structural interactivity in social commerce will lead to positive consumer-level outcomes because the interactive features in social commerce are novel and engaging to the consumers (Johnson and Kaye, 2016). To support this notion, the second part of this study utilizes the interactivity scores calculated for the typology and links them through regression analysis to usage metrics acquired from Alexa.com. Results from this study will highlight how the evolution of interactivity influences consumers in new ways, which will both inform marketing strategy and further academic research on the role of interactivity in social commerce.

This study is inspired by Ghose and Dou's (1998) leading interactivity research paper in the Journal of Advertising, and parallels it in a number of ways. First, Ghose and Dou's (1998) paper focused on exploring official business websites, which they described as a growing area of interest at the time. Similarly, this study explores social commerce, which is currently considered an important phenomenon (Stephen and Toubia, 2010, Lu et al., 2016). This study also follows in Ghose and Dou's footsteps by starting the research process with an exploratory content analysis that contributes to updating their Interactivity Index to fit the current online social climate. Finally, the researcher concurs with Ghose and Dou's suggestion that more structural interactivity will result on positive effects, as both studies aim link the interactivity scores attained through content analysis to objective outcome variables acquired through desk research.

To summarize, the aim of this chapter is twofold; to explore the relationship between the structural interactivity and objective outcome variables in social commerce, and to uncover the different types of social commerce websites using interactivity theory. These aims mirror the first two research questions outlined in the hypotheses development chapter (Chapter 4):

1. Social Commerce Typology

As discussed in the context chapter of this thesis, social commerce is the result of the convergence between e-commerce and social media technologies, and is therefore defined as "the delivery of e-commerce activities and transactions via the social media environment" (Liang and Turban, 2011, p.6). Social commerce is an evolving phenomenon that harbours promise for research and practice (Stephen and Toubia, 2010, Kim and Noh, 2012, Lu et al., 2016). Marketers are particularly interested in learning more about social commerce, as they aim to capitalize on it to listen to, engage, satisfy, and ultimately build lasting relationships with their customers (Anderson et al., 2011, Price, 2016, Olbrich and Holsing, 2011, Howard,

2016, Huang and Benyoucef, 2013). From an academic viewpoint, social commerce is expected to become "one of the most challenging research arenas" (Liang and Turban, 2011, p. 5) in the years to come, especially in regard to understanding the consumers' interactivity with the social commerce platforms as well as with other consumers using said environments (Wang and Zhang, 2012).

However, despite the growing interest in social commerce as a marketing tool and study field (Lin et al., 2017), social commerce research is yet to reach its full potential because of limitations in its conceptualization and uncertainty about its boundaries (Yadav et al., 2013, Shen, 2012, Turban et al., 2016, Mullin, 2016, Sentance, 2016). Specifically, there is no consensus in the literature regarding its different categories or how to separate it from related concepts, such as e-commerce and social media. These difficulties in establishing the concept of social commerce resulted in shortcomings in identifying appropriate empirical settings in past research and translated in uncertainty about the real-life potential for success of social commerce (Smith, 2016, Turban et al., 2016, Stephen and Toubia, 2010).

Therefore, the aim of this part of the study is to present a typology of social commerce websites (that is rooted in interactivity theory) in order to contribute to the knowledge about social commerce and what it involves. According to Rich (1992), a typology includes "the classification of data into types based on the theoretically derived, and more or less intuitively categorized, qualities of observed phenomena." (p. 761). McKelvey (1975) highlights the importance of theoretically-sound classification schemes in providing "the basis for explanation, prediction, and scientific understanding by identifying uniformities in the phenomena" (p.4). Indeed, a typology is expected to help "researchers and practitioners understand and analyse complex domains" (Nickerson et al., 2013, p. 336) and, thus, acts as a starting point for developing theory and examining hypotheses (Rich, 1992). It additionally aids researchers in understanding inconsistencies in previous research findings (Nickerson et al., 2013). All of these characteristics of the typology are relevant to the aims of this study. Therefore, a typology is expected to play an important role in understanding social commerce and pin-pointing a specific research context for Study 2 in this thesis.

An important consideration in this study is to fulfil McKelvey's (1975) recommendation that a classification scheme should be parsimonious, which according to him is achieved when it "contains as few non-overlapping classes or orthogonal dimensions as is possible" (p.4). Nickerson et al. (2013) additionally maintains that parsimony is reflected in presenting a

limited quantity of items in the content analysis scales. Other quality criteria for typology creation are outlined in Table 5.2 and considered in this study's research design.

Table 5.2: Quality Criteria for Typology Creation

Quality Criteria	Explanation	Possible Issues if criteria are not fulfilled
Concise	A useful typology is parsimonious, containing a limited number of items in the measurement scales and resulting on a limited number of categories.	A typology with too large a number of dimensions and items are difficult to understand and apply.
Robust	A useful typology contains enough items in the measurement scale to differentiate between the subjects in the sample.	A typology with too small a number of dimensions will not differentiate between subjects in the sample successfully.
Extendible	A useful typology is dynamic and flexible enough to accommodate newly developed measurement items and analysis subjects.	A typology which is not extendable will soon become obsolete.
Explanatory	A useful typology provides explanations for the characteristics of the subjects in each dimension and any future subjects to be included in the typology.	A typology which is not explanatory provides little value for research.

Adapted from Nickerson et al. (2013)

1.1 Content Analysis Research Design

To answer the research question of the first part of the study (i.e. what are the different types of social commerce websites based on their structural interactivity?), an exploratory content analysis is carried out. Indeed, content analysis is considered an intuitive tool for testing and understanding the structural interactive features of websites (McMillan, 2002), because "the measurement of interactivity of a web site begins with the presence of interactive devices for each dimension of interactivity" (Ha and James, 1998, p. 465).

As discussed in the interactivity literature review (Chapter 2) and in the paper by McMillan (2000b), when a researcher undertakes a content analysis method that is rooted in interactivity theory, he or she typically chooses a specific number of websites from a pre-defined list, analyses them for the existence (or the lack thereof) of structural interactive features determined by a scale, tests the reliability and validity of the results, and finally calculates an interactivity score for each of the websites analysed (e.g. Voorveld et al., 2011, Massey and Levy, 1999, Cho and Cheon, 2005). These steps are expanded on next.

1.1.1 Choice of websites to analyse

Prior interactivity studies that carried out content analysis methods mostly used Internet top lists to justify their choice of analysis subjects (e.g. Ha and James, 1998, Chen and Yen, 2004, Voorveld et al., 2011). However, finding a comprehensive list of social commerce platforms proves to be a difficult task, since social commerce is a relatively new concept which remains insufficiently understood (the aim of this study is to contribute to correcting this gap). Additionally, in what seems to be a long-time difficulty related to online content analysis methods, Bates and Lu (1997) discuss that "with the number of available Web sites growing explosively, and available directories always incomplete and overlapping, selecting a true random sample may be next to impossible" (p. 332). As a solution to this problem, the researcher creates a list of 73 social commerce platforms that she extracted from academic and online articles published in the last 10 years (Appendix F). The sample size of this study is comparable to that of Voorveld et al.'s (2011) Journal of Advertising paper, which carried out a content analysis based on 65 brand websites.

The researcher does not claim that this is an exhaustive list of websites, but deems it representative of the general social commerce environment. Indeed, the first aim of this study (i.e. to determine the meaning and boundaries of social commerce) is achieved by investigating websites which are referred to as social commerce in prior publications. This will aid in understanding why they were considered social commerce in the first place and what they have in common. Still, it is important to bear in mind that this remains "a judgemental sample" (Ghose and Dou, 1998, p. 36). Additionally, it is key to note that this list only includes websites that are in English, excluding popular Chinese social commerce websites for example, because the coders in this study do not speak the language.

1.1.2 Choice of interactivity theory as a basis for the analysis

Through the discussion in the literature reviews of this thesis, it was determined that interactivity is an important concept to investigate in the context of social commerce (Wang and Zhang, 2012). This is especially relevant because marketers are keen to understand and capitalize on interactivity to offer their consumers engaging, sociable, and satisfying online experiences (Huang and Benyoucef, 2015, Li et al., 2014, Turban et al., 2016). Nevertheless, marketers are not always certain on how to facilitate the full potential of these interactive features (Cecere, 2010, Huang and Benyoucef, 2015). Consequently, it is recommended that researchers should explore the structural interactivity of social commerce, specifically in

regard to how it can be manipulated to influence the consumers' online experiences (Lu et al., 2016, Liang et al., 2011, Yadav et al., 2013). Indeed, although past research emphasizes interactivity as a distinguishing characteristic of social commerce, the expected role of interactivity within the social commerce environment is seldom empirically examined (Cha, 2009), despite being a fitting perspective to capture the interrelation between the technological, social, and commercial themes of the concept (Fuchs, 2014, Turban et al., 2016).

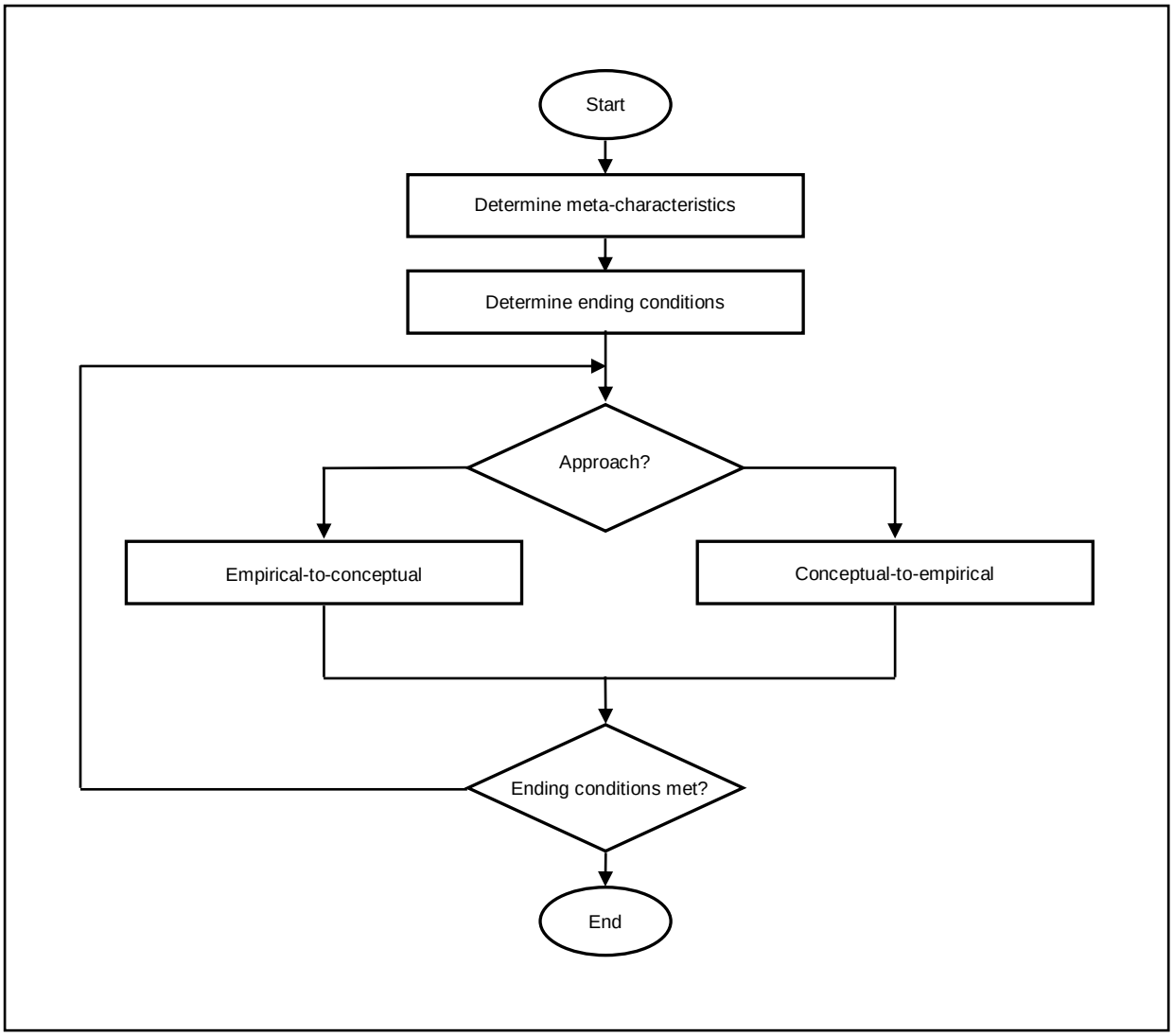
1.1.3 Choice of structural interactivity scale

Ghose and Dou (1998) pioneered in creating the Interactivity Index; one of the earliest examples of a scale quantifying the structural interactivity of a website. The Interactivity Index, and updated versions of it presented by Chen and Yen (2004), Cho and Cheon (2005), and Voorveld et al. (2011), are therefore the basis for the structural interactivity scale used in the content analysis of this study.

To affirm that this scale adequately reflects the properties of the social commerce environment, the typology development process proposed by Nickerson et al. (2013) is conducted as an introductory part of this study (Figure 6.2). Nickerson et al.'s (2013) process suggests choosing a main theme (a.k.a. meta characteristics) as a starting point for developing an IS typology and going through several iterations of deductive and inductive analyses until satisfactory results are accomplished by reaching the pre-defined ending conditions in a typology development process. In this study, the main theme is defined as 'an examination of the structural interactivity of social commerce websites', and followed by a first iteration of qualitatively analysing those 73 websites.

By carrying out this first iteration, the researcher is able to determine that the Interactivity Index and its updated versions do not fully capture the nature of the social commerce websites of today. This is because these scales are a product of their time, meaning that they mainly focus on the consumer-website and consumer-marketer relationships, giving little attention to the idiosyncrasies of consumer-consumer interactivity. This echoes another limitation discussed in the interactivity literature, regarding the lack of research focus on the social aspect of interactivity.

Figure 6.2: Typology Creation Process



Reference: Nickerson et al. (2013)

As a result of the first iteration, the researcher is able to identify several consumer-consumer interactive features that distinguish social commerce websites, in addition to newer consumer-website interactive functions. Moreover, through the first exploratory iteration, the researcher is able to exclude a few human-website features from further analysis, either because they could not be found in any of the websites analyzed (e.g. skip intro option), because they were available in all of the websites (e.g. search function), or because they did not contribute to the understanding of interactivity in social commerce. For example, options to order, register, and customize products online were excluded because the scopes of the websites reviewed in this study are spread across the consumer buying decision process and are not limited to actual buying (Yadav et al., 2013). Therefore, counting online order as an

interactive feature in the analysis would reflect inaccurate interactivity scores for websites with no buying mechanisms, such as Polyvore.

The second iteration in the typology development process is a theoretical one. It was used to establish the novel consumer-consumer and consumer-website interactive functions within existing research. The researcher, consequently, adapts the parts that reflect these novel interactive features from the studies by Huang and Benyoucef (2013, 2015) and Stuart et al. (2012). Updating the Interactivity Index by adding novel interactive functions mirrors Voorveld et al.'s (2011) proclamation that "interactivity is not a static construct" (p. 90) and that researchers should continue to investigate the concept in order to keep up with new technologies and changes in users' experiences and expectations (*ibid*, 2011). The third (and final) iteration, an empirical one, saw two coders analyse the websites based on the updated Interactivity Index. The exact process of the content analysis is outlined later in this chapter.

It is key to note that the original items in the Interactivity Index were grouped into five marketing-related dimensions in Ghose and Dou's (1998) study. However, following the example in Cho and Cheon's (2005) paper, in addition to recommendations from this thesis' own interactivity chapter, the updated structural interactivity scale (a.k.a. Interactivity Index) is broken down into two dimensions, namely: human-website and human-human interactivity. As already covered in this thesis, human-website structural interactivity is approached as the "interactive communication between users and technology that is based on the nature of the technology itself and what the technology allows users to do" (Chung, 2008, p. 660), while human-human structural interactivity is defined as "communication between two or more users that takes place through a communication channel" (Chung, 2008, p. 660).

These categorizations in the interactivity scale were further validated using a pilot study. In this study's pilot phase, 25 students were individually presented with definitions of human-human and human-website interactivity and they helped categorize each statement of the Interactivity Index as either human-website or human-human, further validating the scale. They also suggested if items need to be removed or merged because they are redundant, dated, or not very distinctive features to social commerce.

The interactivity features of the updated and piloted Interactivity Index are listed in Table 6.1, followed by a qualitative description of each, with illustrative examples from the website analysed.

Table 6.1: The Updated and Piloted Interactivity Index

Types of Interactivity	Interactive Features	Description of Interactive Features
Human-Website Interactivity	1. Popular/latest	The website presents popular, trending, or latest content
	2. History	A profile or list that presents a history of user activities
	3. Mobile application	The availability of a mobile application is advertised on the website
	4. Recommendations	The website provides recommendations to users based on their inputs, preferences, or other activities on the site
	5. Lists	An option to add items to lists provided by the site
	6. Notifications	Notifications of new activity on the website, or a notification icon
	7. Personalization	Options to personalize the viewing experiences of the site users
	8. Multimedia content	The website carries visual content which is more than just pictures
	9. Pictures with comments	Options on the website to insert pictures with replies and reviews
Human-Human Interactivity	1. Sharing	Options to share the website or parts of it with others
	2. Like/favourite/rate	Options to like, favourite, or rate products and posts on the website
	3. Social profile	A personal profile to be viewed by others
	4. Social activity	A page showing updates about friends' activity on the website
	5. Content creation	Options enabling users to contribute their own content to the site
	6. Comments	Options on the website to comment on posts, pictures, or offers
	7. Add/ follow friends	Options on the website to add friends or follow other users
	8. Private messaging	Options on the website to send messages to others
	9. User groups	Online communities or social groups on the website
	10. Real-time options	Options to chat with others in real-time or upload live videos.
	11. Find friends	Options to find friends through other social media or email

A. Human-Website Interactivity:

Based on the thesis' interactivity literature review, and further confirmed by the pilot study, interactive functions that fall in this category reflect a user's direct use and interactions with the interactive environment and its features and properties (Chung, 2008).

As one of the most widespread human-website interactivity dimensions, the goal of *Popular or Trending Content* is to reflect what common behaviours on a website look like by highlighting the subjects or products most prevalent amongst the platform users (Stuart et al., 2012). As seen in Figure 6.3, this interactive feature can be observed when Netflix, a streaming entertainment platform, promotes its popular and trending TV programs (screenshot A), when Amazon displays its best-selling products on its main page (screenshot B), and when YouTube updates its trending videos section (screenshot C). Presenting content in this way is expected to encourage users to consider and adopt these popular suggestions for consumption, whether it manifests in watching, buying, following, or liking.

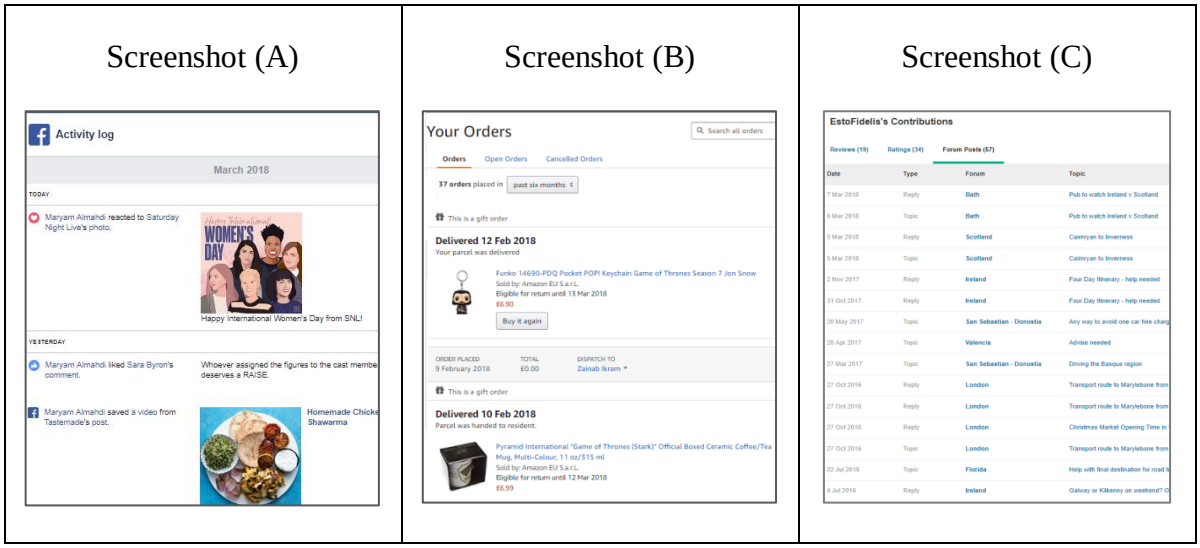
Figure 6.3: Popular Content in Social Commerce

Sources: netflix.com, amazon.co.uk, youtube.com

History is an important human-website interactive function. It can be observed when the users' profile on the website includes browsing history, revision history, transaction history, and other activity history records (Stuart et al., 2012, Huang and Benyoucef, 2013). Examples of the history function are depicted in Figure 6.4. Screenshot (A) shows a private activity log on Facebook, including a record of likes, comments, and saved posts, screenshot (B) depicts another private history list of a shopper's past orders on Amazon, and screenshot (C) shows a

user's public history profile on TripAdvisor (an online tourism review and booking platform), including information about their past reviews, ratings, and forums posts

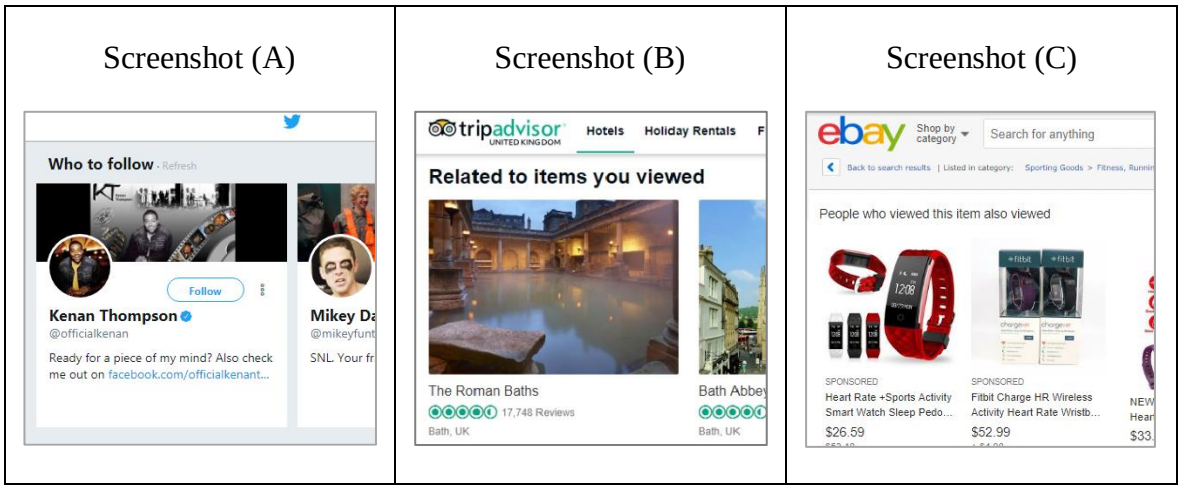
Figure 6.4: History of Activities in Social Commerce



Sources: facebook.com, amazon.co.uk, tripadvisor.com

Another human-website interactive feature is *Recommendations*. It corresponds to the 'personal choice helper' feature outlined by Ghose and Dou (1998), which they described in terms of the website being able to "make relatively sophisticated recommendations on consumers' choices based on their input on preferences and decision criteria" (p. 32). This feature is also researched by Voorveld et al. (2011) and Cho and Choen (2005) in their respective content analysis studies. The recommendation feature aims to move the consumers through the different stages of their buying decision process (Ghose and Dou, 1998) by helping them "resolve . . . uncertainty about what to do or buy" (Huang and Benyoucef, 2013, p. 255). Figure 6.5 depicts different types of recommendation options in social commerce. Screenshot (A) shows suggestions by Twitter on new people to follow based on who the user is currently following, screenshot (B) depicts recommendations of tourist attractions based on the users' past searchers on TripAdvisor, while screenshot (C) presents recommended products on e-bay based on other shoppers' activities.

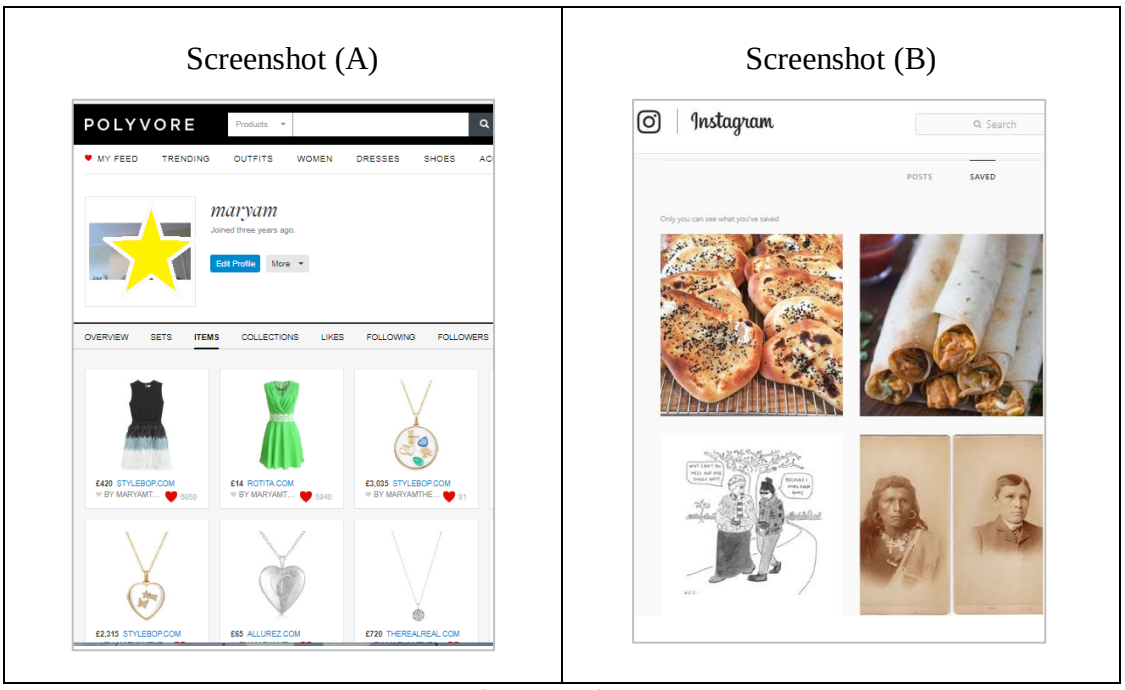
Figure 6.5: Recommendation Options in Social Commerce



Sources: twitter.com, tripadvisor.com, ebay.com

Lists, a human-website interactive function, is mainly approached in past literature in terms of creating wish-lists and shopping lists on social commerce (Voorveld et al., 2011, Huang and Benyoucef, 2013). An example of these is depicted in Figure 6.6 screenshot (A), which shows a wish-list of fashion items on Polyvore, a consumer-curated shopping directory. However, since the commercial functions in the websites researched for this study are not restricted to actual purchasing; other types of lists are included in the analysis, such as lists of saved posts, an example of which is depicted in screenshot (B).

Figure 6.6: Lists on Social Commerce



Sources: polyvore.com, instagram.com

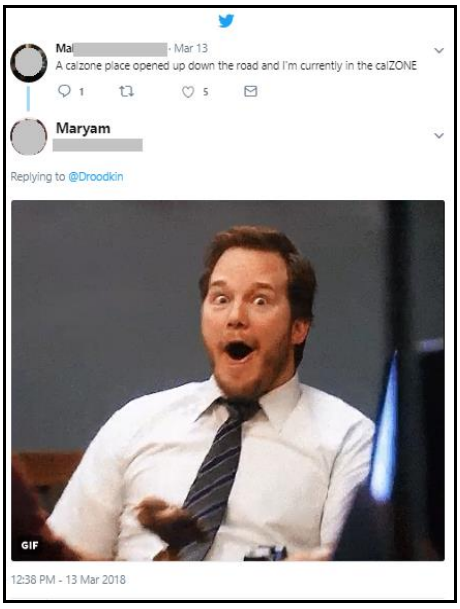
Other human-website interactive features analysed include *Notifications*, which were approached by Ghose and Dou (1998) as an option that allows the users to "receive information directly to their screens on a regular basis" (p. 32), *Customizing the Viewing Experience*, which is explained as the choice of "alternative viewing or navigation tools, customization features, . . . and human language options" (Chen and Yen, 2004, p. 219), *Multimedia Options* which are approached in terms of "providing high quality video clips, audio clips, . . . [and] product demonstrations" (Chen and Yen, 2004, p. 220) and expected to "offer the users a feeling of being connected to the outside world" (*ibid*, 220), and finally *Mobile Applications* which are approached by Voorveld et al. (2011) as "connection to a mobile phone" (p.84) and which are taking an ever growing role in offering the consumers a premium and convenient shopping experience (Beese, 2016, Porcellana, 2016).

A final (and relatively more recent) human-website interactive function, which was uncovered in the first iteration of the typology creation process, is the ability to insert *Pictures and Gifs in Comments and Product Reviews*. Examples of this function are depicted in Figure 6.7, screenshots (A) and (B).

Figure 6.7: Pictures with Comments on Social Commerce

Screenshot (A)

Screenshot (B)



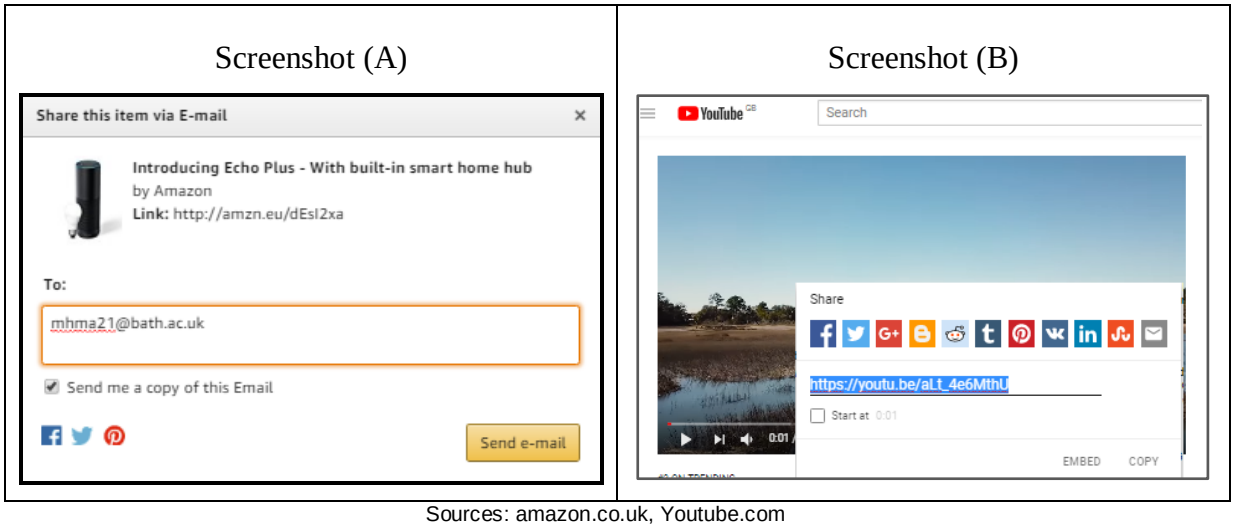
Sources: twitter.com, amazon.co.uk

B. Human-Human Interactivity:

This dimension of interactivity corresponds to the mediated interpersonal communication view and reflects the conversations and relationships between consumers facilitated via the online environment (Chung, 2008).

Sharing is one of the most established and widespread human-human interactive functions across the websites analysed. Voorveld et al. (2011) described it as "the capability to recommend the Web site or product to a friend" (p. 82). This function is expected to influence the consumers' consumption decisions (Indvik, 2013), "motivating deep engagement and providing participants with a strong sense of social identity" (Huang and Benyoucef, 2013, p. 254) . Examples of social sharing options are depicted in Figure 6.8. Screenshot (A) presents an option to email a product offered by Amazon to a friend, while screenshot (B) shows multiple options to share a YouTube video, including copying its link, and posting the video on other social media including Facebook and Twitter.

Figure 6.8: Sharing on Social Commerce



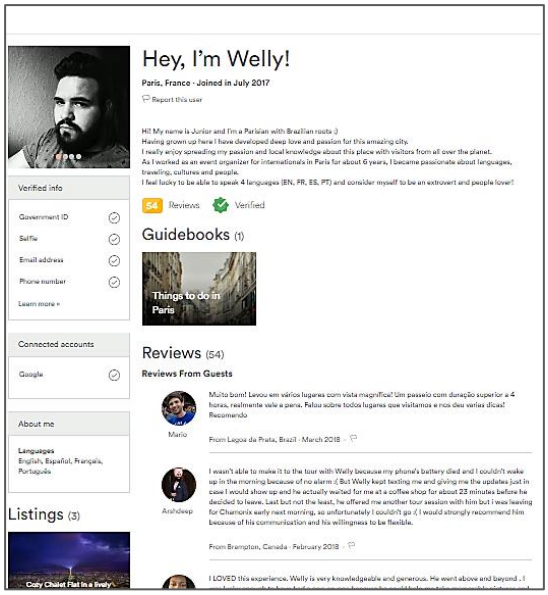
Sources: amazon.co.uk, Youtube.com

A key human-human interactive option is a user's *Social Profile*, which usually contains personal information about them (Stuart et al., 2012), such as their name, picture, interests, and other "interesting information in the participant's activities, such as information categorized by most viewed, most commented on, and most popular" (Huang and Benyoucef, 2013, p. 254). As depicted in Figure 6.9, social profiles and their contents vary depending on the type of social commerce website they are created for. For example, screenshot (A) shows a social profile in Airbnb, a lodging online marketplace, which includes a picture and verified information about the host, a short biography, featured listings, guidebooks, and customer

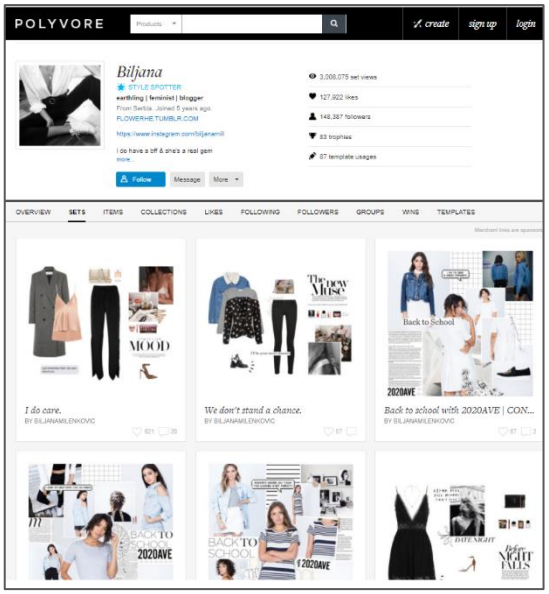
reviews. Screenshot (B), on the other hand, shows a social profile on Polyvore, which includes information about the users' fashion interests and tastes, social circle, profile views, likes, and trophies.

Figure 6.9: Social Profiles on Social Commerce

Screenshot (A)



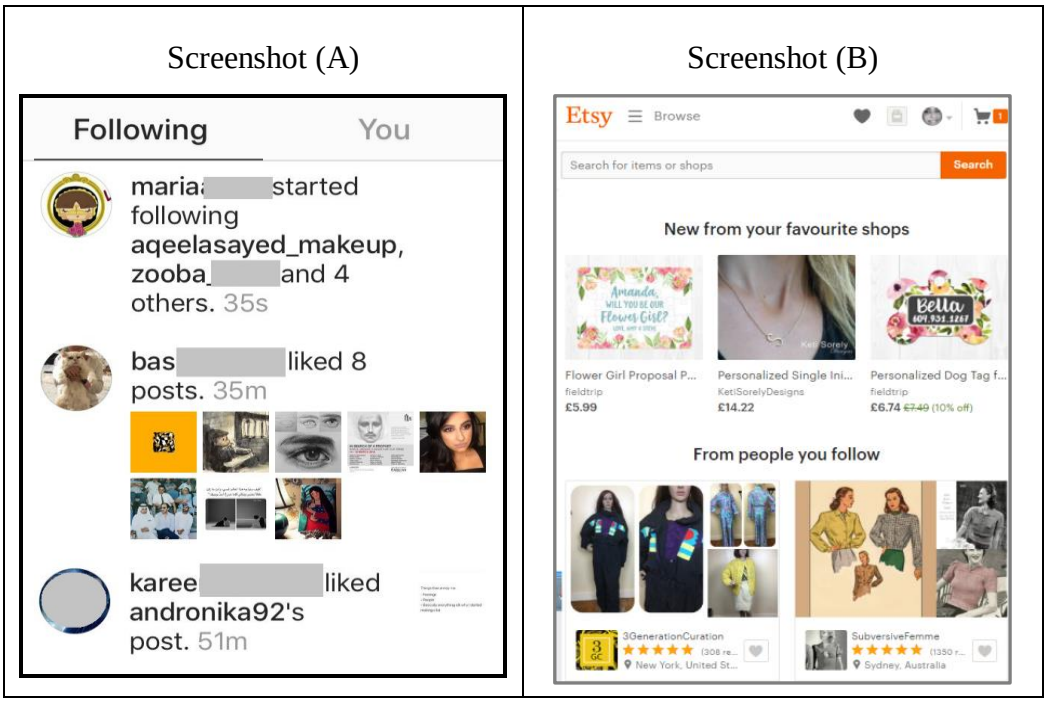
Screenshot (B)



Sources: Airbnb.com, Polyvore.com

Another human-human interactive function analysed in this study is *Social Content Presentation.* This function is observed when the website offers timely updates on friends' social activities, such as latest posts, likes, and follows, with the aim of encouraging "participants to interact with social content, [in which] each piece of content can be created as their own conversation topics" (Huang and Benyoucef, 2013, p. 254). Figure 6.10 depicts example of social content presentation on social commerce. Screenshot (A) shows how Instagram informs its users about the activities of their friends on the platform, including: who they followed and what pictures they liked and commented on. In addition to showing social interactions of friends, Etsy updates its users about activities of the shops they follow, such as when they offer new products and discounts, as seen in screenshot (B)

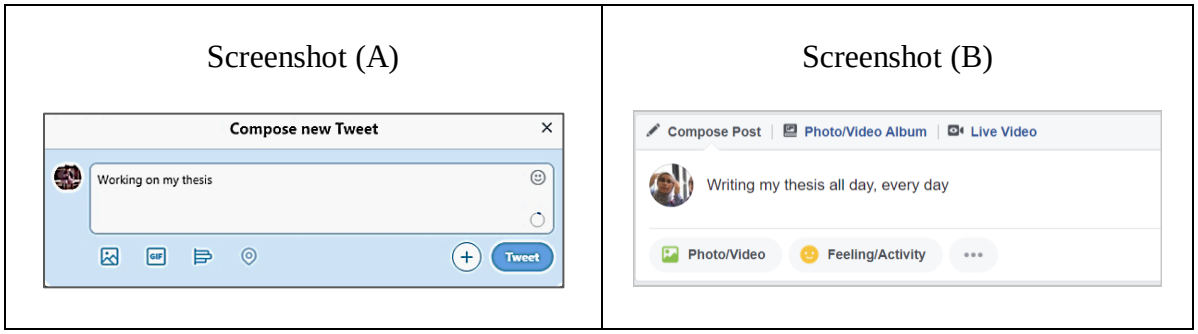
Figure 6.10: Social Content Presentation in Social Commerce

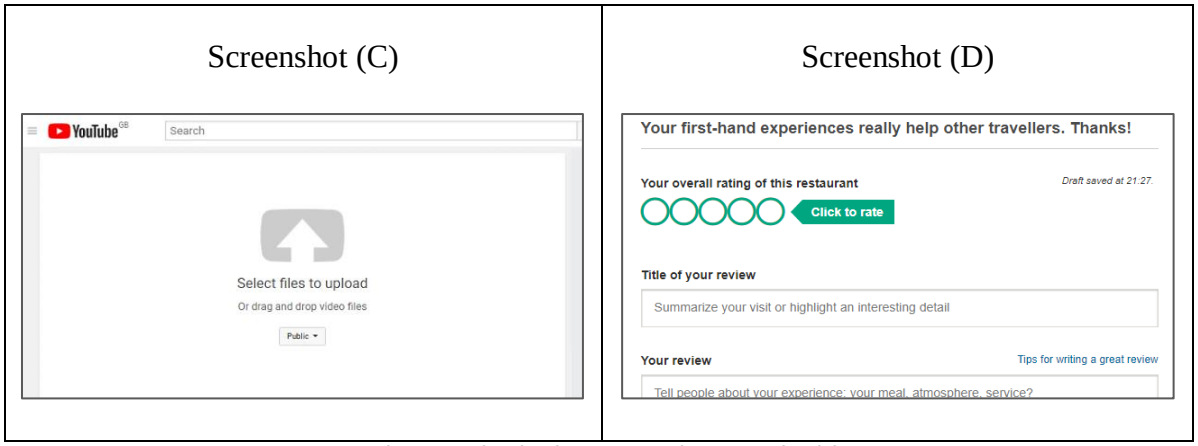


Sources: Instagram.com, etsy.com

Content Creation is an important part of the human-human interactivity scale. It is observed in functions allowing the users to post written content, pictures, videos, product reviews, and more on social commerce. These options correspond to Ghose and Dou's (1998) surfer postings function, which they define as "a section for surfers to write their stories [and] opinions" (p. 32). Content creation features are expected to "encourage participants to express their experiences, knowledge, and interests" (Hang and Benyoucef, 2013, p. 254), and influence other users' consumptions decisions (Virgillito, 2016). In Figure 6.11, screenshots (A) shows a function to send a tweet on Twitter, (B) shows an option to write a post on Facebook, (C) depicts an option to upload a video on YouTube, while (D) presents a rating and review function on TripAdvisor.

Figure 6.11: Content Creation on Social Commerce

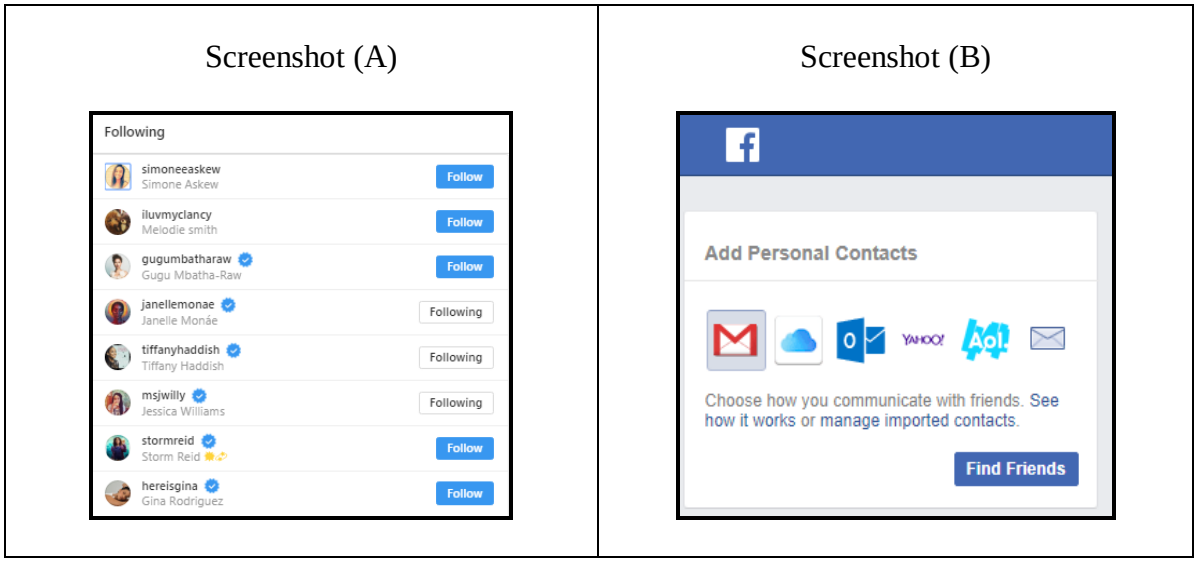




Sources: Twitter.com, facebook.com, Youtube.com, Tripadvisor.com

Next, two options relating to friends in social commerce websites are outlined; one relates to the ability to *Add Friends* on social commerce (Figure 6.12, screenshot A), and the other relates to the ability to *Find and Import Friends* from other places, like email and social media accounts (screenshot B). Through these options, the social commerce users are able to "to link with people [they] like because admiration and attraction may build social bonds and trust" (Huang and Benyoucef, 2013, p. 255).

Figure 6.12: Friends on Social Commerce



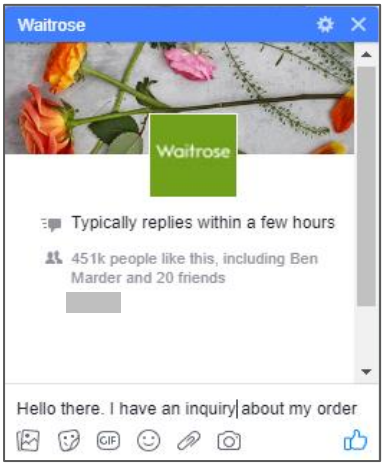
Sources: twitter.com, Facebook.com

Another key function in the human-human interactivity scale is *Messaging*, or the availability of the option to send and receive private asynchronous messages with other users in social commerce. Figure 6.13 shows the use of messaging function to talk with a friend on Twitter (screenshot A) and contact a company on Facebook (screenshot B).

Figure 6.13: Messaging on Social Commerce

Screenshot (A)

Screenshot (B)

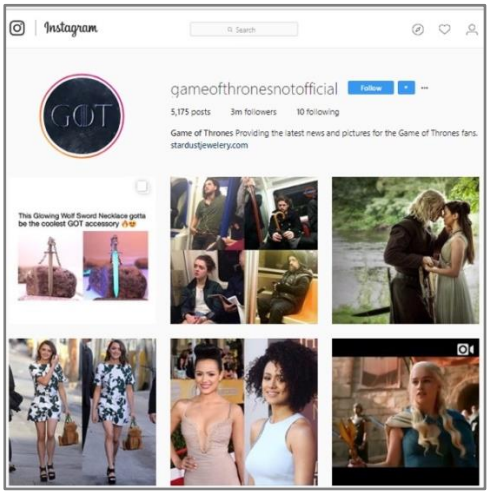


Sources: twitter.com, facebook.com

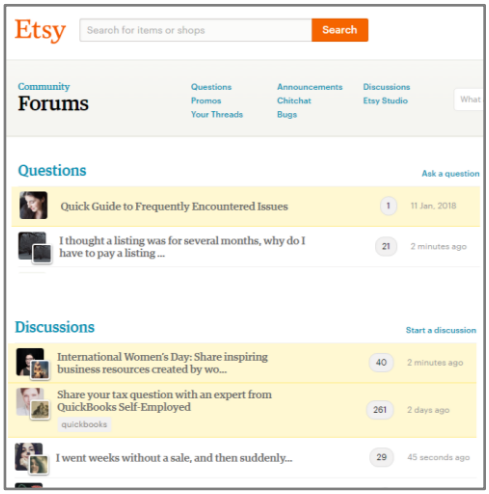
User groups or Communities are the result of combining two very close interactive features (as suggested in the pilot study) proposed by Voorveld et al. (2011), namely: (1) user groups, also referred to as "online community for product users" (p. 82), and (2) online fan clubs, or "a community of people who share a strong, common interest in the brand or product" (p.82). In Figure 6.14, Screenshot (A) depicts a fan page on Instagram revolving around the TV program 'Game of Thrones', where fans post pictures and memes, and discuss theories and spoilers, while screenshot (B) shows question and discussion forums on Etsy.

Figure 6.14: Groups on Social Commerce

Screenshot (A)



Screenshot (B)



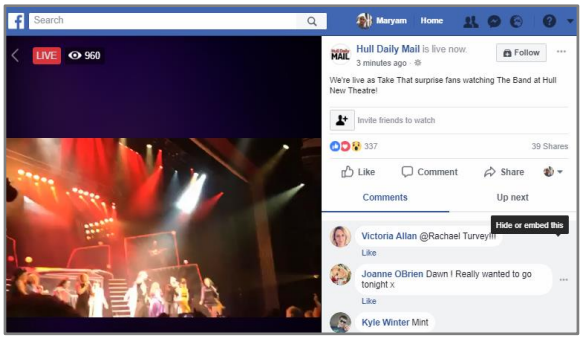
Sources: Instagram.com, Etsy.com

Other human-human interactive features analysed include *Commenting*, which is cited in the studies by Ghose and Dou (1998) and Cho and Choen (2005), and utilized by the users to respond to and give feedback on other users' input (Huang and Benyoucef, 2013), in addition to the options to to *Like, Love, Favourite or Rate*, which enable users to express their interest in a product, post, or picture that they come across in social commerce. Often, these likes can be viewed by other customers on their own timelines of friends' social activities, and therefore influence the choices and decisions of others in social commerce.

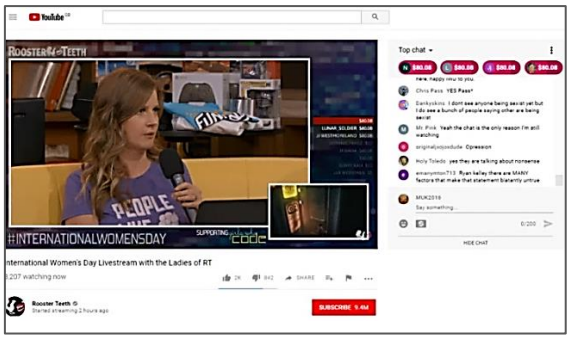
Finally, *Real-Time Communication Options* are researched in the content analysis. These are partially depicted as a part of Cho and Cheon's (2005) online chatting option, which they described as a feature that facilitates "chatting with other customers [or employees] using instant messaging or chatting programs" (p. 107). Massey and Levy (1998) explain the same function in terms of enabling synchronous interpersonal conversations. Chat options were also researched in the content analysis by McMillian (2002) and Voorveld et al. (2011). However, in this study, the real-time communication options are not limited to chatting, but further consider live videos with accompanying live chats as a part of the analysis (Virgillito, 2016). Examples of those are depicted in Figure 6.15 screenshots (A) and (B).

Figure 6.15: Real-time Communication on Social Commerce

Screenshot (A)



Screenshot (B)



Sources: Facebook.com, Youtube.com

1.1.4 Content analysis procedure and calculating interactivity scores

Two coders (the researcher and a post-graduate student) accessed all the websites in the same week of February 2017 and used the updated Interactivity Index to assess the levels of structural interactivity in each website. Following the example set by Massey and Levy (1999), the whole website (starting from its home page) was designated as the unit of analysis

in the study. Since structural interactivity is reflected in the interactive features of a technological environment, it was approached in this study "based on how many, and what types of features allow for interactive communication" (McMillan, 2002, p. 277). Therefore, each interactive function in the scale was coded as 1 or 0 to reflect whether it does or does not exist in the analysed websites (Ghose and Dou, 1998). According to this method, "the higher number of such features on the site, the greater its interactivity" (Sundar, 2007, p. 91).

After all the 73 websites were analysed, the two coders went through the results of the analysis together, discussing and correcting a few incongruities between their results (Cho and Cheon, 2005). The sum of the features for each interactivity dimension (i.e. Human-Website, Human-Human) was divided on the total number of interactive features in said dimension, in order to easily compare and analyse them (Chen and Yen, 2004, Voorveld et al., 2011).

1.2 Findings

The findings of this part of the study will be discussed in terms of (1) the general frequency of usage of each interactive function analysed, and then (2) in terms of the four-category typology created using the interactivity scores acquired through the content analysis study.

1.2.1 Frequency of usage of interactive features

Following the example of Ghose and Dou's (1998) pioneering study, the extent of the spread of each interactive function across the websites researched was uncovered through the content analysis (Table 6.2). These descriptive data will play a key role in understanding some of the findings in the second part of this chapter.

Indeed, the *Popular Content* presentation is (rather fittingly) the most popular feature amongst the 73 websites analysed, followed by *Sharing* options at 88% of the websites. Interestingly, all (but one) of the features that occur in more 70% of the websites reviewed are interactive features reflecting the relationship between the user and the website. Specifically, *History Profiles* occur in 84% of the websites, while *Mobile Applications*, *Recommendations*, and *Lists* are available in 81%, 79%, and 77% of the websites, respectively. These percentages mirror the discussion in the interactivity literature review chapter regarding to the widespread research attention on human-website interactive options (on the expense of human-human interactivity) because they are the most common type of interactivity online (Cho and Cheon, 2005, Vendemia, 2017).

Mid-range popular interactive features occurring in more than half of the websites analysed include a couple of human-website interactive options (i.e. *Notifications* at 66% of the websites and *Customization of Viewing* at 58%), and several human-human features such as the ability to *Like* Posts and build *Social Profiles* (both at 67%), in addition to *Social Content Provision* (64%), *Content Creation* (64%), *Commenting* (62%), and *Adding Friends* on the websites (53%).

Finally, interactive options that occur in less than half of the websites are mostly human-human interactive features (i.e. *Private Messaging*, *User Groups*, *Real-Time Communication*, and *Finding Friends*), while two of them reflect human-website relationships (i.e. *Multimedia Content*, and *Picture with Comments*). The latter is found in only 22% of the websites reviewed.

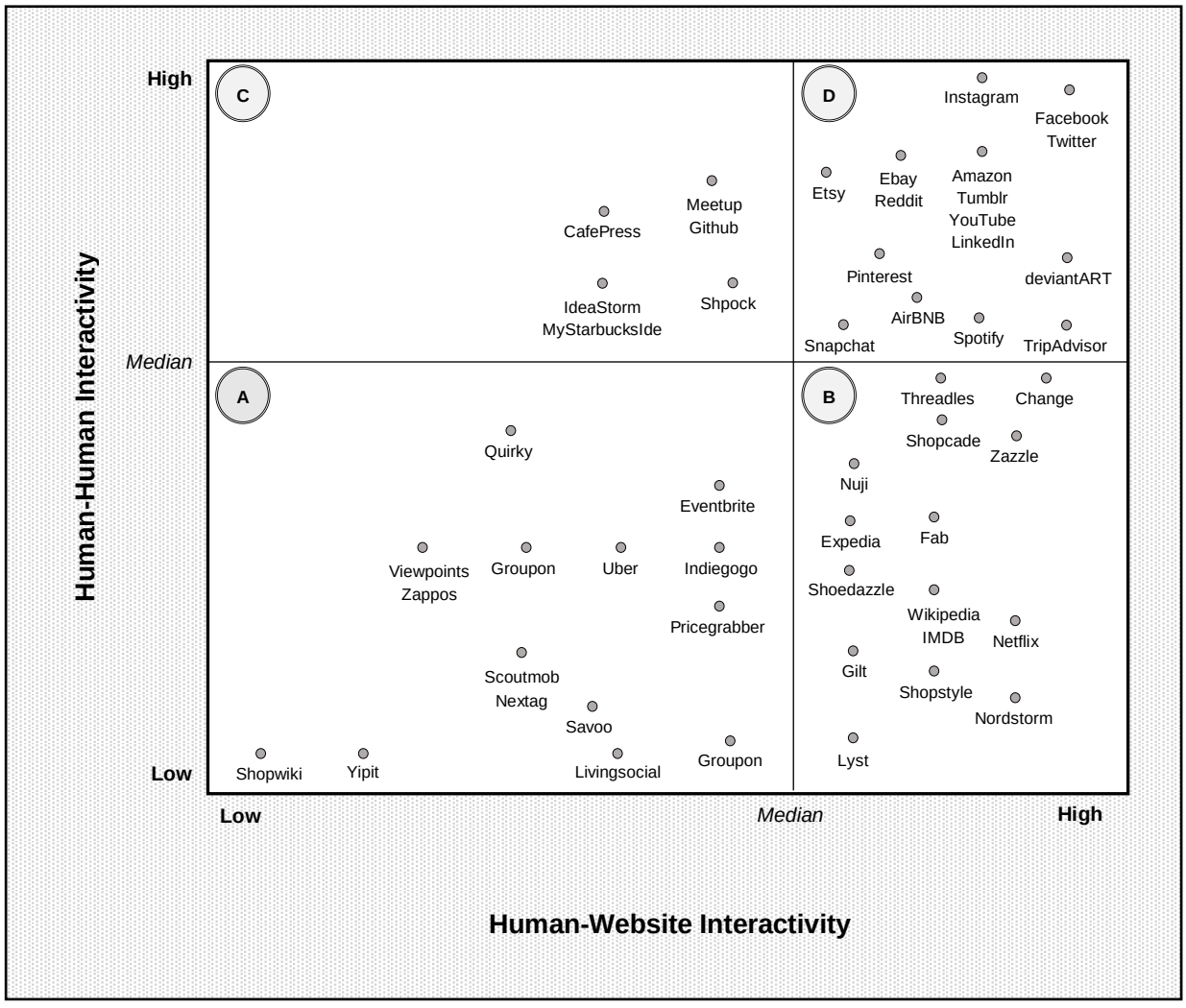
Table 6.2: How Widespread Interactivity Features are in Social Commerce

Type of Interactivity	Interactive Features	% of websites with the Feature
Human-Website	Popular/latest	89%
Human-Human	Sharing	88%
Human-Website	History	84%
Human-Website	Mobile application	81%
Human-Website	Recommendations	79%
Human-Website	Lists	77%
Human-Human	Like/favourite/rate	67%
Human-Human	Social profile	67%
Human-Website	Notifications	66%
Human-Human	Social activity	64%
Human-Human	Content creation	64%
Human-Human	Comments	62%
Human-Website	Website personalization	58%
Human-Human	Add friends on the Website	53%
Human-Website	Multimedia content	48%
Human-Human	Private messaging	47%
Human-Human	User groups	47%
Human-Human	Real-time options	34%
Human-Human	Import friends	29%
Human-Website	Pictures with comments	22%

1.2.2 Social commerce typology

Following the definition of social commerce, as interactive platforms that combine social and commercial activities (Liang et al., 2011), it is found that all of the websites analysed do, in fact, qualify as social commerce since they encompass social, commercial and interactive features. However, these websites vary vastly in terms of the extent to which they facilitate human-human and human-website interactivity. Based on these two criteria, four types of websites are uncovered in the study's sample (Figure 6.16), as the high/low interactivity conditions were determined through a median split. It is key to note that this typology fulfils McKelvey's (1975) condition of parsimony when developing classification schemes, as it contains 4 independent categories in terms of the extent to which they facilitate the two types of structural interactivity. These categories are discussed next.

Figure 6.16: Four Categories of Social Commerce



Group A: Basic E-Commerce

18 of the 73 websites analysed fall into this category. These websites are low in both human-website and human-human interactivity, and therefore regarded the most basic type of e-commerce. Their orientations vary from coupon websites (e.g. Yipit.com), to price comparison websites (e.g. Nextag) and rating and reviews websites (e.g. Viewpoints). These websites offer simple human-website interactive functionalities such as providing the customers with recommendations based on their past activities, and present limited human-human functionalities such as options to rate and share products with others.

Group B: Sophisticated E-Commerce

17 of the 73 websites analysed belong to this category. These websites are high in human-website interactivity, and low in human-human interactivity, thus representing a more evolved version of e-commerce. Many of these websites are online marketplaces focusing on fashion (Gilt, Lyst, ShoeDazzle) and creative designs (Threadless, Zazzle, Fab). Other examples of websites in this category are Netflix (a media streaming platform) and IMDB (an online film database). Because these websites are high in human-website interactivity, they are able to provide their customers with the freedom of creating lists, accessing history profiles, and personalizing their browsing experiences on the website. However, the human-human interactivity in these websites is low, with limited profile options, little or no access to friends on the site, and a complete lack of interactive social content provision.

Group C: 'Strictly-Social' Social Media

The third group includes websites that are high in human-human interactivity and low in human-website interactivity. Interestingly, this is the group with the least number of subjects (n=7). This could be because the human-website interactive features are usually facilitated alongside human-human interactive functions, as the former are more common than the latter. However, a closer look into these websites reveals that they are a very specific kind of social platforms. For example, the main goal of both ideastorm and mystarbucksidea is to crowd-source customer ideas for the benefit of global brands. Consequently, these websites focus their structural interactivity on content creation, commenting, voting, and sharing functions. Similarly, Meetup is a website dedicated to organizing and managing social gatherings, so it focuses its features on human-human structural interactivity, such as profiles, messaging, user groups, commenting and content creation to facilitate its overarching goal.

Group D: Sophisticated Social Commerce

These are the most sophisticated websites analysed because they are high in both human-website and human-human interactivity. This category is the largest in size (n=31), including online marketplaces with shopping carts (e.g. eBay, Amazon), user-curated shopping websites (e.g. Polyvore), and social networking sites (e.g. Facebook, Twitter). Here, in addition to the availability of high human-website interactive options (e.g. recommendations, customization, mobile apps), the users enjoy the perks of high human-human interactivity (e.g. profiles, messaging, user groups). It is interesting to note that because most of the websites analysed fall into this category, it appears to be the end goal of other types of websites. This reflects that more websites are embracing higher interactivity functions and further justifying the need for understanding interactivity in the context of social commerce.

1.3 Discussion

Based on the content analysis carried out, there is reason to believe that the all of the websites referred to as social commerce in prior research can be in fact considered as such, because they include the three main themes of social commerce. They are social, they are commercial, and they are interactive (Liang et al., 2011). However, it is important to recognize that social commerce websites vary drastically in terms of how much they support the two types of interactivity, both quantitatively and qualitatively.

For example, Groupon which is cited in multiple articles as a token social commerce website (e.g. Liang et al., 2011, Kim and Park, 2013, Huang and Benyoucef, 2015) is vastly different from Etsy, another model social commerce website according to the literature (e.g. Turban et al., 2016, Marsden, 2010, Curty and Zhang, 2011). Indeed, Groupon belongs to Group A with low scores in the two types of interactivity, and while it carries a few human-website interactive options (e.g. recommendations, history profiles, a mobile application), it facilitates very limited human-human interactivity with no options for creating a social profile, adding friends, creating content, or commenting. On the other end of the spectrum, Etsy belongs to the Group D in the typology, facilitating amble human-human and human-website interactive features.

Along the same lines, differences are observed even between websites that fall in the same category. For example, both Facebook and Amazon are depicted as carrying high human-human and human-website interactivity, but the ways in which that they facilitate this interactivity are quite different. Indeed, both websites facilitate user groups and therefore get

a score for this function in the content analysis. However, while Facebook offers limitless possibilities for creating social communities, user groups, and private messaging groups with options to invite friends and make the groups private, Amazon's social groups are basic in comparison, with no options to control the threads or invite friends to the group. However, since this content analysis only indicates the presence or absence of each interactive feature, quantitatively, these websites are considered similar. In other words, using a content analysis method to examine interactive websites "relies simply on a headcount of interaction-generating functions. How much or how effective these feature are put to use are not relevant to this definition of interactivity" (Sundar, 2007, p. 91).

It is important to note that the differences in facilitating interactivity do not necessarily reflect negatively on the websites with lower interactive qualities. Indeed, when it comes to interactivity, "the scores in each dimension may be influenced by factors such as the nature of the business and the intended function of the web site" (Ha and James, 1998, p.464). Still, researchers should be aware of these differences when carrying out their empirical studies, using caution when attempting to generalize their study findings to other social commerce websites. For example, trust outcomes in websites that allow the customers to chat in real-time might be higher than trust outcomes in websites that do not support such function (Gefen and Straub, 2000).

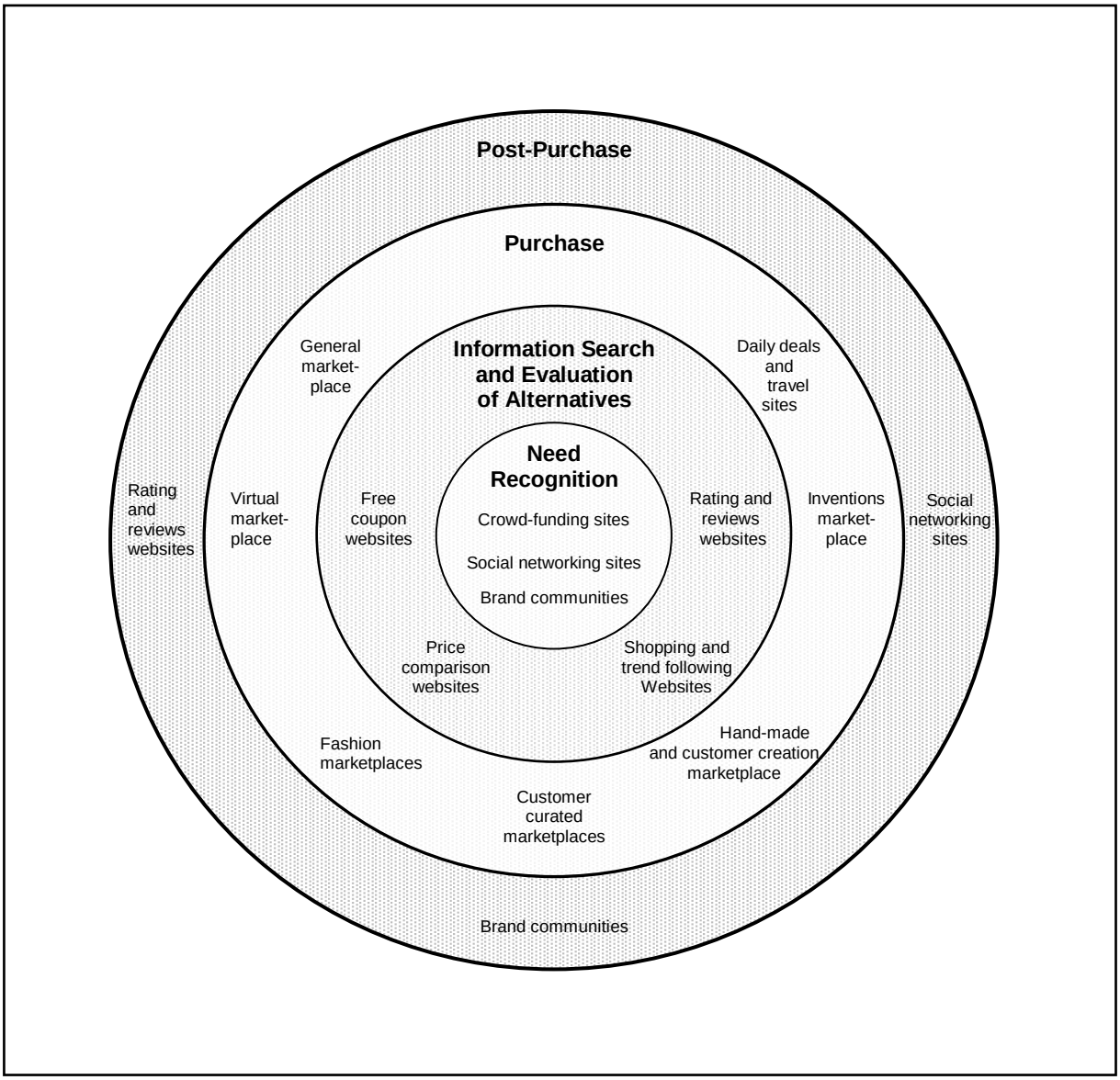
Excluding group C of the typology, which is small in number and reflects a specific type of websites in the study's sample, the other three groups in the typology represent a trajectory showing where the evolution of social commerce is heading. First, we have the most basic online commerce websites with limited interactivity and a specific purpose at hand (e.g. Yipit, a coupon site). Then, by adding more human-website interactive features (e.g. history profile, mobile application) we get the second type of more evolved e-commerce (e.g. Scoutmob, an entrepreneurial marketplace). Finally, by facilitating human-human interactivity (e.g. social profiles, friend connections) we get the end result of highly sophisticated social commerce (e.g. Etsy, a hand-made products marketplace).

A final observation from the content analysis relates to the differences in scope and orientation of the websites researched (Figure 6.17). Indeed, the activities supported by these websites span across the different stages of the consumer buying decision process, as consumers "enter the purchase path at various points, depending on whether they first engage

with a brand, research a product, or hear about a product from their social networks" (Powers et al., 2012, p. 479).

Some of the websites analysed are utilized by marketers for advertising (e.g. Facebook) and therefore could trigger need recognition in the customer. Other websites can be used in the information search and evaluation of alternatives stage, such as price comparison websites (e.g. PriceGrabber) and user-curated shopping websites (e.g. Polyvore). In the purchase stage, marketplaces with different foci are highlighted (e.g. Amazon, Fancy, Quirky), while ratings and reviews websites (e.g. Epinions) can represent the post-purchase stage.

Figure 6.17: Four Categories of Social Commerce



This typology will be beneficial for digital marketing practitioners, as it will aid them in recognizing the differences between the varied types of social commerce, and use this knowledge when formulating strategy. As for social commerce researchers, it will provide them with a good foundation to understand the context of their research, and to help them select an appropriate empirical setting.

The interactivity scores acquired through content analysis will be used in the second part of this chapter, which aims to connect interactivity with positive outcome variables in the context of social commerce.

2. Structural Interactivity and its Impact on Social Commerce Website Effectiveness

As discussed in the interactivity literature review (Chapter 2), the expected outcomes of interactivity are often inconsistently outlined across the interactivity literature. Despite the many positive effects of interactivity highlighted in prior research (e.g. favourable attitudes toward the website and retailer, ease of use, intention to purchase, and intention to revisit the website), some researchers identify possible negative results of interactivity, including hindering communication (Rafaeli, 1988), interrupting persuasion (Bezjian-Avery et al., 1998, Oh and Sundar, 2015), and diverting the consumers' attention from interactive messages (Lee and Shin, 2012).

These inconsistencies could be the result of shortcomings in the empirical settings of past research papers. Indeed, researchers suggest that interactivity outcomes could vary depending on the context of interaction (Kim et al., 2012, Furner et al., 2014). Specifically, when the research settings are not very relevant or enticing to the consumers (Bucy and Tao, 2007, Johnson and Kaye, 2016), a negative relationship could result between interactivity and outcome variables. This leads the researcher to question whether Internet users are now so conditioned to traditional interactivity (e.g. human-website features) that it does not succeed in capturing their attention and engaging them (Li et al., 2014).

The researcher avoids these pitfalls by investigating the relationship between structural interactivity and outcome variables in the context of social commerce, due to the latter's growing popularity, facilitation of social interactions, and the important role it plays in engaging the customers and influencing their shopping and buying activities (Anderson et al., 2011, Marsden, 2010). Facilitating social commerce as the context of this study will contribute to addressing the aforementioned questions. This is especially relevant because

social commerce is the result of the convergence between e-commerce and social media technologies (Cecere, 2010), and therefore consists of properties that reflect both the traditional (e.g. wish lists, automatic recommendations) and the novel (e.g. social content provision, friend lists) sides of interactivity. The traditional and novel features will be compared and contrasted in this study in terms of their effect on the consumers' use of the websites.

Another possible reason for the incongruity in the relationship between interactivity and its outcomes is the limitations in the empirical methods utilized to examine this relationship. Indeed, the use of experimental procedures might not be the best choice to examine the connection of these two concepts, as experiments often limit the time afforded for the respondents to engage with the interactive features on the medium before answering surveys relating to how they perceived them (Li et al., 2014, Bucy and Tao, 2007). Nonetheless, in order for interactivity to be effective in influencing the consumers' opinions and perceptions, they have to had spent enough time using the websites as "interactive features should significantly change the way users access the core message that the medium aims to deliver" (Oh and Sundar, 2015, p. 214). To combat these limitations, consumer-level usage metrics are utilized in order to reflect an objective view of the effectiveness of social commerce websites. This follows the recommendation by Song and Zink an (2008) and Rafaeli and Ariel (2007) about the importance of examining objective outcomes in the context of interactivity research.

By utilizing the novel social commerce as the context in the study, in addition to using content analysis methods and usage metrics to examine the connection between structural interactivity and outcome variables, it is expected that a relationship will be found between the two concepts. The results of this investigation will shed the light on how interactivity evolves in terms of technology and influence. Indeed, the appeal and novelty of social commerce and its interactive properties are expected to result in the consumers having seamless and enjoyable online experiences, and therefore spending more quality time using the website and browsing through its different pages (O'Brien and Toms, 2010, Lin and Lu, 2011).

2.1 Research Design

This part of the study utilizes the interactivity scores acquired through content analysis and links them to objective consumer-level outcome variables, specifically: online usage metrics acquired from online analytics website, Alexa.com.

Web analytics:

One of the main benefits of using the Internet as a research tool is that it can provide a wealth of information about online consumer behaviours by utilizing web analytics (Strauss and Frost, 2001, Bucklin and Sismeiro, 2003). According to Chaffey and Ellis-Chadwick (2016), web analytics are "the measurement, collection, analysis and reporting of Internet data for the purposes of understanding and optimising web usage" (p. 550). These tools offer usage metrics data, which are of great interest to internet marketers because they keep them informed about what is going on in their websites (Olbrich and Holsing, 2011, Turban et al., 2015). Indeed, these usage metrics are often facilitated as a proxy for the effectiveness of websites when other types of data (e.g. sales revenues) are not readily available (Laudon and Traver, 2012, Turban et al., 2015).

Consequently, two usage metrics are selected to represent the effectiveness of social commerce websites in this study, namely: average time spent in the website and page views per user (Bezjian-Avery et al., 1998, Hoffman and Novak, 1996). The two metrics are expected to "provide a parsimonious representation of the browsing decisions users face in a site visit" (Bucklin and Sismeiro, 2003, p.250).

The first metric utilized in this study, average page views per user, is "defined as a single access to a unique URL" (Strauss and Frost, 2001, p. 254) and reflects the frequency of visits to a certain website (Chaffey and Ellis-Chadwick, 2016). The second metric, average time spent on the website (also referred to as length of or duration of visit) reflects "the average length of time the visitors remain at a Website" (Laudon and Traver, 2012, Page 506). More time spent on a website means that this website is "able to hold the users' attention for a longer period of time" (Strauss and Frost, 2001, p. 255). These two metrics are especially useful in capturing the success of social commerce websites, because of the experiential nature of shopping on social commerce. Indeed, better interactive features on social commerce websites are expected to "keep users interested and drive page views" (Stutzman et al., 2012, p. 590).

These metrics utilized in this study are acquired from Alexa.com, a web traffic data and analytics tool. As quoted from Alexa's 'about page' [accessed in March 2018]:

"*traffic estimates are based on data from [a] global traffic panel, which is a sample of millions of Internet users using one of many different browser extensions. In addition, . . . much of [the] traffic data [is gathered] from direct sources in the form of sites that have chosen to install the Alexa script on their site and certify their metrics*".

Although the data presented by Alexa is bound to have some inconsistencies and shortcoming (as outlined in Chapter 9), the website is sufficiently well recognized as a source of web analytics, that data from it (e.g. page views, unique visitors, daily users) is cited in top IS research papers (e.g. Ou et al., 2014, Chau and Xu, 2012, Garg et al., 2011, Lin and Lu, 2011).

2.2 Results

In order to successfully run the necessary statistical tests using the data acquired through content analysis and desk research, a number of checks had to be conducted as recommended by Field (2016) and Hair et al. (2014). Data normality tests were carried out, and a number of websites had to be removed from the list as a result of outliers (excess duration of use, e.g. reddit). A few other websites were removed because Alexa.com did not provide analytics data for them. The remaining 64 websites were used as a part of the regression analysis and the Mann-Whitney tests. It is key to note, that even with cases removed, the study's data remained non-normal, especially in the cases of human-human interactivity and average page views per person.

Three main findings are highlighted as a result of this study. First, interactivity has a statistically significant effect on outcome variables (i.e. time spent and pages viewed). Second, interactivity affects time spent more significantly than it does page views. Third, human-human interactivity is more influential on outcome variables than human-website interactivity.

Indeed, as depicted in Table 6.3, ***general interactivity*** (which is the combined scores of human-website and human-human interactivity) has a significant effect on both time spent on site and pages viewed. However, its effect on time on site (R^2 .330, $p < .001$) is stronger and more significant than its effect on page views (R^2 .160, $p < .005$). A similar pattern is observed in the way human-website interactivity and human-human interactivity influence

the same outcome variables, in that all the influences are significant, but they vary in the extent of their effect and significance. The influence of human-website interactivity is stronger on time spent (R^2 .210, $p < .001$) than on pages viewed (R^2 .125, $p < .01$). Similarly, the influence of human-human interactivity is stronger on time spent (R^2 .330, $p < .001$) than on pages viewed (R^2 .142, $p < .005$). Comparing their influences on the same outcome variables, it is uncovered that human-human interactivity has a stronger influence on time spent (R^2 .330, $p < .001$) than human-website interactivity has on the same variable (R^2 .210, $p < .001$). Similarly, human-human interactivity has a stronger influence on pages viewed (R^2 .142, $p < .005$) than human-website interactivity has on the same variable (R^2 .125, $p < .01$).

Table 6.3: Results of the Regression Analysis

	General Interactivity			Human-Website interactivity			Human-Human interactivity		
	Adjusted R2	Beta	Bootstrap Sig. (2-tailed)	Adjusted R2	Beta	Bootstrap Sig. (2-tailed)	Adjusted R2	Beta	Bootstrap Sig. (2-tailed)
Time on site	0.330	0.584	0.001	0.210	0.472	0.001	0.330	0.571	0.001
Page views	0.160	0.416	0.002	0.125	0.373	0.006	0.142	0.377	0.005

Additionally, following the example of the study by Voorveld et al. (2011), a Mann-Whitney test is conducted to uncover the extent to which each interactive feature individually affects the designated outcome variables. The results show an interesting pattern (Table 6.4). Indeed, when it comes to the human-website interactive options, the more common they are (e.g. history, recommendations) the least affective they are in influencing the outcome variables. However, the human-website interactive options which are less common in social commerce websites (e.g. multimedia content, pictures with comments) are more likely to influence outcome variables. Conversely, human-human interactive options (which are generally less wide-spread that their human-website counterparts) are more likely to influence the outcome variables.

These results echo the previous discussion about novelty and interactive outcomes. Indeed, as observed from the table, the less common the interactive functions are, the more likely they are to influence interactive outcomes. From this and the previous regression analysis, it is

also observed that the influence of interactivity is more significant on time spent on the website than on average page views. This could be due to the fact that the page view metrics vary significantly between websites which are designed to have longer pages and those which have shorter pages. To put it another way, even if the user views the same amount of content in both websites, the website with shorter pages will always register more page views per person than the site with the longer pages (Strauss and Frost, 2001).

Table 6.4: Data from the Whitney-Mann Test Corresponding to Each Interactive Function

Types of interactivity	Interactive Features	% of sites with this feature	Sig. in relationship with Page views	Sig. in relationship with time spent
Human-Website Interactivity	Popular/latest	89%	.266	.286
	History	84%	.365	.070
	Mobile application	81%	.340	.104
	Recommendations	79%	.095	.149
	Lists	77%	.026	.121
	Notifications	66%	.150	.000
	Website personalization	58%	.733	.334
	Multimedia content	48%	.151	.005
	Pictures with comments	22%	.139	.040
Human-Human Interactivity	Sharing	88%	.071	.990
	Like/favourite/rate	67%	.240	.003
	Social profile	67%	.197	.013
	Social activity	64%	.339	.035
	Content creation	64%	.007	.001
	Comments	62%	.026	.005
	Add friends on the Website	53%	.033	.003
	Private messaging	47%	.165	.009

	User groups	47%	.006	.006
	Real-time options	34%	.073	.01
	Import friends	29%	.438	.031

Another Mann-Whitney test was conducted to uncover if the different groups in the social commerce typology (presented in the first part of this study) have different effects on the outcome variables. Consequently, significant differences were found between groups A and D and between groups B and D in terms of the extent to which interactivity influences time spent and pages viewed in each group. However, as the four categories vary widely in size (n=31, 18, 17, 7), the outcomes of these tests are not deemed reliable to report in detail, although the broad results are interesting as a possible direction for future research.

2.2.3 Discussion

Interesting results are uncovered through the statistical analyses conducted for this part of the study. First of all, achieving the study's aim, a positive relationship is found between structural interactivity and usage metrics in social commerce websites. Moreover, different interactivity dimensions are found to affect usage metrics in different ways. Specifically, human- human interactivity influences outcome variable more significantly than human-website interactivity. This echoes the earlier discussion about the expected influences of novel interactive features on outcome variables. Along these lines, research suggests that marketers "should continue developing applications . . . with novel, pleasurable experiences to reinforce pleasurable effects in using the site and further to strengthen its stickiness" (Liu and Lu, 2011). Similarly, as a result of their content analysis, Voorveld et al. (2011) find that "unique interactive features contribute most to consumers' perceptions". In the same paper they also recommend that marketers should pay attention to the constant evolution of interactivity and tailor websites to the needs of their consumers (i*bid*, 2011). Findings from this part of the study present a number of promising research opportunities, specifically regarding to exploring the internal processes that connect the structural interactive stimuli to the consumer-level outcome variables. This subject is investigated further in study 2.

3. General Discussion and Formative Conclusion

This study offers a number of important contributions to the social commerce and interactivity literature. Indeed, it aimed to and succeeded in answering the first two research questions of this thesis.

First, it answered the question about uncovering the different types of social commerce websites based on structural interactivity by following an empirical typology-development process, which fulfils the quality criteria outlined by McKelvey (1975) and Nickerson et al. (2013), and by identifying four categories of social commerce. Such a theoretically-based typology has not been presented in the social commerce literature as of the time these words were written. The categories in the typology are expected to bridge the research gap that is reflected in the inconstancies in defining social commerce and aid researchers in determining and justifying their future social commerce research contexts.

Second, this study contributed to answering the second research question, which pertains to understanding the effect of structural interactivity on objective outcome variables. Results from this study uncovered a significant relationship between the two, specifically highlighting the influence of novel interactive features on usage metrics (i.e. time spent and average pages viewed).

Third, this study facilitated the aforementioned typology-development process in updating Ghose and Dou's (1998) Interactivity Index to fit a Web 2.0 research setting. This interactivity scale, and newer versions of it as updated by other researchers, are lacking when it comes to reflecting the nature of consumer-consumer interactivity that is observed in social environments today. Therefore, the researcher updated this scale with items reflecting human-human online relationships, contributing to addressing a limitation in the literature relating to the lack of focus on researching consumer-consumer interactivity.

Finally, outcomes from this study are expected to inform the second and main study in this thesis in terms of helping the researcher determine a specific research setting for the study. Additionally, the updated and piloted Interactivity Index will be facilitated as a part of the Actual Interactive Behaviours scale of the second study. Moreover, the second study will explore the current study's findings further, in terms of determining the perceptual processes that the consumers experience when responding positively to the interactive stimuli in a social commerce environment.

7. Study 2: Social Commerce Survey

Study 1 aimed to uncover whether higher structural interactivity on social commerce results in higher website effectiveness (reflected in the duration of time spent and pages viewed by the consumer on the website). A positive relationship was found between structural interactivity and objective outcome variables, thus contributing to bridging an important gap in interactivity research, and opening the doors for further research enquiry.

Indeed, the next logical step in understanding interactivity and its influences in the context of social commerce is to gauge how this relationship happens. Bucy and Tao (2007) highlight the importance of examining additional factors that could explain the relationship between structural interactivity and its outcome variables, proposing that such investigation will "effectively address questions about causal mechanisms and under what contingent conditions interactive processes are influential" (p. 648). This is especially relevant, as structural interactivity is expected to have "similar but not identical ramifications across a range of perceivers" (Steuer, 1992, p. 11).

To put it another way, understanding how features, perceptions, and outcome variables relate to one another will influence how researchers explain interactivity effects in the context of social commerce. This in line with the Stimulus-Organism-Response (S-O-R) model; which is utilized as the basis of this study's conceptual model as discussed in Chapter 4, and which maintains that the stimuli of a specific environment are capable of impacting the consumers' responses toward it through influencing their organismic perceptions (Bitner, 1992, Mollen and Wilson, 2010, Fang, 2012).

Consequently, the aim of study 2 is to uncover the extent to which structural interactivity influences the consumers' perceptions of their social commerce experiences, and how these perceptions then influence their reactions to the social commerce environment.

As highlighted in Figure 7.1, Study 2 both utilizes the insights from Study 1 and examines them further. On the one hand, the current study uses the findings from the social commerce typology to locate a specific context for its investigation (i.e. consumer-managed brand communities on Instagram), in addition to utilizing the Interactivity Index (which has been updated and piloted in the first study) to create the Actual Interactive Behaviours scale (AIB), which is a part of this study's questionnaire. On the other hand, this study examines perceptual variables as intervening factors between structural interactivity and its effects, thus

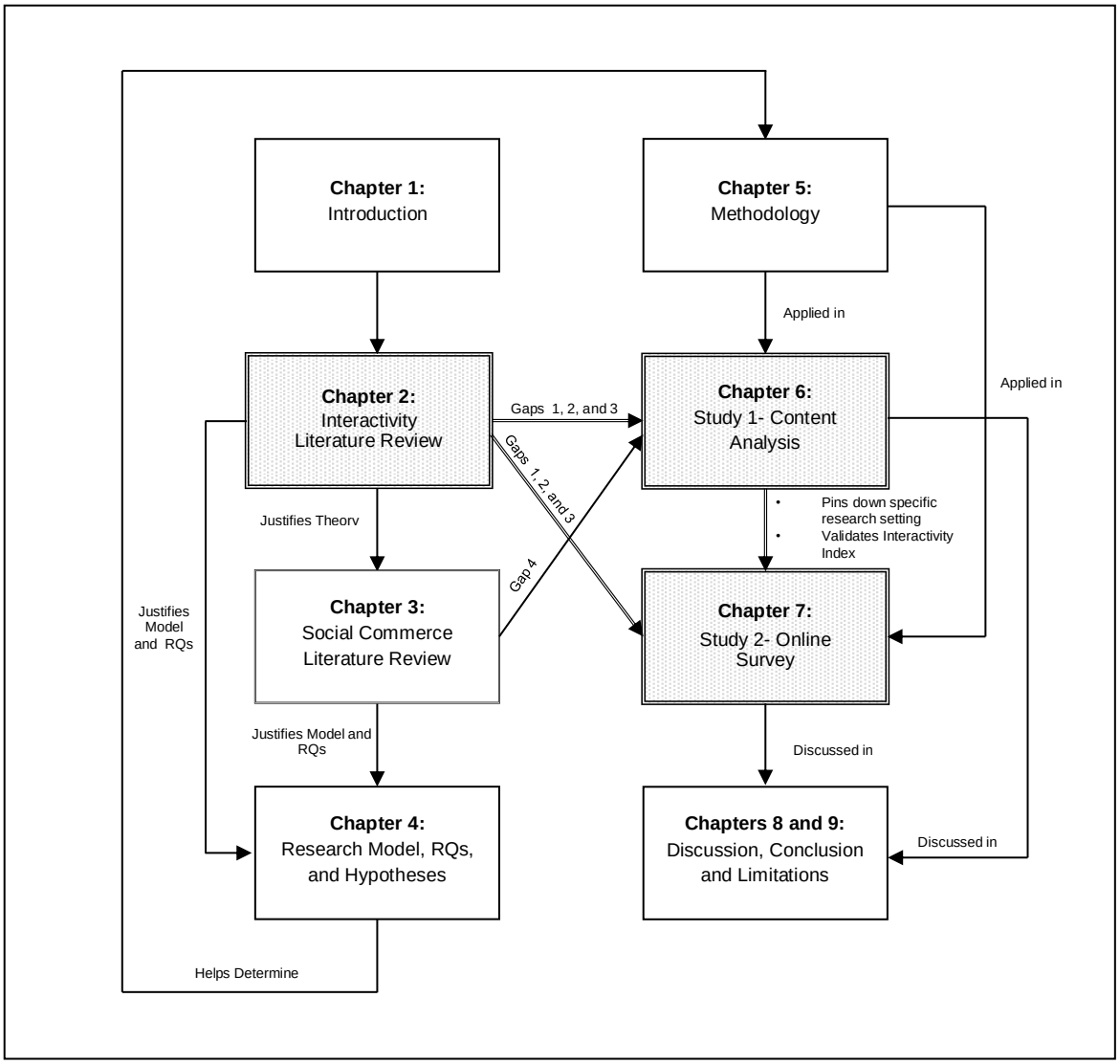
shedding further light on the positive relationship between the two identified in the first study, and addressing another limitation identified in the interactivity literature review (i.e. inconsistencies in reporting the relationship between structural interactivity and perceived interactivity).

Additionally, this study contributes to knowledge by addressing further gaps highlighted in the interactivity literature. It does that by examining the social side of the consumers' interactive experiences, which prior research have not covered adequately (Kirk et al., 2015). It, also, presents the Actual Interactive Behaviours scale which reflects the consumers' active use of a social commerce website's structural interactive features, thus avoiding the shortcomings of investigating interactivity from the perspective of passive customer experiences (Li et al., 2014, Bucy and Tao, 2007, Yadav and Varadarajan, 2005). All of these gaps have been discussed at length in the interactivity literature review in Chapter 2.

To test the study's model, an empirical investigation is conducted to verify the model's stability and proposed hypotheses. Based on insights from the interactivity literature and current study's context, a questionnaire was designed to investigate structural and perceived interactivity, in addition to mediating and outcome variables in the context of social commerce websites (i.e. perceived engagement, perceived sociability, and overall satisfaction). After the establishing the reliability and validity of the data obtained through the questionnaire instrument, the dataset was analysed, using Structured Equation Modelling (SEM) by means of SmartPLS 2.0 software, to uncover the relationships between the different variables. The validated model presents a valuable contribution to bridge the gaps highlighted in the interactivity literature and exploring the findings from Study 1 further.

The results of this study will help marketers gain insights on how to create a consumer - centred interactive environment, and how to facilitate website interactivity to enhance consumers' interactivity perceptions, encourage their sociability and engagement and eventually achieve desired marketing-outcomes; like gaining wide reach and exposure and encouraging positive word-of-mouth.

Figure 7.1: How the Literature Review and Empirical Studies are Connected in the Thesis



Note: The chapters with direct relevance to this study and its results are shaded in grey and their connections are emphasized with compound arrows

1. Research Design

This section presents justifications for several decisions made by the researcher when conducting this study. This includes a discussion of the choice of Instagram-based fan communities as this study's specific context, in addition to details about the sampling technique, sample size, and the measurement scales used for this study. Furthermore, the researcher discusses the choice of Partial Least Squares- Structural Equation Modeling (PLS-SEM) as the analysis technique for this study. The specific methods utilized for this study has already been discussed and justified in the methodology chapter of this thesis.

It is, finally, important to note that while this study itself is exploratory in nature, it does draw on extant theory where there is sufficient support to design an appropriate measurement device.

1.1 The choice of online brand communities as the specific context of the study

To investigate a specific social commerce context, the researcher chooses an online community that centers on Game of Thrones (GOT), a critically acclaimed TV program which has one of largest and most active fan communities online (Fansided, 2017). Indeed, Game of Thrones is a very successful brand. In addition to being available to watch via subscription-based television and digital downloads (amassing to an average of around 33 million viewers per episode, according to Vulture), the GOT brand includes music albums, podcasts, exhibitions, tours, video games, and merchandise sold on the series' official website.

While social commerce websites can take many shapes and forms (as highlighted in study 1), they still have to include three main themes reflected in their commercial, social, and technological functionalities. These themes are echoed in Shen's (2012) definition of social commerce. According to the author, social commerce is:

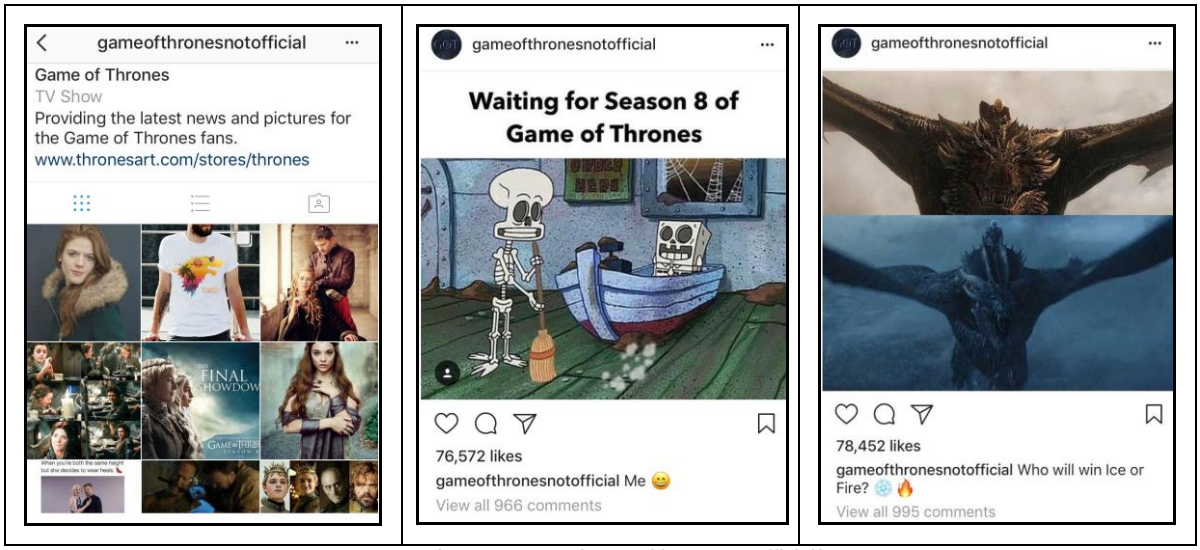
> "*A technology-enabled shopping experience where online consumer interactions while shopping provide the main mechanism for conducting social shopping activities. These interactions may result in discovering products, aggregating and sharing product information, and collaboratively making shopping decisions*." (*ibid*, 2012, p. 199).

As evident from this definition, in addition to findings from the social commerce typology (which is a part of the first study), the activities supported by social commerce websites can span the different stages of the customer buying decision process (Yadav et al., 2013). Indeed, in addition to the possibility of having the option to purchase products online, consumers can use social commerce to compare different brand offerings and share product reviews with other users (Zhou et al., 2013, Stephen and Toubia, 2010).

According to Chaffey and Ellis-Chadwick (2016), online communities are created when "groups of people who share common interests and needs come together online . . . [and] are drawn together by the opportunity to share a sense of community with likeminded individuals, regardless of where they live" (p. 341). Indeed, through an investigation of several online brand communities while conducting Study 1's typology, the researcher

observed that such online communities (1) are used by members to discuss the brand's news and materials (in the context of the GOT brand community and as seen in Figure 7.2, this includes discussions of what went on the last episode of the series and when the next episode is coming up, in addition to posting news, previews, memes, inside jokes, merchandise, and contests), and that (2) these pages are vehicles for user creativity and loyalty.

Figure 7.2: Examples of Posts from a Game of Thrones Online Fan Community



Source: instagram.com/gameofthronesnotofficial/

Specifically, the consumer activities carried out on such pages fall between the need recognition and post-purchase stages of the buying decision process. Indeed, existing consumers facilitate these pages to offer their opinions and impressions about the series, and spread word-of-mouth by sharing posts from those pages with their social networks. At the same time, by viewing these shared posts and becoming more aware of the program, non-consumers will be in the first stage on their buying decision process themselves (need recognition stage), which could lead some of them to search and learn more about the show (information search stage) and possibly eventually watch it, hence becoming consumers of the show themselves (purchase stage).

This is in line with prior research which found that social environments play an important role in influencing TV viewing behaviours. For example, a study cited by Laudon and Traver (2012), found that "79% of regular social networkers said they would be likely to watch a television show based on a recommendation from a friend visa a social networking site" (p. 492). According to the same study, 33% of the respondents learned about a new television program through social networking sites (*ibid*, 2012).

These observations lead the researcher to consider such brand communities to represent a type of social commerce that is in need of further investigation. This is in line with the recommendation by Liang et al. (2011) who encourage investigating study models in different types of social commerce because they could offer different valuable insights. Interestingly, recent social commerce papers that are published in high quality journals use brand-centred user communities as the context of their respective investigations (e.g. Hajli et al., 2015, Chen and Shen, 2015). Along these lines, Chen and Shen (2015) explain that online communities in which users carry out brand-related shopping and sharing activities are different from online communities in which members share information about non-commerce related topics, in the sense that the former can be considered as social commerce and the latter cannot.

A possible cause of concern in the choice of consumer-managed brand communities is the possibility of generalizing this study's findings to other social commerce settings, especially as such online communities are not directed by the brand's marketing team. However, this fact does not undermine the importance of such online communities in the users' consumption of the brand and their interactions with it. Additionally, such brand communities can provide useful insights to the brand's marketers even if they don't directly manage them. Moreover, the general theme in the thesis centres on understanding interactivity in a Web 2.0 social environment and investigating user-user interactivity which has not been researched sufficiently in the literature. Hence, the lack of consumer-to-marketer interactivity in the context of these online communities will not negatively affect the contribution of this study, as consumer-marketer interactivity has been studied widely in prior research.

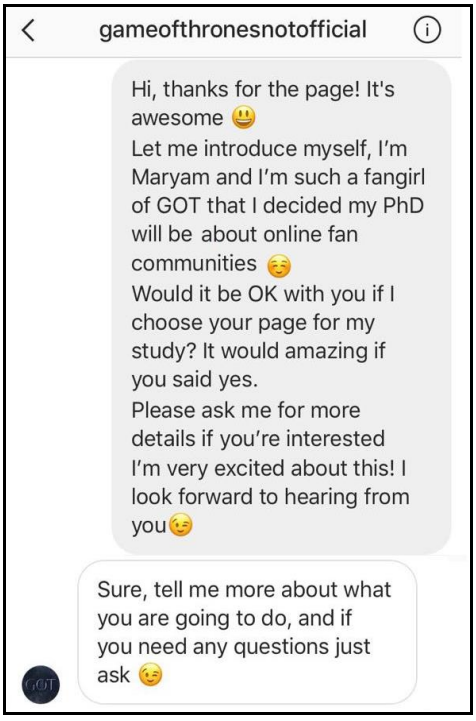
To sum it up, by focusing on consumer-consumer interactions on online brand communities, the findings of this study will be generalizable to other consumer-consumer centred social commerce sites (e.g. reviews and ratings Websites), and consumer-consumer activities on social commerce websites of wider scope (e.g. customer discussions in e-commerce sites). However, while the findings may be of value to designers of wider social commerce platforms, the researcher is not proposing generalizability beyond those highlighted above. This is due to the fact that social commerce is a growing environment with a fast-changing nature and a variety of scopes (as found in Study 1).

1.2 The process of recruiting respondents through online communities

Several user-managed online communities were contacted using the Instagram messaging feature, through which the researcher introduced herself and her research, and asked the admins for their assistance to distribute the survey through their pages (Figure 7.3, Screenshot A). The researcher targeted online pages with more than 1 million followers. One of the communities contacted agreed to post a picture advertising the survey on their page and include the link of the survey on their profile. The respondents were promised the chance to win a GOT-themed giveaway in a prize draw (Screenshot B).

Figure 7.3: Contacting GOT Online Fan Pages

Screenshot (A)



Screenshot (B)

1.2.1 Sampling procedure:

The researcher distributed the online questionnaire by posting its URL on the community's page, following a convenience sampling technique used in prominent interactivity and social commerce papers (e.g. Animesh et al., 2011, Zhang et al., 2014, Zhao and Lu, 2012). According to Sohn and Lee (2005), "many studies dealing with Internet-related issues have relied on data collected from convenience samples . . . Since Internet users are dispersed geographically, random sampling from the population is extremely difficult, if not

impossible" (p.4). Strauss and Frost (2001) concur, maintaining that "the inability to draw a probability sample of internet users is the biggest problem facing researchers using online methodologies" (p. 110).

1.2.2 Sample Size:

According to Coursaris and Sung (2012), when using the PLS-SEM data analysis technique, "the minimum sample size should be the larger of (a) 10 times the number of items for the most complex construct; or (b) 10 times the largest number of independent variables impacting a dependent variable." (p. 1136). Since Human-Website structural interactivity, the most complex measure in this study, is made up of 8 items, this means that the minimum sample size should be 80 respondents. Nonetheless, Hair et al. (2011) maintains that when undertaking PLS-SEM, a minimum sample size of 150 is required. This study's sample size (n=1472) exceeds these suggested numbers and so it does the minimum sample-size requirements for structural equation modelling. This is especially beneficial because larger sample sizes are more likely to result on statistically robust findings using PLS-SEM analysis techniques (Hair et al., 2016).

1.3 Scales used in the survey

In this section, the scales that build the study's survey (Appendix G) are discussed, including justifications for their choice and changes made to them through the pilot phase of this study. All of these scales are adapted from the literature, in aim of achieving content validity (Rattray and Jones, 2007).

It is key to note that all of the scales adapted for this study's questionnaire utilized a Likert-type scale; specifically, a five-point scale from (1=Never to 5=Very frequently) to gauge actual interactive behaviours, in addition to seven-point scales (1=Strongly disagree to 7=Strongly agree) to examine perceived communication, perceived control, perceived engagement, perceived sociability, and overall satisfaction. Consequently, in this study, the researcher does not propose that "equal intervals exist between the points on the scale[s]; however, they can indicate the relative ordering of an individual's response to an item" (Rattray and Jones, 2007, p. 236)

1.3.1 Actual Interactive Behaviours:

The items in the 'Actual Interactive Behaviours' scale are based on the structural Interactivity Index presented by Ghose and Dou (1998) and updated by Cho and Cheon (2005) and

Voorveld et al. (2011). This scale has already been updated to fit a social environment, validated, and then used to link structural interactivity to objective outcomes in Study 1. However, in this study, instead of using it in its original form as a tool for content analysis, the Interactivity Index is rephrased to reflect actual use of interactive features, following the example of Ko et al. (2005). For instance, the item "External links: links used to navigate to other Web sites" from the updated interactivity index presented by Voorveld et al. (2011, p.84) was rephrased in this study to "I click on links that take me to pages outside of Instagram" to reflect the actual interactive behaviours of social commerce users. Similar scales reflecting actual use of interactive features also appear in the papers by Chung (2008) and Larsson (2011), albeit being shorter in length and not updated to reflect consumer-consumer interactivity as achieved in this study.

Additionally, this scale has been tweaked further to reflect the interactivity of the specific research setting of the second study, namely; the Instagram-based consumer-managed brand communities. For example, private messaging options have been removed from the scale for this study, because, unlike other types of social commerce communities (e.g. Etsy), the particular pages on Instagram don't allow their users access to messaging other followers of the same page unless they are friends. This scale was then piloted one more time, as will be discussed later in this chapter.

This updated scale represents a contribution to theory, as it will be useful to bridge the gaps in prior research regarding the relationships between structural and perceived interactivity on the one hand, and structural interactivity and outcome variables on the other hand. Indeed, one of the reasons for the discrepancies in reporting this relationship resulted from the use of content analysis/ experimental methods to gauge structural interactivity. However, as discussed in detail in the interactivity chapter, such techniques reflect the number of interactive features on a website and not the extent of the consumers' use of those features (Song and Zinkhan, 2008, Schultz, 1999). Along these lines, Bucy and Tao (2007) explain that "the objective existence of interactive attributes does not guarantee the subjective experience of interactivity—but actual technology use may" (p. 658). Indeed, the use of a scale that reflects the actual use of structural interactive features avoids the shortcomings of the aforementioned methods and therefore can help uncover if a relationship exists between structural and perceived interactivity, and between structural interactivity and outcome variables, in a social commerce context.

1.3.2 Perceived Interactivity:

The perceived interactivity scale is adapted from Song and Zinkhan (2008) and Liu (2003). This scale examines perceived interactivity using two dimensions (namely: perceived communication and perceived control), corresponding to the theoretical discussion of perceived interactivity presented in the interactivity chapter.

Based on findings from the thesis' second pilot study (discussed later in this chapter), this scale was slightly adapted to fit the specific context of consumer-managed brand communities. For example, the original scales used the term 'website' as the context in the scale items (e.g. "I felt that I had a lot of control over my visiting experiences at this website" (Liu, 2003, p.210)). However, this term was changed in this scale (and the rest of the scales in the questionnaire) to 'page' in order to reflect the nature of Instagram brand communities. As a result of that, the same item in the scale now reads: "I feel that I had a lot of control over my visiting experiences at this page". Another change that can be observed from the two afore-cited items is that the scale has been changed from the past tense to the present tense for this study. This is because the respondents of this study's questionnaire are current users of the online fan community and they are therefore drawing from their on-going (rather than past) experiences with the page. This is in line with the recommendations to decrease common method variance by MacKenzie and Podsakoff (2012), in terms of "refocus[ing] the questions to ask about current states because this reduces effort required for retrieval" (p. 546)

Finally, the word 'visitor' in the original scales (e.g. "This website facilitates two-way communication between the visitors and the site" (Liu, 2003, p. 210)) was changed to 'people' in the current study (e.g. "This page facilitates two-way communication between the people on the page"). This change is made to reflect the equal control over the interactive conversation that the users of a social environment enjoy (Kietzmann et al., 2011).

1.3.3 Perceived Engagement:

This study adapts the scale presented by Agarwal and Karahanna (2000) and its updated version by Sundar et al. (2014). This scale was similarly changed to fit the context of the current study. For instance, it was adapted from the past to the present tense to reflect the users' general experience with the page as opposed to one specific encounter. For example, Sundar et al.'s (2014) item "While I was interacting with the . . . site, I was able to block out

most other distractions" (p.18) is changed in this study to "while interacting on this page I am able to block out most other distractions".

1.3.4 Perceived Sociability:

The scale is adapted from Animesh et al. (2011) and Kreijns et al. (2007), and was similarly changed to fit a social commerce context. For example, the item "Second Life enables me to form close friendships with residents of the virtual world" (Animesh et al., 2011, p. 811) was changed for this study to "This page enables me to form close friendships with members of the community".

1.3.5 Overall satisfaction:

This scale was drawn verbatim from Song and Zinkhan (2008) and Fornell et al. (1996).

1.4 Piloting the questionnaire

The overarching aims of a pilot study are "to identify items that lack clarity or that may not be appropriate for, or discriminate between, respondents" (Rattray and Jones, 2007, p.237), in addition to "making preperations for the field work and analysis so that not too much will go wrong and nothing will have been left out" (Oppenheim, 2000, p. 64). Consequently, two phases of piloting were carried out in this study.

In the first phase, the researcher conducted online interviews via a video chatting software with 25 active members of various TV program online fandoms. Following the recommendations by Nardi (2015), each of the interviewees was presented with a link to the online survey and asked to go through the questions, reading them aloud, and identifying while doing so any difficulty in understanding words or sentences. The interviewees were additionally instructed to report any other comments or notes they might have to the researcher (De Vaus, 2002). Throughout each interview, the researcher observed the way that the interviewees read the questions, noting the items that had to be read more than once, the items that took longer to go through, and the items that were understood in a different way than intended (Nardi, 2015, Andrews et al., 2003). After each part of the questionnaire, the researcher took some time to discuss it with the interviewees, giving them the opportunity to share any comments that they might have (Bowden et al., 2002).

Moreover, through these interviews, the respondents discussed their experiences being members of online fan communities centred on different TV programs. The respondents

discussed how being a part of the online community encourages them to consume the brand (i.e. watch the program) more frequently in order to keep up with the community news and discussions. The respondents also talked about how being a part of the community encourages them to buy (or to want to buy) merchandise and to produce fan art. Additionally, one of the interviewees discussed how TV producers often interact with and endorse consumer-centred fan communities, and even incorporate some of their suggestions into their TV programs.

After updating the questionnaire based on the first phase of piloting, a second pilot study was carried out, in which 15 undergraduate students went through the online questionnaire and assessed its readability and ease-of-use, leading the researcher to update the questionnaire one more time based on their comments.

1.5 Choice of PLS as the analysis technique in this study

According to Chen and Lin (2015), "PLS is a structural equation modelling (SEM) technique that is based on path analysis and regression analysis" (p.44). This technique is deemed most appropriate for analysing complex models that include a large number of relationships and constructs, in addition to both reflective and formative indicators (Hair et al., 2016).

Moreover, PLS-SEM is specifically utilized for theory development in exploratory research (Rose et al., 2012) because it focuses "on explaining the variance in the dependent variables when examining the model" (Hair et al., 2016). PLS-SEM is therefore considered an excellent candidate for analysing for this study's model, because in addition to including both reflective and formative constructs, it is quite complex, gauging a large number of causal relationships. Additionally, as the goal of this study is to explore how a relationship between structural interactivity and its outcome variables occur in the context of social environments, it further fits the parameters of PLS-SEM.

2. Data Analysis and Findings

This section explains the steps followed by the researcher to prepare the data for analysis by checking it for missing responses and suspicious response patterns, and examining it for normality and outliers. It additionally discusses the methods followed to establish the validity and reliability of the questionnaire measures. Finally, this section presents the results of the hypotheses testing achieved using SmartPLS 2.0 software.

2.1 Data Examination

This study's dataset was prepared for analysis, following the recommendations by Hair et al. (2010) and Hair et al. (2016), by inspecting the data for possible outliers and examining its distribution patterns. Indeed, Hair et al. (2010) maintain that data examination is a "necessary, initial step in any analysis . . . [and that] the objective of these data examination tasks is as much to reveal what is not apparent as it is to portray the actual data, because the "hidden" effects are easily overlooked" (p. 31).

Before probing the dataset for outliers and deviations from normality, the researcher removed any incomplete questionnaires, and hence, missing data was not a problem in this study. The researcher then examined the rest of the data for suspicious patterns, including straight-lining and inconsistent answers. Inspecting inconsistent answers was carried out through comparing reverse worded items to the rest of the items in the study's reflective scales. Questionnaires with frequent suspicious patterns were removed from the dataset.

The dataset was then examined to uncover outliers. An outlier is "judged to be an unusually high or low value on a variable or a unique combination of values across several variables that make the observation stand out from the others" (Hair et al., 2010, p. 63). Through studying the descriptives of the data set (Appendix H), the researcher finds that the 5% trimmed means do not deviate substantially from the overall mean in most of the model's indicators. Nonetheless, two constructs (HW_2 and HH_6) represent an exception to this because their variance is greater than 10%, indicating the presence of outliers (Hair Jr et al., 2016). The researcher utilized boxplot diagrams to identify the specific outlier cases in each construct, but eventually opted not to remove them. Indeed, the outliers in the context of this study's questionnaire could indicate a high level of consumer satisfaction with (and loyalty to) the online community, and removing them could therefore negatively affect the reliability of the data (Hair et al., 2010).

Finally, to assess the normality of the dataset, the researcher examines the kurtosis and skewness of each of the indicators (Appendix I). Kurtosis is "a measure for the peakedness or flatness of a distribution when compared with a normal distribution" (Hair et al., 2010, p.34), while skewness is a "measure of the symmetry of a distribution" (*ibid*, 2010, p.35). This examination uncovered that all of the variables fell within the +1 and -1 parameters of accepted normal distribution as defined by Hair et al. (2016).

2.2 Data and Model Validation

Through the discussion in this section, the researcher establishes the reliability and validity of all of the constructs and indicators in this study (both reflective and formative), using recommendations from Hair et al.'s (2016) top reference book on PLS-SEM.

2.2.1 Reflective measurement model assessment:

The reflective measures in this model were examined in terms of convergent validity, composite reliability and discriminant validity, following the recommendations by Hair et al. (2016).

Convergent validity can be understood as "the extent to which a measure correlates positively with alternative measures of the same construct" (Hair et al., 2016, p. 102). Indeed, since reflective variables are considered alternative ways to gauge the same construct, the items in a reflective scale are expected to converge (Hair et al., 2010). To examine convergent validity, the researcher evaluates the outer loadings of the indicators to ensure that they are significant, exceeding the suggested threshold of .708. As can be observed from Table 7.1, all but four of the constructs' loadings exceed the threshold, indicating convergent validity. The four constructs that fall short of the threshold (i.e. cont_4, comm_3, eng_4, soc_2) have loadings between 0.5619 and 0.6727. These loadings are well within the threshold where deletion is optional (0.40-0.70) and they do not negatively affect composite reliability (which exceeds the recommended threshold of 0.800, see Table 7.1), therefore they remain in the scale. To confirm the convergent validity of this study's reflective constructs, the researcher examines the average value extracted (AVE) statistic in order to ensure that it exceeds the proposed threshold of .50. As reflected in Table 7.1, all of the indicators' AVEs are above .50, meaning that they explain a large enough part of the variance of the rest of the indicators.

Table 7.1: Result summary for Reflective Measurement Models

Latent Variables	Indicators	Outer Loadings	Composite Reliability	AVE	Discriminant Validity?
CONT	Cont_1	0.8099	0.8386	0.5668	Yes
	Cont_2	0.7992			
	Cont_3	0.7319			
	Cont_4	0.6569			
COMM	Comm_1	0.7441	0.8779	0.5457	Yes

	Comm_2	0.7743			
	Comm_3	0.6727			
	Comm_4	0.7293			
	Comm_5	0.7183			
	Comm_6	0.7889			
ENG	Eng_1	0.8327	0.8992	0.6012	Yes
	Eng _2	0.8328			
	Eng _3	0.7733			
	Eng _4	0.5706			
	Eng _5	0.7893			
	Eng _6	0.82			
SOC	Soc_1	0.8452	0.8371	0.5162	Yes
	Soc _2	0.5619			
	Soc _3	0.7888			
	Soc _4	0.8184			
	Soc _5	0.5137			
SAT	Sat_1	0.8663	0.827	0.6202	Yes
	Sat_2	0.863			
	Sat_3	0.605			

Next, the researcher examined discriminant validity, which can be approached as "the extent to which a construct is truly distinct from other constructs by empirical standards" (Hair et al., 2016). To establish discriminant validity, the cross-loadings of the indicators are compared and contrasted. As observed from the table, the outer loadings of each construct's indicators are larger than all of the other construct indicators' loadings, thus establishing discriminant validity, or the fact that each of the constructs is reflective of phenomenon unique from the rest of the constructs in the study.

Table 7.2: Cross Loadings of the Indicators in Study 2

Constructs/ indicators	COM	CON	ENG	SAT	SOC
Comm_1	**0.7435**	0.4105	0.3229	0.3923	0.3938

Comm_2	**0.7745**	0.4336	0.3473	0.3749	0.4606
Comm_3	**0.6731**	0.3536	0.2059	0.3289	0.3118
Comm_4	**0.7281**	0.3796	0.2857	0.338	0.4375
Comm_5	**0.7184**	0.3592	0.2455	0.3625	0.3354
Comm_6	**0.7887**	0.4258	0.3115	0.4186	0.414
Cont_1	0.455	**0.8113**	0.2871	0.4029	0.2823
Cont_2	0.4195	**0.8021**	0.3314	0.4038	0.3125
Cont_3	0.3921	**0.7323**	0.2442	0.3291	0.2419
Cont_4	0.3361	**0.6552**	0.2662	0.2563	0.2833
Eng_1	0.3184	0.3237	**0.8325**	0.4088	0.3934
Eng_2	0.3116	0.3027	**0.8337**	0.4213	0.4025
Eng_3	0.3136	0.3043	**0.7728**	0.3843	0.3637
Eng_4	0.2311	0.1987	**0.5727**	0.264	0.2758
Eng_5	0.3594	0.3407	**0.7894**	0.448	0.3734
Eng_6	0.2798	0.2615	**0.8191**	0.3695	0.3973
Sat_1	0.4441	0.4324	0.4133	**0.8665**	0.3417
Sat_2	0.4198	0.4014	0.4951	**0.8626**	0.4501
Sat_3	0.3092	0.2472	0.218	**0.6048**	0.2413
Soc_1	0.437	0.308	0.4087	0.3285	**0.8432**
Soc_2	0.3079	0.2485	0.2416	0.3268	**0.5644**
Soc_3	0.3619	0.2225	0.3651	0.2796	**0.786**
Soc_4	0.4588	0.313	0.4424	0.3582	**0.8173**
Soc_5	0.3339	0.2355	0.196	0.3458	**0.5152**

To confirm the discriminant validity, the Fornell-Larcker criterion was followed, in which the square root of the AVE for each construct is compared to (and expected to be larger than) the correlation coefficients between the construct at hand and all of the other constructs in the study (Table 7.3). This condition is fulfilled in this study, thus re-establishing the discriminant validity of the constructs.

Table 7.3: Fornell-Larcker Criterion

	COM	CON	ENG	SAT	SOC
COM	**0.738715**				
CON	0.5351	**0.752861**			
ENG	0.3926	0.3767	**0.775371**		
SAT	0.5011	0.4693	0.4995	**0.787528**	
SOC	0.5353	0.3717	0.4773	0.4505	**0.718471**

2.2.2 Formative measurement model assessment:

The formative measures in this model were examined for collinearity issues, in addition to the significance of their indicators' outer weights.

To uncover if collinearity is an issue in the formative constructs of this study, variance inflation factor (VIF) values were attained through a regression analysis in SPSS. According to the results outlined in Table 7.4, the highest VIF value is of any of the formative indicators is 2.008, which is well below the suggested threshold of 5. As a result of this, the researcher established that collinearity is not an issue in the formative constructs of this study and therefore is not expected to negatively affect the estimation of the study's model.

Table 7.4: Variance Inflation Factor (VIF) Results

Construct	Indicators	VIF
Human-Website Interactivity	HW_1	1.986
	HW_2	1.915
	HW_3	1.612
	HW_4	1.669
	HW_5	1.456
	HW_6	1.480
	HW_7	1.736
Human-Human Interactivity	HH_1	1.471
	HH_2	1.286
	HH_3	1.898
	HH_4	1.481

	HH_5	2.008
	HH_6	1.534
	HH_7	1.958

The significance of the outer weights of each of the study's formative indicators is achieved through a bootstrapping procedure (no sign changes, sample of 5000). As outlined in Table 7.5, the t-values are significant for all of the indicators.

Table 7.5: Outer Weights Significance Testing Results

Formative Constructs	Indicators	T - values	P-values
Human-Website Interactivity	HW_1	4.7754	.000
	HW_2	2.5317	.005
	HW_3	2.7806	.002
	HW_4	3.0937	.001
	HW_5	6.6453	.000
	HW_6	2.9658	.001
	HW_7	4.0861	.000
Human-Human Interactivity	HH_1	3.6531	.000
	HH_2	5.9888	.000
	HH_3	4.0737	.000
	HH_4	8.5686	.000
	HH_5	2.7039	.003
	HH_6	2.9658	.001
	HH_7	4.4865	.000

2.3 Common method variance

An issue could arise when a researcher collects data using a survey that includes multiple scales of constructs connected in the study's model (Hew et al., 2016), particularly when "systemic method variance biases estimates of construct validity and reliability" (MacKenzie and Podsakoff, 2012, p. 542). Indeed, reasons as varied as the respondents' skills, ability, and will to answer questions, in addition to task difficulty and motivation to answer correctly,

could result on survey responses that do not accurately depict of the characteristics and opinions of the population studied (*ibid*, 2012).

To mitigate the risk of common method variance in this study, the researcher follows the procedures outlined by Gruber et al. (2017) and MacKenzie and Podsakoff (2003, 2012) when devising and distributing the survey. Steps followed by the researcher include ensuring the clarity and flow of the questions using input from the pilot studies, reassuring the respondents of their anonymity when answering the survey questions (see Appendix J-Informed Consent), introducing a temporal or psychological separation between similar measurements, and utilizing the online survey software to randomize the order of the survey questions. More steps followed to reduce the possibility of common method variance in the survey design stage are outlined in Table 7.6.

Table 7.6: Survey Design Techniques Followed to Reduce Common Method Variance

Technique	Role
1. Questions in the survey are written in a simple, straightforward way, avoiding jargons and double-barreled questions, and tested for that in the pilot study. 2. The population of this study are the followers of the online fandom of more than 6 months, as they are expected to have experience interacting on the page and be able to answer based on that experience 3. The questions are set in the present tense in order to reduce the effort of recollection and increase motivation	**Provides remedies for bias resulting from the respondents' inability to answer accurately**
4. The researcher explains the importance of the research subject to help understanding online communities and user behaviours on them. Additionally, she promises an overview of results to the respondents when the study is finished 5. The researcher stresses the importance of the help, opinions, and inputs of the respondent in the first page of the online survey, encouraging them to answer honestly and accurately 6. The researcher presents proximal and spatial separation between the questions and "obtain[s] the information about the predictor and criterion variables from separate sources" (MacKenzie and Podsakoff , 2012, p. 548) 7. The researcher minimizes the length and repetitiveness of the survey and its questions, and reverse-words some items to introduce change 8. The researcher promises rewards 9. The researcher is transparent about the use, handling, and confidentiality of data collected, and guarantees anonymity throughout the research process 10. The researcher uses buffer items between similar items in the scale	**Provides remedies for bias resulting from the lack of motivation to answer accurately**

Adapted from MacKenzie and Podsakoff (2012)

Following these steps and after the data collection phase, the results of the survey were validated using Harman's single factor test (no rotation), which is "a commonly used post hoc

measure to assess a potential common-method bias" (Gruber et al., 2017, p. 402). As found by this test, only 25% of total variance was accounted for by the single-factor solution. Thus, the researcher concluded that common method variance is not an issue in this study.

2.4 Hypothesis Testing

After following the procedure recommended by Hair et al. (2016) to clean and validate the data, the researcher tests the study's model hypotheses using data from the 1472 completed surveys. 66% of the study's respondents are women, 83% are under the age of 34, and 80% are from North America and Europe.

The first step of testing the model is to examine each set of independent variables separately in each relationship in the structural model for collinearity issues. Following the recommended threshold by Hair et al. (2016) and as depicted in Table 7.7, all VIF values are below 5 (highest is 2.249). Therefore, collinearity among the predictor constructs is not an issue in the structural model.

Table 7.7: Collinearity Assessment

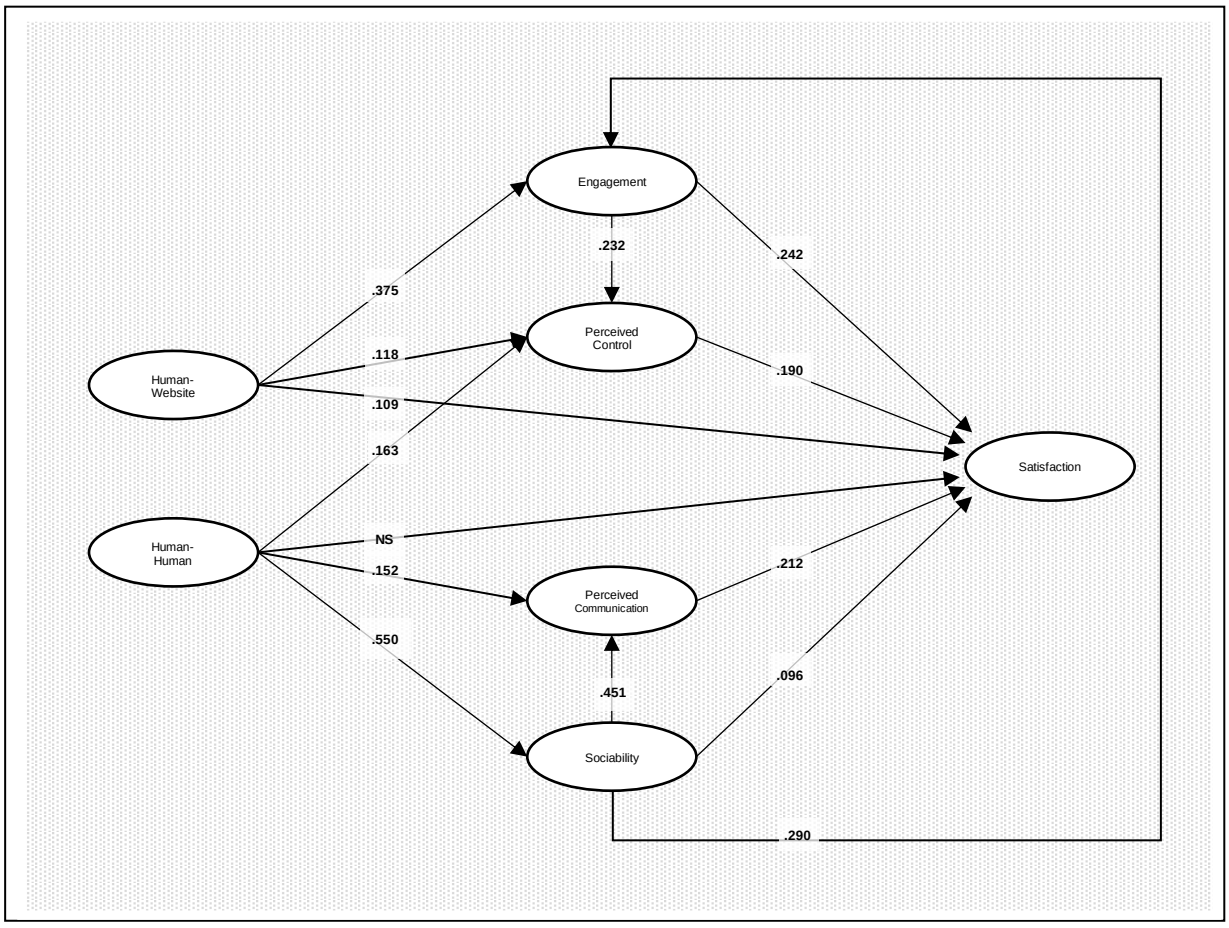
First Set		Second Set		Third Set		Fourth Set		Fifth Set	
Indicators	**VIF**	**Indicators**	**VIF**	**Indicators**	**VIF**	**Indicators**	**VIF**	**Indicators**	**VIF**
HW	1.330	HH	1.000	HH	2.061	HH	1.434	HH	2.249
SOC	1.330			HW	2.102	SOC	1.434	SOC	1.818
				ENG	1.450			COM	1.735
								CON	1.495
								ENG	1.591
								HW	2.146

Following this step, the researcher assesses the significance of each hypothesized relationship in the model using bootstrapping techniques. Table 7.8 presents these results, in addition to path coefficient values acquired from the PLS algorithm, and F-statistics calculated through estimating each constructs' R^2 twice, once when all of the constructs are included in the model, and once without each of them respectively, using the following equation:

$$F^2 = \frac{R^2_{included} - R^2_{excluded}}{1 - R^2_{included}}$$

Note that instead of approaching the relationships in the model at the aggregate level, the researcher opted to test the individual dimensions in the structural and perceived interactivity constructs to uncover their specific relationships (Figure 7.4). This is in line with the results from Study 1 of this thesis, which found that the individual dimensions of interactivity influenced the objective outcome variables differently. Additionally, this direction of testing the hypothesis is expected to provide useful insights for marketers and website designers when attempting to manipulate the interactivity of their websites depending on their specific respective goals.

Figure 7.4: The Conceptual Model with Path Coefficients



As observed in the table, all of the hypothesized relationships in the model are significant at the 1% level, except the relationship between human-human structural interactivity and perceived satisfaction. Similarly observed from the table, most the effects (f^2 statistics) are small except for the relationships between human-website structural interactivity and engagement, the relationship between perceived sociability and perceived communication, and the relationship between human-human website interactivity and sociability. According to guidance by Cohen (1988), it is possible to infer that the first two relationships are medium, while the last is large.

Table 7.8: Findings from Partial Least-Squares Structural Equation Modeling

H#	Path level	ß	t-values	p-values	F2
The Relationship between Structural and Perceived Interactivity					
H1	Human-website structural interactivity positively affects perceived control	0.1184	3.0507	.001	0.007519
H2	Human-human structural interactivity positively affects perceived communication	0.1521	5.4318	.000	0.019358
H3	Human-human structural interactivity positively affects perceived control	0.1631	4.571	.000	0.015531
The Relationship between Structural Interactivity and Perceived Engagement					
H4	Human-website structural interactivity positively affects perceived engagement	0.3755	14.0929	.000	0.159586
The Relationship between Structural Interactivity and Perceived Sociability					
H5	Human-human interactivity positively affects perceived sociability	0.5501	28.6313	.000	0.434103
The Relationship between Perceived Engagement and Perceived Interactivity					
H6	Perceived engagement positively affects perceived control	0.2326	7.1036	.000	0.044496
The Relationship between Perceived Sociability and Perceived Interactivity					
H7	Perceived sociability positively affects perceived communication	0.4516	18.6788	.000	0.212217

The Relationship between Perceived Sociability and Perceived Engagement					
H8	Perceived sociability positively affects perceived engagement	0.2903	10.4574	.000	0.095331
The Relationship between Structural Interactivity and Overall Satisfaction					
H9	Human-website interactivity positively affects perceived satisfaction	0.1095	3.3626	.000	0.009607
H10	Human-human interactivity positively affects perceived satisfaction	-0.001	0.0299	**.488**	-0.00118
The Relationship between Perceived Interactivity and Overall Satisfaction					
H11	Perceived communication positively affects perceived satisfaction	0.2123	6.8118	.000	0.038935
H12	Perceived control positively affects perceived satisfaction	0.1903	6.515	.000	0.039946
The Relationship between Perceived Engagement and Overall Satisfaction					
H13	Perceived engagement positively affects perceived satisfaction	0.242	8.4641	.000	0.17883
The Relationship between Perceived Sociability and Overall Satisfaction					
H14	Perceived sociability positively affects perceived satisfaction	0.0966	3.3329	.000	0.004719

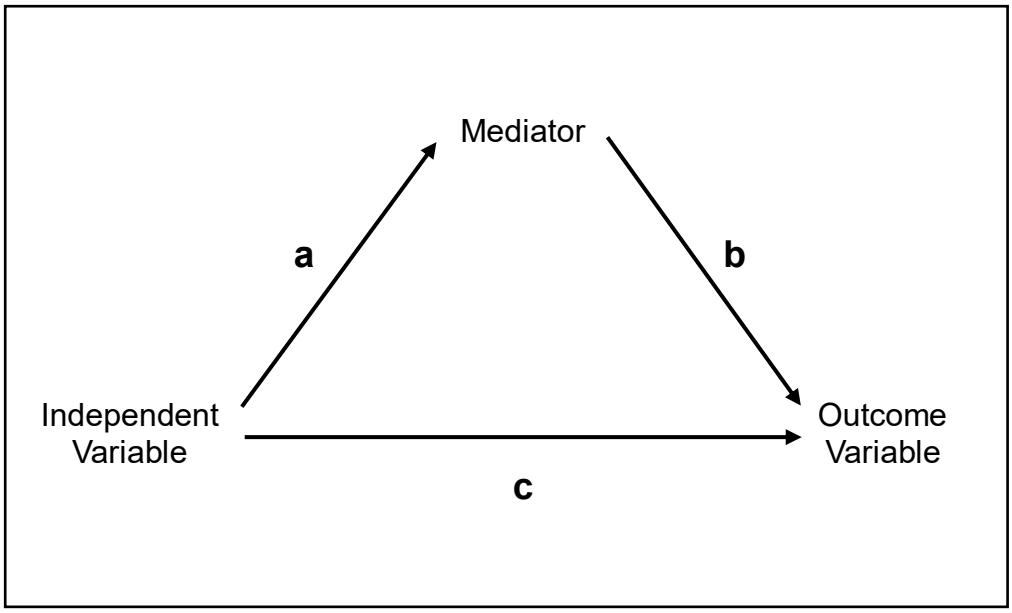
Moreover, the explanatory power of the independent variables (R^2) ranges from 19% to 40% (Table 7.9), with satisfaction being the most explained by its predictor variables (40%), followed by perceived engagement (33%), perceived sociability (30%) and perceived communication (30%). The R^2 value for sociability is especially interesting, as this construct is only predicted by one variable (i.e. human-human structural interactivity) in the study's model.

Table 7.9: R2 Statistics

Construct level	R Square
COM	0.3026
CON	0.1887
ENG	0.3339
SAT	0.4067
SOC	0.3027

Finally, the researcher analyses the mediation effects in the model. According to Baron and Kenny (1986), "mediators explain how external physical events take on internal psychological significance" (p. 1176). The same scholars propose that a mediating effect happens when three criteria met (as depicted in Figure 7.5): (1) The independent variable significantly influences the mediating variable (i.e. path a is significant), (2) The mediating variable significantly influences the outcome variable (i.e. path b is significant), and (3) when paths a and b remain unchanged, a once significant relationship between the independent and outcome variable (path c) is not significant any longer (*ibid*, 1986).

Figure 7.5: The Mediation Model



Reference: (Baron and Kenny, 1986, p.1176)

A Sobel test is utilized to test these mediations. Chen and Lin (2016) explain along these lines that "significance is reached when the absolute z-value is greater than 1.96, suggesting the presence of a mediation effect" (p. 45).

As outlined in Table 7.10, two of the mediation relationships suggested in the model were found to be significant (H15b and c), while no mediation was found in the other two (H15 a and d). Indeed, the latter two relationships could not be tested because they were insignificant to start with.

Table 7.10: Mediatiated Relationships in the Conceptual Model

H#	Hypotheses	Mediated Relationship t-statistic and (Significance)	Non-Mediated Relationship t-statistic and (Significance)	Sobel Test t-statistic and (Significance)	Type of Mediation
Perceived Interactivity Mediates the Relationship Between Structural Interactivity and Satisfaction					
H15a	Perceived communication mediates the relationship between human-human structural interactivity and satisfaction	0.029 (NS)	-	-	No Mediation
H15b	Perceived control mediates the relationship between human-website structural interactivity and satisfaction	3.373 (.000)	3.938 (.000)	2.771 (.002)	Partial mediation
Perceived Engagement Mediates the Relationship Between Structural Interactivity and Satisfaction					
H15c	Perceived engagement mediates the relationship between human-website structural interactivity and satisfaction	3.373 (.000)	4.889 (.000)	7.183 (.000)	Partial mediation
Perceived Sociability Mediates the Relationship Between Structural Interactivity and Satisfaction					
H15d	Perceived sociability mediates the relationship between human-human structural interactivity and satisfaction	0.029 (NS)	-	-	No Mediation

3. Discussion and Conclusion

This study offers important insights into understanding interactivity and its influences in the context of social commerce websites. It sheds light on the disputed relationship between structural and perceived interactivity by examining the relationships between the specific dimensions in each construct.

Indeed, the results from this study highlight that human-website interactivity influences perceived control (H1), while human-human interactivity influences perceived communication (H2). This is understandable, because the first relationship depicts actual and perceived interactions with the interactive features of the website, while the second relationship reflects actual and perceived interactions with other people on the social

commerce page. Interestingly, a significant influence of human-human structural interactivity on the consumers' perceived control was found in the study. This is most likely because in the interactive social commerce environment, the consumers are able to "control their own communication experiences, which potentially leads to higher self-efficacy beliefs" (Liu and Shrum, 2002, p.61-62). The findings from these three hypotheses help address one of the gaps in the interactivity literature regarding to the inconsistency in reporting the relationship between structural and perceived interactivity.

Moreover, the structural interactivity on the page was found to influence both perceived engagement and perceived sociability, echoing the suggestions of the S-O-R model. Specifically, human-website interactivity significantly influences perceived engagement (H4), and human-human interactivity significantly influences perceived sociability (H5). Again, this is not unexpected, since human-website interactivity and engagement both depict the consumers' online experience with the website and its interactive features, while human-human interactivity and sociability both depict the consumers' experiences with other people on the website (Preece, 2001). Moreover, the positive relationship in H5 echoes Oh and Sundar's (2015) study which found that simple human-website interactivity manifested in the choice to browse through images in a website "can get users to become cognitively absorbed in the site" (p. 228).

Other significant relationships were found between perceived engagement and perceived control (H6) and perceived sociability and perceived communication (H7), indicating that perceptions of the online experience influence one another on social commerce. Additionally, a significant relationship was found between perceived sociability and perceived engagement (H8), highlighting the importance of the social factors in encouraging the users' absorption in social commerce websites.

To address another major gap in interactivity research, which is reflected in inconsistencies in reporting the relationship between interactivity (both structural and perceived) with positive outcome variables, the researcher investigates the relationship between structural interactivity (both human-website and human-human) and perceived interactivity (both perceived control and communication) with satisfaction. As highlighted in the hypothesis chapter, satisfaction is chosen as the overall outcome variable in this study because of its axiomatic relationship with other important outcome variables to the study of interactivity, such as word-of-mouth and revisit intentions (Teo et al., 2003).

These relationships are depicted in hypotheses 9, 10, 11 and 12. Interestingly, three of these hypotheses were found to be significant, reflecting a positive relationship between human-website interactivity, perceived control, and perceived communication with satisfaction. One exception is the relationship between human-human interactivity and satisfaction. Through going back to the scale used in this study and comparing it to the scale used in study 1, this insignificant relationship could be due to the fact that the Instagram brand online community used as a specific context in this study did not facilitate several human-human structural interactive options at the page level (e.g. private messaging, posting own content other than commenting), which were found in study 1 to have a central role in influencing positive outcome variables. Still, significant relationships were found between perceived engagement and perceived sociability and satisfaction (H13 and 14).

To shed further light on the findings of the first study, by considering mediating variables in the relationship between structural interactivity and outcome variables, the findings of this study uncovered two mediating relationships in the model. Specifically, both perceived control and perceived engagement were found to partially mediate the relationship between human-website structural interactivity and satisfaction (H15b and c).

These findings highlight the importance of the consumers' perceptual processes in determining the outcome variables in the interactive experience, and are in line with the suggestions of the S-O-R model which regard organismic processes they key to understanding the path between a stimuli and its effects on consumers. These mediated relationships are expected to provide useful insights to practitioners to help them understand their consumers' online behaviours and experiential processes, and how guide marketers on the way to achieving customer satisfaction through designing highly interactive online environments to immerse them and increase their sense of control.

8. General Discussion and Contributions

Working on this thesis meant that the researcher had to go through several theoretical and empirical iterations in order to concurrently contribute to knowledge about social commerce and interactivity. Indeed, this research project started with an observation of the growth in popularity in using social media and its interactive capabilities both for (1) conducting shopping, buying, and selling activities by consumers, and for (2) carrying out advertising and relationship building activities by businesses (Bercovici, 2014, Serino, 2013, Dishman, 2014). These applications of C2C and B2C business models in the context of social media is one way of describing social commerce (Turban et al., 2016).

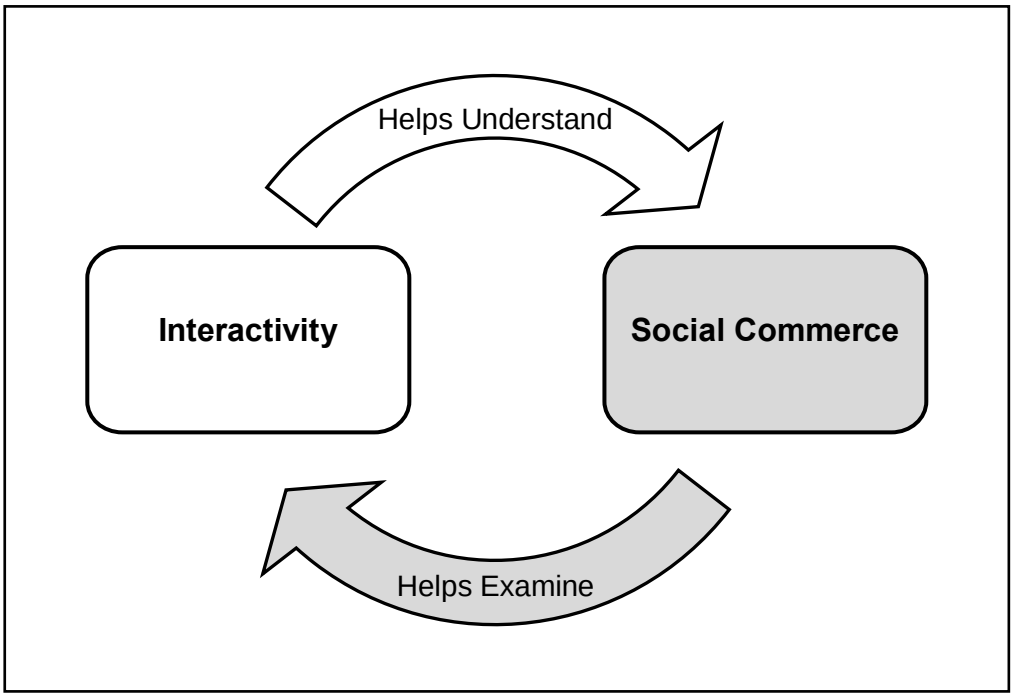
An overview of the literature, consequently, reflected a central gap in the relatively nascent social commerce field of study; namely that it is under-researched and narrow (Liang and Turban, 2011, Yadav et al., 2013). Specifically, a consensus is yet to be reached on how to define the concept, outline its different types, or pinpoint where it departs from other related concepts such as e-commerce and social media. This gap results in limitations in locating appropriate empirical settings for social commerce research and could ultimately lead to unreliable research findings. For example, it is problematic to investigate both Groupon and Etsy (two websites that vary vastly in scope and interactivity) equally as social commerce without justifying why they considered as such in the first place. Similarly, the limitations in identifying what social commerce involves result in inconsistencies in reporting the potential of such platforms (Smith, 2016, Turban et al., 2016, Stephen and Toubia, 2010, Yadav et al., 2013), in addition to uncertainty from the point-of-view of marketers and practitioners on how to utilize their interactive features to achieve desired marketing outcomes (Cecere, 2010, Meeker, 2017). Along these lines, it was interesting to note that social commerce research kept alluding to the importance of understanding interactivity, especially the newly developed social interactive features, in order to capitalize on the potential of social commerce and satisfy its consumers (e.g. Huang and Benyoucef, 2015, Wang and Zhang, 2012, Liang et al., 2011). However, a model of interactivity and its effects have not been properly researched in a social commerce setting.

Strikingly, the concept of interactivity, itself, had several limitations of its own that have impeded its success in reflecting an accurate picture of online social platforms and activities in the past. Specifically, interactivity suffers from limitations pertaining to its out-dated scales that are lacking in terms of capturing the nature of consumer-consumer and content creation

interactivity, in addition to shortcomings in the capability of the methods used by past researchers to authentically communicate the true nature of the human interactive experience. These two gaps (i.e. limitations in reflecting the evolution if interactivity and shortcomings in past research methods) consequently result in inconsistencies in research findings, which see the relationship between interactivity and its outcome variables (including perceptions of interactivity) disputed in the literature. To put it differently, the concept of interactivity, while originally introduced to help understand the growth of Internet technologies (Rogers and Chaffee, 1983), is currently lagging behind in terms of its ability to capture an accurate picture of the constantly evolving interactive social technologies.

Consequently, the overarching gaps in the literatures of social commerce (i.e. no consensus in defining the concept and its different types) and interactivity (i.e. limitations in the development and operationalization of interactivity and inconsistencies in relationship testing in interactivity models) feedback into each other and inform one another (Figure 8.1). In other words, the concept of interactivity aids in shedding light on the social commerce environment and outlining its different types through a content analysis study, while at the same time, social commerce contributes to developing the understanding and operationalization of interactivity in a social environment that facilitate consumer-consumer and content creation activities.

Figure 8.1: How Interactivity Informs of S-commerce, and Vice Versa



To contribute to bridging the overarching gaps in both social commerce and interactivity research, the researcher carried out two empirical studies in this thesis. First, a content analysis of 73 platforms, identified in the literature as social commerce, was utilized to produce a typology that contributes to understanding what social commerce entails, what its different types are, and where to draw the lines between it and social media on the one hand, and with e-commerce on the other hand. Using the two dimensions of structural interactivity, namely; human-website and human-human interactivity, the researcher was able to uncover four categories of social commerce (i.e. basic e-commerce, sophisticated e-commerce, 'strictly social' social media, and sophisticated social commerce) that are useful in shedding light on the current online social marketing climate.

Indeed, results from this typology conveyed that although social commerce is reflected in websites that include social, technological, and commercial themes, these websites can vary vastly in the extent to which they facilitate the two types of interactivity. Moreover, the different types of social commerce platforms in the typology were found to have varying scopes and orientations, thus reflecting different (and sometimes more than one of the) stages of the consumer-decision making process. For example, a social networking site like Instagram was found to facilitate need recognition, information search, and post-purchase behaviours (i.e. word-of-mouth), while a curated shopping website like Polyvore was found to enable information search and evaluation of alternatives.

This empirical typology is the first of its kind in the social commerce literature to be theoretically-sound, follow a typology-development process, and fulfil the criteria for creating a useful classification scheme suggested by Nickerson et al. (2013). Indeed, unlike the social commerce classifications introduced in past research (e.g. by Saundage and Lee, 2011), the typology at hand is parsimonious, extendable, and explanatory. Moreover, results from this typology contribute to empirical research through communicating to scholars the importance of practicing caution when choosing their research settings and then when generalizing their results to the social commerce environment at large. Additionally, the typology aids practitioners in recognizing that different types of social commerce have different and unique features and could be utilized in targeting and satisfying different types of consumers (Howard, 2016). This will also help them formulate fitting strategies for each and designing their website, as informed by findings from the typology, to carry the right mix of human-website and human-human interactive features to achieve their marketing goals.

A second gap addressed through the two empirical studies is reflected in inconsistencies in reporting the relationship between interactivity and its outcome variables. Indeed, it was disputed in the literature whether more interactivity leads to positive effects, and if it did; the process through which these outcomes are realized was not completely understood. This gap was bridged in the thesis through the two studies. Indeed, the second part of the first study provided insights into this relationship by connecting the interactivity scores of 73 websites attained through content analysis to objective outcome variables (i.e. usage metrics obtained from Alexa.com). The second study investigated the relationship further by testing model of both structural and perception-based interactivity in order to paint an accurate picture of the multi-dimensional nature of the concept.

Results from the second part of study 1 showed that interactivity positively influences the objective outcome variables. Specifically, human-human interactivity influenced time spent and pages viewed more than human-website interactivity did, despite the fact that the former are generally less common in websites than the latter. Results from study 2 confirmed positive relationships between interactivity and several outcome variables. Indeed, human-website structural interactivity was found to significantly influence perceived control, engagement and satisfaction, while human-website interactivity was found to significantly influence perceived control, perceived communication, and sociability.

Through the second study's model it was revealed, however, that human-human interactivity does not result on customer satisfaction. This finding can be seen as inconsistent with the findings from study 1, which maintain that human-human interactivity is stronger in influencing outcome variables than human-website interactivity. However, the researcher suggests that the differences between these two results are not a matter of inconsistency as much as they reflect a limitation in the research setting of the second study. Specifically, an individual page on Instagram, which was used as the unit of investigation in the study, does not facilitate some of the influential human-human structural interactive features according to study 1 (e.g. private messaging, posting one's own original content), and hence these features were not included as a part of the AIB measure. The lack of significant relationship in study 2, therefore, could actually highlight the importance of certain human-human interactive features in affecting satisfaction and ,therefore, supports recommendations for marketers to include such human-human interactive features when developing social commerce websites and communities. More about practical implications is discussed in the next chapter.

Through the second study it was also found that perceptions (which are the organismic experiences in the SOR model) do, in fact, mediate the relationships between the stimuli and responses in the interactive experiences. Specifically, both perceived engagement and perceived control mediate the relationship between human-website interactivity and satisfaction. However, no mediating relationships could be established in the human-human and satisfaction relationship because it was insignificant to start with. This is despite the fact that the individual paths in the mediating relationships are significant in their own right. Specifically, the relationships between human-human interactivity and both sociability and perceived communication were significant, and so were the relationships between the latter two and satisfaction. Furthermore, perceptions were found to influence each other, in terms of perceived engagement influencing how in control the consumers feel they are in the interactive environment. Similarly, perceived sociability influences the communication perceptions on the platform. Finally, sociability influences the engagement with the platform, meaning that an interactive environment that facilitates a friendly and social environment will result on the consumers wanting to spend more quality time using it and interacting with it.

The other two gaps identified in the interactivity literature were also bridged using findings from the thesis' empirical studies. Specifically, the gap relating to shortcomings in understanding the evolution of interactivity is bridged through updating the Interactivity Index to include content creation and consumer-consumer interactivity items, in addition to testing sociability as a part of the second study's model. Moreover, the gap relating to limitations in operationalizing interactivity in past research is bridged by utilizing a mixed methods research design to mitigate the shortcomings of different data collection methods, and by developing the AIB scale which reflects the consumers' actual use of the interactive environment rather than merely the existence and absence of the interactive features. Finally, the researcher investigates two perspectives of interactivity in the current thesis in order to reflect both the stimuli and the perceptions of the consumers' interactive experiences. These findings contribute to offering a more reliable representation of interactivity and its effects in social technologies that can be adopted and developed further in future research.

The contribution from the present research is, therefore, threefold. First, a significant relationship is uncovered between structural and perceived interactivity in the specific social commerce context researched. Specifically, the higher the use of structural interactive features on the consumer-managed fan community the higher the interactivity perceptions of this community. While on the face of it this may seem intuitive, the findings shed a new light

on the contested relationship between structural and perceived interactivity in past research (e.g. Song and Zinkhan, 2008; Voorveld et al., 2011). Indeed, the use of the highly sociable and engaging social commerce as the context of investigation informs these findings, contrary to empirical settings used in prior research (e.g. health-related websites, official business websites). Second, findings highlighted novel outcomes relating to how human-website and human-human interactivity influence outcome variables differently. Specifically, human-human structural interactivy was found to influence the effectiveness of the website more significantly than human-website interactivy. This is at least in part due to human-human interactivity being less common (and thus more enticing, as Voorveld et al. (2011) put it) than human-website interactivity across social commerce. Finally, the findings contributed to the social commerce literature by introducing a theory-based approach to categorizing the many social commerce websites out there today. Indeed, by conducting a first-of-its-kind empirical typology, the researcher both confirmed the three main building blocks of social commerce identified in the literature review (i.e. social, commercial, and technological) and identified 4 groups of social commerce websites that are extendable, parsimonous, and explanotary, as recommended by Nickerson et al. (2013).

9. Limitations, Future Research, Managerial Implications, and Conclusion

A number of limitations have been encountered while working on this thesis. One of the main limitations is the decision to undertake non-random sampling techniques in the two empirical studies, which could affect the representativeness of the study samples (Fricker, 2008). Indeed, due to the nature of social commerce as a relatively new and certainly under-defined concept, and because no recognized lists of top social commerce websites were available, there was no plausible way for the researcher to achieve a random sample in the first study. Instead, she developed a list based on websites that were referred to as social commerce in the literature. Similarly, because accessing a full list of the users of a social commerce website was unfeasible, a convenience sampling technique was also followed in the second study by posting the link for the web survey on a consumer-managed brand community and asking its followers to respond to the survey.

While confronting the challenge of the Internet sampling is not a straightforward task, future research could follow steps recommended in the literature to achieve a random Internet sample. For example, researchers could work in cooperation with a social commerce platform to gain access to a complete list of the users of this website, who already agreed to be contacted for marketing research purposes, and use it to achieve a random sample. Another way to achieve a random sample, which is also accomplished through collaborating with the managers of a social commerce website, is to facilitate web surveys that appear for every certain number of visitors in the website (Fricker, 2008).

Along the line of the discussion about sampling techniques, another limitation in the first study is that its sample size was relatively small (n=73) which affected the validity of some of the analyses carried out. For example, conducting an accurate comparison of the relationship between structural interactivity and its objective outcomes across the different social commerce categories was not possible because of the small size of each group. Future research could carry out content analysis studies using a larger sample of social commerce websites, and then compare between the relationships across different groups.

Another limitation in the first study pertains to the use of a scale to measure interactivity, in the content analysis, simply reflecting the existence (or lack thereof) of interactive features in order to calculate interactivity scores (Voorveld et al., 2011). However, this conduct falls short when it comes to communicating the depth of the structural interactivity unique to each social commerce website. For example, according to this method, a website with 3 different

mechanisms for creating and managing user communities (e.g. Facebook) is just as interactive as another website with only one type of consumer help forum (e.g. amazon). Future research could mitigate this shortcoming by following a content analysis technique that reflects the depth of the interactivity of each website. This can be achieved through quantifying the interactive features under each item in the scale (i.e. 2 for two or more different options to for social communities on a website, 1 for one option, and 0 for none) and using a panel of coders to ensure reliability of findings, as such method is more complex and prone to bias than the one followed in the thesis' first study.

The first study, additionally, was not able to analyse social commerce that is in languages other than English, despite the fact that some international social commerce websites can hold the key for understanding the trajectory of future social commerce growth. Researchers are specifically recommended to investigate Chinese social commerce applications, which are constantly growing in both number of users and potential (Virgillito, 2016, Parker, 2017) and which have established infrastructures that offer the consumers integrated and seamless social commerce experiences (Coleman, 2017).

Other limitations in the first study relate to the facilitation of usage metrics as outcome variables. According to Strauss and Frost (2001), page views per user could be limited in terms of reflecting actual use, because "some sites are organized into many short pages while other sites prefer fewer but longer pages [and] the site with many short pages with record more page views than the site with longer pages even when users access the same amount of content" (p.254). This could be one of the reasons that the influence of interactivity was weaker on page views than it is on time spent on the website. Related to this point are limitations pertaining to the process of web data analysis followed by Alexa.com. According Alexa's blog [accessed in March 2018]:

> "*There are limits to statistics based on the data available. Sites with relatively low measured traffic will not be accurately ranked by Alexa. We do not receive enough data from our sources to make rankings beyond 100,000 statistically meaningful*"

Future research is, therefore, recommended to cross-reference the data from Alexa.com with data from other sources of web analytics.

Study 2 is not without its own limitations. In regard to the specific context of its investigation, study 2 is based in one particular page (Game of Thrones fan community) of

one particular social commerce website (Instagram), depicting one particular type of social commerce activities (spreading word-of-mouth about TV program). This limitation in scope could negatively affect the generalizability of this study across other social commerce websites. Moreover, limitations in this specific empirical setting could be the reason behind the insignificant relationship between human-human interactivity and satisfaction that resulted from the analysis of the study model. Indeed, due to the nature of the individual pages' structural interactivity on Instagram, the consumers are unable to utilize specific features to interact with other followers on the same page (i.e. private messaging, posting one's own content). These two interactive features were found to be effective in influencing outcome variables in the first study, and leaving them out of the second study could have contributed to the aforementioned insignificant relationship.

Future research could attempt to investigate multiple websites both with the same and with different social commerce models (e.g. websites which allow social browsing, websites which have a shopping basket, rating and reviews websites, etc.), and compare their respective results of the same relationships to enhance generalization. Along these lines, a longitudinal study of the evolution of interactivity in social commerce and its influence on the consumers' perceptions over time could be an interesting research endeavour. To shed further light on the relationships in the interactivity model, future research is recommended to carry out a similar study, but with a different type of data triangulation. Indeed, this study carried out a mainly quantitative mixed methods research project. However, future research could supplement the findings with a mix of quantitative and qualitative methods to reflect different viewpoints of the interactive experience and provide more information about the consumers' decision making processes.

Along the same lines, as the researcher has critiqued the different methods of investigating interactivity for not reflecting an accurate picture of the concept, researchers are recommended to develop the existing data collection methods to communicate the consumers' authentic interactive experience as closely as possible. For example, video screencast techniques could be facilitated to capture the users' journeys on social commerce as they naturally interact with different interactive features (Kawaf, 2015), minimizing the shortcomings of traditional experimental techniques. Finally, future research should consider the role of mobile applications in the context of social commerce because of their growing importance and influence (Turban et al., 2016).

Findings from this study are expected to benefit marketing practitioners; both those who manage social commerce websites and those who direct the social media marketing strategies for their firms. Learning about how interactivity is evolving in social technologies, will help the former in continuing to develop social commerce to fulfil the needs of their customers (i.e. individuals and businesses that use these website for marketing and selling activities). Indeed, recommendations from this thesis could guide them in developing comprehensive social commerce echo-systems with interactive features that facilitate the consumers' sociability and create immersive online experiences (Coleman, 2017, Cano et al., 2017, Zhang et al., 2014) because sociability and engagement together lead to positive outcomes as highlighted in study 2. Moreover, along with the theme of offering integrated social commerce experiences, social commerce developers are recommended to design buy-buttons that lead to a basket on the social commerce website itself and not connect the consumers to outside websites (as is practiced in Instagram and Facebook today). Such direction is important because it will not interrupt browsing, thus giving the consumers the opportunity to return to their baskets at a later time to fulfil the transaction if they want to, which (based on the results of study 2) is expected to enhance the consumers' perceived control of the experience and enhance their satisfaction. Moreover, since the insignificant relationship found between human-human interactivity and satisfaction was attributed to limitations in the human-human interactive features presented on the individual pages/ communities of Instagram, social commerce creators are recommended to invest in community features on their websites that enable relationship building between members of these communities (e.g. within community messaging or chat functions, an option to contribute to the content of the community).

These findings are also expected to aid online marketing managers in planning how to capitalize on the interactive features of social commerce to engage and satisfy their customers. The use of the S-O-R framework is expected to illustrate to marketers how the users' online experiences and perceptions can contribute to their responses toward social commerce. These findings will offer the marketers useful insights into manipulating their websites in order to achieve desired behavioural responses (Jiang et al., 2010, Voorveld et al., 2011). Through the second study, useful findings were presented relating the importance of encouraging sociability and engagement through facilitating consumer-consumer interactivity. In addition to building and maintaining their brand communities, the influences of consumer-consumer interactivity and sociability could be encouraged by marketers

through utilizing consumer-generated content in their advertising (Meeker, 2017), which is expected to create a social atmosphere, contributing to the success of the brand's social commerce presences. Finally, marketers should utilize the typology framework presented in the first study to help them understand how each social commerce website is unique and can be capitalized in different ways to facilitate social marketing and relationship building activities (Beese, 2016, Howard, 2016) .

As a final note, this thesis has reflected that interactivity is a dynamic construct that keeps evolving to reflect changes in technologies and in consumer behaviours. The findings from this study simultaneously contributed to developing the concept of interactivity through examining it in the context of social commerce (i.e. by updating interactivity scales, understanding the consumers' online experiences in highly-engaging settings, and shedding light on social factors as outcome variables of interactivity) and to understanding social commerce through the lenses of the interactivity concept (i.e. by introducing a typology based on the two dimensions of structural interactivity, which will help define social commerce and delineate its boundaries).

Appendices

Appendix A: Methods used in prior research to operationalize different views of interactivity

Method/ Locus of interactivity	Communication process	Attribute of the medium	Perception
Content Analysis	• Burton and Soboleva (2011) • Ksiazek et al. (2016) • Rafaeli and Sudweeks (1998)	• Chen and Yen (2004) • Cho and Cheon (2005) • Ghose and Dou (1998) • Ha and James (1998) • Koolstra and Bos (2009) • Massey and Levy (1999) • Voorveld et al. (2011)	
Experiment	• Brewer et al. (2016) • Jahng and Littau (2016) • Lee and Shin (2012) • Li et al. (2014) • Saffer et al. (2013) • Song and Zinkhan (2008)	• Ariely (2000) • Coursaris and Sung (2012) • Dholakia and Zhao (2009) • Guillory and Sundar (2014) • Jiang et al. (2010) • Johnson et al. (2006) • Kim et al. (2012) • Larsson (2011) • Oh and Sundar (2015) • Shin et al. (2016) • Sundar et al. (2014) • Teo et al. (2003) • van Noort et al. (2012) • Wu et al. (2013b)	
Survey			• Animesh et al. (2011)

			• Chan and Li (2010) • Chang and Wang (2008) • Cui et al. (2010) • Cyr et al. (2009) • Gao et al. (2010) • Hu et al. (2016) • Jee and Lee (2002) • Liu (2003) • Merrilees and Fry (2003) • Rodríguez-Ardura and Meseguer-Artola (2016) • Srinivasan et al. (2002) • Shih and Huang (2012) • Wang et al. (2013) • Wu (1999) • Wu et al. (2010) • Yadav and Varadarajan (2005) • Yu et al. (2017) • Zhao and Lu (2012)

Appendix B: Outcome variables of structural and perceived interactivity

Outcome variable	Actual interactivity	Perceived interactivity
Ability to utilize information	• Ariely (2000)	
Absorption	• Oh and Sundar (2015)	
Advertising effectiveness		• Fortin and Dholakia (2005)
Affect	• Vendemia (2017)	
Arousal	• Wang et al. (2007)	
Attention	• Lee and Shin (2012) Diverting attention	
Attitude toward advert	• Bezjian-Avery et al. (1998)	
Attitude toward brand		• van Noort et al. (2012)
Attitude toward the message	• Oh and Sundar (2015)	
Attitude toward retailer	• Fiore et al. (2005) • Li et al. (2014) • Vendemia (2017)	• Fortin and Dholakia (2005)
Attitude toward product	• Bezjian-Avery et al. (1998) • Sicilia et al. (2005) • Sundar and Kim (2005)	
Attitude toward Website	• Coyle and Thorson (2001) • Jee and Lee (2002) • Teo et al. (2003) • Sicilia et al. (2005) • Sundar and Kim (2005)	• Wu (1999) • McMillan (2000a) • McMillan (2002) • McMillan and Hwang (2002) • Chung and Zhao (2004)

	• Sohn et al. (2007) • Guillory and Sundar (2014) • Oh and Sundar (2015)	• Ko et al. (2005) • Wu (2005) • Johnson et al. (2006) • Thorson and Rodgers (2006) • Chang and Wang (2008) • van Noort et al. (2012)
Belonging		• Shih and Huang (2012)
Bonds		• Shih and Huang (2012)
Co-shopping		• Chan and Li (2010)
Confidence	• Ariely (2000)	
Commitment	• Li et al. (2014)	• Chan and Li (2010)
Contribution, content	• Hu et al. (2016)	
Credibility	• Li et al. (2014) • Jahng and Littau (2016)	• Johnson and Kaye (2016)
Decision making	• Ariely (2000)- quality of • Häubl and Trifts (2000)	
Ease of use	• Sutcliffe and Hart (2017)	• Chang and Wang (2008) • Coursaris and Sung (2012) • Lee et al. (2015)
Effectiveness	• Teo et al. (2003)	• Cyr et al. (2009)
Efficiency	• Teo et al. (2003)	• Cyr et al. (2009)
Elaboration	• Lee and Shin (2012) Hindering elaboration	
Empowerment		• Dholakia et al. (2000)
Engagement	• Sundar et al. (2014)	

	• Shin et al. (2016)	
Enjoyment		• Dholakia et al. (2000) • Cyr et al. (2009) • Coursaris and Sung (2012)
Evaluation of product		• Chen et al. (2005)
Expected interactivity		• Sohn & Choi (2013)
Flow	• Sicilia et al. (2005) • Wang et al. (2007) • Huang 2013	• Wu and Chang (2005) • Chang and Wang (2008) • Animesh et al. (2011) • Zhang et al. (2014) • Rodríguez-Ardura and Meseguer-Artola (2016)
Impression of candidate		• Thorson and Rodgers (2006)
Information processing	• Ariely (2000) • Sicilia et al. (2005)	
Intentions, behavioural		• Dholakia et al. (2000) • McMillan (2002) • Chang and Wang (2008) • Dholakia and Zhao (2009)
Intentions, referral		• van Noort et al. (2012)
Intention to purchase	• Bezjian-Avery et al. (1998)- <u>negative relationship with</u> • Jee and Lee (2002) • Fiore et al. (2005) • Jiang et al. (2010) • Kim et al. (2012) • Vendemia (2017)	• Chen et al. (2005) • Ko et al. (2005) • Wu and Chang (2005) • van Noort et al. (2012)

Intention to return to the website	• Fiore et al. (2005) • Wang et al. (2007)	• Wu (2012) • van Noort et al. (2012) • Zhang et al. (2014) • Rodríguez-Ardura and Meseguer-Artola (2016)
Intention to use		• Coursaris and Sung (2012)
Intention to vote		• Thorson and Rodgers (2006) • Lee and Shin (2012)
Interactivity Perceptions	• Dholakia et al. (2000) • McMillan (2000a) • McMillan (2002) • Lee et al. (2004) • Wu (2005) • Johnson et al. (2006) • Lee et al. (2010) • Voorveld et al. (2011) • Kim et al. (2012) • Sundar et al. (2014)	
Involvement	• Jiang et al. (2010) • Guillory and Sundar (2014)	• Fortin and Dholakia (2005) • Johnson et al. (2006) • Wu (2012)
Knowledge	• Ariely (2000)	
Learning		• Liu and Shrum (2002)
Loyalty	• Dholakia and Zhao (2009) • Srinivasan et al. (2002)	• Song and Zinkhan (2008) • Yoon et al. (2008) • Cyr et al. (2009) • Yoo et al. (2015) • Lee et al. (2015)

Memory	• Ariely (2000)	• Chung and Zhao (2004) • Bonner 2004 of advert content
Need fulfilment	• Ha and James (1998)	
Participation	• Hu et al. (2016)	
Persuasion	• Bezjian-Avery et al. (1998)- Interruption of	
Pleasure	• Wang et al. (2007)	
Quality of online conversations		• Shih and Huang (2012)
Quality of Website	• Ghose and Dou (1998) • Chen and Yen (2004) • Hart et al. (2013) of website	• Bonner (2010) Information quality • Song and Zinkhan (2008) • Yoo et al. (2015) • Yoon (2015) Website
Recommending site		• Wu (2012)
Reciprocating behaviour	• Chan and Li (2010)	
Relevance		• McMillan (2002), perceived
Relationship building	• Shin et al. (2016)	• Yoon et al. (2008) • Chan and Li (2010) • Yoon and Youn (2016)
Reputation	• Guillory and Sundar (2014)- Perception of organization's reputation	
Revisit to website		• Dholakia et al. (2000) • van Noort et al. (2012)

Satisfaction	• Rafaeli (1988) • Teo et al. (2003) • Dholakia and Zhao (2009) • Li et al. (2014)	• Dholakia et al. (2000) • Song and Zinkhan (2008) • Wu (2012) • Zhao and Lu (2012) • Yoo (2015) • Lee et al. (2015) • Yu et al. (2017)
Social capital		• Wu et al. (2013a)
Social presence	• Fortin and Dholakia (2005)	• Dholakia et al (2000) • Cui et al. (2010) • Lee and Shin (2012) • Rodríguez-Ardura and Meseguer-Artola (2016)
Social support		• Zhang et al. (2014)
Socialness perception	• Wang et al. (2007)	
Telepresence	• Coyle and Thorson (2001) • Fiore et al. (2005) • Dholakia and Zhao (2009)	• Animesh et al. (2011) • Rodríguez-Ardura and Meseguer-Artola (2016)
Time spent	• Bezjian-Avery et al. (1998)- viewing ad	• Meng (2008) Desire to stay • Wang (2013) Stickiness • Yu et al. (2017)
Trust	• Kim et al. (2012) • Li et al. (2014)	• Chen et al. (2005) • Lee (2005) • Wu and Chang (2005) • Cyr et al. (2009) • Lee et al. (2015)

Usefulness		• Chang and Wang (2008) • Coursaris and Sung (2012)
Value	• Teo et al. (2003) • Fiore et al. (2005) • Wang et al. (2007)	
Visual processing	• Bezjian-Avery et al. (1998)- Inhabitation of	
Word-of-mouth		• Song and Zinkhan (2008) • Yu et al. (2017)

Appendix C: Variables Investigated in Prior Social Commerce Research

Commercial	Social	Technological
• Actual purchase behaviour (Wang et al., 2015) • Attitude toward online shopping (Cha, 2009) • Commitment to firm (Liang et al., 2011, Hajli, 2014) • Communication quality of firm (Kim and Park, 2013) • Economic feasibility of firm (Kim and Park, 2013) • Hedonic value (Chen et al., 2007) • Intention to buy and shop (Hajli, 2012, Kamis and Frank, 2012, Kim and Park, 2013, Wang et al., 2015, Liu et al., 2016, Liang et al., 2011, Shen, 2012, Ng, 2013, Shin, 2013, Zhang et al., 2014, Hajli, 2014, Chen and Shen, 2015, Hajli and Sims, 2015) • Product involvement (Zhang et al., 2015) • Reputation of firm (Kim and Park, 2013)	Affect network (Chen et al., 2007) Closeness with Website members (Ng, 2013, Liu et al., 2016) Commitment to community (Chan and Li, 2010, Chen and Shen, 2015) Enjoyment of participating in Website (Chan and Li, 2010, Zhang et al., 2015) Loyalty to members of Website (Chen et al., 2007, Hew et al., 2016) Opinion leading and seeking behaviour (Kamis and Frank, 2012) Reciprocating behaviours of Website members (Chan and Li, 2010) Similarity in behaviours with other Website members (Liu et al., 2016) Sociability (Zhang et al., 2014) Social bond with Website members (Chan and Li, 2010) Social media experience (Chen and Lin, 2015)	• Continuance intention of Website (Chen and Lin, 2015, Hew et al., 2016, Zhang et al., 2015) • Ease of use of Website (Cha, 2009, Shen, 2012) • Emotional value of the Website (Chen and Lin, 2015) • Enjoyment of Website (Cha, 2009, Kamis and Frank, 2012, Shin, 2013, Shen, 2012) • Expectation confirmation of application use (Hew et al., 2016) • Flow (Zhang et al., 2014, Liu et al., 2016) • Functional value of Website (Chen and Lin, 2015) • Information quality of Website (Kim and Park, 2013, Zhang et al., 2015) • Interactivity (Zhang et al., 2014) • Loyalty to Website (Wang et al., 2015) • Personalization of Website (Zhang et al., 2014) • Privacy concerns (Hew et al., 2016)

• Satisfaction in firm (Liang et al., 2011, Hajli, 2014, Hew et al., 2016) • Service quality (Liang et al., 2011, Hew et al., 2016) • Shopping behaviours (Chen et al., 2007) • Size of firm (Kim and Park, 2013) • Trust in firm (Liang et al., 2011, Hajli, 2012, Shin, 2013, Hajli, 2014, Chen and Shen, 2015, Kim and Park, 2013) • Utilitarian value (Chen et al., 2007)	Social Presence (Shen, 2012, Zhang et al., 2014) Social support (Liang et al., 2011, Shin, 2013, Zhang et al., 2014, Hajli, 2014, Chen and Shen, 2015, Hajli and Sims, 2015, Hajli et al., 2015) Social value (Chen and Lin, 2015) Subjective norms (Shin, 2013) Sustainable social relationship (Chen and Lin, 2015) Tendency to social comparison online (Shen, 2012) Tie strength between Website members (Ng, 2013) Trust in Website members (Chen et al., 2007, Hajli, 2012, Ng, 2013, Chen and Shen, 2015) Word-of-mouth behaviour (Kim and Park, 2013, Chen et al., 2007, Liang et al., 2011, Shen, 2012, Ng, 2013, Shin, 2013, Zhang et al., 2014, Hajli, 2014, Chen and Shen, 2015, Hajli and Sims, 2015)	• Satisfaction with Website (Chen and Lin, 2015) • Security of Website (Cha, 2009, Kim and Park, 2013) • Structural features Website (Chan and Li, 2010) • System quality (Liang et al., 2011, Huang and Benyoucef, 2015) • Usefulness of Website (Cha, 2009, Hajli, 2012, Shen, 2012, Shin, 2013, Zhang et al., 2015, Hew et al., 2016, Kamis and Frank, 2012) • Visual appeal of Website (Zhang et al., 2015)

Appendix D: Contexts of Past Social Commerce Studies

Literature	Social Media	E-commerce
• Afrasiabi Rad and Benyoucef (2011) • Barwise and Meehan (2010) • Wang and Zhang (2012) • Liang and Turban (2011) • Yadav et al. (2013) • Zhou et al. (2013)	• Chen et al. (2007) • Chow and Shi (2014)- Sina Weibo • Kwahk and Ge (2012) • Liang et al. (2011)- Plurk • Linda (2011)- Facebook • Ng (2013)- Facebook • Zhang et al. (2014) - Renren and San Weibo	• Curty and Zhang (2013) • Grange and Benbasat (2010)
Social media + E-commerce	**Social commerce**	**Others**
• Dennis et al. (2010)- An experiments comparing use of an e-commerce website (dorothyperkins.co.uk) and a social commerce website (Osoyou.com) • Huang and Benyoucef (2013) - Amazon.ca representing e-commerce and Starbucks' Facebook page representing social media	• Chen and Shen (2015) • Curty and Zhang (2011)- context based on a list of top social commerce websites) • Kim and Noh (2012) and Kim and Park (2013)- Websites defined as social commerce including Groupon, Coupang, Wemakerprice, Ticketmonster	• Cha (2009)- University students who are SNS users • Hajli and Sims (2015) • Hajli et al. (2015) • (Kang and Park-Poaps (2011), Kang and Johnson, 2013)- A sample of university students • Saundage and Lee (2011)- Social Commerce activities

	• Lee et al. (2014) and Lee and Lee (2012)- Groupon • Leitner and Grechenig (2008) • Olbrich and Holsing (2011) • Kaboodle.com • (Stephen and Toubia (2010), Stephen and Toubia (2009))	of 74 Fortune 500 companies

Appendix E- Conference Paper Presented at the Academy of Marketing Conference 2015

Developing a Typology of Social Commerce Websites- An Exploratory Study

Maryam H. Almahdi , Chris Archer-Brown, Niki Panteli

University of Bath, School of Management

Introduction

Social commerce is a growing phenomenon, which is forecast to represent a $30 billion sector worldwide in 2015 (Booz & Company, 2011 as cited in Anderson et al., 2011). Social commerce "involves the use of Internet-based media that allow people to participate in the marketing, selling, comparing, curating, buying, and sharing of products and services in both online and offline marketplaces, and in communities" (Zhou et al., 2013). Social commerce is expected to become "one of the most challenging research arenas in the coming decade" (Liang and Turban, 2011), but is it still in need of more research effort to understand it and define it, and eventually facilitate this knowledge in developing the theory and practice of digital marketing.

In this paper we conduct an exploratory content analysis and create a preliminary typology of social commerce Websites (using interactivity and social transparency theories) with the aim of bridging a key gap currently existing in the literature. Our research gap relates to the ambiguity in identifying and delineating the different types of social commerce in prior research. Indeed, the lack of agreement of what social commerce refers to or its different types can lead to confusion and the possibility of inconsistent research findings.

This paper starts with a brief overview of the literature, discussing prior social commerce research and explaining the research gap. This is followed by the research question and methodology. Finally, we present the findings and discuss them, outlining the practical implications and future directions of the study.

Literature Review

An Overview of Social Commerce

Social commerce is a growing phenomenon and novel area of research. It is expected to account for a $30 billion sector globally in 2015, competing with both offline and online shopping outlets (Booz & Company 2011 as cited in Anderson et al. 2011). Social commerce is defined as "Internet-based commercial applications, leveraging social media and Web 2.0 technologies which support social interaction and User Generated Content in order to assist consumers in their decision making and

acquisition of products and services within online marketplaces and communities" (Huang and Benyoucef, 2013).

In social commerce Websites, customers have the opportunity to carry out a variety of activities; ranging from browsing through products, searching for information and keeping up-to-date about market trends (Sowray, 2014, Wortham, 2014), to sharing product reviews about one's latest purchases (Stephen and Toubia, 2010), and shopping with friends (Marsden, 2009). Through using social commerce; not only do customers get their hands on an abundance of information from a variety of sources (Grange and Benbasat, 2010), which aids them in making educated purchase decisions (Zhou et al., 2013), they also enjoy highly interactive shopping experiences which allow them to contribute, collaborate and communicate with firms and other shoppers (Huang and Benyoucef, 2013, Liang and Turban, 2011, Shen, 2012, Zhou et al., 2013). Naturally, due to its ability to attract and engage customers, companies will be interested in capitalizing on the social commerce potential by carrying out advertising, marketing research, direct selling and crowdsourcing activities, among many others (Liang and Turban, 2011). Successfully facilitating social commerce will help companies in gaining wider reach and exposure (Weiss, 2014), collecting first hand customer data (Anderson et al., 2011), and using it to lead their segmentation and targeting strategies (Grange and Benbasat, 2010). Social commerce can also be used to enhance the customers' trust in the company's offerings, if these are recommend to them by people they find credible, such as friends and family (Lee, 2013).

Three Core Themes of Social Commerce

Prior literature reveals that although some attempts at defining social commerce exist, there still is no agreement on what the concept means or what it includes (Yadav et al., 2013, Shen, 2012). However, based on a review of a number of academic definitions (Table 1), we find that there are three recurring themes in the conceptualizations of social commerce; namely, commercial activities, social interactions and technological features (For a figure outlining the three themes, see Figure 2).

A key theme of social commerce lies in the facilitation of the customers' **commercial activities**. These activities range from making shopping decisions (Yadav et al., 2013, Huang and Benyoucef, 2013), to acquiring products and services (Zhou et al., 2013, Liang and Turban, 2011) and even taking part in marketing and selling activities (Stephen and Toubia, 2010). Moreover, the literature proposes that another essential theme of social commerce is its support for the customers' **social activities and interactions** (Huang and Benyoucef, 2013, Shen, 2012) such as being a part of a community (Zhou et al., 2013), collaborating, sharing information and spreading word-of-mouth (Dennison et al., 2011, Shen, 2012). Finally, the literature discusses the **technological features** imperative to facilitating social commerce activities, like being Internet based and enabled by Web 2.0 technologies that are essential to building social media platforms and supporting User Generated Content (Cha, 2009, Wang and Zhang, 2012, Stephen and Toubia, 2010).

Based on these three main themes that recur in social commerce research, the concept of social commerce can be briefly explained as Web 2.0 based applications that integrate the social activities of social media (such as co-creation and information sharing) and the commercial activities of electronic commerce (such as information search, shopping and purchasing).

Research Gap

These three core themes represent a useful tool to indicate what Websites generally qualify as social commerce. However, there still remain difficulties when attempting to narrow down the concept and differentiate between social commerce and other related online applications, like social media and e-commerce. Indeed, aiming to identify boundaries to the concept, authors suggest that there are different types of social commerce Websites; including social media applications with added shopping functions (e.g. Facebook), online shopping Websites with embedded social features (e.g. E-bay) (Liang and Turban, 2011, Zhou et al., 2013), in addition to specialized social commerce Websites which combine shopping and social networking functionalities (e.g. Wanelo) (Schryver, 2014).

However, it is not clear where to draw the lines between these different types or how to determine when one ends and the next begins, especially as these categorizations are mostly based on observation rather than empirical research.

Huang and Benyoucef (2013) propose a solution to this problem by representing a four level framework of social commerce Websites, including individual, conversation, community and commerce layers (See framework in Figure 3). The individual level is the central layer of the framework, and represents self-identification and awareness. This level is reflected through technical functions, such as the Website users' personal profile information. The conversation level, which is the second layer in the model, allows for communication to take place amongst Website users, and is reflected in features such as allowing users to post ratings and reviews and share information with friends. The third level, community, takes communication a step further and allows users to support each other on the Website. It is represented in the availability of chatting functions and community discussion boards, among other features. The fourth and final layer is commerce, and as the name suggests, includes shopping and buying-related functions like wish lists, and shopping carts. Through this model, Huang and Benyoucef (2013) attempt to explain how social commerce is distinctive from e-commerce and social media platforms.

They suggest that simple e-commerce Websites will contain the first and last levels of the framework (i.e. individual and commerce), while social media platforms will include the first three levels (i.e. individual, conversation and community). They additionally explain that to qualify as social commerce, a Website has to include all four levels of the framework (individual, conversation, community and commerce).

While this is certainly a useful model for understanding the technical characteristics of social commerce, it does not help to answer the question of how social commerce is different from e-commerce on the one hand, and social media on the other. Indeed, through a simple analysis of a sample of social media and e-commerce Websites, we realize that we can find features from all four layers in both types.

For instance, in addition to the first and last layers, Amazon has communication and community support elements that fall in the second and third layers. Similarly, Facebook carries business functions which fall in the last layer, in addition to its first three layers. This highlights the difficulty in pinpointing what, in fact, is social commerce and what is not.

This inconsistency in identifying social commerce is reflected in the variability of research contexts used in prior papers investigating social commerce, and subsequently the type of users surveyed or interviewed. As we observe from the literature, social commerce papers are set in contexts as varied as social media (Chow and Shi, 2014, Kang and Johnson, 2013, Ng, 2013), e-commerce (Curty and Zhang, 2013, Grange and Benbasat, 2010), or Websites identified as social commerce based on online lists and articles (Curty and Zhang, 2011, Leitner and Grechenig, 2008). Hence, when previous studies use the term 'social commerce', they can be referring to different concepts, which could affect the reliability of the research outcomes.

Research Question

In an effort to resolve the ambiguity in identifying and delineating the different types of social commerce in prior research, this study aims to create an empirical typology of social commerce to answer the following exploratory research question:
RQ1: What are the different types of social commerce Websites?

Methods

To answer the research question, we carry out an exploratory content analysis designed to investigate the technical features of social commerce Websites. Indeed, conducting a function-based content analysis will help us reach our goal of understanding the structure and functionality of different social commerce Websites (McMillan, 2002).
We subsequently use the data acquired from the content analysis to create a typology of social commerce. According to Rich (1992), a typology includes "the classification of data into types based on the theoretically derived, and more or less intuitively categorized, qualities of observed phenomena." (p. 761). We choose to create a typology, because such a method "helps researchers and practitioners understand and analyse complex domains" (Nickerson et al., 2013). Additionally, a typology acts as a starting point for developing theory and examining hypotheses (Haas, Hall and Johnson, 1966 as cited in Rich, 1992), and aids researchers in understanding the inconsistencies in previous research findings (Sabherwal and King 1995 as cited in Nickerson et al., 2013).

Website Choice

Finding an existing comprehensive list of social commerce Websites proves to be a difficult task, since new sites appear on the Web every day, and since the definition of social commerce can apply on any number of different sites as discussed earlier in the paper.
As a solution to this problem, we created a list of more than 70 social commerce Websites extracted from academic and online articles published in the last 5 years. We do not claim that this is a complete or an exhaustive list of social commerce Website. However as the aim of our study is to determine the boundaries of social commerce, we do that by investigating Websites which were regarded as social

commerce in prior publications. By doing that, we uncover why they are considered as social commerce in the first place, and what they have in common.
The list only includes Websites that are in English, and for the benefit of being concise, it excludes Websites that are an online representation of an existing offline retailer or brand.

Typology Development

This paper followed the typology development process proposed by Nickerson et al. (2013). Their process suggests choosing a main theme as a starting point for developing an IS typology, and going through several iterations of deductive and inductive analyses until satisfactory results are accomplished. In this paper, we defined our main theme as 'an examination of the technical features of social commerce Websites'. We then started with an empirical strategy by qualitatively analysing the Websites. By carrying out the first iteration, we were able to identify a number of important features that distinguish social commerce.
Our second iteration was a conceptual one, in which we used theory (interactivity and social transparency) to explain the features we found in the first round. The third iteration, an empirical one, saw us analysing the Websites once again based on the now theory-based characteristics. We finally used our results to create a preliminary typology of social commerce based on interactivity and social transparency theories. We briefly discuss the two theories below, and you can see the list of features used in the content analysis in Table 2.

Interactivity Theory

Interactivity can be generally explained as "the degree to which two or more communication parties can act on each other, on the communication medium, and on the messages" (Liu and Shrum, 2002). Interactivity can be approached from an objective point-of-view (also called actual interactivity) as either involving communication processes or medium features. In the first, interactivity is examined by analysing how the reciprocal messages within a communication episode relate to each other (Rafaeli, 1988, Fortin and Dholakia, 2005), while in the latter, the focus is on system features that facilitate computer-mediated interactivity (Stromer-Galley, 2004). Alternatively, interactivity can be understood from a subjective point-of-view as users' perceptions, which involves "the psychological sense message senders have of their own and of the receivers' interactivity" (Newhagen et al., 1995).
In this paper, we focus on the actual interactivity features rather than interactivity perceptions, because we are interested in conducting a function-based content analysis of social commerce. We use the framework proposed by Voorveld et al. (2011) in our investigation.

Social transparency Theory

Social transparency is defined by Stuart et al. (2012) as "the ability to observe and monitor the interactions of others within and across applications on the Internet" (p. 458). Socially transparent online applications work at mirroring real life conversations and interactions through employing features that attempt to mimic offline social cues, such as displaying audience size and showing who is participating

in the conversation (Stuart et al., 2012, Erickson et al., 1999). As a result of that, socially transparent Websites make it easier for users to "carry on coherent discussions; to observe and imitate others' actions; to engage in peer pressure; to create, notice, and conform to social conventions; and to engage in other forms of collective interaction" (Erickson et al., 2002).

Findings

In this section we answer the paper's research questions (What are the different types of social commerce Websites?) using the results of the qualitative content analysis that we conducted.

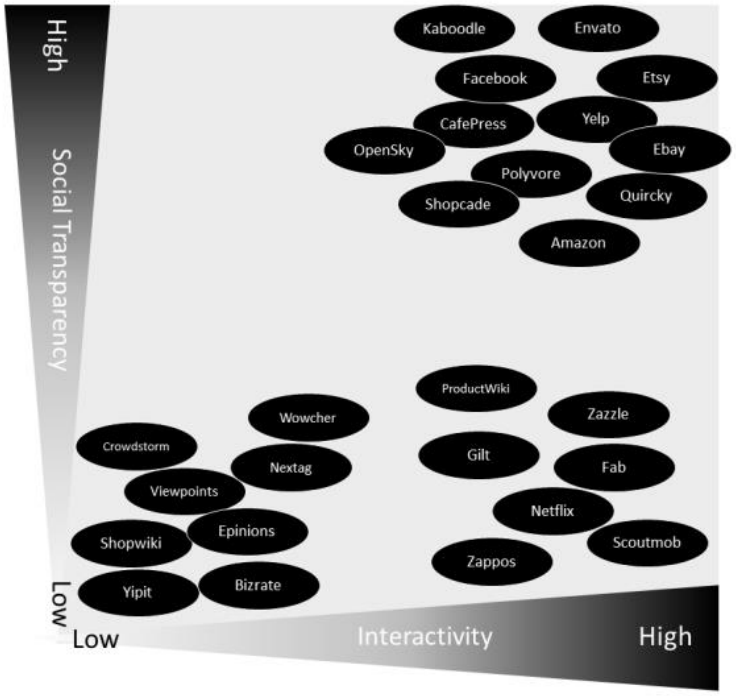
An overview of the analysed social commerce Websites

Following our definition of social commerce, as Web 2.0 platforms that combine social and commercial activities, we find that the majority of the Websites we analysed do, in fact, qualify as social commerce since they encompass social, commercial and interactive features. We, nonetheless, exclude a small number of Websites, such as Digg which is now mainly a news Website, and Reddit, which despite being a highly interactive social networking site, cannot be used for commercial activities. Moreover, the Websites we analysed vary largely in terms of scope and orientation. Indeed, the activities supported by these Websites span across the different stages of the customer buying decision process (Armstrong and Kotler, 2009). Within the list we identify Websites which are used for advertising and which can trigger customers' needs. Examples are social networking sites which are used by firms to advertise and connect with their customers (e.g Facebook, Pinterest). In the information search and evaluation of alternatives stage, we find several types of Websites through which the shoppers can find more information to help them decide. Examples are price comparison Websites (e.g. PriceGrabber) and user-curated shopping Websites (e.g. Kaboodle, Polyvore). In the purchase stage, we find marketplaces with different foci (e.g. Amazon, Fancy, Quirky), while in the post-purchase stage, we find ratings and reviews Websites (e.g. Epinions). See Figure 4 for a figure illustrating the different orientations of social commerce Websites.

Types of social commerce based on the theories of interactivity and social transparency

As we discussed in the methodology section, we used two theories; namely interactivity and social transparency, to come up with a preliminary typology of social commerce including three main clusters (Figure 1):

Figure 1: Types of Social Commerce Based on Interactivity and Social Transparency



1. Websites which are low in both interactivity and social transparency

These Websites represent the simplest types of e-commerce. Their orientations vary from coupon Websites (e.g. Yipit.com), to price comparison Websites (e.g. Nextag) and rating and reviews Websites (e.g. Viewpoints, Epinions). These Websites have simple interactive functionalities such as providing the customers with recommendations based on their activities on the Website (e.g. you might also like) and allowing them to post product ratings and reviews. However, these Websites have virtually non-existent social transparency, with no options to create a personal profile or communicate with other users.

2. Websites which are high in interactivity and low in social transparency

We consider the Websites in this category as a more evolved version of e-commerce. These are mostly online marketplaces with different orientations (e.g. fashion, movies, creative designs and independent brands). They are high in interactivity, providing their customers with the freedom of sharing product finds, adding ratings and reviews, creating wish lists, chatting with firm representatives in real-time and even purchasing on the site. However, the social transparency in these Websites is very low, with limited profile options, little or no access to friends on the site, and a complete lack of interactive social content provision.

3. Websites which are high in both interactivity and social transparency

These are the most sophisticated social commerce Websites, and appear to be the end goal of other types of social commerce. This category includes online marketplaces with a shopping cart (e.g. eBay), user-curated shopping Websites (e.g. Kaboodle) and social networking sites (e.g. Facebook). Here, in addition to the availability of high interactive options (messaging, user groups, mobile apps, etc.), the users enjoy the perks of high social transparency. Indeed, in these Websites, customers can log in with

their real names (or a nickname) and create detailed profiles that include profile pictures and personal information about their interests and activities. Users can also invite and connect with friends, and view real-time interactive social content of their friends' activities on the Website.

It is interesting to note, however, that none of the Websites fell in the category of low interactivity and high social transparency. This could be due to the social transparency function being dependant on observing the interactivity of other users (Stuart et al., 2012).

Discussion and Conclusion

Based on our content analysis, we have reason to believe that the majority of the Websites referred to as social commerce in prior research can be in fact considered as such, because they include the three main themes of social commerce. They are social, they are commercial and they are interactive. However, it is important to recognize that social commerce Websites vary in terms of how much they support customer interactivity and social transparency. Indeed, researchers who are interested in pursuing social commerce as a field of study will have to be aware of these differences and how they might affect their findings. For example, trust outcomes in Websites that allow the customers to chat in real-time might be higher than trust outcomes in Websites that do not support such function. Interestingly, the three groups of social commerce we uncovered can represent a trajectory showing where the evolution of social commerce is heading. Frist, we have the simple online commerce sites with limited interactivity and a specific purpose at hand (e.g. Yipit, a coupon site). However, by adding more interactive features like user groups, wish lists and messaging options, we reach a second type of more evolved e-commerce (e.g. Scoutmob, an entrepreneurial marketplace). Finally, by facilitating social transparency functions (e.g. profile information and friend connections) we get the end result of highly sophisticated social commerce (e.g. Etsy, a hand-made products marketplace).

This typology will be beneficial for digital marketing practitioners, as it will aid them in recognizing the differences between the varied types of social commerce, and use this knowledge when formulating strategy. As for social commerce researchers, it will provide them with a good foundation to understand the context of their research, and to help them select an appropriate empirical setting.

A useful follow-up study to this paper would include undertaking a quantitative content analysis to create a more statistically reliable typology of social commerce Websites.

Tables

Table 1- A Selection of Academic Social Commerce Definitions

Author(s)	Definitions
Dennison et al. (2011)	"The combination of a retailer's products, online content and shoppers' interaction with that content. It comes in many forms; the most common is

	allowing online shoppers to submit product ratings and reviews. Put simply, social commerce is word of mouth applied to e-commerce" (p. 2)
Huang and Benyoucef (2013)	"An Internet-based commercial application, leveraging social media and Web 2.0 technologies which support social interaction and User Generated Content in order to assist consumers in their decision making and acquisition of products and services within online marketplaces and communities" (p. 247)
Liang and Turban (2011)	"Involves using Web 2.0 social media technologies to support online interactions and user contributions to assist in the acquisition of products and services" (p.5)
Shen (2012)	"A technology-enabled shopping experience where online consumer interactions while shopping provide the main mechanism for conducting social shopping activities. These interactions may result in discovering products, aggregating and sharing product information, and collaboratively making shopping decisions" (p.199)
Stephen and Toubia (2010)	"Forms of Internet-based "social media" that allow people to participate actively in the marketing and selling of products and services in online marketplaces and communities" (p.215)
Yadav et al. (2013)	"Exchange-related activities that occur in, or are influenced by, an individual's social network in computer-mediated social environments, where the activities correspond to the need recognition, pre-purchase, purchase, and post-purchase stages of a focal exchange" (p. 312)
Zhou *et al*. (2013)	"Involves the use of Internet-based media that allow people to participate in the marketing, selling, comparing, curating, buying, and sharing of products and services in both online and offline marketplaces, and in communities" (p. 61)

Figure 2- The Three Core Themes of Social Commerce

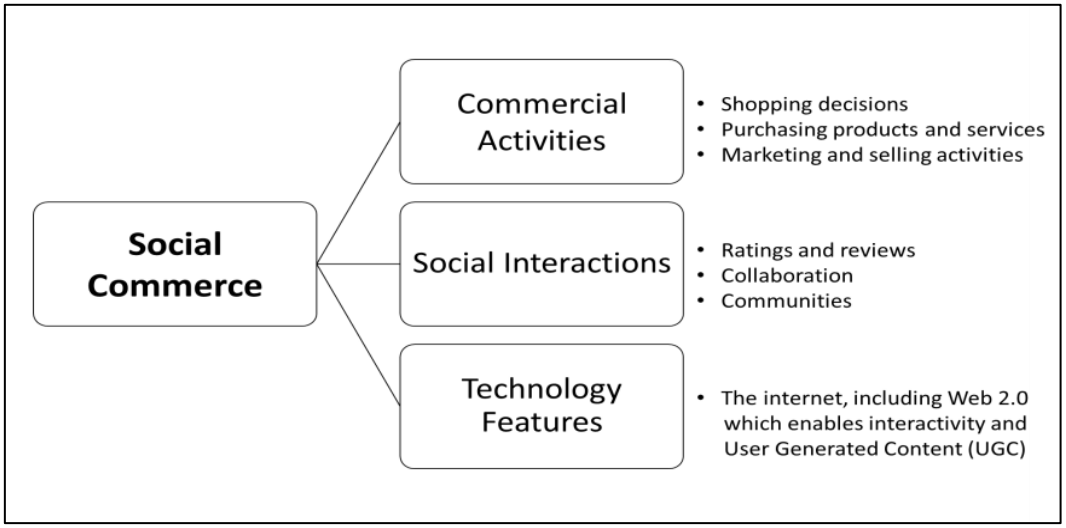


Figure 3- Huang and Benyoucef's Social Commerce Design Model

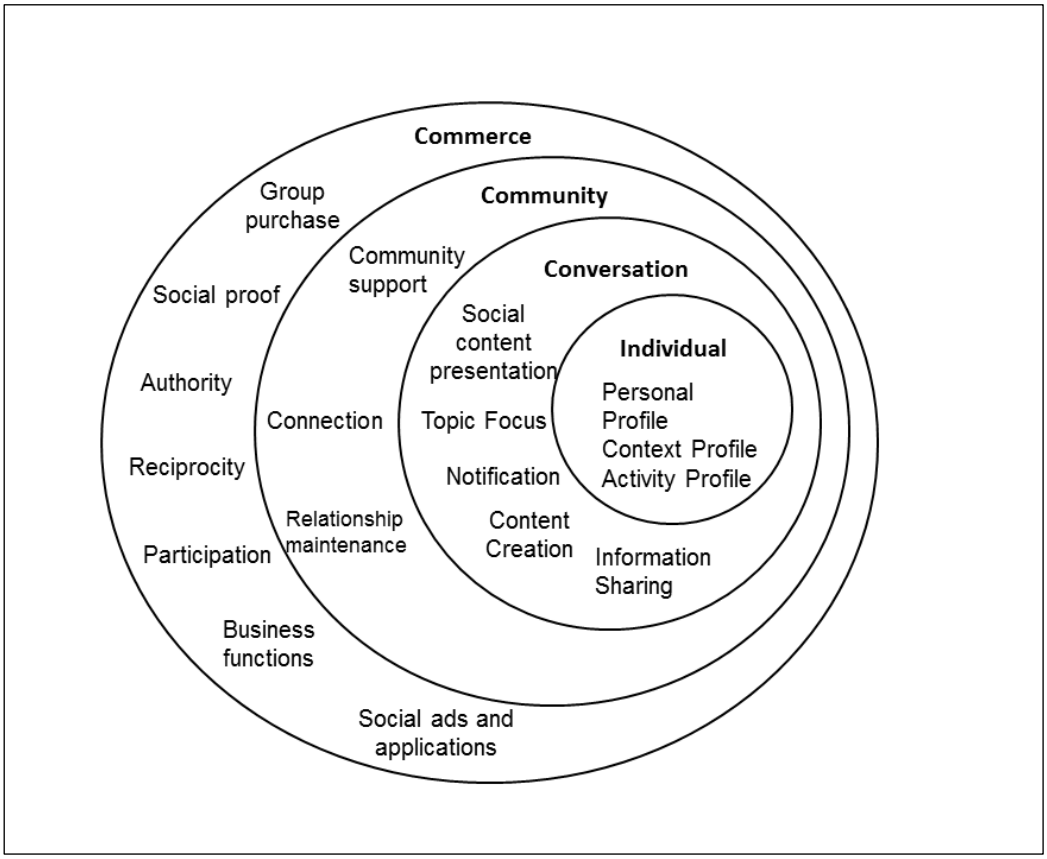
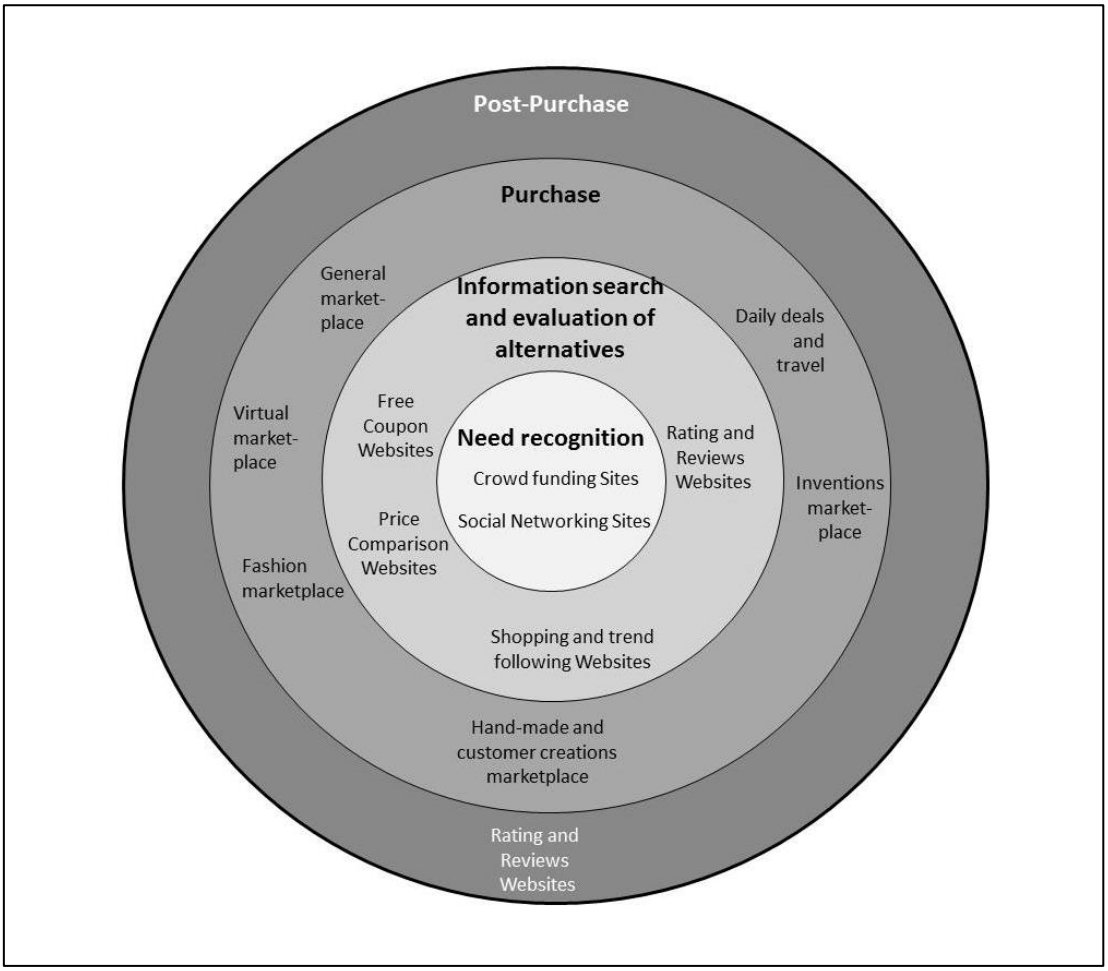


Table 2- List of Website Features Based on the Theories of Interactivity and Social Transparency

Interactivity (Voorveld et al, 2011)	Two-way Communication	• Online order: an option to order products online (the availability of a shopping cart)
		• The capability to share the Website or information about the product with friends
		• A function that makes recommendations based on the customers' input in the Website (Examples: recommended for you/ based on your browsing history)
		• User groups: online community for product users/ forums/ discussion boards
		• Surfer postings: customers can rate and review products, comment on posts, write entries
		• Chatting with other customers using instant messaging or chatting programs

		• A function that makes recommendations based on other customers' input in the Website (Examples: other customers who bought this item also bought / customers who viewed this also viewed)
		• Messaging feature : customers can send and receive messages on the Website using an integrated messaging function
	Speed	• Virtual reality display: customers can make product boards/ collages/ virtual representations of products they are interested in
		• Live customer service, such as online discussion with a sales representative using instant messaging or chatting programs.
	Control	• Registration requirement to get access to certain parts of the Web site
		• Customize product: an option that allows customers to compose products or contribute with design ideas and product development.
		• Connection with a mobile phone and the availability of a mobile app
		• Option to make a wish list and share it with friends and family
Social Transparency (Stuart et al, 2012)	Identity Transparency	• Users can use their real name on the Website
		• Users can use nicknames on the Website
		• The availability of user profiles that include personal information (gender, work, location, hobbies, activities)
	Content Transparency	• It is clear who is the creator or the author of posts/ reviews online
		• Interactive social content provision of friends' activities (i.e. activity feed)
	Interaction Transparency	• Availability of friend's' lists and the ability to connect with friends
		• Website shows popular and trending content

Figure 4: Different Orientations of Social Commerce Websites



Appendix F: A List of Social commerce platforms that she extracted from academic and online articles published in the last 10 ye

#	Website	Total Interactivity	HW interactivity	HH interactivity	Time spent	Pages viewed
1.	twitter	1	1	1	386	3.12
2.	Instagram	0.94444	0.888889	1	326	3.22
3.	Amazon	0.89899	0.888889	0.909091	486	8.22
4.	Polyvore	0.89899	0.888889	0.909091	285	2.87

5.	Yelp	0.89899	0.888889	0.909091	216	3.21
6.	Tumblr	0.89899	0.888889	0.909091	540	6.45
7.	Youtube	0.89899	0.888889	0.909091	495	4.73
8.	Pinterest	0.85354	0.888889	0.818182	229	2.9
9.	Fancy	0.84343	0.777778	0.909091	232	2.52
10	Spotify	0.80808	0.888889	0.727273	168	2.77
11	Kickstarter	0.79798	0.777778	0.818182	218	2.59
12	Plurk	0.79798	0.777778	0.818182	395	2.72
13	Houzz	0.79798	0.777778	0.818182	221	3.56
14	Etsy	0.78788	0.666667	0.909091	460	5.95
15	TripAdvisor	0.76263	0.888889	0.636364	187	2.83
16	Zazzle	0.71717	0.888889	0.545455	338	4.06
17	Storenvy	0.69697	0.666667	0.727273	222	3.81
18	Threadless	0.65152	0.666667	0.636364	289	4.71
19	meetup	0.64141	0.555556	0.727273	271	4.29
20	shopcade	0.60606	0.666667	0.545455	83	1.6
21	shpock	0.59596	0.555556	0.636364	357	4.8
22	pikaba	0.58586	0.444444	0.727273	-99	2
23	cafepress	0.58586	0.444444	0.727273	166	3.14

24	netflix	0.58081	0.888889	0.272727	130	1.77
25	fab	0.57071	0.777778	0.363636	151	2.01
26	nuji	0.56061	0.666667	0.454545	72	3.2
27	ideastorm	0.5404	0.444444	0.636364	115	2.1
28	expedia	0.51515	0.666667	0.363636	351	3.55
29	eventbrite	0.50505	0.555556	0.454545	217	2.55
30	shopstyle	0.4798	0.777778	0.181818	47	2.05
31	shoedazzle	0.4697	0.666667	0.272727	388	4.18
32	indiegogo	0.4596	0.555556	0.363636	211	2.49
33	quirky	0.43939	0.333333	0.545455	223	3.3
34	opensky	0.42424	0.666667	0.181818	213	2.78
35	gilt	0.42424	0.666667	0.181818	302	4.53
36	pricegrabber	0.41414	0.555556	0.272727	102	2.7
37		0.05556	0.111111	0	80	1.66
38	woot	0.40404	0.444444	0.363636	165	3.38
39	lyst	0.37879	0.666667	0.090909	90	3.16
40	groupon	0.36869	0.555556	0.181818	234	3.41
41	zappos	0.34848	0.333333	0.363636	255	5.22
42	viewpoints	0.29293	0.222222	0.363636	88	1.3

43	countyourbias	0.29293	0.222222	0.363636	-99	1
44	scoutmob	0.26768	0.444444	0.090909	139	2.7
45	nextag	0.25758	0.333333	0.181818	180	2.76
46	savoo	0.25758	0.333333	0.181818	42	2
47	livingsocial	0.21212	0.333333	0.090909	209	3.11
48	yipit	0.16667	0.333333	0	66	1.9
49	shopwiki	0	0	0	95	1.6
50	linkedin	0.89899	0.888889	0.909091	313	3.96
51	deviantart	0.90909	1	0.818182	493	7.43
52	snapchat	0.69697	0.666667	0.727273	202	2.82
53	soundcloud	0.85354	0.888889	0.818182	189	1.97
54	uber	0.40404	0.444444	0.363636	222	2.82
55	steampowered	0.89899	0.888889	0.909091	191	3.24
56	flickr	0.89899	0.888889	0.909091	271	4.12
57	nordstorm	0.53535	0.888889	0.181818	290	3.93
58	sephora	0.84343	0.777778	0.909091	393	5.45
59	change.org	0.76263	0.888889	0.636364	159	1.62
60	twitch.tv	0.787879	0.666667	0.909091	358	2.89
61	wikipedia	0.525253	0.777778	0.272727	257	3.33

62	imdb	0.525253	0.777778	0.272727	211	4.13
63	github	0.641414	0.555556	0.727273	347	4.58
64	vimeo.com	0.853535	0.888889	0.818182	247	3.53
65	Google+	100	100	100	-	-
66	Facebook	100	100	100	-	-
67	ebay	88.88889	90.90909	89.89899	-	-
68	Airbnb	77.77778	72.72727	75.25253	-	-
69	Wheretogetit	77.77778	72.72727	75.25253	-	-
70	Styloko	77.77778	36.36364	57.07071	-	-
71	Renttherunway	66.66667	45.45455	56.06061	-	-
72	Mystarbucksidea	44.44444	63.63636	54.0404	-	-
73	Groupon	55.55556	18.18182	36.86869	-	-

Appendix G: Online Survey

Question 1: Based on your use of @gameofthronesnotofficial Instagram page, please indicate how frequently you perform the following activities on the page **(5 point Likert Scale from Never to Very Frequently)**:

Human-Website interactivity
• I click on links found on the page that take me to other pages on Instagram. (HW_1) • I click on links found on the page that take me to pages outside of Instagram. (HW_2) • I answer polls/quizzes posted on this page. (HW_3) • I click on hashtags shown on this page. (HW_4) • I use the automatic recommendations provided to me by Instagram to find other pages of similar interest. (HW_5) • I find out on this page who of my friends are followers/members of the page. (HW_6) • I click on picture tags shown on this page. (HW_7)

Question 2: Based on your use of @gameofthronesnotofficial Instagram page, please indicate how frequently you perform the following activities on the page **(5 point Likert Scale from Never to Very Frequently)**:

Human-Human Interactivity
• I participate in competitions along with other people on the page. (HH_1) • I like posts on this page. (HH_2) • I carry out discussions with other people on this page. (HH_3) • I use the recommendations provided to me by people on this page to find other pages of similar interest. (HH_4) • I comment on posts on this page. (HH_5) • I suggest ways to improve this page. (HH_6) • I share this page with my friends. (HH_7)

Question 3: Based on your experience on @gameofthronesnotofficial Instagram page, please indicate how strongly you agree or disagree with the following statements **(7 point Likert Scale from Strongly Disagree to Strongly Agree)**:

Sociability
• This page enables me to develop good social relationships with other community members. (Soc_1) • This page does not make me feel part of the community. (Soc_2) • This page enables me to form close friendships with members of the community. (Soc_3) • This page provides me the opportunity to have lively conversations. (Soc_4) • I feel lonely in this page. (Soc_5)

Question 4: Based on your experience on @gameofthronesnotofficial Instagram page, please indicate how strongly you agree or disagree with the following statements **(7 point Likert Scale from Strongly Disagree to Strongly Agree)**:

Perceived Engagement
• Time appears to go by very quickly when I am using this page. (Eng_1) • When I am on this page, I usually end up spending more time that I had planned. (Eng_2) • While interacting on this page I am able to block out most other distractions. (Eng_3) • While on the page, my attention gets diverted very easily. (Eng_4) • While using the page, I am immersed in what I am doing. (Eng_5) • Sometimes I lose track of time when I am interacting on the page. (Eng_6)

Question 5: Based on your experience on @gameofthronesnotofficial Instagram page, please indicate how strongly you agree or disagree with the

following statements **(7 point Likert Scale from Strongly Disagree to Strongly Agree)**:

Perceived Control
• I felt that I had a lot of control over my experience on this page. (Cont_1) • While I was on the page, I could choose freely what I wanted to see. (Cont_2) • While on the page, I had absolutely no control over what I can do on the page. (Cont_3) • While on the page, my actions decided the kind of experiences I got. (Cont_4)

Question 6: Based on your experience on @gameofthronesnotofficial Instagram page, please indicate how strongly you agree or disagree with the following statements **(7 point Likert Scale from Strongly Disagree to Strongly Agree)**:

Perceived Communication
• The page is effective in gathering users' feedback. (Comm_1) • This page facilitates communication between the people on the page. (Comm_2) • It is difficult to offer feedback on the page. (Comm_3) • The page enables conversation. (Comm_4) • The page does not at all encourage users to respond. (Comm_5) • The page gives me the opportunity to respond. (Comm_6)

Question 7: Based on your experience on @gameofthronesnotofficial Instagram page, please indicate how strongly you agree or disagree with the following statements **(7 point Likert Scale from Strongly Disagree to Strongly Agree)**:

Overall Satisfaction
• I am satisfied with my experience on the page. (Sat_1) • This page is exactly what I need. (Sat_2) • My experience on the page is not working out as well as I thought it would. (Sat_3)

Appendix H- Trimmed Means

Variable	Items	Mean	Lower and upper bound	Statistic	Std. Error	Mean vs trimmed Mean
Human-Website Interactivity Intentions	HW_1	Mean		3.2	0.045	
		95% Confidence Interval for Mean	Lower Bound	3.12		
			Upper Bound	3.29		
		5% Trimmed Mean		3.23		3%
	HW_2	Mean		3.05	0.046	
		95% Confidence Interval for Mean	Lower Bound	2.96		
			Upper Bound	3.14		
		5% Trimmed Mean		3.06		1%
	HW_3	Mean		2.98	0.044	

	95% Confidence Interval for Mean	Lower Bound	2.9		
		Upper Bound	3.07		
	5% Trimmed Mean		2.98		0%
HW_4	Mean		3.13	0.049	
	95% Confidence Interval for Mean	Lower Bound	3.04		
		Upper Bound	3.23		
	5% Trimmed Mean		3.15		2%
HW_5	Mean		3.15	0.049	
	95% Confidence Interval for Mean	Lower Bound	3.06		
		Upper Bound	3.25		
	5% Trimmed Mean		3.17		2%
HW_6	Mean		2.52	0.055	
	95% Confidence Interval for Mean	Lower Bound	2.41		
		Upper Bound	2.63		
	5% Trimmed Mean		2.47		-5%

	HW_7	Mean		3.43	0.046	
		95% Confidence Interval for Mean	Lower Bound	3.34		
			Upper Bound	3.52		
		5% Trimmed Mean		3.48		5%
Human-Website Interactivity Intentions	HH_1	Mean		2.58	0.05	
		95% Confidence Interval for Mean	Lower Bound	2.48		
			Upper Bound	2.67		
		5% Trimmed Mean		2.53		-5%
		Median		3		
	HH_2	Mean		4.26	0.039	
		95% Confidence Interval for Mean	Lower Bound	4.19		
			Upper Bound	4.34		
		5% Trimmed Mean		4.37		11%
	HH_3	Mean		2.06	0.046	
		95% Confidence Interval for Mean	Lower Bound	1.97		

			Upper Bound	2.15		
		5% Trimmed Mean		1.97		-9%
	HH_4	Mean		2.75	0.048	
		95% Confidence Interval for Mean	Lower Bound	2.66		
			Upper Bound	2.84		
		5% Trimmed Mean		2.72		-3%
	HH_5	Mean		2.71	0.047	
		95% Confidence Interval for Mean	Lower Bound	2.62		
			Upper Bound	2.8		
		5% Trimmed Mean		2.68		-3%
	HH_6	Mean		1.55	0.037	
		95% Confidence Interval for Mean	Lower Bound	1.48		
			Upper Bound	1.62		
		5% Trimmed Mean		1.43		-12%
	HH_7	Mean		2.89	0.051	

		95% Confidence Interval for Mean	Lower Bound	2.79		
			Upper Bound	2.99		
		5% Trimmed Mean		2.88		-1%
Sociability	Soc_1	Mean		4.28	0.067	
		95% Confidence Interval for Mean	Lower Bound	4.15		
			Upper Bound	4.41		
		5% Trimmed Mean		4.31		3%
	Soc_2	Mean		5.51	0.058	
		95% Confidence Interval for Mean	Lower Bound	5.39		
			Upper Bound	5.62		
		5% Trimmed Mean		5.61		10%
	Soc_3	Mean		3.99	0.068	
		95% Confidence Interval for Mean	Lower Bound	3.86		
			Upper Bound	4.13		
		5% Trimmed Mean		3.99		0%

	Soc_4	Mean		4.63	0.065	
		95% Confidence Interval for Mean	Lower Bound	4.5		
			Upper Bound	4.76		
		5% Trimmed Mean		4.69		6%
	Soc_5	Mean		5.9	0.053	
		95% Confidence Interval for Mean	Lower Bound	5.8		
			Upper Bound	6.01		
		5% Trimmed Mean		6		10%
Engage ment	Eng_ 1	Mean		4.86	0.062	
		95% Confidence Interval for Mean	Lower Bound	4.74		
			Upper Bound	4.98		
		5% Trimmed Mean		4.91		5%
	Eng_ 2	Mean		4.92	0.067	
		95% Confidence Interval for Mean	Lower Bound	4.79		

		Upper Bound	5.05		
	5% Trimmed Mean		5.01		9%
Eng_3	Mean		4.64	0.062	
	95% Confidence Interval for Mean	Lower Bound	4.52		
		Upper Bound	4.77		
	5% Trimmed Mean		4.7		6%
Eng_4	Mean		4.82	0.061	
	95% Confidence Interval for Mean	Lower Bound	4.7		
		Upper Bound	4.94		
	5% Trimmed Mean		4.87		5%
Eng_5	Mean		4.93	0.059	
	95% Confidence Interval for Mean	Lower Bound	4.81		
		Upper Bound	5.04		
	5% Trimmed Mean		5		7%

	Eng_6	Mean		4.66	0.07	
		95% Confidence Interval for Mean	Lower Bound	4.52		
			Upper Bound	4.79		
		5% Trimmed Mean		4.73		7%
Perceived Communication	Comm_1	Mean		5.04	0.056	
		95% Confidence Interval for Mean	Lower Bound	4.93		
			Upper Bound	5.15		
		5% Trimmed Mean		5.12		8%
	Comm_2	Mean		5.12	0.053	
		95% Confidence Interval for Mean	Lower Bound	5.01		
			Upper Bound	5.22		
		5% Trimmed Mean		5.18		6%
	Comm_3	Mean		5.28	0.056	
		95% Confidence Interval for Mean	Lower Bound	5.17		

			Upper Bound	5.39		
		5% Trimmed Mean		5.35		7%
	Comm_4	Mean		5.37	0.054	
		95% Confidence Interval for Mean	Lower Bound	5.26		
			Upper Bound	5.47		
		5% Trimmed Mean		5.45		8%
	Comm_5	Mean		5.53	0.056	
		95% Confidence Interval for Mean	Lower Bound	5.42		
			Upper Bound	5.64		
		5% Trimmed Mean		5.62		9%
	Comm_6	Mean		5.52	0.051	
		95% Confidence Interval for Mean	Lower Bound	5.42		
			Upper Bound	5.62		
		5% Trimmed Mean		5.6		8%

Perceived Control	Cont_1	Mean		5.34	0.056	
		95% Confidence Interval for Mean	Lower Bound	5.23		
			Upper Bound	5.45		
		5% Trimmed Mean		5.43		9%
	Cont_2	Mean		5.56	0.052	
		95% Confidence Interval for Mean	Lower Bound	5.46		
			Upper Bound	5.67		
		5% Trimmed Mean		5.66		10%
	Cont_3	Mean		5.45	0.055	
		95% Confidence Interval for Mean	Lower Bound	5.34		
			Upper Bound	5.55		
		5% Trimmed Mean		5.52		7%
	Cont_4	Mean		4.96	0.052	
		95% Confidence Interval for Mean	Lower Bound	4.86		

			Upper Bound	5.06		
		5% Trimmed Mean		5		4%
Satisfaction	Sat_1	Mean		6.09	0.041	
		95% Confidence Interval for Mean	Lower Bound	6.01		
			Upper Bound	6.17		
		5% Trimmed Mean		6.19		10%
	Sat_2	Mean		5.66	0.049	
		95% Confidence Interval for Mean	Lower Bound	5.56		
			Upper Bound	5.75		
		5% Trimmed Mean		5.72		6%
	Sat_3	Mean		5.89	0.048	
		95% Confidence Interval for Mean	Lower Bound	5.8		
			Upper Bound	5.99		
		5% Trimmed Mean		5.98		9%

Appendix I- Skewness and Kurtosis

	Skewness		Kurtosis	
Variables	Statistic	Std. Error	Statistic	Std. Error
HW_1	-0.096	0.1	-0.455	0.2
HW_2	0.021	0.1	-0.571	0.2
HW_3	0.56	0.1	-0.449	0.2
HW_4	0.181	0.1	-0.514	0.2
HW_5	0.17	0.1	-0.928	0.2
HW_6	-0.09	0.1	-0.791	0.2
HW_7	-0.082	0.1	-0.682	0.2
HW_8	0.355	0.1	-1.046	0.2
HW_9	-0.253	0.1	-0.572	0.2
HH_2	0.318	0.1	-0.751	0.2
HH_4	0.814	0.1	-0.185	0.2
HH_5	0.15	0.1	-0.668	0.2
HH_6	0.325	0.1	-0.95	0.2
HH_7	0.239	0.1	-0.583	0.2
HH_9	0.055	0.1	-0.865	0.2
HH_10	1.279	0.1	0.87	0.2

Soc_1	-0.346	0.1	-0.438	0.2
Soc_2	-0.741	0.1	-0.318	0.2
Soc_3	-0.153	0.1	-0.565	0.2
Soc_4	-0.512	0.1	-0.318	0.2
Soc_5	-1.003	0.1	-0.015	0.2
Eng_1	-0.45	0.1	-0.291	0.199
Eng_2	-0.634	0.1	-0.301	0.199
Eng_3	-0.403	0.1	-0.269	0.199
Eng_4	-0.308	0.1	-0.588	0.199
Eng_5	-0.559	0.1	0.005	0.199

Appendix J: Informed Consent

Dear awesome follower,

My name is Maryam, and I study in the University of Bath, UK. I would like to ask you to participate in the data collection for my PhD research, which is about online experiences in social media fan-pages. You know, exactly like this Instagram page on which you found the link to this survey.

If you participate in this survey, you will enter a **giveaway** and get a shot at receiving some game of thrones-themed merch, including **t-shirts**, **mugs**, and **action figures**. That, and you will have helped another human being today – and a fellow fan, no less!

The aim of my study is to shed a light upon what makes each fan's online experience a different and unique one. Your **honest** and **accurate** answers to the survey questions will help me get a clearer picture how fans experience their respective social media fan-pages.

Your participation in this study is voluntary, and you can exit the survey at any time by closing the browser. The survey includes 10 questions. Answering the survey will take no more than 15 minutes.

The information you provide is confidential, and will not be used for any other purposes other than what I have already described above. If you choose to provide any personal contact details (e.g. to enter the giveaway) then these will be stored separately from the main data and will only be used to contact the winners. All data will be stored in compliance with the UK Data Protection Act 1996. The questions are not of an overly personal nature and you will not come to any harm or discomfort by participating in this study.
If you have any questions regarding this study, or would like additional information, my email is mhma21@bath.ac.uk. Also, if you're interested, I can send you a summary of the findings once I have completed the study.

Thanks for your help. Have a fabulous day!

Maryam

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