Digital Social Influence: Reframing Social Influence for Online Social Networks

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Abstract

Despite the increasing effects of social influence in Online Social Networks (OSNs), the theories and constructs applied to examine social influence and related attitudinal and behavioral changes in OSNs are outdated. Notably, the existing theoretical foundations of social influence were developed by investigating face-to-face interactions. These constructs do not account for the unique contextual factors of OSNs that facilitate augmented online interactions breaking through spatial barriers. The complex nature of OSNs and the limitations of using the established social influence theoretical foundations to understand digital social influence have led to inconsistent findings in OSN studies. Therefore, the overarching aim of this research was to extend social influence theory to OSNs. This aim was achieved through three objectives: (i) to understand the limitations of established theory in relation to mechanisms of social influence within OSNs, (ii) to identify the aspects of social influence theory that are candidates for refinement, and (iii) to modify and extend social influence theory based on an empirical exploration of OSN social influence practice.

This research was designed under three phases. In the first phase, the core challenges of employing social influence theory in OSN research were identified by conducting critical reviews of Information Systems and Human–Computer Interaction studies. In the second phase, a conceptual framework incorporating boundary conditions of social influence for OSNs was developed. These boundary conditions account for unique contextual factors in OSNs. Further, the consequences of OSNs' social influence were classified and tested using a survey to understand how social influence constructs in OSNs lead to different classes of action. The third and final phase of the research was designed to explore the real-world application of social influence in OSNs by interviewing practitioners. This qualitative study confirmed the necessity of incorporating boundary conditions of social influence in OSN research. Further insights about the relationship between social influence constructs and the consequences of social influence were also gained. The practice-based social influence strategies identified and analyzed during the qualitative study ultimately led to the refinement of salient social influence constructs applied in OSN research.

The findings of this project contribute to both research and practice. For research, salient social influence constructs explicitly and implicitly applied in OSN studies were reviewed and refined for OSNs. The boundary conditions of social influence identified in this research and the classification of the consequences of social influence described herein will allow researchers to modify and extend social influence theoretical applications for OSNs. In terms of practice, the refined social

influence constructs, boundary conditions, and consequences of social influence will help guide the design of social influence campaigns. Overall, this research has systematically explored the challenges of applying established social influence theory to OSNs for the first time. The findings of this research are key to establishing digital social influence as a distinct concept that should be examined by taking the unique contextual factors of OSNs into account.

Publications During Enrolment

Chandrasekara, D., Gao, C., & Olivier, P. (2021). Lessons from the Past: Rethinking the Use of Social Influence in Online Social Networks Research. Twenty-fifth Pacific Asia Conference on Information Systems, Dubai, UAE.

Chandrasekara, D., & Sedera, D. (2019a). # Activism versus Real Activism: Manifestations of Digital Social Influence in Social Networks. International Conference on Information Systems (ICIS), Munich, Germany.

Chandrasekara, D., & Sedera, D. (2019b). Exploring Activities of Social Influence Asserted through Social Networking Sites: A Stage Theory Approach. PACIS.

Chandrasekara, D., & Sedera, D. (2018). Exploring the Boundary Conditions of Social Influence for Social Media Research. Australasian Conference on Information Systems, Sydney, Australia.

Chandrasekara, D., Sedera, D., & Gao, C. (2021). Determining Boundary Conditions of Social Influence for Social Networking Site Research. Australasian Journal of Information Systems, 25.

Thesis including Published Works Declaration

I hereby declare that this thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

This thesis includes three original papers published in peer-reviewed conferences, one paper published in a peer-reviewed journal, and one submitted publication. The core theme of the thesis is Digital Social Influence. The ideas, development and writing up of all the papers in the thesis were the principal responsibility of myself, the student, working within the Department of Human Centred Computing under the supervision of Prof. Patrick Olivier, Dr. Caddie Gao, and Prof. Darshana Sedera.

The inclusion of co-authors reflects the fact that the work came from active collaboration between researchers and acknowledges input into team-based research.

In the case of Paper 1 to Paper 5 in Section B, my contribution to the work involved the following:

Thesis Chapter	Publication Title	Status *(published, in press, accepted or returned for revision, submitted)*	Nature and % of student contribution	Co-author name(s) Nature and % of Co-author's contribution*	Co-author(s), Monash student Y/N*
Paper 1, Section B	Lessons from the Past: Rethinking the Use of Social Influence in Online Social Networks	Published	70% Conceptualization, literary analysis, and writing the manuscript	1) Caddie Gao 20% Verifying the literary analysis, input to manuscript 2) Patrick Olivier 10% Verifying the literary analysis, input into manuscript	No No
Paper 2, Section B	Social Influence and Human-Computer Interaction: Misconceptions, Mismatches and Missed Opportunities	Submitted	70% Conceptualization, literary analysis, and writing the manuscript	1) Ling Wu 20% Verifying the literary analysis, input to manuscript 2) Patrick Olivier 10% Verifying the literary analysis, input into manuscript	No No
Paper 3, Section B	Determining Boundary Conditions of Social Influence for Social Networking Site Research	Published	50% Conceptualization, literary analysis, and writing the manuscript	1) Darshana Sedera 45% Conceptualization, input to manuscript, verifying the literary analysis 2) Caddie Gao 5% Input to manuscript, verifying the literary analysis	No No
Paper 4, Section B	Exploring Activities of	Published	70% Conceptualization,	1) Darshana Sedera 30%	No

	Social Influence Asserted through Social Networking Sites: A Stage Theory Approach		literary analysis, and writing the manuscript	Conceptualization, & input to manuscript	
Paper 5, Section B	#Activism versus Real Activism: Manifestations of Digital Social Influence in Social Networking Sites	Published	50% Developing the survey instrument, Literary analysis, writing the sections: Introduction, literature on social influence and actions, individual actions as a result of social influence, research context, summary of findings, theoretical and practical implications.	1) Darshana Sedera 50% Modified the survey prepared by Dharshani where applicable, data collection, data analysis, developing the conceptual model, writing the research model and analysis sections, revising the drafts written by Dharshani	No

I have not renumbered sections of submitted or published papers in order to generate a consistent presentation within the thesis.

Student name: Dharshani Tharanga Chandrasekara

Student signature: [Redacted]   **Date:** 14/12/2021

I hereby certify that the above declaration correctly reflects the nature and extent of the student's and co-authors' contributions to this work. In instances where I am not the responsible author I have consulted with the responsible author to agree on the respective contributions of the authors.

Main Supervisor name: Prof. Patrick Olivier

Main Supervisor signature: [Redacted]   **Date:** 14/12/2021

Acknowledgements

A Guide to Navigating Through the Thesis

When I started my PhD journey, I was presented with several options for writing the thesis, and one of these options—*thesis including published works* specifically grabbed my attention. During my candidature, I viewed this option as a win-win situation since it would ensure that my work was peer reviewed and allow me to prepare better for life after the PhD degree, that is, obtaining a career in academia.

Now that I am here at the end of my PhD journey, I can only laugh at my naivete. While I have no regrets about choosing the option of thesis including published works, little did I know that collating published works and giving a clear narrative to the readers about how I achieved the aim and objectives of my research would be quite so challenging. After having hours of discussions with my supervisors regarding the best way to present my work and going through multiple examples of theses that included published works (in which the publications were merely collated as thesis chapters), we decided it would be better to write the thesis with an integrated narrative of my research. This thesis structure was also endorsed by the internal PhD review panel of my University. Thus, to enhance clarity around the multiple studies I conducted in my research (which resulted in several publications), I have divided the thesis into two sections.

Section A includes six chapters that will guide the readers through all phases of the research project, from conducting the literature reviews to empirical studies. Chapters 2 and 3, for the most part, echo and summarize the main findings of my publications. Chapters 4 and 5 focus on the design and findings of the main empirical study of my research, binding the conceptual work and the preliminary empirical study to real-world applications of social influence by practitioners in online social networks. Where relevant, I have also drawn information from my publications and the paper under review to show how each paper fits the findings of the empirical study and, thereby, the objectives and the overarching aim of my research.

In Section B, I have attached all published works and the paper under review. I have inserted a figure with a short caption before each paper to show the paper's relationship to the overall project. The papers I have included in Section B are as follows:

Paper 1. "Lessons from the Past: Rethinking the Use of Social Influence in Online Social Networks." [Published at the Pacific Asia Conference on Information Systems (PACIS) in 2021, a venue endorsed by the Faculty of Information Technology, Monash University as high quality.]

Paper 2. "Social Influence and Human–Computer Interaction: Misconceptions, Mismatches and Missed Opportunities." [Currently under review for the journal *Behavior and Information Technology*, a Q1 publishing outlet.]

Paper 3. "Determining Boundary Conditions of Social Influence for Social Networking Site Research." [Published in the *Australasian Journal of Information Systems* (AJIS) in 2021, a Q2 publishing outlet.]

Paper 4. "Exploring Activities of Social Influence Asserted Through Social Networking Sites: A Stage Theory Approach." [Published at PACIS in 2019, a venue endorsed by the Faculty of Information Technology, Monash University as high quality.]

Paper 5. "#Activism Versus Real Activism: Manifestations of Digital Social Influence in Social Networking Sites." [Published at the International Conference on Information Systems (ICIS) in 2019, a venue endorsed by the Faculty of Information Technology, Monash University as high quality.]

I hope this structure helps readers understand how my publications and the paper under review are connected to my research and how they allowed me to reach the research aim and objectives.

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Section A

Chapter 1

Introduction

"There are three sides to every online interaction: Yours, mine, and the view of everyone watching us. Act carefully".

—Mack Collier, n.d., as cited in Davidson (2015)

1.1. Overview

Whether it be the promotion of behaviors related to anorexia nervosa (Turner & Lefevre, 2017) or Cambridge Analytica and the manipulation of democratic processes (Isaak & Hanna, 2018), the power of Online Social Networks (OSNs) as a vehicle of social influence is indisputable. While it is only natural that there is concern about the negative impact of OSNs, these platforms are also used by organizations and individuals to respond to natural disasters (Kitazawa & Hale, 2021), promote women's empowerment (Hossain & Rahman, 2018), and facilitate citizen engagement during times of crisis such as the COVID-19 pandemic (Chen et al., 2020). Indeed, it is now an almost banal observation that OSNs, through their provision of simultaneous access to hundreds of thousands of individuals with diverse opinions, are a vehicle for changing attitudes and behaviors, both positive and negative.

The character of OSNs is radically different from its predecessor social networks, such as the UseNet in the 1980s, which took the form of online discussion forums (McIntyre, 2014). In fact, OSNs can be defined as "internet-based, disentrained, and persistent channels of masspersonal communication facilitating perceptions of interactions among users, deriving value primarily from user-generated content" (Carr & Hayes, 2015, p. 49). In 2021, more than 100 OSN global platforms serving different purposes and target audiences have been identified (Spencer, 2021), and the number of active OSN users[1] is claimed to be as high as 4.20 billion (Hootsuite, 2021)—just over 50% of the global population. Accompanying the rapid adoption of OSNs is the ensuing competition between providers and the relentless drive to innovate and provide new and more engaging user experiences. In fact, the most special feature of OSNs is "user-generated content," through which end-users of OSNs actively take part in creating and disseminating content to wider online social circles (Kaplan & Haenlein, 2010).

Mechanisms of social influence are fundamental to the popularity of OSNs but also their commercial viability. Compared with mass media such as televisions and radios, OSNs can leverage user-generated content, peer-to-peer interactions, and different forms of influence generated

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[1] Hereafter referred to as "users."

among users for their own commercial benefit through advertising (Sinclair, 2016). The new model of advertising introduced by OSNs has, thus, made users their main stream of profit generation. The commercial viability of nearly all OSNs depends upon online advertising, and to this end, OSNs deploy algorithms by which paid-for content is directed toward users, based on their prior activity and online social circles, with the explicit goal of influencing attitudes and behaviors (Alvarado & Waern, 2018). Despite the importance of users' ability to influence attitudinal and behavioral change in each other, there is surprisingly little research in Information Systems (IS) and Human-Computer Interaction (HCI) on the mechanisms of social influence employed in OSNs, particularly how these mechanisms differ from the well-understood processes of social influence in face-to-face interactions.

While most practitioners pay attention to the unique features of OSN platforms when they design advertising campaigns, such contextual factors often go unnoticed in OSN research of social influence. Notably, in the many OSN studies within the fields of IS and HCI, in which social influence theory[2] (developed by examining face-to-face interactions) is employed, there are limited discussions on the challenges of adopting theoretical frameworks developed in one context (face-to-face interactions) to OSNs that can facilitate user communication regardless of geographical and spatial barriers (Chandrasekara et al., 2021).

Most of the social influence constructs widely applied in domains such as IS and HCI were developed prior to the advent of OSNs examining face-to-face interactions. To date, only a limited number of studies have placed adequate emphasis on refining and extending these constructs to align with the requirements and the characteristics of OSNs (Chandrasekara et al., 2021). Because of this lack of attention, the studies that have applied social influence constructs in similar online settings have reported inconsistent findings (Chandrasekara et al., 2021; Wang et al., 2013; Zhou, 2011). Therefore, there is an urgent demand to explore how social influence theory can be better applied to OSNs to examine individual interactions and related effects. Indeed, Wijenayake et al. (2020) highlighted that applying social influence theory without considering the contextual specifications of digital spaces can be challenging and that researchers should account for these unique contextual factors when employing social influence constructs for online settings. Considering the complexity of social influence in digital spaces, particularly OSNs, (identified as digital social influence in this thesis) resulting from augmented individual interactions, reframing established social influence constructs to OSNs is a timely concern.

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[2] "Social influence theory" is used in this research as a holistic term to represent multiple theories and constructs of social influence developed over time.

1.2. Research Aim and Objectives

The overarching aim of my research was to extend social influence theory—originally developed to examine individual interactions in the physical world—to the context of OSNs, with particular reference to the domains of IS and HCI. To achieve this, I had three objectives:

    (i)   To understand the limitations of established theory in relation to mechanisms of social influence within OSNs

Researchers have previously identified several difficulties in applying social influence constructs to different contexts, such as overlaps between constructs (Karahanna et al., 1999) and lack of context specificity (Wijenayake et al., 2020). However, the challenges and limitations of applying social influence constructs to OSNs have not been systematically explored in both IS and HCI. Therefore, my first step was to review the gravity of such challenges and limitations to understand better the context in which they occur. To do this, I reviewed past research that had examined social influence within OSNs and similar digital applications (e.g., virtual communities and online discussion forums) to understand how social influence was defined, applied, and reported in these contexts. Being cognizant of these challenges laid the foundations on which I have constructed my reframing and extension of social influence theory.

    (ii)   To identify the aspects of social influence theory that are candidates for refinement

Since the fundamentals of social influence theory were primarily developed by examining face-to-face interactions, not all social influence constructs are equally applicable to the context of OSNs (Chandrasekara & Sedera, 2019a). Further, social influence constructs are also nuanced. Among the many constructs available, determining the most relevant constructs for any context can be difficult. Therefore, the second objective of my research was to identify the different aspects of social influence theory that should be further refined for the OSN context. Indeed, synthesizing, discerning, and refining the salient social influence constructs applicable for OSNs was planned under multiple steps and was informed by the first objective of this research.

When applying a theory developed in one context to a new one, the original boundaries of the established theory can be changed, and new boundaries to extend that theory to the new context should be formed (Dubin, 1969). Therefore, by following the approaches in theory building and theory development, I identified boundary conditions of social influence that should be accounted for in OSNs. These boundary conditions serve as tools that can be utilized when examining social influence in OSNs—in terms of developing methods to study digital social influence and refining the existing social influence constructs to meet the specifications of OSNs. Another aspect that

has often been forgotten in social influence research is the consequences of social influence. Therefore, when refining social influence constructs for OSNs, it is crucial that we understand the relationships between multiple social influence constructs and the different consequences associated with them.

(iii) To modify and extend social influence theory based on an empirical exploration of OSN social influence practice.

Academic research is often criticized for not adequately representing the realities of practice (Anderson et al., 2001; Van de Ven & Johnson, 2006). Further, studies that examine the research–practice gap emphasize the importance of systematic and rigorous application of practitioners' knowledge for theoretical advancements (Anderson et al., 2001). Even contemporary seminal works of social influence, particularly by Cialdini (2007), have shown the importance of examining social influence mechanisms adopted by practitioners in refining social influence theory. However, in the OSN context, studies that have examined OSN practitioners' strategies in reframing social influence theory for OSNs are limited. Therefore, through this objective, I intended to utilize the tacit knowledge of OSN practitioners to extend social influence theory to OSNs and examine how digital social influence can be developed as a fully-fledged concept in the extension of social influence theory to OSNs.

1.3. Research Approach

My research progressed in three phases. In the first phase, the foundation for my research was laid by the literary analyses I conducted by reviewing IS and HCI research studies related to OSNs and social influence. These critical reviews led me to identify the landscape of social influence theory in OSNs as emphasized by IS and HCI literature, and the challenges and limitations of applying social influence theory to OSNs. The complementary nature of IS and HCI disciplines was particularly valuable to my overarching goal of achieving a broad understanding of the operation of social influence from different perspectives. That is, IS is a discipline that focuses "on the development, implementation and use of systems in various application domains; IS strategy and business outcomes; and group work and decision support" (Taylor et al., 2010, p. 665), whereas HCI focuses on how the design of technology can align with the requirements of people interacting with technical systems (Carey et al., 2004).

In the second phase of my research, I further developed my conceptual framework by considering the contextual factors and the consequences of social influence that should be incorporated into a theory that can account for mechanisms of social influence within OSNs. This framing of digital social influence was achieved through a combination of conceptual research and a preliminary

survey-based empirical study to investigate whether applying numerous social influence constructs in OSNs would lead to different consequences.

In the third and the final phase of my research, I sought to empirically validate and further elucidate the areas for theory refinement that I identified in Phase 2. For this phase, I undertook a qualitative study of OSN practice in the form of an interview study with professional OSN social influence practitioners (e.g., digital marketers, OSN trainers, content creators, and consultants). This approach—developing theory based on understanding social influence strategies adopted by practitioners—is well-established in social psychology (Cialdini, 2007). Conducting the qualitative study was critical not only to confirm the applicability of the conceptual work designed in the previous phases but also to refine further the salient social influence constructs applied to OSNs and to identify other important factors that have not been adequately explored in previous IS and HCI studies. Finally, this phase was also an important step in bridging the research–practice gap, where I utilized practitioners' knowledge to develop digital social influence and extend social influence theory to OSNs.

1.4. Organization of the Thesis

As a *thesis with published works*, I have chosen to present my work in two sections: Sections A and B. Section B comprises the collection of my publications (peer-reviewed and published and, in one case, under review). Section A has two goals. Chapters 2 and 3 are an integrated narrative that tells the story (and, in places, fills the gaps) of Phase 1 ("Limitations of established theory") and Phase 2 ("Proposal for theory refinement"), which are more comprehensively presented in the publications (Section B). Conversely, Chapters 4 and 5 are a complete account of the design, conduct, and analysis of Phase 3 ("Empirical exploration"), my interview study with OSN social influence practitioners.

The main aspects covered in the chapters of Section A are as follows:

Chapter 2. This chapter provides an account of overlapping constructs of social influence, the salient social influence constructs derived after conducting literature reviews in IS and HCI, and the common limitations of applying the established social influence constructs. The chapter ends with recommendations to improve the application of social influence theory to OSN research. The discussion in this chapter mainly summarizes the findings of papers 1 and 2 from Section B.

Chapter 3. The highlights of this chapter are the conceptual development of boundary conditions of social influence for OSNs and the classification of consequences of social influence into symbolic and substantive actions. Boundary conditions are a set of contextual factors that delimit

the range of a theory when applied to a specific context (Whetten, 1989). Given the limited applicability of social influence theory to OSNs in its original form, developing boundary conditions aided in determining the aspects that should be refined when extending social influence theory to OSNs. Past research on digital social influence has also paid limited attention to how numerous social influence constructs lead to different classes of action in OSNs. Therefore, classifying the consequences of social influence should help to scope the salient social influence constructs for OSNs further and identify their relationship with actions exerted through OSNs. This chapter summarizes the findings of papers 3, 4, and 5.

Chapters 4 and 5. These two chapters are related to the main empirical study conducted in the last phase of the research. The fourth chapter highlights the research design of the qualitative empirical study. The fifth chapter is a detailed account of the main findings of the qualitative study. Chapter 5 is also crucial to make sense of how the conceptual developments at the beginning of the research (papers 1 to 5) were further refined to achieve the overarching goal of my research project.

Chapter 6. This chapter discusses the achievement of the research aim and objectives and my research's theoretical and practical contributions. The chapter ends with a discussion on the study's limitations and future work. Table 1.1 (next page) is an overview of the research phases and how the chapters from Section A and the papers in Section B are organized to align with these phases.

Table 1.1. The phases of the research in relation to thesis chapters and publications

Phase	Related chapter(s) from Section A	Papers and objective
Phase 1: Critical reviews in identifying the limitations and challenges associated with applying social influence theory to OSNs	Chapter 2	Paper 1: "Lessons from the Past: Rethinking the Use of Social Influence in Online Social Networks." Paper 2: "Social Influence and Human–Computer Interaction: Misconceptions, Mismatches and Missed Opportunities." [Objective 1]
Phase 2: Conceptual and preliminary empirical works framing social influence on OSNs	Chapter 3	Paper 3: "Determining Boundary Conditions of Social Influence for Social Networking Site Research." Paper 4: "Exploring Activities of Social Influence Asserted through Social Networking Sites: A Stage Theory Approach." Paper 5: "#Activism Versus Real Activism: Manifestations of Digital Social Influence in Social Networking Sites." [Objective 2]
Phase 3: Main empirical study to modify the salient social influence constructs for OSNs by drawing on practitioners' implementation of social influence strategies	Chapters 4, 5, and 6	[Objective 3]

Chapter 2
Social Influence Theoretical Considerations

"The past is important for all the information and wisdom it holds. But you can get lost in it. You've got to learn to keep the knowledge of the past with you as you pursue the present."

—*Kate (2014)*

In this chapter, I lay out the multiple theoretical considerations of social influence that have been developed in the past and the related conundrums of applying these considerations to understand individual interactions in OSNs. The content of this chapter complements two research papers included in this thesis [see Section B, Paper 1 (published: "Lessons from the Past: Rethinking the Use of Social Influence in Online Social Networks") and Paper 2 (under review: "Social Influence and Human-Computer Interaction: Misconceptions, Mismatches and Missed Opportunities")]. The findings of these papers resulted from two critical reviews with a special focus on IS ($n = 83$ papers) and HCI ($n = 90$ papers) research studies. I have summarized the key findings of these two papers in this chapter and discussed how they contributed to shaping my research trajectory and further investigations extending social influence theory to OSNs.

When discussing the theoretical foundations of social influence, it is evident that throughout history, multiple constructs of social influence have been developed over time. However, I only discuss the constructs of social influence that have been extensively applied in the domains of IS and HCI. The constructs discussed in this chapter have been selected logically following the methodology explained in the two papers mentioned above (papers 1 and 2 from Section B). The IS literature sample consisted of studies published until 2019 whereas the HCI literature sample consisted of studies published up to 2020.

Understanding how social influence constructs have evolved becomes crucial for examining the limitations that should be addressed when applying the established social influence constructs to the more recently developed area of OSNs. By revisiting the two research papers, which are critical reviews of IS and HCI literature on social influence, I present the challenges of directly applying the established social influence constructs to OSNs. Examining the limitations and challenges of applying social influence constructs to OSN research is one of the objectives I sought to achieve through this research project. Identifying these challenges contributed to pursue the other objectives of my research, particularly in relation to refining social influence constructs for OSNs, thereby, extending social influence theory, as discussed later in this thesis.

2.1. Overlapping Constructs of Social Influence

When discussing the constructs of social influence that are currently applied to OSNs and other digital spaces, it is noticeable that there is a wide range of constructs that examine similar types and sources of influence. These constructs can be categorized in different ways based on their similarities. In Paper 2, I have categorized social influence constructs into four broad categories: theories and constructs on group pressure, theories and constructs on types and processes of social influence, social influence as a reciprocation between social and psychological factors, and contemporary work on social influence. However, in this chapter, I elaborate on how social influence constructs are categorized based on their main area of focus. Categorizing social influence constructs by identifying the unique attributes of each construct is beneficial since it allows us to determine whether these attributes are still applicable in the context of OSNs. Although the following categories are not mutually exclusive, broadly categorizing constructs based on their similarities enables researchers to understand the complexities in adopting social influence constructs in OSN research.

2.1.1. Constructs with a Focus on the Power of the Influencer

When considering different types of social influence, one of the main aspects researchers have examined is how different qualities of influencers motivate an individual to their attitudes and behavior. Most research that explores social influence in terms of the characteristics of influencers has revealed that the power attributed to an influencer through their social status can determine whether the influencee would accept influence.

By conducting a study on various social influence processes, Kelman (1958) introduced *compliance*, examining how an influencer's power encourages the influencee to change their attitudes and behavior. Kelman (1958) argued that compliance occurs when an individual behaves in a certain way to expect a positive outcome from another person or a group. He further clarified that compliance occurs when an individual behaves in a certain way to avoid a punishment or obtain a reward. Indeed, he emphasized that compliance can be implemented based on the "extent to which the power of the influencing agent is based on means-control" (p. 54). Further, according to Kelman, compliance can happen only if the influencee's behavior or actions are monitored by the influencer. As a result, in the absence of the influencer, the influencee would not be equally motivated enough to engage in the behavior imposed by the influencer.

Another social influence construct that focuses on the power dynamics between the influencer and the influencee is *obedience* (Cialdini & Goldstein, 2004). Discussions on obedience first emerged from the experiments conducted by Stanley Milgram, where he identified that individuals tend to

follow the instructions given by others who appear to be in powerful or authoritative positions (Milgram, 1963). Even though one might expect individuals in contemporary society to resist obeying an authoritative person if the outcome is harmful to another being, recent studies partially replicating the experiments of Milgram showed that obedience works in the same way as it did in the past (Burger, 2009).

Latané (1981) also examined the principles of social influence and introduced a theory of social impact. In his theory, he highlighted several ways people influence each other, which ultimately leads to a "great variety of changes in physiological states and subjective feelings, motives and emotions, cognitions and beliefs, values and behavior" (Latané, 1981, p. 343). Herein, he suggested three main principles of social influence or constructs of social influence, which, when combined, can create an impact that ultimately leads to the change of attitudes or behaviors. One of these constructs, *strength*, refers to the "salience, power, importance, or intensity of a given source to the target … determined by such things as the source's status, age, socio-economic status, and prior relationship with or future power over, the target" (Latané, 1981, p. 344).

When considering all these constructs of social influence: compliance, obedience, and strength, it is evident that they have been established in the context of face-to-face interactions. Given that the fundamental attributes of how social influence occurs (i.e., individuals in powerful positions can still influence others considerably), these constructs are still valid and applicable to the current context. In fact, the focus on obedience and *authority* re-emerged from social influence studies conducted by Cialdini and Goldstein (2004). Cialdini (2007) emphasized authority as a weapon of influence in his studies of social influence and persuasion. Further, Cialdini (2007) proposed that obeying or complying with an authoritative person is an unconscious process. Along these lines, he elaborated on the different qualities of authoritative figures that make individuals adhere to those figures. Considering different contexts where authority is practiced, such as health and religion, it is evident that appearance, possession of luxurious items, and titles connate a person as authoritative, regardless of the person's actual power, and that individuals follow or oblige the seemingly authoritative person (Cialdini, 2007).

So, how do these constructs that focus on the power of the influencer matter in the sphere of OSNs? To answer this question, it is important to acknowledge that all these established constructs were developed prior to the advent of OSNs by examining face-to-face interactions. Even though the fundamental premise of social influence that arises from people with different levels and types of power is still valid in contemporary society, how this power is expressed in OSNs could be

different from that of the physical world. Therefore, the established power-based social influence constructs should be carefully revisited before directly applying them to OSN research.

2.1.2. Constructs with a Focus on Environmental Factors

In addition to the qualities of the influencer, social influence constructs based on environmental factors can also influence individuals to change their attitudes and behaviors. Latané (1981), in his social impact theory, introduced the construct *immediacy*, which highlights the impact of the environment on social influence. I define the environment herein as the proximity between the influencer and the influencee. According to Latané (1981), immediacy is "closeness in space or time and absence of intervening barriers or filters" (p. 344) and it affects whether or not an individual is influenced by another. This concept of proximity between the influencer and the influencee has also evolved into the study of social proximity (i.e., how close an individual is to another based on social ties; (Dewan et al., 2017), especially in the digital context.

There are various reasons why it is important to consider environmental factors that can weaken or strengthen the effects of social influence with respect to OSNs. To understand these factors further, we can consider the characteristics of physical and online environments. In Paper 1, Section B of the thesis, I have outlined prominent aspects that make interactions in OSNs different from face-to-face interactions. One of the most fundamental factors that makes OSNs unique is connecting people beyond time and space barriers (Chandrasekara, et al., 2021). However, when this connection happens, individuals from different countries/communities/cultures bring a piece of their environment to the interaction, which governs the consequences of that interaction. In other words, whether I could be influenced by an individual from a completely different environment depends on whether I can grasp the communication well, which depends on my exposure to different environmental factors. Therefore, the environmental factors an individual is familiar or unfamiliar with will affect the process of digital social influence as well.

2.1.3. Constructs with a Focus on the Relationship Between the Influencer and the Influencee

From immediate family to extended family and from school friends to workplace colleagues, we keep developing relationships with others who shape our attitudes and behaviors in day-to-day life. The impact of such relationships has also been a point of focus in social influence theoretical foundations. *Identification*, introduced by Kelman (1958), indicates that individuals can be influenced to behave in a particular way by their need to start or continue a relationship with another person. *Peer influence* is another construct that has been heavily applied in OSN research (e.g., Kizilcec et al., 2018; Maitland & Chalmers, 2011). As mentioned in Paper 2, Section B, the

work on peer pressure by Brown et al. (1986) was one of the preliminary studies of peer influence. This construct focuses on the attitudinal and behavioral changes in individuals that occur due to the influence of peers such as friends, colleagues, or even relatives (Maitland & Chalmers, 2011).

When discussing the role of relationships affecting the behavior of individuals, social identity theory introduced by Tajfel (1974) also becomes important. *Social identity* has been defined by Tajfel (1974, p. 69) as "that part of an individual's self-concept which derives from his knowledge of his membership of a social group (or groups) together with the emotional significance attached to that membership." Even though the main focus of social identity theory is intergroup behavior, the extensions to this theory, especially those made by Ellemers et al. (1999), are crucial in examining the different components of social identity that affect individual behavior in group settings. Herein, Ellemers et al. (1999, p. 372) introduced an *emotional component*, which they defined as "a sense of emotional involvement with the group-affective commitment." Regardless of the group environment, which is the focus of both these studies, the emotional component is a salient aspect in relationships that affects the decision-making capacity of the individual to change their behavior (Lee & Lim, 2015).

Subjective norm is another common social influence construct adopted in OSN research. According to Ajzen (2002), social influence through subjective norm occurs when the influencer who encourages an individual to change their behavior or attitudes is an important person whose opinions matter to the individual. Subjective norm is an essential construct of social influence in theory of planned behavior introduced by Ajzen (1991). Further, Ajzen (1971) stated that people whom the individual thinks as important (e.g., friends, family, and supervisors at the workplace) may have more or less influence over the individual in different circumstances. Therefore, an influencer who encourages the individual to behave in a certain way in one situation may not be able to enforce the same level of influence in a different situation.

Overall, these numerous social influence constructs focusing on different types of relationships between the influencer and influencee, indicate the necessity of considering the diversity of relationships maintained via OSNs as an important factor that should be accounted for, when examining digital social influence. Some aspects that are worthy of exploration in relation to online relationships include the impact of individuals' decisions to either include or exclude their family, friends, and colleagues in their online social circles, the impact of commencing new relationships with strangers online, and the degree to which different relationships strengthen or weaken social influence generated through OSNs.

2.1.4. Constructs with a Focus on the Evaluation of Circumstances

Another way of categorizing social influence constructs is by focusing on constructs with a focus on the evaluation of circumstances. As mentioned in Paper 2, Section B, *social comparison* is one such theory that focuses on the tendency of individuals to evaluate their abilities and opinions by comparing themselves with others when objective information is unavailable (Festinger, 1954). In his theory, Festinger (1954) also observed that individuals do not compare themselves with those too different from them.

Informational social influence (Deutsch & Gerard, 1955) is another construct that requires a certain degree of evaluation. Deutsch and Gerard (1955, p. 629) defined informational social influence as "an influence to accept information obtained from another as *evidence* about reality." If an individual does not have much knowledge about a certain situation, they will look into others' perceptions about that particular situation before making any decision (Deutsch & Gerard, 1955).

A similar construct to informational social influence is *internalization* (Burnkrant & Cousineau, 1975), introduced by Kelman (1958). Internalization is considered to occur "when an individual accepts influence because the content of the induced behavior—the ideas and actions of which it is composed—is intrinsically rewarding" (Kelman, 1958, p. 53). Thus, the individual who is subject to influence will make a judgment or an evaluation about the message transferred through influence to see how congruent it is with his/her value system before acting on it.

Going back to the components of social identity introduced by Ellemers et al. (1999, p. 372), *evaluative component*, defined as "a positive or negative value connotation attached to … group membership" and *cognitive component*, defined as "a cognitive awareness of one's membership in a social group" can also be identified as constructs with a focus on the evaluation of circumstances. As mentioned in Paper 1, these constructs have been used in the OSN context to examine different types of user behaviors (e.g., Chiu et al., 2015; Pan et al., 2017). *Number*—a construct from the theory of social impact by Latané (1981)—can also be included in this categorization. According to Latané (1981), the number of sources or people conveying a particular message can determine whether an individual is influenced by that message. For example, when an individual is presented with two types of choices by others, they may check how many people support each choice. If there is a high number of people supporting one choice over the other, it is more likely that the individual will make the choice supported by a high number of people. So, it is ultimately up to the individual to analyze the number of people supporting or opposing a certain message and determine whether they should accept the influence or not.

When reflecting on the social influence constructs that have a focus on the evaluation of circumstances in relation to OSNs, it is important to remember that unlike in the past, individuals now can gain easy access to a plethora of information on a given situation via OSNs, which could make the evaluation process much more challenging. This point is particularly salient when adopting already established constructs of social influence to understand how social influence operates in OSNs; it is crucial to closely investigate OSNs and their associated characteristics to examine how the characteristics of OSNs affect the social influence processes occurring online.

Table 2.1. summarizes the four categories and social influence constructs that were discussed in each category in this chapter.

Table 2.1. Categorization of social influence constructs

Category	Social influence constructs
Constructs with a focus on the power of the influencer	Compliance (Kelman, 1958)
	Strength (Latané, 1981)
	Obedience (Milgram, 1963)
	Authority (Cialdini & Goldstein, 2004)
Constructs with a focus on environmental factors	Immediacy (Latané, 1981)
Constructs with a focus on the relationship between the influencer and the influencee	Identification (Kelman, 1958)
	Peer influence (Brown et al., 1986)
	Social identity (emotional component; (Ellemers et al., 1999; Tajfel, 1974)
	Subjective norm (Ajzen, 1991)
Constructs with a focus on the evaluation of circumstances	Social comparison (Festinger, 1954)
	Informational influence (Deutsch & Gerard, 1955)
	Internalization (Kelman, 1958)
	Social identity (evaluative and cognitive components; (Ellemers et al., 1999; Tajfel, 1974)
	Number (Latané, 1981)

In addition to the constructs discussed under the above four categories, constructs like *conformity* and *normative influence* have also been adopted in past studies when examining social influence in OSNs.

Unlike other constructs mentioned in this section, conformity does not focus on the power of the influencer (Festinger, 1954). Instead, conformity is understood in relation to social norms and how individuals tend to follow groups due to group pressure or norms (Vaughan & Hogg, 2005). Whether it be the studies by Asch (1955) on social pressure and conformity or experiments on group conflicts by Sherif (1956), studies have shown that individuals are always influenced to behave in certain ways based on the social norms to which they are exposed. Similarly, *normative social influence* (Deutsch & Gerard, 1955) also focuses on the tendency of individuals to change their attitudes or behaviors simply to conform to others' expectations. However, conformity examines social influence broadly by primarily considering influence at the group level, whereas normative social influence is only one of the processes through which conformity is practiced (Vaughan & Hogg, 2005). Given that these constructs describe social influence processes at a high level, they were not included in the four categories that have been discussed earlier.

2.2. Determining Salient Social Influence Constructs for OSN Research

Previously, I discussed a range of social influence constructs developed to examine attitudinal and behavioral changes in individuals and groups due to the influence of external sources. Since there are many overlapping constructs indicating similar sources of social influence, it was crucial that I identify social influence constructs that are (i) mostly applied in IS and HCI research and (ii) well operationalized through past studies to examine attitudinal and behavioral changes in individuals in online environments.

Regardless of the common limitations and challenges in adopting social influence constructs due to overlaps (discussed in detail in the following subsection), the most applied social influence constructs in the IS literature sample were subjective norm (Ajzen, 1991), compliance, identification, internalization (Kelman, 1958), informational social influence, normative social influence (Deutsch & Gerard, 1955), peer influence (Brown et al., 1986), strength, immediacy, and number (Latané, 1981). One of the biggest challenges in narrowing down the most applied constructs in past studies was the implicit consideration of social influence in some of the selected literature. For instance, Zhou (2011), in examining user participation in online communities, mentioned that compliance, identification, and internalization could be represented by subjective norm, social identity, and group norm. In such circumstances, constructs coming from different social influence theories have to be considered the same (in this case, the social influence

constructs introduced by (Kelman, 1958); subjective norm introduced by (Ajzen, 1991); social identity Ellemers et al. (1999); Tajfel (1974)and group norm introduced by Postmes et al. (1998).

In the selected sample of HCI research studies (n = 90), a different set of social influence constructs were commonly applied. These included influence principles by Cialdini (1987); Cialdini and Goldstein (2004), constructs from social comparison theory by Festinger (1954), social learning by Bandura and Walters (1977), peer influence (Brown et al., 1986), informational social influence, normative social influence (Deutsch & Gerard, 1955), and the persuasive strategies of Fogg (1999).

After carefully investigating different theoretical considerations in the IS and HCI literature, two dominant studies in social influence stood out as applicable for OSNs: (i) social influence theoretical work presented by Kelman (1958) comprising compliance, identification, and internalization and (ii) social impact theory by Latané (1981), comprising strength, immediacy, and number. When revisiting all the social influence constructs discussed in Section 2.2., the social influence constructs introduced by Kelman (1958) and Latané (1981) covered a wide range of factors that should be considered when examining social influence as opposed to other social influence theoretical considerations. For example, if subjective norm (a widely adopted social influence construct in IS) is considered, it only examines social influence coming from people who are important to the influencee (Ajzen, 1971). In fact, subjective norm explores social influence at a broader level without adequately referring to the relationship between the influencer and the influencee. The same applies to normative influence, which is based on the influencees conforming to the expectations and external pressure of the influencers (Deutsch & Gerard, 1955). Indeed, both subjective norm and normative influence cover only the normative aspect of social influence. According to Srite and Karahanna (2006), social norms are inadequate for understanding the complexity of social influence, and additional moderating factors should be incorporated when examining social influence through constructs like subjective norm. Compliance and identification, introduced by Kelman (1958), further distilled social influence and identified two types of influence: (i) influence based on rewards and punishment, often associated with influencers of high social status and power and (ii) influence based on the nature of the relationship that the influencee wants to build or maintain with the influencer. Further, internalization also shows a different aspect of social influence, in which an individual can accept social influence because the information presented by the influencer or the message of influence is compatible with their own beliefs and values (Kelman, 1958). Thus, these three social influence constructs cover multiple aspects of influence that should be identified when investigating how social influence leads to attitudinal and behavioral change (Chandrasekara & Sedera, 2019a).

The constructs of strength, immediacy, and number (Latané, 1981) help to understand different variables that should be considered specifically in online environments when examining social influence. For instance, as discussed in Section 2.2., strength refers to the different characteristics that make an influencer powerful: socioeconomic status, position, and other sources of power. Immediacy indicates how spatial proximity can either strengthen or weaken social influence, whereas number shows how the number of sources of influence can determine whether an influencee will accept the influence. Based on the unique characteristics of OSNs, individuals are exposed to influential sources with different forms of power and from different levels of proximity (e.g., both geographical and digital). Notably, compared with face-to-face interactions, OSN users are also exposed to high numbers of contacts, which would not be possible to achieve in day-to-day lives in the physical world. In fact, strength, immediacy, and number can be utilized in understanding the moderating effects of social influence in the context of OSNs (Paper 4 & 5); (Chandrasekara & Sedera, 2019a, 2019b). Further, the applicability of these constructs to OSNs has also been validated through past research (Chan et al., 2018).

In summary, considering the different social influence constructs presented in Section 2.2., the social influence theoretical foundations developed by Kelman (1958) and Latané (1981) cover a wide range of social influence factors that should be considered when exploring social influence in OSNs in relation to user behavior. Further, as emphasized particularly in papers 4 and 5 of Section B, these constructs have also been adopted as measurement constructs in online studies, contributing further to framing them in the context of OSNs.

2.3. Challenges of Applying the Original Social Influence Constructs to OSNs: Lessons from IS and HCI

In Section 2.1., a number of social influence constructs were discussed under four broad categories. While these categories are not mutually exclusive, a high-level categorization of social influence constructs allows researchers to identify the depth and width of social influence theoretical considerations applied in contemporary research. Numerous constructs under the same category with many subtle similarities and differences could be challenging, especially when determining which construct should be applied in a specific context. However, the challenges of applying social influence theoretical considerations to OSN research do not end there. Notably, in Paper 1 and Paper 2 in Section B, I identified the main challenges of adopting social influence at both the general and construct level for studies focusing on OSNs. Given that the two papers have been incorporated into the thesis in Section B, I will not discuss the identified challenges in this section in detail. However, I will summarize the main challenges that were examined in both IS and HCI domains when applying social influence as a theoretical lens to OSN research.

2.3.1. Challenges that Occur due to Similarities Among Constructs

The availability of multiple constructs with subtle differences can be challenging, particularly when selecting the most appropriate constructs to apply to a given context. For example, it is not uncommon for researchers to identify constructs like informational social influence and normative social influence as similar to internalization and identification (Chandrasekara et al., 2021; Karahanna et al., 1999; Lu et al., 2005). Another example of identifying constructs from different theories as the same is from Cheung et al. (2011). Examining the reasons behind students' Facebook usage, they introduced a research model with social influence constructs. In their justification for including social influence constructs, they mentioned that compliance, identification, and internalization from the work of Kelman (1958) could be represented by subjective norm (Ajzen, 1971), social identity (Tajfel, 1974), and group norm (Postmes et al., 1998), respectively. However, there is no statement in the study that justifies the comparison of different constructs as the same. Specifically, when considering group norm, the earliest consideration of group norm as affecting social influence can be traced back to a study by Postmes et al. (1998) in which group norms were identified as a "boundary" that sets a limit in determining what behavior is acceptable in the society or social group. Later, group norms were adopted by several studies (e.g., Bagozzi & Dholakia, 2002; Dholakia et al., 2004; Zhou, 2011) as a social influence construct. When examining such complicated applications of social influence constructs, lack of adequate justification for treating different social influence constructs as the same can be problematic. According to Hekler et al. (2013), borrowing constructs from different theoretical origins without adequate justification can challenge the usefulness of conceptual frameworks and also affect the validity of the research.

2.3.2. Confusion of Social Influence with Other Concepts

The analysis of HCI literature has also shown that social influence is often confused with other concepts such as *persuasion* and *homophily*. In Paper 2 I have shown the differences among these concepts and why clearly defining these concepts is important for studies to establish valid findings. Indeed, social influence is broad compared to persuasion since persuasion occurs only when an agent uses conscious decisions and strategies to change the behavior of another person (Fogg, 1998), whereas social influence can also occur without the agent necessarily having the intention to change a person's behavior. In other words, persuasion is only one aspect of social influence.

Even where homophily is concerned, it occurs when individuals or groups connect or interact with one another due to the similarities of their mindsets or other factors (McPherson et al., 2001). Like persuasion, homophily also addresses a part of social influence since it focuses only on the

similarities among individuals. However, the literature analysis, particularly in HCI, has shown that some studies tend not to differentiate between homophily and social influence adequately (e.g., (Kandappu et al., 2017; Sacharidis, 2019). Even though these concepts may seem similar, acknowledging the subtle differences is important if we are to reframe social influence for OSNs clearly.

2.3.3. The Use of Social Influence at Face Value Without Adequate Grounding in Theory

There is also a tendency to examine social influence in digital spaces without adequately grounding the research work in theory. For example, in the HCI literature analysis, a number of studies that had a specific focus on examining different types of social influence did not use any theoretical backing to examine social influence (e.g., Aharony et al., 2011; Gui et al., 2017; Moser et al., 2019). Why is theoretical grounding necessary in OSN research? As mentioned by Rogers (2012), if a theory is successfully integrated into a study, it can support the study in numerous ways: providing useful findings, developing tools to frame user behavior better, and guiding and evaluating research or artifact design. Although theories may not apply to each type of research, incorporating theories can guide researchers and practitioners to identify the gaps they need to fill through their work and provide a map to achieve their goals. Particularly, when defining specific concepts in research, examining theoretical foundations related to the concept are important to frame the research better. Therefore, not paying attention to the theoretical developments of social influence becomes a missed opportunity for researchers to improve their work and validate their study findings.

2.3.4. Ignoring the Medium of Communication in Relation to Social Influence

Even though the fundamental premises of how social influence operates in the society (how individuals from various backgrounds affect each other to a different degree) could be similar across different contexts, there are some differences in the modern technocentric society that need to be considered when exploring social influence, particularly in OSNs. If we consider the adoption of social influence constructs in the field of IS, most of the constructs applied in OSN research have been selected from prior work in IS on technology adoption and acceptance (Chandrasekara et al., 2021). Many researchers justify their choice of social influence constructs for studies on digital spaces by citing the work of Venkatesh et al. (2003) on technology adoption. Based on evidence from past research, applying the same constructs that have been used to understand individual behavior prior to the advent of OSNs has not been successful (Chandrasekara, Gao, et al., 2021). For example, subjective norm, a common construct adopted in IS research, has been criticized for its inadequacy in explaining social influence (Eckhardt et al., 2009; Schepers & Wetzels, 2007). Even in HCI, studies have reiterated the necessity of considering the attributes of digital systems to clearly articulate the operation of individual interactions in digital spheres (Farzan

et al., 2011; Sylvan, 2010). Therefore, if a study puts less emphasis on the medium of communication through which social influence is delivered, we may fail to grasp the holistic idea of how social influence affects an individual to change his/her attitudes and behavior in a specific context.

2.3.5. Not Examining Social Influence in Relation to its Consequences

When social influence was examined in the past (focusing on face-to-face interactions), the studies were mainly carried out in the form of experiments by controlling different variables, mostly in laboratory-based environments (e.g., experiments by Asch and Guetzkow, 1951; Latané, 1981; Milgram, 1974). However, where OSNs are concerned, the number of interactions and the number of messages received by individuals have multiplied compared to face-to-face interactions. Based on these multiple interactions, individuals may behave in different ways, from engaging in actions that involve little effort (symbolic actions) such as liking and commenting on a post, to actions carried out with time, money, or labor commitments, with the expectation of achieving a specific goal (substantive actions; Paper 4 and Paper 5, Section B). In other words, in the context of OSNs, due to augmented and diverse online interactions, there can be multiple consequences to digital social influence. However, from the literature reviews conducted on IS and HCI studies, I found little evidence of studies that have observed how different constructs of social influence can lead to different consequences in the sphere of OSNs (Paper 4 and 5). Therefore, not paying attention to the consequences of social influence in OSNs can be considered a limitation that needs to be addressed in OSN research.

2.4. Proposed Recommendations to Better Apply Social Influence Constructs to OSNs

In Paper 1 and Paper 2 (Section B), I also proposed a set of recommendations that could be adopted to minimize the negative effects occurring in research due to the existing challenges and limitations of social influence theory. These proposed recommendations are useful particularly when reframing and extending social influence theory to OSNs. Since this discussion is only an overview of papers 1 and 2, I have summarized the main recommendations below.

2.4.1. Tracing the Constructs Back to Their Origin and Distilling the Constructs by Identifying Their Unique Characteristics

Although there are clear overlaps in social influence constructs that are unavoidable, identifying constructs originating from two different theories as similar in a particular research context can affect the study's validity. For instance, even when subjective norm has been identified as inadequate for explaining social influence (Eckhardt et al., 2009; Schepers & Wetzels, 2007), it is still equated with compliance and is applied across a high number of OSN research papers (e.g.,

Cheung et al., 2011; de Oliveira et al., 2016; Shen et al., 2013). However, the definition of compliance, as mentioned in the seminal work of Kelman (1958), entails reward and punishment-based social influence, whereas Ajzen (1991, p. 188) described subjective norm in relation to "perceived social pressure" that comes from important others in an individual's life.

Therefore, by revisiting the seminal work in which social influence constructs were originally introduced, researchers will understand better the similarities and differences among the existing constructs. Doing so would also help researchers ensure that they are defining and operationalizing the constructs accurately for their studies.

Tracing social influence constructs back to their origin (by referring to seminal works) also helps identify each construct's unique attributes. By identifying these attributes, the researchers can distill the constructs, which, in turn, can help determine whether they are applicable for OSNs as they are or whether further modifications are required. For example, the physical presence of the influencer is an important attribute for compliance (Kelman, 1958). Therefore, in OSNs, where influencers are not physically present, researchers can examine whether compliance-based social influence strategies can make the same impact as face-to-face interactions. The importance of distilling constructs is also acknowledged in fields other than social influence. Tractinsky (2018), when discussing the benefits of distilling broader constructs, claimed that distilling helps to scope the applicability of constructs into specific contexts.

2.4.2. Considering the Context and the Medium of Communication

Applying a theory developed in one context to a new one comes with its own challenges. Researchers suggest incorporating boundary conditions to overcome the contextual limitations of applying an existing theory to a new context (Busse et al., 2017; Dubin, 1969; Whetten, 1989). When a theory is initially developed, boundary conditions set the theory's parameters to show the contexts to which the theory is applicable (Bacharach, 1989). However, when applying the same theory to a new context, those existing conditions can be challenged, and new boundary conditions should be developed to amend the theory by incorporating the characteristics of the new empirical context (Busse et al., 2017).

Therefore, to frame an existing theory to the new context better, the researchers should first examine the characteristics and features of the new context (in this case, OSNs) and how they differ from the context in which the social influence theory was developed (i.e., face-to-face interactions). Then, those characteristics can be utilized to establish boundary conditions of social influence for OSNs (a detailed discussion on boundary conditions is given in Chapter 3, and in Paper 3).

2.4.3. Examining the Consequences of Social Influence

The social influence constructs that have been discussed this far are primarily defined based on the characteristics of the influencer, the environment in which social influence occurs (e.g., strength, and immediacy in social impact theory of Latané (1981)) or by looking at the type or process of social influence to which an influencee is exposed (e.g., the three processes of social influence introduced by Kelman,1958). In the context in which these constructs were developed (i.e., face-to-face interactions), it was easy to determine the relationship between the source of the influence (influencer) and the target (influencee). This context also made it possible to speculate on the range of actions an influencee would take after being exposed to social influence (i.e., either to commit to the required behavior or to change their attitude). However, OSNs do not operate in the same way as face-to-face interactions. For instance, in 2018, an average Instagram user in Australia had 241 connections (Hughes, 2020). Further, an increasing body of research explores the multiple roles played by OSN influencers in encouraging different types of behaviors among target audiences (Enke & Borchers, 2019). The features of various OSNs (e.g., liking, commenting, sharing) also enable OSN users to respond to social influence in OSNs differently. Overall, the augmented interactions between OSN users and influencers have changed the dynamics of social influence. Therefore, the distinct ways that OSN users exposed to social influence respond to it (i.e., the consequences of social influence) should also be considered when extending social influence theory to OSNs.

2.4.4. Considering Social Influence as a Symbiotic Process

An overall observation of the existing social influence constructs is that social influence has primarily been examined in relation to the unbalanced power dynamics between the influencer and the influencee. For example, if compliance (Kelman, 1958), strength (Latané, 1981), or subjective norm (Ajzen, 1991) are considered, they highlight how the different types of influencer power and social pressure can change the attitudes and behaviors of the influencees. Further, for constructs like compliance to be effective, Kelman (1958) claimed that the influencer should be physically present. OSNs allow users to connect with others who are geographically scattered, so such constructs may not have the same effect in OSNs. Further, OSNs are also characterized by two-way communication, which allows the influencees to respond to the influencer. Therefore, researchers are gradually considering how the comments of the target audience in OSNs can change the direction of influence campaigns (Rim & Song, 2016). In other words, researchers must consider how influencees can, in turn, affect the success or the failure of the application of social influence strategies in OSNs since they have the power and the capacity to respond to social influence openly.

2.5. Chapter Summary

The conceptual developments reported in this chapter were completed by critically reviewing a representative sample of 173 research papers (83 IS research papers and 90 HCI research papers). When I first decided to examine how social influence operates in OSNs, I was unaware of the many challenges and limitations present in the theoretical considerations of social influence. Neither did I know that critically reviewing literature in IS and HCI would shape the trajectory of my research. The findings of the critical reviews helped me to scope my research in many ways. First, I was able to explore the multiple and overlapping constructs of social influence that have been continuously adopted in IS and HCI research when examining how individuals influence one another, particularly in digital spaces. Categorizing the constructs into four groups showed these existing overlaps and the breadth of social influence as a theory. By reviewing the IS and HCI literature iteratively, I scoped these constructs further to identify the salient social influence constructs for OSNs. Next, compliance, identification, and internalization from the work of Kelman (1958) and strength, immediacy, and number from the work of Latané (1981) were identified as the most appropriate constructs for the context of OSNs.

Even after scoping the most applicable social influence constructs for OSNs based on past studies, applying them directly to examine online interactions was identified as challenging. Given that one of the objectives of this research was to identify the limitations of established social influence theory in OSNs, understanding the challenges of applying social influence theory to OSNs was key to uncovering the optimal means of investigating digital social influence. Once these challenges were properly unpicked, I realized that overlaps among social influence constructs were not the only challenge I would face in my attempt to refine social influence constructs for OSNs. I would also have to properly examine the contextual dynamics and pay attention to how numerous social influence constructs would lead to different consequences.

These challenges led me to develop recommendations (informed by past research and presented in Paper 1 and Paper 2 of Section B) to reframe social influence theory to OSNs. These recommendations were also briefly summarized in this chapter to guide the readers through my understanding of ways of advancing social influence theory for OSNs. Even though examining the validity of all the recommendations conceptually developed in papers 1 and 2 was beyond the scope of my research, the second and third phases of my research were informed by some of these recommendations. Specifically, in the next chapter, the work I present results from putting these recommendations to practice and examining how incorporating contextual factors to refine social influence theory and investigating the consequences of social influence can facilitate the extension of social influence theory to OSNs.

Chapter 3
Conceptual and Empirical Preliminaries

"We do not learn from experience … We learn from reflecting on experience."

−John Dewey, 1933, as cited in Pivoriunaite, 2019

In this chapter, I will revisit the main findings of Phase 2 to describe how the conceptual developments of boundary conditions of social influence and my findings of the preliminary empirical study addressed the second research objective (to identify the aspects of social influence theory that are candidates for refinement). Phase 2 built on my critical reviews of IS and HCI research (Paper 1 "Lessons from the Past: Rethinking the Use of Social Influence in Online Social Networks" and Paper 2 "Social Influence and Human-Computer Interaction: Misconceptions, Mismatches and Missed Opportunities") which examined the limitations of established social influence theory and the challenges associated with directly applying social influence constructs to OSNs. This laid the foundations for the conceptual work required to extend social influence theory to OSNs, particularly, the identification of boundary conditions (Paper 3 "Determining Boundary Conditions of Social Influence for Social Networking Site Research"). In addition, this phase included a preliminary empirical study to examine an important but missing element, the relationship between salient social influence constructs and consequences of social influence as realized through OSNs (Paper 4 "Exploring Activities of Social Influence Asserted through Social Networking Sites: A Stage Theory Approach" and Paper 5 "#Activism versus Real Activism: Manifestations of Digital Social Influence in Social Networking Sites"). The conceptual and empirical work conducted in Phase 1 and Phase 2, except for Paper 2, have been published in peer-reviewed venues.

3.1. Boundary Conditions, OSNs, and Social Influence Theory Extension

Before determining the role of boundary conditions in extending social influence theory to OSNs, it is important to explore their role in theory development and extension. Boundary conditions can be identified as "who, where, when" conditions that "constitute the range of the theory" (Whetten, 1989, p. 492). The importance of boundary conditions in theory development and extension was first emphasized by Dubin (1969, p. 127), who stated that "a theoretical model is said to be *bounded* when the limiting values of the units comprising the model are known." However, when a theory developed in one context is applied in another, there may be unknown factors in the new context that might challenge the set boundaries of the existing theory (Chandrasekara et al., 2021). In such cases, the new, unknown factors must be revisited and

reviewed to examine how they would affect the application of the original theory in the new context. If there is evidence that new factors significantly impact on the applicability of the original theory, then these factors should be developed as boundary conditions – the locus for theory development and extension. To identify boundary conditions as moderators alone is to misrepresent them (Busse et al., 2017). Instead, when developing new boundary conditions we must "consider three tools: a) refining constructs, b) amending mediators, and c) amending moderators" (Busse et al., 2017, p. 44). Boundary conditions are also important to bridging the research–practice gap (Busse et al., 2017; Dubin, 1969; Whetten, 1989) a fact that is key to my methodology in the qualitative study (see Chapter 4 and Chapter 5).

Particularly, since the aim of my research is to extend social influence theory to OSNs, I decided to explore whether new boundary conditions should be considered when applying existing social influence constructs to OSNs. A critical review of IS literature was identified as the appropriate starting point to examine the existing boundary conditions and determine new boundary conditions of social influence for OSNs. For this purpose, a literature review of a representative sample of 65 social influence studies was conducted. The selected studies explored social influence in different contexts (e.g., face-to-face interactions versus online interactions). All selected studies were reviewed through several iterations and were documented in a literature synthesis matrix to identify commonly adopted social influence constructs, inconsistencies in applying different constructs, and overlaps in the application of constructs (Chandrasekara et al., 2021).

3.1.1. Identifying Boundary Conditions

As highlighted in Chapter 2, and papers 1 to 3 of Section B, applying social influence constructs to OSNs is not only complicated by the overlaps among the established social influence constructs, but by the context in which social influence takes place (e.g., face-to-face versus OSNs). OSNs as a medium facilitate hyper-connectivity among users irrespective of culture and geography. Yet, as my reviews of the HCI and IS literature demonstrated, the constructs of social influence theory developed by examining face-to-face interactions are uncritically applied to OSNs. Furthermore, the contextual factors and effects of social influence have not been thoroughly examined (Wijenayake et al., 2020). This has led to inconsistent findings in OSN-based social influence studies (Chandrasekara et al., 2021; Zhou, 2011).

The limitations of existing theory (Paper 1 to Paper 3 of Section B) necessitates the development new boundary conditions of social influence for interactions exerted through OSNs. Incorporating boundary conditions into an existing theory does not mean that boundary conditions are "an amendment to theory" but should be considered an "integral part of the theorizing process" (Busse

et al., 2017, p. 38). Inspired by Busse et al. (2017), I reviewed the literature through several iterations to identify recurring patterns in the application of social influence theory to OSNs, and in particular, identified studies that were conspicuous either because of inconsistencies in their findings or because they identified important contextual factors that contribute to understanding social influence in OSNs (Chandrasekara et al., 2021). These identified factors were reviewed closely in their original context to examine their relevance in digital social influence. This final set of contextual factors which were recognized as prominent factors in shaping digital social influence were then identified as boundary conditions of social influence for OSNs. A small number of examples of these factors, in addition to those used in Paper 3, were identified after the paper's publication and these are included in the discussion that follows.

3.1.2. Choice

The ability of users in OSNs and other digital spaces to make voluntary decisions because they are not under the surveillance of others around them (as in face-to-face interactions) was identified as an important factor that differentiates social influence in OSNs from face-to-face interactions (e.g., Venkatesh and Davis, 2000; Zhou, 2011). Thus, *choice* was identified as one of the boundary conditions of social influence for OSNs.[3] The panels in Figure 3.1 depict three examples of the many ways that OSN users can either exclude or include their day-to-day contacts from their online social circles.
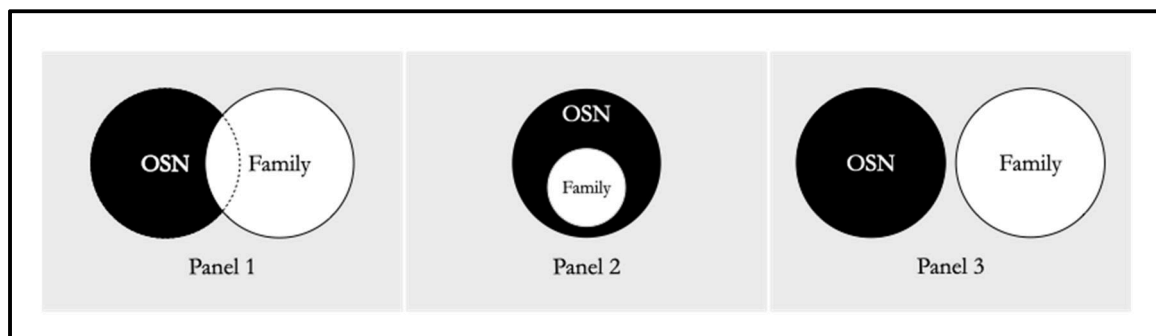
Figure 3.1. An example of the diverse manifestations of choice condition in OSNs, adapted from Chandrasekara et al., 2021; Paper 3, Section B. Panel 1 shows the partial inclusion of family members in a user's online social circle, Panel 2, the inclusion of all family members whereas Panel 3 shows user's choice to not include any family members at all.

A user's choice to include or exclude individuals from their online social circle impacts upon the way they are subject to digital social influence. For instance, Alpert et al. (2020) conducted a study on young adults' perceptions of e-cigarettes and identified that if young adults include friends and followers who idealize e-cigarettes in their online social circles, they tend to accept e-cigarette use

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[3] For further explanations on boundary conditions, see paper 3 in section B.

as a normal activity. They propose that this acceptance happens through the social influence process of identification (Kelman, 1958) through OSNs. Therefore, choices about whom users include in their online social circles can normalize their attitudes to different behavior. Their "choice" in such situations shapes the way they become subject to social influence (e.g., identification, as mentioned in the previous study) and also the consequences of being exposed to a specific type of social influence (e.g., acceptance of e-cigarette use). Thus, by considering "choice" as a boundary condition of social influence in OSNs we can better identify the most applicable constructs (e.g., compliance versus identification).

3.1.3. Space & Proximity

The second boundary condition that I conceptualized through the literary analysis was *space and proximity*. Latané (1981), in his theory of social impact, introduced the construct "immediacy" to discuss how spatial proximity between the source (influencer) and the target (influencee) strengthens social influence. The experiments conducted by Latané (Latané, 1981; Latané et al., 1995) on the relationship between spatial proximity and social influence took place prior to the advancement of technology at its present scale, and even then he explicitly indicated that "social space" that should be considered in social influence may be affected by technology. Perez-Vega et al. (2016) introduced three types of immediacy to show how it can be extended to match the new context of OSNs: physical immediacy, temporal immediacy, and social immediacy. "Proximity" has also identified in many studies as an important determinant of social influence, and that in the context of OSNs, even if users are unknown to each other, their geographical proximity can strengthen the susceptibility to social influence (Meyners et al., 2017). However, as Perez-Vega et al. (2016) describe, in the context of OSNs, proximity is not limited to geographical proximity. Li et al. (2019) show that even perceived proximity in OSNs marked by the subjective feeling of an individual "feeling closer to another" can affect their decision to make donations in crowdfunding platforms. Thus, the *space and proximity* boundary condition draws attention to the need to consider different types of proximity when applying social influence constructs to OSNs. Considering the ways in which individuals can feel connected to one another (in addition to spatial proximity) contributes to our holistic understanding of the operation of social influence in OSNs.

3.1.4. Locus of Influence

As I describe in Paper 3, locus of influence addresses the fact the there are "multiple realms of networks, not just one layer of social network around an individual". The different types of influencers people are exposed to is yet another factor identified in seminal works on social influence that has not been adequately accounted for in OSN research. For instance, if social influence takes the form of compliance (Kelman, 1958), it will arise from an influencer who has

the capacity to guide others' behaviors based on rewards and punishments. There are also other forms of social influence, such as peer influence (Brown et al., 1986) and identification (Kelman, 1958), which arise from different types of relationships between individuals. In OSNs, a user is exposed to many types of influencers who are simultaneously attempting to shape and change their attitudes and behaviors. Figure 3.2 illustrates how individuals are affected by "multiple realms of networks" around them in OSNs.
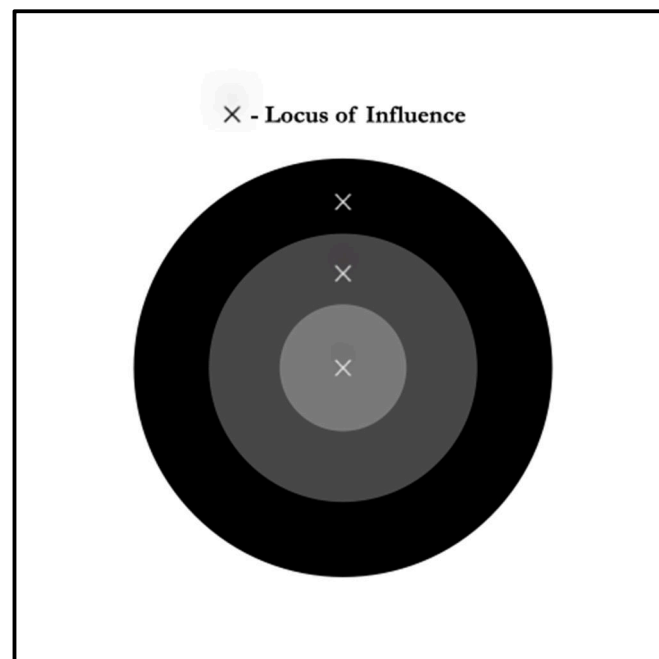
Figure 3.2. The locus of influence, adapted from Chandrasekara et al. (2021), Paper 3 shows the different layers of influencers in a user's online social circle.

The recruitment of different types of influencers (e.g., micro-, macro-, and mega-influencers[4]) for digital marketing campaigns (Voorveld, 2019) highlights the necessity of considering social influence in OSNs arising from individuals or groups with different qualities. In particular, OSNs provide a platform for individuals whose voices are often suppressed in the mainstream media, making it a site for activism and support good causes (Liao, 2019). Unlike face-to-face interactions and mainstream media, OSN users have access to a wide range of influential individuals and groups who can shape their attitudes and behaviors. Thus, locus of influence highlights the importance of specifying and elaborating the types of influencers and their characteristics in OSN research to help refine social influence constructs.

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[4] Micro-influencers: 10,000 to 100,000 followers, macro-influencers: 100,000 to one million followers, and mega-influencers: over one million followers. Classification provided by: Park, J., Lee, J. M., Xiong, V. Y., Septianto, F., & Seo, Y. (2021). David and Goliath: When and Why Micro-Influencers Are More Persuasive Than Mega-Influencers. *Journal of advertising*, 1-19.

3.1.5. Number of People and Number of Times

The *number of people and number of times,* refers to how the augmented number of interactions in OSNs has changed the operation of social influence in OSNs. Unlike face-to-face interaction, the advanced features of OSNs allow people to connect to hundreds of thousands of other people and communicate with them through the sharing a single post. Viral marketing is a good example of how the number of views and engagements with an online post can be manipulated to strengthen social influence through campaigns (Ivanov et al., 2017). Exposure to many people conveying the same message has long been considered important when determining the strength of social influence. Latané (1981), particularly through his social impact theory, identified "number of sources" as an important social influence construct. Thus, when examining social influence in OSNs, *number* has multiple meanings. In social gaming platforms, the social influence that leads to purchasing behavior is highly correlated with the *number* of different types of friends a player has (Fang et al., 2019). In social commerce, the *number* of referrals (in terms of likes and tweets) from consumers is strong predictor of the sales of a product or service (Kim & Kim, 2018). Thus, the concept of number in OSNs, whether of people or times, is highly dependent on the context.

3.1.6. Diversity and Variety

The diversity and variety boundary condition highlights the necessity of careful consideration of different types and processes of social influence (established through social influence constructs) in relation to OSNs. As described in Chapter 2, identifying the most appropriate constructs in the context of OSNs requires a broad understanding of the existing theory and specific characteristics of OSNs. OSNs facilitate the amalgamation of diverse social groups, individuals, and organizations in one space (as highlighted in boundary condition 3: locus of influence). Moreover, the OSN algorithms that customize content based on user profiles leverage multiple dimensions of user behavior, including previous likes, comments, shares, and also likes and dislikes (Anspach, 2017).

As my literature review of HCI (Paper 2) identified, 39 of the 90 studies did not employ any social influence theory when examining social influence in digital spaces. This lack of substantive use of theory, particularly in the OSN context, limits the understanding of complex relationships at play. Indeed, even within HCI, the application of carefully selected theory to studies has been identified as beneficial (Rogers, 2004). Data-driven approaches alone are not sufficient, and the incorporation the "diversity and variety" boundary condition to an OSN-based social influence study enables us to consider the diverse contextual factors of OSNs and different types of social influence (manifested through multiple social influence constructs).

3.2. Exploring the Consequences of Social Influence in OSN Interactions

The investigation of different responses to social influence was inspired by the work of Weinstein et al. (1998) on stage theories of health behavior (See Paper 4). According to Weinstein et al. (1998), when multiple variables determine a specific outcome, it can be difficult to decide which variable exactly leads to the achievement of that outcome. Similarly, since there are multiple ways an individual can be influenced to behave in a specific manner (i.e., the presence of many social influence constructs), how do we determine which constructs would lead to different behaviors? This question is mainly applicable to the context of OSNs. Especially in fields like digital marketing, where the marketers are seeking a particular behavior from OSN users, there is a need to employ specific, evidence-based social influence strategies targeting that behavior. Yet, in OSN research, social influence constructs have rarely been explored in relation to their consequences.

3.2.1. Classifying Individual Responses to Social Influence

In Paper 4 (Chandrasekara & Sedera, 2019b), based on a sample of 65 IS studies (the same sample selected for deriving the boundary conditions of social influence in Paper 3), I developed a classification of four types of response: attitude, attitude toward action, symbolic action, and substantive action, (see Table 3.1). Most studies referred to at least one of the four responses to social influence (although 13 studies did not refer to any). While *attitude* and *attitude toward action*, also identified as "intention to act," are commonly discussed in the social influence literature (e.g., Bagozzi and Dholakia, 2002; Kelman, 1958; Shen et al., 2011), symbolic and substantive actions, conceptualized through the categorization of social influence responses, are more relevant to the context of OSNs. Symbolic and substantive actions are terms originally adopted from organizational studies literature (DiMaggio & Powell, 1983; Meyer & Rowan, 1977) to distinguish between the range of actions taken at the organizational level. The term symbolic action was adopted by researchers of digital activism to refer to low-risk and low-cost actions taken by OSN users (Penney, 2015). The distinction between "symbolic" and "substantive" actions reflects the difference between the wide actions individuals can perform through OSNs, from less time consuming, less risky, and effortless actions (e.g., liking, commenting, sharing), to actions that involve considerable effort, risk, and time (e.g., attending a protest or purchasing a product). However, it is important note that an action that appears symbolic in one context may be substantive in another context. For instance, a gesture generally considered *symbolic*, such as commenting, may become a *substantive* action for a citizen who publicly criticizes an authoritative government regime in an OSN. Therefore, the characteristics outlined in Table 3.1 should be considered when determining whether a specific action exerted through an OSN is symbolic or substantive.

Table 3.1. Classification of responses to social influence (Adapted from Paper 4; Chandrasekara & Sedera, 2019b)

	Attitude	Attitude toward Action	Symbolic Action	Substantive Action
Definition	"A cognitive representation that summarizes an individual's evaluation of a particular person, group, thing, action or idea" (Smith & Mackie, 2007, p. 229).	Formation of an attitude that could possibly guide an individual to form a particular behavior through intention (Smith & Mackie, 2007).	An action that expresses, signals, or symbolizes what the individual feels, wants, or believes (Burke, 1966).	A substantive action is an activity that involves some risks, allocation of time, maintenance of a vision to reach an objective, and active engagement with the cause throughout the process of achieving that objective (Cabrera et al., 2017).
Characteristics	• An attitude is formed in response to a particular situation (LaPiere, 1934). • Attitudes prepare individuals to behave in a particular manner (LaPiere, 1934). • Forming a particular attitude does not mean an individual would always behave congruently to the attitude formed (Smith & Mackie, 2007).	• Attitude toward action is the stepping-stone between formed attitude and the expected behavior, which can be identified as "intention to act" when a decision is taken thoughtfully (Smith & Mackie, 2007). • This consists of two aspects, namely, attitude and societal pressure, which affect the intention of the individual to engage in a particular behavior (Madden et al., 1992).	• The action is committed ceremonially without actual implementation (Meyer & Rowan, 1977). • The action only "appears" to adhere to the society (Richardson, 1985). • The action does not take much effort as only the "appearance" matters; therefore, less risk is involved (Ashforth & Mael, 1989).	• The action involves an actual change and active engagement to support a particular societal belief (Ashforth & Gibbs, 1990). • A real change occurs due to the action to adhere with the society (Richardson, 1985). • The action should be implemented after proper planning to produce a good outcome, and it involves risks (Berrone et al., 2009).

3.2.2. Empirical Investigation of Symbolic and Substantive Actions in relation to Social Influence Constructs

After the conceptual framing of symbolic and substantive action as consequences of digital social influence, the next step is to examine the relationship between the salient social influence constructs for OSNs and symbolic versus substantive actions. As identified in Chapter 2, a proposed recommendation to better apply social influence theory to OSNs is to consider the range of actions users may take based on social influence mechanisms they get exposed to via OSNs (Chandrasekara et al., 2021; Chandrasekara 2019a). Therefore, I designed a two survey instruments[5] to explore how social influence exerted through OSNs gives rise "symbolic" and "substantive" actions by 311 volunteers at an Australian hospital (see Paper 5 for details).

The constructs selected were informed by past studies that examined social influence and related consequences in OSNs and my expectation was that compliance, identification, and internalization (Kelman, 1958), would operate differently for symbolic and substantive actions. Further, I expected that social influence constructs, strength, immediacy, and number (Latané, 1981), would moderate the relationship between formative social influence and symbolic versus substantive actions (Chandrasekara & Sedera, 2019a). Figure 3.3. and Figure 3.4. below illustrate the conceptual models developed in the preliminary empirical study.
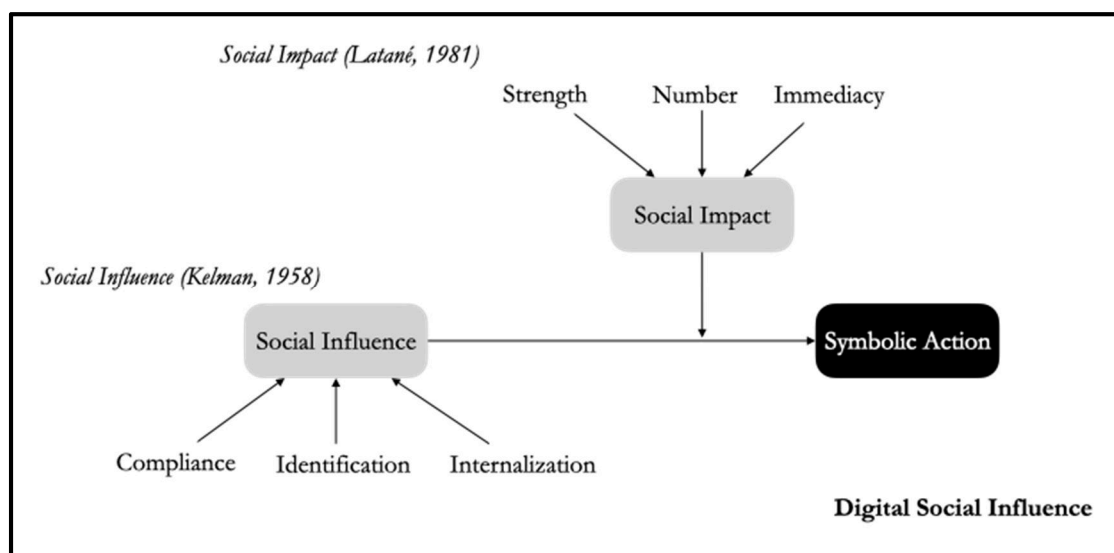
Figure 3.3. The relationship between social influence constructs and symbolic action, adapted from Chandrasekara and Sedera (2019a), Paper 5, Section B.

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[5] See Appendix C and D for survey instruments
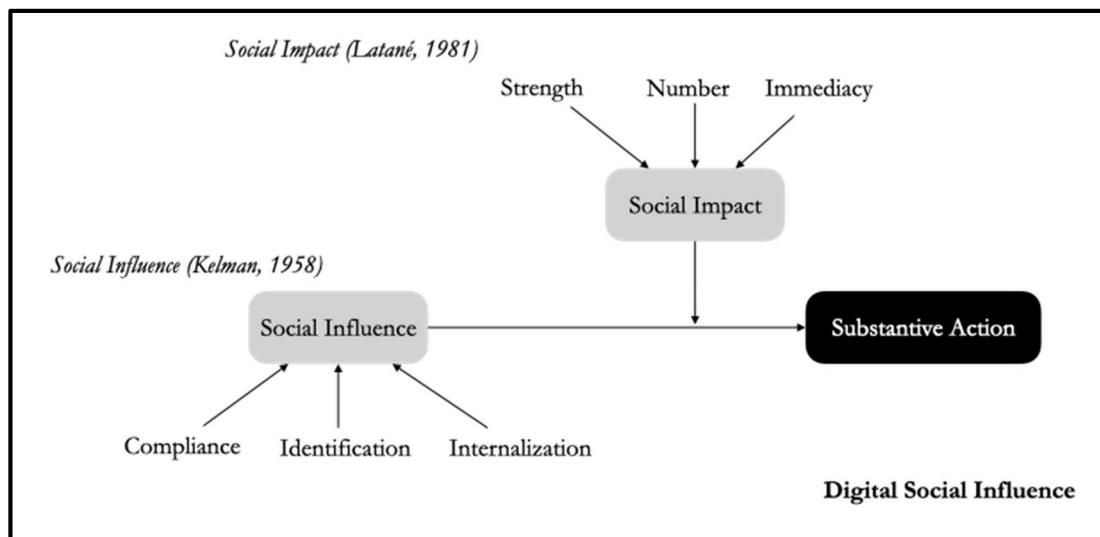
Figure 3.4. The relationship between social influence constructs and substantive action, adapted from Chandrasekara and Sedera (2019a), Paper 5, Section B.

The findings (presented in detail in Paper 5) indicated that *identification* is the strongest predictor of symbolic actions, whereas *internalization* is the strongest predictor of substantive actions. Indeed, based on the empirical study, it was evident that those who commit symbolic actions such as *liking, sharing*, and *commenting* on mundane activities are driven to commit such actions due to the influence they receive from those with whom they want to build or maintain a relationship (i.e., identification). However, when a user engages in a substantive action (e.g., volunteering, in the context of this particular empirical study), the motivation to engage in such an action is aroused when the influence they receive from others is congruent with their own beliefs and values (i.e., internalization). In other words, an individual who does not believe in the value of volunteering may not commit to volunteering even if their online social circle encourages them to engage in that behavior.

3.3. Chapter Summary

The discussion of symbolic and substantive actions contributes to the refining of social influence constructs for OSNs. Given the clutter and noise in OSNs, determining which social influence constructs should be applied to obtain different consequences can be challenging for both researchers and practitioners. My preliminary empirical study demonstrated that identification is the strongest predictor for symbolic actions, whereas internalization is the strongest predictor for substantive actions. These findings create the foundation for researchers to focus on relevant social influence constructs that should be adopted to obtain specific consequences in the context of OSNs. However, as emphasized in the previous chapters, direct application of social influence

constructs to OSNs is unlikely to be effective without considering the complex characteristics of OSNs in contrast to face-to-face interactions. Therefore, considering the boundary conditions of social influence are also important for digital social influence research. The preliminary empirical study revealed which social influence constructs lead to symbolic and substantive actions. However, it did not investigate whether the established social influence constructs manifest differently in OSNs, or how boundary conditions could be applied to reframe the application of social influence in the digital space. Therefore, the next phase of my research was designed to explore the characterization of social influence constructs and boundary conditions in OSNs to further refine social influence theory.

Chapter 4
Qualitative Study Design

"After a time, though, I began to realize that the experimental work, while necessary, wasn't enough. It didn't allow me to judge the importance of the principles in the world beyond the psychology building and the campus where I was examining them. It became clear that if I was to understand fully the psychology of compliance, I would need to broaden my scope of investigation. I would need to look to the compliance professionals—the people who had been using the principles on me all my life. They know what works and what doesn't; the law of survival of the fittest assures it. Their business is to make us comply, and their livelihoods depend on it. Those who don't know how to get people to say yes soon fall away; those who do, stay and flourish."

Cialdini (1987, p. vi)

All chapters included in the thesis to this point have either been based on published works or on papers under review that were the direct result of my investigation to optimize the application of social influence theory to OSNs. However, Chapter 4 takes a different form from the previous chapters. In this chapter, I present the research design of the main empirical study conducted in this research: to refine social influence constructs by relating them to social influence strategies applied by practitioners in OSNs. For the purpose of this research, these users include digital marketers, entrepreneurs, OSN trainers and online activists from Sri Lanka, with a detailed description for selecting Sri Lanka as the study site included in the next section.

I opened this chapter with a quote from "Influence" written by Cialdini (1987) concerning the importance of conducting qualitative investigations by examining practitioners in the domain of social influence. OSN practitioners directly leverage social influence in the design of campaigns. Examining how such practitioners design campaigns and how elements of these designs relate to the constructs of social influence provides a preparatory foundation toward the reframing of social influence theory to OSNs. Indeed, the aim of this research is to extend social influence theory to OSNs. Therefore, the empirical study was designed to explore how social influence strategies leveraged by practitioners can be mapped to social influence constructs and how the conceptual developments in previous phases of the research can be strengthened by incorporating the practical knowledge of practitioners.

4.1. Study Design

4.1.1. Motivation

The qualitative study design reflects the main objectives of my research. The critical reviews I conducted of IS and HCI, the conceptual developments and the preliminary empirical study were mainly focused on the first and second objectives of the research. My exploration of practitioners' strategies in applying social influence to OSNs is how I modified and extended social influence

theory to OSNs based on an empirical exploration of OSN social influence practice (Objective 3). As illustrated in Figure 4.1., and based on the first and second objectives, social influence theory was analyzed. This analysis identified the limitations and challenges encountered when applying the established social influence constructs (as they currently exist) to OSNs and different aspects of theory that should be refined. Through the third objective, the focus was shifted to practice and to explore how practical applications of social influence can be used as signposts in extending social influence theory to OSNs.
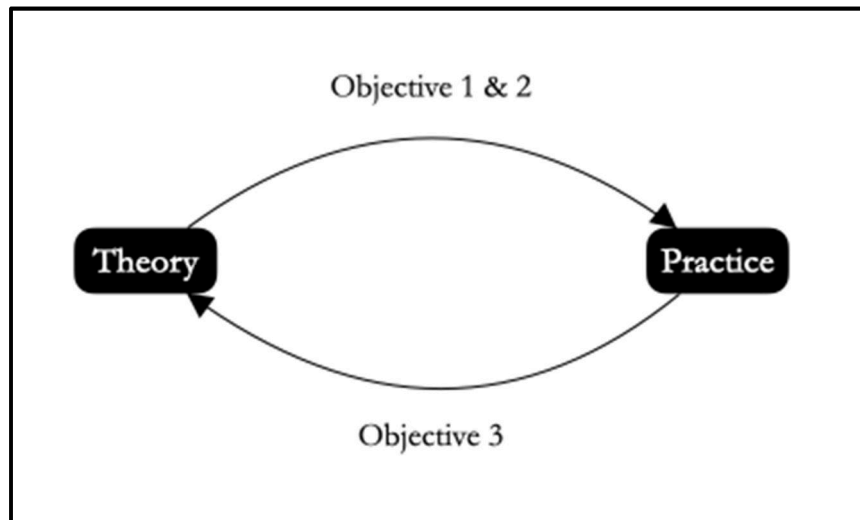
Figure 4.1. Organization of research objectives around social influence theory and practice.

Given that practitioners possess expertise in operationalizing social influence via OSNs, their tacit and explicit understanding of mechanisms of social influence are likely to be particularly fruitful sources of novel insight. Their real-world experience and cumulative knowledge of social influence and its application to OSNs also helped identify important additional factors related to digital social influence. These factors clarify the boundary conditions that should be incorporated into social influence theory when it is applied to OSN research. To investigate the knowledge of practitioners, I followed a qualitative research approach that provides the flexibility required to gain in-depth insights into how practitioners leverage social influence strategies in OSNs. Further, qualitative research also has the capacity to provide a rich account of phenomena that "captures the complexity, mess, and contradiction that characterizes the real-world, yet allows us to make sense of patterns of meanings" (Braun & Clarke, 2013, p. 8). Adopting a qualitative study design also aligns with the overall aim and objectives of this research. Particularly when extending social influence theory to OSNs, dissecting the social influence strategies of practitioners and mapping them back to the established social influence constructs for further refinement requires that detailed descriptions of social influence strategies be obtained from the practitioners.

4.1.2. Sri Lanka as the Site

My choice of Sri Lanka as the study site was informed by a number of factors. First, launching OSN campaigns is a common strategy adopted by Sri Lankan organizations across many different fields, including politics, private industry, nonprofit sectors and journalism. One of the most critical incidents that showed the gravity of OSN-related formal and informal campaigns was the temporary ban of OSN access in Sri Lanka that followed the 2019 Easter Sunday bomb explosion (Gunasingham, 2019). The level of information sharing at times of critical events in Sri Lanka was very high, to the extent that the then government shut down public access to all OSN platforms. Sally and Wickramasinghe (2020) highlight that the engagement of Sri Lankan citizens in public matters such as politics is increasing over time. OSNs play a vital role in promoting candidates for elections and is instrumental in determining the success of specific candidates (Werawatta, 2015). Even in relation to the marketing of products and services in Sri Lanka, evidence demonstrates that public engagement through OSNs has the potential to directly influence consumer purchasing decisions. Therefore, companies and organizations have a strong focus and monitoring of OSNs to ensure that their brand image is not affected by consumer dialogues (Athukorala, 2014). Indeed, with the increased OSN usage in Sri Lanka, practitioners have developed various OSN campaign strategies to tactfully influence people's attitudinal and behavioral change.

My independent consulting experience in the OSN industry in Sri Lanka also supported Sri Lanka's selection as the study site. I have 10 years' experience creating both an OSN presence for various businesses in Sri Lanka and in developing content and digital marketing strategies for nonprofit organizations. These strategies were designed to positively influence individuals across a range of demographic sectors on matters including mental wellbeing, awareness on social issues, combating misinformation and suicide prevention. Due to my experience as an OSN practitioner in Sri Lanka, I was able to relate to the practitioners effectively and to understand their strategies clearly.

Finally, being Sri Lankan, I am familiar with Sri Lankan social and cultural norms and have a deep understanding of the social, political, and economic climate of the country. As noted by Berger (2015), this cultural and social awareness ensured that from the recruitment of participants to the analysis of data, I brought insight and sensitivity to the study's qualitative data.

4.2. Ethics Approval

The interviews were initially expected to be conducted face-to-face in Sri Lanka. However, due to the COVID-19 pandemic, I decided to conduct all the interviews online via Zoom. The amended ethics application was approved by Monash University's Human Research Ethics Committee (MUHREC) on February 12, 2020 (see Appendix E). All documents relevant to the data collection

process, including the explanatory statement, consent form, recruitment email, and interview protocol, are included in Appendix F to I.

4.3. Data Collection

4.3.1. Developing the Interview Protocol Following Semi-Structured Interview Method

Semi-structured interviews were used to allow practitioners to share their social influence strategies. These interviews provide the flexibility to change the direction of questions based on the answers given by the research participants and to develop more elaborated answers (McIntosh & Morse, 2015). I utilized both closed and open-ended questions followed by prompts and probing questions to clarify and deepen understanding (Adams, 2015). My interview schedule and question design sought to address how social influence constructs, the conceptualized boundary conditions, consequences of social influence, developed in the previous phase of the research, operate in the OSN setting. A specific focus was to develop understanding in the context of online campaigns. Table 4.1. provides the topic of concern for each main question in the interview protocol (see Appendix I for the complete interview protocol).

Table 4.1. Main aspects explored by the questions included in the interview protocol

OPENING
QUESTION 1: Background/Professional Experience
QUESTION 2: Context specificity
UNDERSTANDING OF SOCIAL INFLUENCE THEORY & CONSTRUCTS
QUESTION 3: Knowledge of theories and their application
QUESTION 4: Introduction to constructs of social influence (using familiar and understandable language)
MAPPING SPECIFIC CONSTRUCTS AND BOUNDARY CONDITIONS
QUESTION 5 & 6: Analyzing the application of social influence constructs more deeply
QUESTION 7: Relating boundary conditions to OSN campaigns
QUESTION 8: Application of social influence constructs to OSNs
QUESTION 9, 10 & 11: Application of social influence constructs and related boundary conditions
QUESTION 12: Relating boundary conditions to OSN campaigns
EXPLORING THE CONSEQUENCES OF SOCIAL INFLUENCE

QUESTION 13 & 14: Investigating consequences of social influence
QUESTION 15 & 16: Analyzing additional factors affecting the application of social influence
PRACTITIONERS OVERALL PERCEPTION OF SOCIAL INFLUENCE IN OSNs
QUESTION 15 to 17: Any other thoughts about social influence
INTERVIEW ENDS

The questions included in the interview protocol focused primarily on three areas aligned with the overarching aim of the project: to extend social influence theory to OSNs. The three areas covered through the interview protocol were: i) mapping social influence constructs with social influence strategies adopted by the practitioners, ii) exploring boundary conditions, and iii) exploring the consequences of social influence (symbolic and substantive actions).

When developing questions to generate further insights into the application of social influence constructs, the work of two researchers was considered. First, the social influence constructs of compliance, identification, internalization introduced by Kelman (1958) and second, the strength, immediacy, and number introduced by Latané (1981) were revisited. Based on the original definitions of each construct and on supporting research, the characteristics of those constructs were identified and converted to questions by contextually relating them to OSNs.

EXAMPLE 1

QUESTION 9: Does the location of your target audience matter when you organize a campaign?

PROBES:

How do you determine the population to which your campaign should reach?

Do you believe a campaign should only reach to people who can relate to at some level? (may it be the location they live or the relevance of the idea transmitted through the campaign?)

The question given in Example 1 explores two aspects: i) the application of *immediacy* (Latané, 1981) in OSN campaigns, and ii) examining how *space and proximity* boundary conditions can be applied to OSNs. More specifically, as discussed in Chapter 3, one purpose of introducing boundary conditions to theory is to refine the existing social influence constructs as they relate to OSNs. Therefore, when generating questions, I consciously created multiple probes to ensure that

both social influence constructs and related boundary conditions were adequately covered through each question. This ensured that most of the questions and their probes covered social influence constructs as well as boundary conditions.

Further, when asking certain questions, open-ended questions were created to identify overall social influence strategies. This strategy was preferred rather than directly linking each question with a specific construct. Based on the answers provided by the practitioners, subsequent answers were coded under specific constructs. See Example 2 for further details.

EXAMPLE 2

QUESTION 5: Have you done any social media marketing campaigns using influencers?

PROBES:

By taking one example of such a campaign, can you tell me what characteristics did you look at when selecting that influential figure?

How was that person related to the target audience?

Was there any situation where the influencer was concerned with the reactions of the audience? Can you elaborate?

If yes, did the influencer act on those reactions of the audience?

Is there any shift from using popular influencers to not so popular ones? What is your observation?

In the above example, the question and the probes analyze two social influence constructs: *strength* (Latané, 1981) and *identification* (Kelman, 1958). Strength focuses on the characteristics of the source of influence (e.g., power and social status) that strengthen the influence. Identification is a social influence process that focuses on influencees adopting a specific behavior or attitude due to their need to start or maintain a relationship with another. Therefore, the probes under question 5 covered both constructs in different ways.

Similar to the above two examples and in many instances throughout the interview protocol, probes were asked to cover different aspects of social influence theory (e.g., specific constructs and the application of boundary conditions). The answers provided by the interviewees were subsequently coded to match the relevant construct, boundary condition, consequence or other additional factors related to social influence.

4.3.2. Piloting the Interviews

Using purposive sampling, two participants were recruited from Sri Lanka to pilot the interview protocol. The questions identified during the pilot interviews as difficult to understand were subsequently revised. Similarly, the order of the questions in the interview protocol was changed to improve the flow of the interview process. For example, in the first draft of the interview protocol, the two questions discussing practitioners' most and least successful marketing campaigns were asked at the beginning of the interview. However, after the pilot interviews, it was realized that the interviewees struggled to recall answers to the questions at the beginning of the interview. Therefore, those questions were asked toward the end of the interview (Question 15 and 16 in Appendix I). In addition, when discussing the topic of social influence, one interviewee requested clarification on what was meant by "social influence." Therefore, to avoid conceptual difficulties at the beginning of each interview, the interviewees were briefed that by "social influence," I meant "people influencing one another in the context of OSNs." Additional probes and follow-up questions were included in the interview protocol to explore answers given by interviewees and to develop more elaborated answers.

4.3.3. The Sample

Simultaneous with the piloting process, I sent out recruitment emails to OSN practitioners in Sri Lanka identified through *purposive* and *snowball sampling* techniques (Williamson & Johanson, 2017). For the purposes of this study, I defined OSN practitioners as professionals who either work as content creators for OSNs, trainers, entrepreneurs or digital marketers creating campaigns in OSNs for purposes including promoting products and services, engaging in online activism and conducting other related activities designed to influence OSN users. Initial identification of potential interviewees for the study was by contacting a small number of leading personnel in the Sri Lankan digital marketing and activism space. Those individuals recommended more OSN practitioners, who were then contacted via email to explore their interest in participating in the study. A total of 32 individuals were identified who met the inclusion criteria for OSN practitioners. Following initial contact, 16 individuals confirmed their willingness to participate in the study. Table 4.2. summarizes the profiles of the recruited participants.

Table 4.2. Participant profiles

#Participant Code	Participant's position	Years of OSN experience	Summary of working experience
*R1	Co-founder and the Director of a digital youth movement focusing on online campaigning (since 2015).	6 years	R1's experience in OSNs consists of campaign creation and strategizing in the nonprofit sector to build public awareness on social justice and human rights.
*R2	Co-founder of a digital fake news identification platform, online activist, and CEO of a software development company (since 2019).	2 years	R2 has both nonprofit and private industry experience in OSN campaign creation and strategizing. In the nonprofit sector, he works on creating campaigns to build public awareness of fake new dissemination in Sri Lanka. In the private sector, he promotes various products and services through OSN campaigns.
R3	Founder and Director of a digital advertising agency (2016) and the Strategy Head of several marketing agencies (since 2007).	14 years	R3 can be identified as a digital marketer. However, prior to his experience in OSN campaign creation and strategizing, he also had experience in advertising for mass media (television and radio platforms).
R4	Head of community management in an advertising agency (since 2019) and the creator of one of the most successful FB community pages in Sri Lanka since 2009.	12 years	R4 is a digital marketer. His experience in OSNs consists of creating marketing campaigns and ensuring that once a campaign is active in OSNs, it receives positive attention from the target community.
R5	Digital marketing specialist (independent consultant) since 2014.	7 years	R5 pursues a career in digital marketing. He works as an independent consultant liaising with private companies in Sri Lanka and international companies to manage digital marketing campaigns.
R6	Managing Director of a tour company (2010–2015) and the founder of a digital marketing company in Sri Lanka.	6 years	R6 works both as an entrepreneur and a digital marketer. He first founded a travel company and then made a career change to digital marketing. His experience in OSNs consists of campaign creation and OSN platform management for private companies and nonprofit organizations.
*R7	An OSN trainer since 2010 combined with 15 years of experience as a journalist.	11 years	R7 has a background in journalism and media training. In 2010, with increasing demand for OSNs as a platform for both nonprofit and private sectors, he started training employees of different companies on social media strategizing. His main objective as an OSN trainer is to build the capacity of organizations to use OSNs for social good.

#Participant Code	Participant's position	Years of OSN experience	Summary of working experience
R8	Digital marketing trainer since 2017, combined with digital media experience since 2014.	7 years	R8 has experience in both digital marketing and OSN strategizing. His main tasks involve content planning, client management, and brand engagement.
R9	Content creator and digital marketer since 2017.	4 years	R9 is an entrepreneur, a content creator and a digital marketer. While promoting her own brand through digital marketing, she also works as an independent digital marketer promoting various products for niche markets.
R10	Assistant manager— digital marketing (since 2016).	5 years	R10 has digital marketing experience working with over 250 brands both locally and internationally. His main focus is brand management, working through the entire digital marketing lifecycle with clients.
R11	Digital media strategist/consultant for Sri Lankan Government bodies and private companies since 2010.	11 years	R11 works as an independent consultant for government bodies bridging the digital divide in Sri Lanka. He also plans OSN campaigns promoting government agendas for different departments and creating public awareness of social causes. In the private sector, he strategizes digital marketing for various brands.
R12	Digital marketer since 2009.	12 years	R12 works as an independent digital marketer promoting products and services for small and medium scale businesses. He also manages digital marketing campaigns of nonprofit organizations and healthcare organizations.
R13	Digital marketer since 2016.	5 years	R13 works as an independent digital marketer for different private companies. He also manages digital marketing campaigns for two of his own businesses.
*R14	Freelance social media trainer (since 2019) and a journalist (since 1999).	2 years	R14 is a freelance OSN trainer with a strong background in journalism. He also creates public awareness by designing OSN campaigns on various social justice and disinformation related matters.
*R15	Media personality (since 2004) and a YouTuber since 2013.	8 years	R15 is a popular figure in mass media and a YouTuber with more than 300,000 subscribers. His OSN experience consists of content creation targeting different demographic groups, mainly on personal development and education.
R16	Content manager of an international travel company since 2017.	4 years	R16's OSN experience consists of content creation for an international travel company. She also manages the multiple OSN profiles of the company, promoting different travel programs.

* Denotes participants specialized in online activism/ human rights movements/non-profit sector work. See text for further details.

When considering the nature of the campaigns and the work they carried out within OSNs, five participants (denoted by * in front of the participant code) specialized in online activism or offering training for individuals/groups to better manage OSNs with an emphasis on community development, human rights, education, advocacy, and journalism. Conversely, 11 professionals focused on product- and service-related marketing via OSNs.

4.3.4. Conducting the Interviews

All the interviews were conducted and recorded via Zoom. Fourteen of 16 interviews were conducted in English. Two were conducted in Sinhala and later translated to English. Interview durations ranged from 40 to 80 minutes. All interviews were completed within four months between August 2020 and November 2020.

4.4. Data Analysis

The 14 interviews conducted in English were transcribed using Descript, manually verified, and then coded using reflexive thematic analysis (Braun & Clarke, 2019) with the aid of the NVivo qualitative analysis software. The two interviews conducted in Sinhala were manually translated, verified for accuracy and then uploaded to Nvivo for coding, with other interview transcripts. Reflexive thematic analysis "is about meaning and meaning-making, and viewing these as always context-bound, positioned and situated, and qualitative data analysis is about telling 'stories', about interpreting, and creating" (Braun & Clarke, 2019, p. 591). The approach enables the researcher to play an active role in generating codes and themes and allows flexibility in data analysis when assumptions guiding the reflexive thematic analysis are satisfied. In reflexive thematic analysis, transparency of the steps followed in the data analysis is crucial. Some of the decisions required for reflexive thematic analysis must be made before the data analysis itself. For example, the objective(s) of the research (in this case, objective three: to modify and extend social influence theory based on an empirical exploration of OSN social influence practice) and the selected data collection method (in this case, semi-structured interviews) must align with the reflexive thematic analytical approach (Braun & Clarke, 2019).

If a research study's aims and questions seek to examine "factors and processes that underlie and influence particular phenomena," reflexive thematic analysis is identified as an "excellent tool" by Braun et al. (2016, p. 5). Because objective three of this research focuses on modifying and extending social influence theory based on an empirical exploration of OSN social influence practice, reflexive thematic analysis is an appropriate analytical technique. In addition, Braun and Clarke (2006) also identify semi-structured interviews as an appropriate data collection strategy to

gain "in-depth accounts of 'personal experience'" (p. 6), allowing the researcher to interact with participants and thereby generate data.

When compared with other qualitative methods of data analysis such as grounded theory, reflexive thematic analysis focuses on utilizing the researcher's subjectivity as a resource to make sense of the data (Braun & Clarke, 2019). Further, in reflexive thematic analysis, "the final analysis is the product of deep and prolonged data immersion, thoughtfulness and reflection, something that is active and generative" (Braun & Clarke, 2019, p. 591). By contrast, grounded theory provides for themes to emerge from data and data alone (Saldaña, 2013), and matrix analysis which is reliant on structured coding frameworks offers limited flexibility for reflection (Miles, 1994).

The stepwise approach of reflexive thematic analysis can be recorded in six phases. As defined by Braun and Clarke (2006, p. 87), these are: "familiarizing yourself with your data", "generating initial codes", "searching for themes", "reviewing themes", "defining and naming themes" "producing the report." The data familiarization phase consists of active engagement with data after transcription of all the recorded interviews and also identifying any meanings and patterns that may be of interest with regard to the objective of the research (Braun & Clarke, 2006). After this initial step, all other decisions made throughout the data analysis are discussed in the following sub-sections.

4.4.1. Generating Initial Codes

During the coding process, I was mindful of my overall objective: *"To modify and extend social influence theory based on an empirical exploration of OSN social influence practice".* I was seeking to identify instances where OSN practitioners applied a specific type of social influence mechanism and/or any additional factors when seeking to achieve influence through an OSN campaign. Throughout the coding process, and when mapping data to the social influence constructs of interest (compliance, identification, internalization, strength, immediacy and number), I followed a theoretical (deductive) approach. I also paid attention to any unique factors identified by practitioners that potentially change the way social influence constructs can be used in OSNs. Consequently, in certain instances, I made an informed decision to code excerpts that provided novel insights about social influence based on practitioners' experiences. This step was also informed by the previous conceptual developments of this research: i) determining the boundary conditions of social influence for OSNs, and ii) examining social influence in relation to its consequences (symbolic and substantive actions). Thus, the interview data were codified in the context of these aspects to generate themes that were responsive to the aim of the research: to extend social influence theory to OSNs.

Following the approach of Braun and Clarke (2006), when developing the initial set of codes and where possible, I coded larger extracts of text to assist with subsequent thematic development. Through an extended and iterative process, codes were created, modified, un-coded, re-coded and merged to avoid repetition. The organization of codes and sub-codes—67 in total—were refined to ensure their relationships were meaningful (Braun & Clarke, 2006). When coding a social influence strategy shared by a practitioner in relation to a specific construct, the lack of mutual exclusivity among existing social influence constructs can create difficulties when deciding how the excerpt should be coded (Kelman, 2006). Therefore, and where applicable, certain codes were created by isolating the characteristics specific to social influence in OSNs without directly relating them to theoretical constructs. For instance, the code "authoritative figures and social influence" consists of excerpts that can be analyzed in relation to both *compliance* and *strength* since the code explores under what circumstances powerful and authoritative influencers would be utilized for OSN campaigns. Because *power* is a factor of concern for strength and compliance, it must be analyzed under both constructs. Therefore, at the code level, the characteristics and attributes of social influence specific to OSNs were identified. While acknowledging that duplication of the same excerpt may not be ideal, in this specific context, duplicity comes from pre-existing intersects between social influence constructs. As Braun and Clarke (2019) suggest, transparency and consistency contribute to the rigor of reflexive thematic analysis. Consequently, the decisions made while coding excerpts in situations such as those described above remained consistent throughout the whole process. While the codes were named based on factors applicable to social influence in OSNs, I also noted how each code could be theoretically mapped to social influence constructs or to the boundary conditions of social influence. Table 4.3. provides further information regarding the coding process and provides some sample excerpts and generated codes.

Table 4.3. Sample excerpts and generated codes

Extract	Created Code and Justification
(a) "…My idea for all the campaigns, which I consult, what I tell my client is like, don't go with all these high-end social media profile figures, especially celebrities because there are celebrities out there and why they are celebrities on social media, because crowd, they just followed it. Not for sake of anything just to see their lifestyle... you know...gossiping. [...] So these real conversions don't happen like that because it's, as I said, it's just a gallery. So for mid-scale, small-scale influencers, they actually, convert your product much higher rate than all the celebrities." (R 11) (b) "Some people also get arrogant once the likes and followers increase. So most of the time, I consider ones with credibility and easy to work with us. So even if they don't have a huge follower base, someone with 50,000 followers, we can get a better video done by them and then focus on boosting to reach the target audience. That would allow us to reach the same target audience we would have reached by using an even more popular influencer." (R4)	`Shift-from-mega-influencers-to-micro-influencers` **Summary of the code:** Through this code, I explore the boundary condition 'locus of influence' and identify how changes have occurred when selecting different types of influencers for OSN campaigns. **Mapping to social influence theory:** Prior to the advent of OSNs, social influence constructs such as *compliance, identification* (Kelman, 1958) and *strength* (Latané, 1981) were discussed in relation to the power of large-scale influencers such as celebrities and other popular figures and the influence they have on the public (e.g., Brown et al., 2003; Fraser & Brown, 2002). As identified in the boundary condition, *locus of influence*, in OSNs social influence arises from people coming from different realms of the online network. Excerpts organized in this code show the shift from large-scale influencers to mid- and small-scale influencers in OSNs.
(c) "Usually the content online that has done better is actually the ones that […were] a big conversation in the country […]. And we create [posts] that people can then use to either share or change their profile picture too. (R1) (d) "I think. The quality of the content is very important and you should, I should try to be authentic because people on social media can smell inauthenticity…" (R 2). (e) "[…] there is plenty of content available, but it's a matter of matching the most relevant content and show that to a person." (R3)	`Content-as-an-important-factor-in-changing-the-behavior` **Summary of the code:** In this code, I explore how people's beliefs and values can be influenced using content creation. **Mapping to social influence theory:** *Internalization* (Kelman, 1958) explores the social influence that occurs when the message of the influencer is consistent with the beliefs and values of the target. Based on interview data, it was identified that OSN practitioners focus attention on designing specific content that is compatible with the ideology of the target audience. Excerpts indicating the value of this aspect were classified using this code.
(f) "There are a lot of students, messaging me the thoughts and motivation that really helped them to succeed […]. So, lots of people, they don't have a close one to share their feelings. So, even after I publish a video, I'll, chat with them, through comments or through my social media pages." (R 15)	`Social-influence-as-a-symbiotic process` **Summary of the code:** In many interviews, practitioners identified that two-way communication in OSNs has changed how social influence operates in OSNs. Specifically, they recognized that in OSNs, even the target audience could affect the success of the

(g) "So, it's like a real, rather than being in normal news organization where you report something and you don't speak to people who are like the audience. We have, we have a back and forth." (R 2) (h) "The reason is social media is not a one-way communication, right? So, […] people can say things against you on the platform itself. On TV, it's just one-way communication, but on social media, it's a dialogue." (R8)	campaigns. This symbiotic nature of social influence specific to OSNs was highlighted by this code. **Mapping to social influence theory:** In previously established constructs of social influence, the influencer's qualities and characteristics received much attention. However, OSNs have provided nuance to this situation, and the fact that influencees themselves affect the influence process must be considered as an additional factor when applying social influence to OSNs.

As described in Table 4.3., each generated code was reviewed either by examining its relevance to social influence theoretical constructs or how it contributes to identifying social influence in OSNs as distinct from the social influence that takes place in face-to-face interactions and mass media. Following completion of this step, all codes were re-examined to combine them under specific themes.

4.4.2. Searching for Themes

Immediately following code generation, codes were clustered based on their similarities and focus in relation to the study objective (Braun & Clarke, 2006). Initially, this led to the creation of seven themes, described in Table 4.4.

Table 4.4. The descriptions of initially developed themes

Theme	Description
Application of an existing theory to OSNs	This theme was created to identify instances where practitioners applied an existing theoretical framework to strengthen social influence strategies in OSNs.
Special attributes of OSNs affecting social influence	Some responses by the interviewees explicitly highlighted several characteristics of OSNs that characterize social influence in OSNs as unique from other platforms. Such codes were organized under this theme.
Negative social influence	Several interviewees indicated that in OSNs, negative social influence and social influence to counter an initial message could easily be created. Codes that indicated this type of influence were recorded under this theme.
Power of the influencees	According to practitioners, one of the most distinct characteristics associated with digital social influence is the power of the influencee. Factors that were coded in relation to the power of influencees were collated in this theme.
Relationship between symbolic and substantive actions	This theme consisted of all codes that were developed by identifying the consequences of social influence discussed by practitioners.

Social influence strategies followed in creating different campaigns	The codes developed by mapping them to social influence theoretical constructs and boundary conditions were all combined under this theme.
Miscellaneous	Any other code that did not fit in previously defined themes or appeared to be irrelevant to the objective of this study were collated and included under this theme (Braun & Clarke, 2006).

Even though the initial clustering of the codes was completed based on the similarities among codes in relation to social influence, the developed themes remained incomplete in achieving the study's objective. For instance, although the codes were generated following a theoretical (deductive) approach, the contribution of the collated thematic clusters in examining and refining the salient social influence constructs for OSNs was not explicit. Therefore, excerpts, sub-codes, codes, sub-themes, and themes were re-reviewed to improve the organization and application of social influence theory to OSNs.

4.4.3. Reviewing Themes

When reviewing themes, Braun and Clarke (2006) suggest two criteria introduced by Patton (1980) for judging the consistency between and among codes and themes: *internal homogeneity* and *external heterogeneity*. Internal homogeneity indicates that within a theme, codes and excerpts should strongly relate to one another and be meaningful. Conversely, external heterogeneity emphasizes that the generated overarching themes must be distinct from each other with little or no overlap. However, as discussed in the code generation process, when clustering codes into themes, I encountered the same domain-specific challenge of overlapping social influence constructs affecting thematic creation. Patton (1980, p. 403) further highlights that when creating such classification systems, attention must be paid to "feasibility" and "special interests" (i.e., the purpose of conducting the analysis). To overcome the challenge created by overlapping constructs and to maintain consistency in all decisions taken during the data analysis stage; I adopted two strategies:

i) Wherever possible, themes and sub-themes were reviewed and modified by identifying the most common characteristic related to each social influence construct, for example:

If *identification* (Kelman, 1958) is considered, the most specific characteristic is the relationship between the influencer and the influencee. Therefore, I created the sub-theme "connection with the target audience—identification" to organize any codes that focused on the relationship between influencers and influencees in the context of OSNs. For *internalization* (Kelman, 1958), one of the main highlights is the content of the message delivered by the influencer. Since the content plays a crucial role in the social influence process facilitated by internalization, the sub-

theme created to identify codes related to this construct was "internalization and the characteristics of OSN content."

ii) If too many overlaps between social influence constructs exist, sub-themes were created and modified to combine codes relevant for multiple constructs or common factors.

As highlighted in Chapter 2, there are many overlaps between social influence constructs. For instance, in Chapter 2, *compliance* (Kelman, 1958) and *strength* (Latané, 1981) were discussed under the sub-topic "constructs with a focus on the power of the influencer." During the thematic review stage, codes that could be identified as relevant for several constructs were grouped together by forming one general theme. For example, all codes that could be identified in relation to the power of influencers were collated under the common sub-theme "factors related to compliance and strength." This practice was followed consistently during thematic review when overlaps between social influence constructs were identified. Further, when determining boundary conditions in one of the previous phases of the research, two social influence constructs from social impact theory: *immediacy* and *number* (Latané, 1981), were identified as important factors that contribute to the operation of social influence in OSNs. Therefore, these two constructs were coupled with the respective boundary conditions when modifying sub-themes. For instance, codes related to *immediacy* were recoded under the sub-theme, "proximity and location of the consumer as a determinant of OSN social influence." Subsequently, codes related to *number* were organized under the sub-theme, "different interpretations given to the number of messages and influencers." Finally, all sub-themes that emphasize factors (including immediacy and number) related to boundary conditions were separated from the overarching theme "social influence strategies followed in creating different campaigns" and organized under the theme, "boundary conditions." Sub-themes based on social influence constructs other than immediacy and number were retained under the theme, "social influence strategies followed in creating different campaigns."

Previously developed themes were then revised and reorganized. The revised thematic structure ensured that the overlaps among codes and themes were minimized. It also ensured that the developed codes and themes served the study objective.

4.4.4. Defining and Naming Themes

The next step in enhancing developed thematic clarity was to define and refine the themes and their scope (Braun & Clarke, 2006). This step ensures that the themes, finalized in the previous stage, accurately represent the data and its meaning that are organized under them. To ensure the effectiveness of this process, Braun and Clarke (2006) suggest researchers rethink whether the names of each theme accurately represent its contents and that researchers should be able to

succinctly describe the focus of each theme. Table 4.5. provides a short summary of the overarching themes and how they relate to sub-themes and codes.

Table 4.5. Summary of the finalized themes

Theme	Summary
Linking theory and practice (previously named as "application of theory vs. practitioners' experience")	This theme was created to investigate practitioners' approaches when developing social influence strategies. Prior to mapping their social influence strategies with theoretical constructs, it is important to understand whether strategies are based on theoretical knowledge or pragmatism. Two sub-themes emerged: 'application of existing theory to OSNs' and 'learning through experience'.
Mapping social influence strategies with social influence constructs (previously named "situating social influence strategies in relation to the constructs")	This theme was created based on codes and sub-themes that were developed by identifying various social influence strategies that can be interpreted in relation to social influence constructs. Codes under this theme were organized under three sub-themes (connection with the target audience— identification, factors related to compliance and strength, and internalization and the characteristics of OSN content).
Boundary conditions of social influence for OSNs	Boundary conditions of social influence for OSNs help to understand any contextual factors that should be considered when applying social influence theory to OSNs. When analyzing the interview data, different contextual factors mentioned by practitioners as important for digital social influence were coded separately. Such factors were then organized under sub-themes created based on five boundary conditions designed in the previous phase of the research. Subsequently, an overarching theme called boundary conditions of social influence for OSNs was created.
Consequences of social influence	This overarching theme organizes sub-themes and codes that were developed by examining the consequences of social influence discussed by practitioners. The theme consists of two sub-themes (symbolic actions and substantive actions).
Other noteworthy aspects of digital social influence	Separate from the factors related to boundary conditions and social influence strategies identified in the data analysis process, additional factors were identified based primarily on the past experiences of practitioners in developing social influence strategies for OSNs. Such codes and sub-themes were organized under this overarching theme. The three sub-themes under this were snowballing effect, social influence as a symbiotic process, and negative social influence.

Once the themes had been defined and renamed, codes and sub-themes generated in the earlier stages of the data analysis could be organized more coherently. Further, compared to the themes that were initially developed, the finalized themes could be more clearly separated from one another, except where obvious overlaps that stem from similarities among the theoretical constructs remained.

4.4.5. Producing the Report

Once thematic development was complete, the findings from the reflexive thematic analysis could be reported. Several guidelines introduced by Braun and Clarke (2006) were considered at this stage; i) the structure of the report was created so that its readers could follow all the phases conducted during the reflexive thematic analysis, ii) the overall narrative moved beyond the mere description of data and was presented to show how the analyzed data contributes to achieving the objective of the qualitative study, and iii) adequate evidence, consisting of extracts to show how participant responses were identified in relation to different themes and sub-themes, were included in the report. The detailed findings of the study are reported in the next chapter of the thesis.

4.5. Chapter Summary

In this chapter, I discussed the methods underlying the main empirical study of the research. The empirical study was qualitative and was designed in several stages to ensure the credibility of data collection and analysis. The development of the interview protocol was an iterative process that was carried out in consultation with other researchers as well as with participants' responses from pilot interviews. Reflexive thematic analysis was selected as the most appropriate method to analyze the data collected from semi-structured interviews. Compared to other qualitative data analysis methods (e.g., matrix analysis and grounded theory), this method provides flexibility for the researcher to make decisions in the analytical process while clearly articulating the steps that should be followed to ensure rigor in the study. The biggest challenge experienced during the data analysis stemmed from the overlaps that exist in social influence constructs. To minimize any potential clashes that could occur due to the overlaps in social influence theoretical foundations, all decisions taken while coding and clustering codes into themes were made consistently. Further, additional examples of how excerpts were coded and codes were clustered were provided to enhance analytical decision transparency. Table 4.6. provides an overview of the key decisions taken during the data analysis process.

Table 4.6. Overview of the steps involved in conducting reflexive thematic analysis (Braun & Clarke, 2006)

Phase/Step	Decisions
Identifying the approach selected for the analysis (inductive vs. theoretical [deductive] analysis and semantic vs. latent themes)	Given the study is driven by theory, *theoretical* thematic analysis governed the decisions made throughout the analysis. The domain-specific challenges in conducting the analysis (due to overlaps in social influence constructs) were reported explicitly throughout the analysis to make all decisions made during the analysis transparent and consistent. The themes were created at the latent level.
Familiarizing with data	Intelligent transcribing (Walker, 2020) was adopted to ensure that the recordings were "transcribed to an appropriate level of detail…" (Braun & Clarke, 2006, p. 96). All data files were reviewed through several iterations to ensure data familiarization, while annotations and memos of the ideas that were seemingly important and relevant for the objective of the study were recorded in NVivo.
Initial codes generation	All sections in the data files were given equal attention while coding. A reiterative process was followed when coding the data, where codes were un-coded or were re-coded multiple times.
Searching for themes	Codes were combined to formulate a theme based on the common aspects discussed in relation to the objective of the study. Sub-themes were developed to maintain internal consistency among codes.
Thematic reviewing	All themes created in the previous stage were scrutinized at different levels: themes, sub-themes, codes, sub-codes, and excerpts, to eliminate any incongruencies or unnecessary repetitions.
Defining and naming themes	Themes were revisited, and short descriptions were added to themes in NVivo to ensure clarity.
Producing the report	All steps followed in the reflexive thematic analysis were recorded prior to producing the report. Adequate evidence was presented to show the justifications behind the themes, sub-themes and codes created in the analysis process.

Chapter 5
Findings and Discussion

"There is a distinction, but no opposition, between theory and practice. Each to a certain extent supposes the other. Theory is dependent on practice; practice must have preceded theory."

—Sir William Hamilton as cited in Quotes (n.d.)

The qualitative study was conducted to modify and extend social influence theory based on an empirical exploration of OSN social influence practice (objective 3 of the research). The conceptual and preliminary empirical work conducted so far has laid the foundations of this endeavor. Since OSN practitioners are directly involved in designing social influence strategies to change attitudes and behaviors of various target groups and individuals, their pragmatic disposition provides a unique view on the characteristics and attributes related to social influence constructs. Thus, the purpose of conducting interviews with practitioners was to utilize their "practice" (i.e., the real-world experience of practitioners) as a tool to improve "theory." Through the qualitative study, I tapped into the explicit and tacit knowledge of OSN practitioners' social influence strategies, and through these, I modified social influence theory in the context of OSNs.

My theoretical (deductive) thematic analysis of the practitioners' accounts ensured that their pragmatic knowledge was mapped to social influence theoretical constructs. Practitioners' knowledge is not directly bound to social influence literature—they use their own language to define social influence strategies, so this language had to be carefully unraveled. Specific characteristics and contextual factors discussed by practitioners concerning social influence were coded by linking to respective social influence constructs, boundary conditions, and consequences of social influence (identified in the form of symbolic and substantive actions). The codes, subthemes, and themes developed through reflexive thematic analysis (mentioned in Chapter 4) informed the organization of my findings.

The mapping of social influence strategies (applied by practitioners) to social influence theory was a challenging but rewarding task. As emphasized in Chapter 2, the adoption of social influence theory by OSN researchers to date has had many limitations and unmet challenges. However, my ambition here was not only to modify social influence theory in the context of OSNs for the researcher but to utilize the real-world experience of practitioners in bridging the gap between theory and practice.

5.1. Application of Theory Versus Strategizing Through Experience

At the beginning of each interview, I sought to establish the extent to which interviewees were familiar with social influence theory or had applied theory in their work. While all but one of the interviewees (*n* = 15) professed no explicit awareness of any social influence theory and described how their campaign designs were based on knowledge accumulated from "trial and error," R3, a digital marketer with 14 years of experience, talked about his application of social influence theory:

> "Let's say … social media influencer level type of behavioral theories like, for example, it could be theory of planned behavior type of a thing that we have adopted in social media … but it's specifically not for a product offering, but more than that … it's to actually inculcate a sort of a behavior or, for certain movements and especially for campaigns, which are done for large organizations and for certain people more than a specific product." (R3)

R3 mentioned that applying a theory can be beneficial for outcomes beyond selling a specific product and can be extended to the possibility of changing the mindset and behavior of individuals:

> "If you use a theory properly and then if you use their data properly … it's a matter of matching the most relevant content … and show[ing] [the] positive content to a person to change the mind of a person." (R3)

R3 further emphasized the necessity of not treating theory in isolation for campaigns in OSNs. He mentioned how, in one campaign, he combined the theory of planned behavior and Goffman's stigma theory (Goffman, 2009) to change a specific set of attitudes in the target community. It was evident that R3's company researches and seeks to leverage many social psychological theories (e.g., subjective norm in the theory of planned behavior; Ajzen (1991) when designing campaigns to encourage attitudinal and behavioral changes in OSN users. R3 explained:

> "So, what we try to do is plotting all these conceptual theories, the conceptual frameworks together, and then we try to identify it from a human point of view, not from a theoretical point of view, but using the theory from a human point of view to identify how these things … whatever they have identified in the past through this theory, are being used for different political reasons [and] different organizational reasons. So, we believe that these theories, or so, have some sort of value in [them], but it's not in isolation." (R3)

R3 not only discussed the necessity of incorporating a theory by considering the dynamics of the environment or context to which it is being applied but also pointed out the benefits of incorporating theories to create OSN content and then checking how individuals respond to such content using real-time data generated through OSNs.

Other interviewees described how they planned their campaigns based on experience, with many explaining how they had learned from mistakes on earlier campaigns:

"Basically, when I was studying digital marketing, it was mainly the technical stuff, and the influencing actually comes with experience… I was working in an advertising company, [that has been] in the industry for 25 years. So, basically, what we do is we take their offline campaigns (TV, radio) to digital in a way that appeal[s]. If we telecast an ad on TV, it's one way. We are sending a message. There is no interaction between the audience that we're targeting and the client …. So, we don't have two-way communication, but if we utilize social media channels such as Facebook or Instagram, we have, actually, two-way communication. So, when we post an ad, they can comment on it." (R5)

"I guess also it's now, it's sort of very instinctively, it just comes to me because I've been in the business for a while. So, it's like … you know it, but I don't really recall [it], like studying any models or, you know … any theories about it to sort of apply it, but it just sort of instinctively and intuitively comes to you, I guess." (R6)

"So, we had to sort of learn what we were going to do as we [went]. So, like with any other experience, we learned things [by] trial and error." (R9)

Despite their lack of understanding of the theoretical foundations of social influence, contextual factors were a primary concern for the interviewees. For instance, R5 stated how social influence is applied differently when advertising using mass media (e.g., television) versus advertising in OSNs (because of its inherent two-way communication). This statement lends support to my choice of conducting a qualitative study, in that a primary concern is examining how the practice of influence through OSNs (by the practitioners) aligns with research practice (accounting for contextual factors in the application of a theory using its boundary conditions; Busse et al. (2017)).

5.2. Revisiting Boundary Conditions Considering the Practitioner Perspective

The importance of identifying boundary conditions has been emphasized by several seminal works on theory and theory building (e.g., see Whetten (1989) and Dubin (1969)). As I have previously described:

"The boundary conditions are derived through a comparison of the conditions upon which the traditional social interactions (e.g., face-to-face) are based against the conditions upon which the digital interaction happens. These limiting values are particularly potent in the SNS [Social Networking Site] context …. In order to better illustrate this, we derived five salient boundary conditions through the analysis of our literature sample that affect the nature of social influence in the SNS era. These five factors can provide what Dubin called the boundaries of the theory. Dubin (1969, p. 125), stated that "in order that a model may represent an empirical system, it has to have the boundaries corresponding to the empirical system. The boundaries are important to the specification of any theoretical model."" (Chandrasekara et al., 2021, p. 14)

Boundary conditions specify the "range of the theory" (Whetten, 1989, p. 492) when it has been developed in one context but applied to another. In such cases, the boundary conditions identify what aspects of the theory need to be developed to account for new contextual factors. Thus, when applying established social influence constructs—that is, constructs developed for face-to-

face and mass broadcast communication—to OSNs characterized by augmented online interactions, the boundary conditions of social influence for OSNs are the locus of theory extension. In Paper 3 ("Determining Boundary Conditions of Social Influence for Social Networking Site Research"), I identified five such boundary conditions:

(i) *Choice*—an individuals' ability to either exclude or include others from their social circle in an OSN

(ii) *Space and proximity*—the connectedness of people through OSNs regardless of geographical barriers through the creation of a sense of digital proximity

(iii) *Locus of influence*—the presence of multiple layers of influencers (with different qualities) on an individual in an OSN

(iv) *Number of people and times*—an individual's exposure in an OSN to a comparatively high number of interactions, sources of influence, and repeatedly conveyed messages

(v) *Diversity and variety*—the complexity of social influence processes in OSNs resulting from a combination of multiple types of influencers and features of OSNs.

I aimed to uncover factors that were not apparent in critical reviews of past OSN research studies that confirmed, or otherwise, the applicability of the boundary conditions to social influence in OSN practice. Therefore, I generated the overarching theme *boundary conditions of social influence for OSNs*, and, under this heading, I interrogated how the conceptualized boundary conditions could be scoped further by addressing my interviewees' accounts of OSN marketing and advocacy practice.

As highlighted by Busse et al. (2017), boundary conditions are complex and interacting. Although I present them as separate conditions in the coming subsections, it is apparent that there are complex interactions between them that cannot be ignored. In Section 5.2, I first discuss how the boundary conditions were extended and refined based on the practitioners' accounts. Then, in Section 5.3, I show how they interact with social influence constructs in delimiting social influence processes in OSNs.

5.2.1. Choice

Choice refers to the necessity of considering the ability of individuals to either include or exclude others from their online social circles (Chandrasekara et al., 2021). My interviewees revealed that the choices made by OSN users have multiple consequences for social influence in OSNs. Not only are the decisions about whom they include or exclude in their online social circles significant, but so are the choices about with whom they initiate, continue, and end conversations:

I think online social circles matter, but it's also offline social networks that convert into online spheres, right? Like, I could follow someone on Twitter, but I don't really know them at a personal level, but if I have a family member, I would actually have a back and forth with them. And at the same time, you know, you have to actually have the back and forth. (R2)

Practitioners have become highly cognizant that the success or failure of a campaign rests on consumers' decisions as to whether to respond to posts and how those responses are formed. Indeed, the character of responses to a campaign was one of the practitioners' primary concerns, for they must be prepared to address both negative and unanticipated responses:

"Now the control is in [the] audience's hands. They can build a brand within a day. They can kill a brand within, like, minutes." (R8)

"They have more choices. Even if they don't like my videos, they can dislike [them]. And even further, they can report … to social media pages that this video is not suitable." (R15)

Inevitably, the practitioners expressed confidence in their ability to shape consumer responses and conversations, even to the extent, in one case (R9), of expressing concern about being the target of campaigns themselves:

"I am very concerned about this because whatever we look at will have an impact on our thought process, even to the slightest bit if you think about it later on, like a different day or different time, that means that advertisement or post has been able to make an impact on you. So as a consumer, yeah, this is quite worrisome for me because I mean, there's no right or wrong on what the brands can put out there …. You can, basically, put out anything." (R9)

Interestingly, they also characterized campaigns as conversations and emphasized the need to be responsive and adapt to consumer sentiment as a campaign unfolds:

"…Most of the time, if we want to push something, we somehow do it. But, sometimes, since it's two-way communication, we take their input as well. So, we go through what they say, and we, we are like flexible to, you know, change the route if we want." (R5)

As a boundary condition, *choice* allows us to determine the extent to which social influence constructs, such as compliance (Kelman, 1958) or strength (Latané, 1981), can be applied. In OSNs, influencers have lost the control afforded by face-to-face interactions, where established social protocols apply, and broadcast communication, where there is no facility to reply. In OSNs, influencees make choices that are not subject to regulation by face-to-face social protocols. They can decide whether to engage with or completely ignore campaign messages. Thus, the communication architecture of OSNs challenges the traditional operation of social influence, which must be accounted for when investigating and applying social influence constructs in these contexts.

5.2.2. Space and Proximity

Proximity has long been a concern of social influence scholars; for example, Latané's construct of immediacy (Latané, 1981), the geographical proximity of the "source" and the "target," is a major determinant of influence. Immediacy is particularly relevant given the role OSNs play in connecting people across national and even international boundaries. From the interviews, it was evident that the practitioners were acutely aware of the impact of both digital and physical proximity on social influence. This includes that physical proximity (between the influencer and the influencee) is still an important factor. For example, when designing campaigns, the practitioners (influencers) are mindful to craft the content and tone of messages to be readily identifiable by the target group (influencees). Considering proximity in OSN campaigns is particularly relevant in a country like Sri Lanka, where there is significant geographical variation in language, dialect, and culture, as R10 explained:

> "If you take the North, I mean, the majority of the content is going to be in Tamil, and even the approach or, like, the type of content that works for the audience in the North is different than what would appeal to audiences in the West. So, I mean, you can look at [the] tone of the message …. Something I notice is that a lot of humor, which is more sarcastic humor, tends to work in the North." (R10)

To further elaborate on R10's example, people living in different regions of Sri Lanka (in this case, North and South) possess characteristics (language, culture, beliefs, values) that are region specific. So, when these individuals join OSNs, practitioners believe that incorporating these characteristics into the campaign's design will enable an optimum reach. Therefore, a campaign designed to attract people living in the northern part of the country may not give the same results if advertised in the southern part, as elaborated by R11:

> "When you're campaigning, you have [a] particular target audience. So, you would target for particular geographical areas. The geo-fencing is there. So, if you are not [an] expert, you probably, without thinking about geo-fencing, [would] put the advertisement for entire Sri Lanka. So that is useless …all these unwanted people will start seeing it and your money is gone." (R11)

However, geographical proximity does not operate in OSNs in isolation. Other sociocultural and economic characteristics of OSN users may also create digital proximity that affects how social influence is manifested in OSNs. For instance, due to how OSN content delivery algorithms work, a published campaign, even if targeted for a specific region, can reach other users identified by OSN algorithms as potentially belonging to the campaign's target audience. Determining how OSN algorithms work can be a challenging task. However, according to DeVito (2017, p. 753), who conducted a study on how Facebook algorithms shape what appears on a person's news feed,

nine properties could potentially control the information flow on Facebook: "friend relationships, explicitly expressed user interests, prior user engagement, implicitly expressed user preferences, post age, platform priorities, page relationships, negatively expressed preferences, and content quality." Again, the practitioners were aware of these other factors:

> "I would advise to always break your audience into multiple segments. Because, if you take even a small audience, no two people are the same. Even if you take a sample size of two people, they are going to have different preferences." (R10)

> "Whenever you do a breakdown [of the campaign], geography is one part of it, obviously. But, then there are other factors that you take into segmenting [the] target audience such as [their] preference, social class … things like that." (R10)

In the above example, it is clear that practitioners are considering multiple factors when optimizing the campaign reach and influence. To discuss other practitioners' perspectives on the role of *space and proximity*, R9 (who promotes her own niche brand using digital marketing) elaborated that when promoting a campaign, she filters potential consumers not only by geographical proximity but also by consumers' awareness of niche brands. For R4 and R5, filtering the target audience for a specific campaign is done by identifying individuals who can "afford" expensive purchases. These strategies of different practitioners further confirm R10's practice of breaking down the audience into "multiple segments." In fact, practitioners leverage multiple factors (e.g., economic status, demographical characteristics, and education) to create a sense of digital proximity to influence OSN users to adopt a specific behavior. Even though it is not directly addressed in social influence theories, another area that could be explored in relation to immediacy is the role of tie strength. While tie strength is separately examined in OSN studies in relation to aspects like social capital and different types of support (Krämer, Sauer, & Ellison, 2021), combining tie strength with digital and spatial proximity factors of immediacy is likely to be a beneficial extension of any theory of digital social influence.

Indeed, compared to social influence in the context of face-to-face interactions and mass media, the combination of geographical and digital proximity in OSNs makes applying established social influence constructs to OSNs more complex. The boundary condition, space and proximity, aims to address this complexity. For instance, immediacy (Latané, 1981), a commonly adopted social influence construct in OSN research, is only partly applicable for examining social influence in OSNs since it does not consider the role of digital proximity in shaping digital social influence. In such instances, researchers can use this boundary condition as a justification to incorporate additional factors that should be considered when investigating social influence in OSNs.

5.2.3. The Locus of Influence

The *locus of influence* refers to the multiple layers of networks an individual is exposed to in OSNs (Chandrasekara et al., 2021). The members of these networks—that is, family, friends, colleagues, supervisors, and even celebrities—thereby indirectly determine much of the scope of the individual's OSN infosphere. Prior to the advent of OSNs, such a level of exposure to different groups was not possible. Of course, the degree and nature of the influence exercised by members of these networks vary (Chandrasekara et al., 2021), and the practitioners leveraged this in different ways:

> "I can see more information within an hour and not within a day than my grandparents did their entire life. I don't think that's healthy … but it's just more effective if we do talk to someone that [we can] trust and have respect [for] rather than coming from some influencer on Instagram." (R2)

> "Let's say the phone that I just bought, right? Like iPhone 11. Why did I buy this phone? Because I saw it with my friends, right? The content that they have uploaded. So that's the close circle that I have. And apart from that, I would have certain people that I don't interact [with] much, but … we can consider them as, like, let us say micro-influencers." (R8)

> "I mean, obviously, you'll get a few people who haven't seen the original influencer's posts, but they should be able to be convinced by the micro-influencers, their feedback, and word of mouth and endorsement, basically." (R10)

R10 made a distinction between "original influencers" (e.g., celebrities or other popular figures) and "micro-influencers," that is, influencers who have a smaller number of followers but have particular relevance to the user within a certain niche.

> "Ideally … you would get a celebrity … to run the campaign …. And at the end of that … you have micro-influencers taking over …. These micro-influencers influence their friends and family." (R10)

The notion of "trickle-down" (see Figure 5.1) describes how the social influence of mega-influencers is strengthened through the interventions of micro-influencers. The coordination of mega-, macro- and micro-influencers is an explicit component of campaign design, particularly where the goal is substantive actions such as purchases and other potential consequences of social influence, a topic I explored in the form of symbolic and substantive actions in Chapter 3. (A detailed discussion of practitioners' understanding of symbolic and substantive actions in relation to social influence will be presented in Section 5.4). Applying this boundary condition to examine digital social influence is particularly important when relating social influence constructs with potential consequences of social influence.
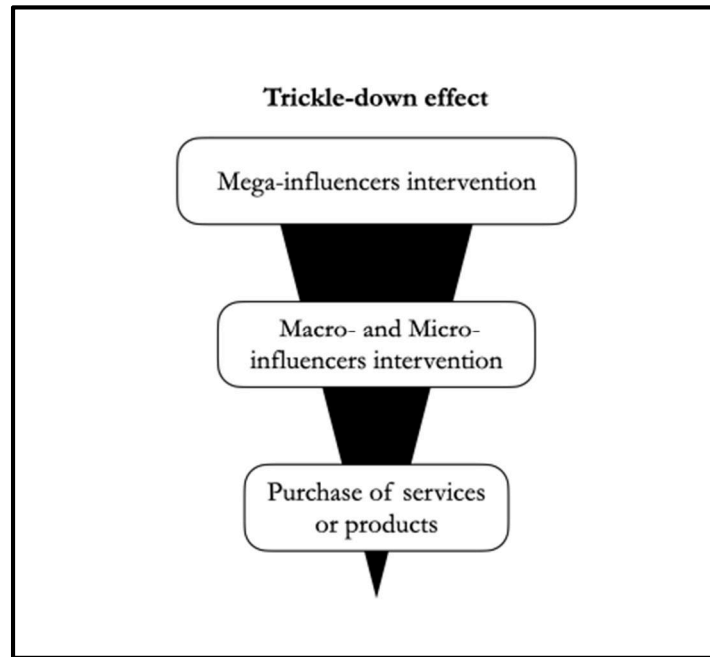
Figure 5.1. Strategizing campaigns using different categories of influencers in OSNs.

The practitioners described their use of micro-influencers and close social circles (e.g., friends and family) when targeting OSN users to engage in a substantive action (e.g., purchasing a product or attending a protest). This practice highlights the need to specify different layers of influencers and forms of influence. For instance, identification, the tendency of an individual to behave in a certain way to build or maintain a relationship with another (Kelman, 1958), is only part of the explanation for why an individual would behave differently within a network of influence. Therefore, a refined classification of influencers (e.g., levels of influencers based on factors such as the strength and nature of the relationship between the influencer and the influencee) is crucial to applying social influence constructs to OSNs.

5.2.4. The Number of People and Number of Times

Number (Latané, 1981) directly relates to the potential for a message to be influential, to the number of people or sources by which the message is conveyed. The construct was originally characterized in terms of the number of influencers (i.e., sources of influence), but in the context of OSNs, the relationship is more complex, given our refined classification of influencers and the potential for the targets of social influence to be a vehicle of influence themselves (see Figure 5.2).
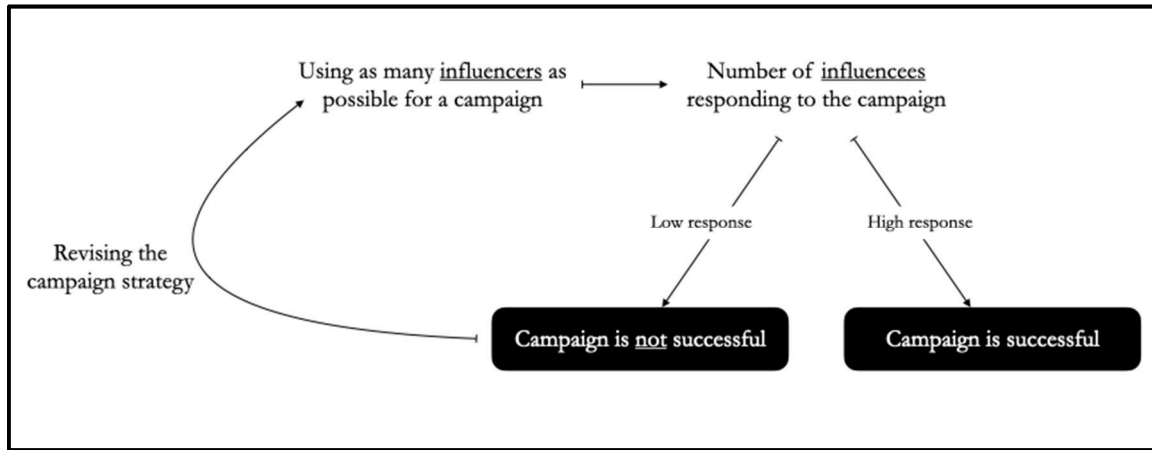
Figure 5.2. Interpreting the meaning of number in OSNs.

As our practitioners described, their preference is to include as many influencers (and other sources of influence such as web content) as possible in a campaign. This strategy corresponds to Latané's (1981) original characterization of number; that is, the greater the number of sources conveying the same message, the more the message influences. However, since OSNs facilitate two-way communication, the influencees also have the power to communicate their acceptance or rejection of a message. As a result, the number of influencees agreeing or disagreeing with a message has become an important metric for whether a campaign is successful:

> "I think … one week into the campaign, after monitoring, we realized that there were a lot of negative comments coming [for] this influencer. There were certain issues that were not highlighted before that [had] been brought forward by the audience of this influencer. So … obviously, we looked at it we scrapped that influencer from the campaign after that." (R10)

Further complexity is added to the process of social influence, given that number in OSNs also represents the number of responses by influencees to messages. A high number of responses by influencees to a particular message does not necessarily mean that the campaign has become successful. For example, if we assume that the intention of a particular message about a product is for its recipients to purchase it, having a high number of likes or comments to that particular message is not necessarily indicative that the message has been effective (i.e., in driving up sales). This complexity was highlighted in several responses given by OSN practitioners:

> "…Especially, no matter what the campaign is, most of the brand custodians, like the client, want to see the bigger numbers, but except [for] a few scenarios that we worked on, we specifically told all of them, it's not about the number. It's about the influential power of the message." (R3)

> "I would say I don't give a damn about … having so many likes because, you know, you can purchase likes nowadays." (R11)

> "Numbers do reflect on the success of the campaign quite a bit, but also, numbers don't always reflect complete success in terms of how many conversions have happened. I mean, you can boost something for a hundred dollars, and you will have so many likes, but [that] doesn't mean that you get to convert all of those into sales." (R6)

Another factor relating to the boundary condition *number of people and number of times* that arose from my interviews was identifying social influence through a *snowballing effect*. In digital social influence, snowballing can be defined as the potential of any action or response in OSNs to multiply. Snowballing can be planned or unplanned. Planned snowballing involves practitioners purposely taking actions to heighten the campaign's reach by promoting a campaign across different OSN platforms (e.g., Facebook vs. Instagram vs. TikTok) or on a single platform but across many different pages and groups. For example, if the campaign is about a book on parenting, the campaign might be promoted across multiple community groups and pages on parenting, in addition to direct advertising in multiple OSNs. Practitioners were not only concerned about the number of influencers they hired for a particular campaign but also about the number of other platforms to which the campaign could cross-post to gain the attention of the influencees:

> "Even Lord Buddha first spread the message to five preachers. Then, around 60 people joined, and it grew gradually. Even with us, it is the same. First, one person has to give the right message to the right audience in a clear and a simple way. Then others would take it forward." (R4)

> "So, what happens is that if we post on Facebook, Instagram, and Twitter, and people take that and start sharing it on WhatsApp and other messaging groups like messaging platforms [then] that's, like, one of the biggest ways we get traffic into us." (R2)

> "When using the cross-posting function, what happens is that the viewers would only see the compiled count of views obtained through all community pages for that particular video …. Its benefit is people getting the idea that this much of views had been received by this video. Then they tend to watch as well." (R4)

R2 and R4 highlighted the features of OSNs that are distinct from traditional media. By following different strategies to cross-post and share the content across multiple platforms, the practitioners can increase the "apparent" level of interest in the message. However, not all receivers of messages across multiple platforms respond to campaigns in the same way. This is a risk the practitioners were acutely aware of, given that unexpected responses (e.g., negative comments) can be the source of unplanned snowballing:

> "If the first four to five comments for a post are good comments, only good comments will keep adding. But, if the first four to five comments are bad, from that point, all the comments will be bad based on those first few comments." (R12)

> "People talk to each other on social media through comments in public …. That's why we use different people to change the topics." (R5)

R5 described how, if the comments were going in a negative direction, they also used their "fake accounts" to change the direction of the discussion. The tendency for negative or positive comments to snowball based on the initial comments received by a campaign can also be understood in relation to emotional contagion in OSNs (Kramer et al., 2014, p. 8790). One explanation of this process could be in terms of the social influence construct of internalization, whereby the content of a message must be consistent or congruent with the values of the influencee for them to accept it (Kelman, 1958). In OSNs, due to the potential for two-way communication, the target of the message can explicitly show their approval or disapproval for a message, which may, in turn, lead to the snowballing of positive or negative comments. In events where the influential message is inconsistent with the beliefs and values of the influencee, not only can they reject the message, but they can criticize it, justifying their criticism from their perspective, which in turn leads to a propagation of negative influence (relative to the goals of the original message).

5.2.5. The Diversity and Variety of Social Influence

Until this point, I have addressed the issues of how the incorporation of boundary conditions aids in examining mechanisms of social influence in OSNs. I have also shown that applying social influence constructs to OSN research can be complex and highly contextual. An additional boundary condition, *diversity and variety of social influence*, addresses aspects of this complexity by acknowledging the coexistence of diverse types of influence that challenge the direct application of social influence constructs (developed for face-to-face interactions) to OSNs.

Initially, when this boundary condition was developed in my critical review of OSN research in IS (see Paper 3, Section B), my focus was on how "the *diversity* and *the variety* of connections maintained" (Chandrasekara et al., 2021, p. 19) in OSNs, generating different types of influence. The diversity and variety of connections make social influence exerted through OSNs much more powerful than social influence exerted through other forms of media (Kwahk & Ge, 2012; Walther et al., 2008). As discussed under the locus of influence (Section 5.2.3), an individual who joins an OSN resides in an environment comprising large- and small-scale social networks that are disjointed and intersecting. Concurrent membership of such networks means that users are subject to diverse sources of social influence. Several practitioners in this study, particularly those engaged in online activism, community development, and human rights (R1, R2, and R7), identified diverse networks as a positive force facilitating discussion among target audiences that was beneficial to their purposes:

"We also have an understanding of who has influence [in OSNs] … and these people are not necessarily influencers in a social media sense …. The people that I mentioned are not people with lots of followers online …. But, we felt like their voices will resonate with different communities." (R1)

"Mostly, we are … targeting [the] Tamil speaking community [in Sri Lanka]. But … we got a lot of response[s] from Indian people …. One week we got 15,000 likes for our page, mostly from Indians. So, I wonder how these Indian people … are coming to our page because … our target audience is Sri Lankan …. I learned through that experience, [and] after that, mostly in my lectures … I informed our participants "if you take [the] Tamil speaking community, you must include Indians too." (R7)

However, R2 also suggested that diversity may not be ideal for digital marketing: "you'd rather spend your marketing money on someone who might actually convert" (R2). Thus, for OSN practitioners in the digital marketing setting, diversity could be both facilitating and threatening, depending on the expectations of the specific campaign:

"Sometimes, there are competitor attacks happen[ing] that way. And, sometimes … we identified that there are supporters … advocates, and … haters." (R3)

"To be very honest, it is not easy to get that sort of engagement. Well, there is a lot of clutter also on the platforms." (R6)

Diversity and variety of social influence may be better considered a meta-boundary condition in that it requires the application of other boundary conditions to account for the complex topologies of OSNs and the interacting processes of influence. Thus, the boundary conditions choice, space and proximity, locus of influence, and number of people and times cannot be independently applied, and, where they are applied, the different characteristics and features of OSNs must be considered. This caveat further underlines my call (in Paper 1 and Paper 2) for researchers to be explicit about the types of social influence they invoke in their studies or system designs. Studies that draw on social influence theory, as well as studies that follow data-driven approaches to examine digital social influence, would do well to use boundary conditions of social influence to frame their work and account for interactions between constructs. In fact, sample campaigns discussed by some practitioners indicated that practitioners were conscious of these boundary conditions and attempted to incorporate these to make their campaigns more effective.

Sample Campaign: X designed an OSN campaign to promote a new business established in Y Zone. The target group of the business was millennials in Y Zone of Sri Lanka. Given the nature of the target audience and being conscious of the type of influencers the youth would include in their online social circles (choice), X decided to partner with some influential figures from an entertainment event happening in Y Zone. After partnering with the entertainment event, X promoted the business in OSNs with multiple influential entertainers from the event

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(locus of influence) admired by the youth in Y Zone. However, simply hiring multiple influencers was not adequate for the campaign to widen its reach. Therefore, these influencers' messages had to be communicated across multiple OSN groups and pages (number of people and times) accessed by the target audience. To ensure that the campaign mostly reached the target audience in Y Zone, X also customized the OSN campaign to be consistent with the language and style of communication in Y Zone (space and proximity). The selection of influencers for the campaign was also determined by the target audience's age since it was identified that the selected influencers related to the target audience better (space and proximity). Overall, the decisions made by X to include a number of influencers who connected to the audience better, to specify the campaign in terms of language and communication, to be cognizant of the choices of the target audience, and the decision to promote the campaign across multiple pages and groups were all shaped by the diversity and variety of social influence in OSNs. In fact, when compared with mass media, there is a limited chance for OSN campaigns to be effective without making rational decisions to scope a campaign for a specific target audience.

Figure 5.3 illustrates the nature of the interaction between boundary conditions in the sample campaign. The arrows in the Figure indicate how one boundary condition influences another in the sample campaign. In different online campaigns, the way boundary conditions influence one another varies.
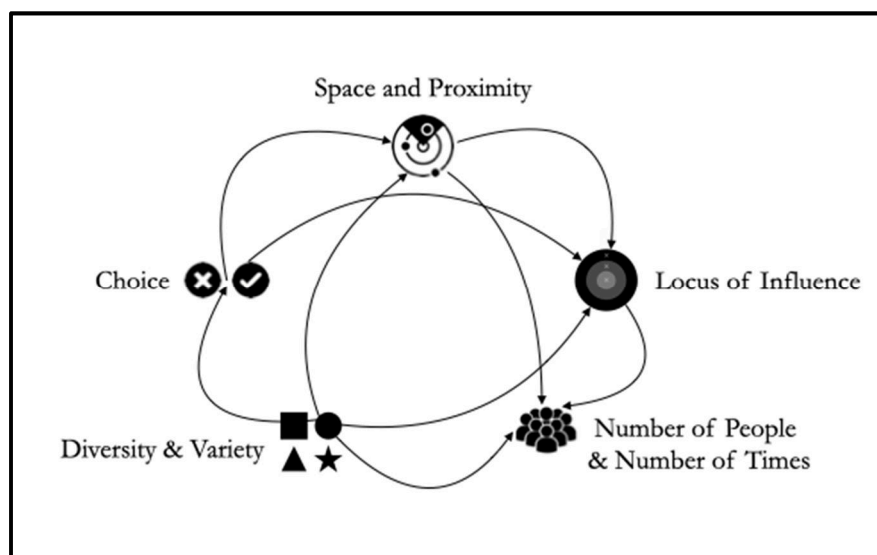
Figure 5.3. Interactive nature of boundary conditions of social influence in a sample campaign.

Particularly for practitioners, organizing any given OSN campaign requires conscious attention to boundary conditions of social influence to optimize the campaign's reach to the target audience. Since boundary conditions affect and shape one another, as in the given example, they should be explored holistically rather than individually. Further, as I proposed in Chapter 3, boundary conditions should not be considered moderators of social influence alone (Busse et al., 2017), as to do so would undermine their value. Boundary conditions are our conceptual tool for refining existing social influence constructs (Busse et al., 2017) in their application to OSNs.

5.3. Application of Social Influence Strategies in Relation to Original Social Influence Constructs

In this section, I revisit the social influence constructs identified in my critical reviews of both IS and HCI studies to consider whether there are any outstanding factors in their application to OSNs arising from my interviews with practitioners. The salient social influence constructs explored in the qualitative study were Kelman's social influence constructs: (i) compliance, (ii) identification, and (iii) internalization (Kelman, 1958); and Latané's social impact constructs: (iv) strength, (v) immediacy, and (vi) number (Latané, 1981). To this end, in the previous section, I have considered immediacy and number in my analysis of boundary conditions. For instance, proximity, which is the central theme of immediacy, was refined to include both physical and digital proximity. Likewise, in addition to considering the number of sources of influence (i.e., the number of influencers), I identified the necessity of also considering the number of responses by influencees, both positive and negative. For this reason, there is little that can be achieved by revisiting either immediacy or number.

When analyzing the interview data, I coded the interviewees' responses by paying attention to the social influence strategies shared by them. Once all factors related to digital social influence were coded, I then aggregated the codes into subthemes and themes, informed by the six social influence constructs, the boundary conditions and the consequences of social influence (see Chapter 4 for further details on the data analysis approach). My analysis not only led to the identification of unique factors that should be incorporated into social influence constructs, but it also revealed that the applicability of some constructs to OSNs has changed and/or reduced due to the distinct nature of OSNs (compared with face-to-face interactions).

5.3.1. Compliance-Based Social Influence Strategies in OSNs

Compliance can be considered a social influence process that describes how an influencee would become subject to social influence in a reward or punishment-based environment to "achieve a favorable reaction from another person or group" (Kelman, 1958, p. 53). Six OSN practitioners

(R3, R5, R6, R7, R12, and R13) explicitly stated that they had not employed powerful figures for their campaigns. This choice can most likely be explained in terms of the operation of compliance, which is different in OSNs compared with face-to-face interaction. When Kelman (1958) conducted his original research on reward and punishment-based social influence, an influencer could induce a particular behavior or attitudinal change in another, given the potential of the influencer to surveil the behavior of the influencee. In such cases, the influencer has power over the influencee and can affect influence through "means-control" (Kelman, 1958, p. 54). However, putting the case of OSN cancellation aside (Ng, 2020), this "means-control" is rarely the case with OSNs. Zhou (2011) and Kowalczyk-Anioł and Nowacki (2020) have similarly claimed that compliance may not be as effective as other social influence constructs in digital spaces.

Some of the practitioners indicated that even though authoritative figures are still used in OSN campaigns, they are more subtly deployed to encourage attitudinal change:

> "Especially in this case where we used [names of authoritative women in different industries in Sri Lanka redacted for anonymity], we felt that we want[ed] to kind of break the stereotype and show that there have been women who … were extremely stressful in those offices as well. I think using those figures help[s] to break those stereotypes." (R1)

Here R1 described how popular and powerful women in different employment sectors of Sri Lanka were used in a campaign on breaking gender stereotypes at work. While the campaign utilized "powerful influencers" to promote attitude change in the target audience, it was based on the attractiveness of the influencers in the eyes of the target audience and, thus, relates better to the construct of identification (Kelman, 1958). However, compliance in its original is used in situations in which authoritative figures are intentionally recruited either to build or damage a brand:

> "Even though it is not ethical, if someone wants to degrade a brand, the power of politicians can be used. [Brand name] did the opposite. [Brand name] faced a big problem with the rumor that it contains [unacceptable ingredient at the social level]. After this government came, what they did was [brand name] sponsored something on behalf of [name of a politician]. And [name of politician 1] and [name of politician 2]'s official social media pages mentioned that [brand name] is good." (R4).

Although compliance is rarely applied to OSNs, its applicability to OSNs cannot be discarded based on the practitioners' views. Kelman (2006) highlighted that compliance depends on the influencer's ability to establish a sense of physical presence, thereby nudging the target (influencee) to accept influence. Even though such a "physical presence" is not achievable in OSNs, users can still maintain a "digital presence" in their online social circle and exercise rewards and punishments. According to Cheng et al. (2014), OSN users are highly likely to change their online behavior based

on the positive and negative comments they receive for their posts from others. Based on Cheng et al's study, the users who receive negative responses tend to evaluate other users similarly.

Cancel culture in OSNs is another aspect that shows the effects of compliance in digital spheres. The two-way communication of OSNs discourages practitioners from recruiting "authoritative" figures, given that practitioners can be criticized by hundreds of thousands of users if the authoritative figure makes an unacceptable claim in a campaign. Further, when users unfollow celebrities, they can create digital movements against those who demonstrate "unacceptable or highly problematic" behaviors (Ng, 2020, p. 623); these are examples of how compliance is manifested in the OSN context. Even though practitioners are not consciously aware of the application of compliance-based social influence strategies in OSNs, their decisions to act on the comments from the target audience and change the influencers based on negative reactions and comments of the target audience exhibit the operation of compliance. The reversal of the influencer–influencee power balance in OSNs means that the influencees also possess means-control (through criticisms and negative reactions), which affects the influencers. Thus, in the OSN context, compliance, which was once discussed in relation to the different attributes of influencers, can also be understood as based on the decisions taken by influencees to respond to influencers.

5.3.2. Refining Strength to Meet the Requirements of OSNs

The construct *strength* refers to the characteristics that make a person influential and have a moderating effect on social influence coming from compliance, identification, and internalization (Paper 1). In the context of OSNs, I examine strength by comparing the characteristics used by practitioners to describe influential figures with those used by Latané (1981) in his description of the social influence construct:

> "Salience, power, importance, or intensity of a given source to the target—usually this would be determined by such things as the source's status, age, socio-economic status, and prior relationship with or future power over, the target." (Latané, 1981, p. 344)

Notably, Latané's inventory primarily relates to wealth, age, and potential to have power over the influencee, while the practitioners identified that power, status, popularity (that serve influencers in other forms of mass media), or even face-to-face interactions do not have a significant effect in OSNs. In Table 5.1, I have shown the words used by practitioners to characterize the effective OSN influencers.

Table 5.1. Words used by practitioners to characterize effective OSN influencers

Participant number	Words used by practitioners
R1	"respect"; "their voices will resonate with different communities"
R2	"take responsibility for things he says"; "authentic"; "trust"
R3	"like-minded people"; "credibility"; "authentic"
R4	"credibility"
R6	"look up to that person"; "encouraged and motivated by that person"; "authentic"
R8	"credibility"
R9	"look up to this individual"
R10	"lifestyle"; "liking the same things you do"
R14	"authentic"; "credible"; "trustworthy"

The most common characteristics of an OSN influencer, identified by many practitioners (see Table 5.1), were authenticity and credibility:

> "The biggest thing is the credibility. If they say something credible, I mean, people believe it." (R3)

> "His stories are more authentic … very credible [and] trustworthy. So, people now … don't trust mainstream media channels because they know they can reach X [name of the OSN influencer]." (R14)

> "They aspire, look up to that person, you know. It's like they are really encouraged and motivated by that person. So, we believe, maybe, [that] when that person promotes a product directly or indirectly, it does, sort of, influence the people to, sort of, try and get those same products." (R6)

Most of the practitioners' claims emphasized that picking the right influencer with the right characteristics or qualities (a match between the influencer, campaign objectives, and the target audience) is crucial to ensure that the target audience is influenced through the campaign to change their attitude or behavior. They contrasted the selection of OSN influencers with the use of influencers in mass media, where celebrities and other people with popular social status and authority are used to endorse products on television and other forms of media (Cialdini, 2007). When selecting an OSN influencer for a campaign, R8 even described how marketers might perform background checks on potential influencers prior to hiring them for a campaign:

> "We figured it out … whether they have a positive image or a negative image, or whether they have any bad history, any baggage, or anything like that in the past" (R8)

R8's remarks are consistent with those of Moore et al. (2018, p. 2) that "consumers trust an influencer who provides them with information based out of genuine skill and knowledge, and that applies to their situation."

The original conception of strength as a construct of social influence must be adapted and extended to account for a number of unique factors that are characteristics of OSNs, including the nature of choice (Section 5.2.1), locus of influence (Section 5.2.3), and the inherent two-way communication between influencer and influencees. For example, as R6 described:

> "Sometimes, there have been cases where the influencer tries to promote a particular product, and you know … all audience … just bounces back on it, and there's been a backlash." (R6)

A user's choice to respond to an influencer affects how strength operates in influencer campaigns. Their choice to critique a campaign, explicitly support the influencer, and even not respond at all (lurking), moderates and, in some cases, counteracts the influence derived from social status or general authority. In highlighting the importance of focusing on the user, Scholz (2021) described how paying attention to the choices of the target audience is even more important than identifying what makes an influencer effective in OSNs.

Strength of influence in OSNs is also moderated in relation to locus of influence in that users are simultaneously exposed to different influencers and different types of influencers (e.g., politicians, celebrities, experts, family, friends). These competing demands, that is, multiple sources of social influence communicating different types of information, have the potential to reduce the intensity of any one campaign. This environment of competition between influencers has led to analyses that focus on the characteristics of a campaign and other variables that lead one influencer to "outperform" others (Kay et al., 2020). As such, the boundary conditions repeatedly show the importance of focusing on the contextual attributes of OSNs that could change the operation of social influence in OSN campaigns. The construct strength is best refined to incorporate the notions of *authenticity*, *credibility*, and *relatedness* that are meaningfully different from the original definition of strength as a moderator of social influence. These findings are consistent and complementary to emerging OSN research on the credibility and authenticity of influencers. Such research includes explorations of the importance of the intrinsic motivations of influencers (Gerrath & Usrey, 2021); related nonempirical proposals to extend theories of social media to incorporate authenticity (Voorveld, 2019); and discussions of the ethics of authenticity in influencer-based social media campaigns (Wellman et al., 2020). Even in health communication studies, credibility and authenticity have been recognized as important factors that should be considered when developing OSN content (Jenkins, Ilicic, Barklamb, & McCaffrey, 2020). The

same study indicates that, when determining the perceived credibility of an influential source or a message in OSNs, the characteristics of the message (use of language) based on the type of OSNs (e.g., Facebook versus Twitter), different levels of expertise ("expertise heuristics") and the number of comments, likes, and other data available for the public about a given message or a source ("bandwagon heuristics") are crucial (p. 9).

5.3.3. Identification and Related Social Influence Strategies in OSNs

Identification, another construct introduced by Kelman (1958), addresses social influence grounded in an influencee's desire to engage in, or maintain, a "relationship" with an influencer. As already discussed (Section 5.3.1), it is particularly important to distinguish between influence grounded in compliance and influence stemming from relationships of identification. Therefore, I paid specific attention to interview responses in which the practitioners highlighted the kinds of relationships formed through OSNs and how those relationships moderated social influence. In one of Kelman's social influence studies (Kelman, 1961), he distinguished between two types of identification: *classical identification* and *reciprocal identification*. In classical identification, an influencee would act in a certain way only to appear like the influencer. An influencee who aspires to follow the same lifestyle as a celebrity is an example of classical identification. However, in reciprocal identification, the influencee would simply be influenced to follow an influencer because the influencer can play a role that is reciprocal to the role of the influencee (e.g., a friendship between two individuals). Kelman (1961, p. 68) also emphasized *attractiveness* as an important factor that needs to be considered in identification, qualifying the term in that it "does not refer to the possession of qualities that make a person likable, but rather to the possession of qualities on the part of the agent that make a continued relationship to him particularly desirable."

Given that OSNs facilitate two-way communication, the practitioners indicated that they have to be extremely careful in establishing and maintaining relationships between influencers and their target audience. Kelman's observations concerning attractiveness in identification was a particular focus of the practitioners' explanations:

> "So, if you take a digital wallet … if you get, let's say a celebrity, a famous actor with two million followers … versus you get a … micro-celebrity with a hundred thousand followers, who is in the lifestyle of, you know, young, tech-savvy, who is maybe always up to date with the latest digital trends, who always talks about things like that. So that sort of person with a hundred thousand following is going to be, I would say, far more effective than a celebrity, an actor with two million followers, right? (R10)

Here, the micro-influencer (with a smaller number of followers) has an expertness in a relevant niche and is, therefore, deemed likely to be a more effective influencer for the particular product

campaign. His "youth," "lifestyle," and "tech-savvy" qualities make him relevant and match with the aspirations of the target consumer segment that the campaign is seeking to reach.

Previous OSN research mainly focused on how popular influencers (i.e., widely known and liked by the general public) can affect changes in attitudes and behaviors. These studies have typically overemphasized the association between *likeability* (of the influencer) and identification, for example, in studies of identification and celebrity influencers (e.g., Jin and Phua (2014); Kapitan and Silvera (2016)). However, R10's claims were typical of our practitioners—that social influence in the form of identification is most successful when you pick an influencer who has a recognizable specific knowledge about a product or service they promote and is someone that the target audience can relate to, or even, achievably, aspire to become.

The practitioners' responses in discussing the factors contributing to a successful relationship in OSNs can also be related to the influencer characteristics identified as important under the construct strength (Latané, 1981) (see Section 5.3.2, Table 5.1). It was evident from the interviews that individuals would be more open to establishing and maintaining relationships with influencers who appear credible rather than being influenced by celebrities with whom they cannot relate personally. This finding is different from Kelman's understanding of credibility established through the process of internalization in which influencees deem an influencer credible given their overall "expertness and trustworthiness." (Kelman, 1961, p. 68) In OSNs, credibility functions more as an overarching moderating factor, even for the constructs compliance and identification, given the choice that users are afforded. As such, influencees, no matter how much they want to build or maintain a relationship with the influencer, are unlikely to accept the influencer's message if they have no credibility concerning the specific message:

> "Even close family members who I really trust, and I love at a personal level, I don't trust their opinion on certain things." (R2)

> "Let's say you have tapped into one influencer, and then you created content. After that, they are talking about something else, [and are] bashing you …. Let's say [a] couple of months [later], they can't even remember that they have worked with your brand. I can remember certain incidents, and … we filter them out in the first place itself." (R8)

However, credibility is not the only factor practitioners highlighted as important to identification. While most practitioners discussed how the credibility of micro-influencers and being able to relate to them better would often lead to successful campaign outcomes (e.g., R10), R13 indicated that the importance of celebrities in campaigns should not be undermined. R13, a digital marketer promoting technical products using OSNs, utilized celebrities (regardless of their credibility and relatedness) as influencers to build more awareness around his products. His premise was that by

using celebrities for the campaign, his target audience (which is broad) would want to act like the celebrities and, therefore, form an intention to purchase his products. In the boundary condition locus of influence (Section 5.2.3), we identified that celebrity influencers (i.e., mega-influencers) are widely used for building brand awareness; thus, R13's viewpoint is compatible with Kelman's conception of classical identification where an individual would act like another and accept influence because they (at some level) aspire to become like the influencer. Sánchez-Fernández and Jiménez-Castillo (2021) also identified that influencees would be subject to identification in OSNs when they form an emotional attachment with the influencers (without the influencers knowing), thereby forming a behavioral intention to adhere to their message.

This finding is consistent with my findings that, while in some cases, having an influencer celebrated by the majority of the public (e.g., a popular actress or a singer) is effective for campaigns aimed at symbolic actions (particularly around building brand awareness), the majority of OSN practitioners are seeking to use identification and credibility facilitated by internalization to affect substantive actions. Indeed, as discussed in relation to locus of influence (Section 5.2.3), the use of celebrity or mega-influencers to raise awareness and credible micro-influencers to "close the deal" is a common campaign strategy.

5.3.4. Internalization and Related Social Influence Strategies in OSNs

Internalization is a process of social influence that occurs when an individual "accepts influence because the induced behavior is congruent with his value system" (Kelman, 1961, p. 65). Kelman (1958, 1961) identified that the most important quality an influencer needs to change an attitude or behavior through internalization is credibility. Given that in internalization, the message of influence should be consistent with the influencee's values and beliefs, the *content of the message* also becomes an important factor confirming the credibility of the influencer:

> "Authentic content is very important … I mean, we live in [the] information age where people are not stupid." (R2)

> "The problem with X [name of an OSN influencer] is [that] he is reviewing anything for money despite … its quality or content. On one side, it is good because any product can be promoted through him, but due to [that] very reason [reviewing poor quality products], his credibility is decreasing gradually. Now, when one of my clients ask[s] who[m] to follow, I do not recommend him since he does not have credibility." (R4)

The importance of credibility and authenticity in OSNs was also discussed in relation to the moderating construct of strength (see Section 5.3.2). Kelman described credibility as "expertness and trustworthiness" of the influencer (Kelman, 1961, p. 68). His interpretation of credibility was primarily related to the qualifications of an influencer that makes the information shared by them

credible and reliable. In his classic example for internalization, Kelman identified a professor from a prestigious university with a strong background in the field in which he is applying influence as credible.

However, in OSNs, credibility is coupled with authenticity and relatedness to the target audience (see Table 5.1). An effective influencer is someone who is respected and perceived as being in the sphere of experience of the target audience, rather than a high-status individual who is a qualified expert in a specific field but is not proximal to the target audience in any way. Likewise, the practitioners identified influencers who were credible, authentic, and relatable to the target audience as those most likely to be successful:

> "Some people are more authentic, and they post things that are actually coming from them, not from … a PA [Personal Assistant] …. I think those people can only work in a social media landscape." (R2)

> "Credibility matters a lot: whether the message is credible, whether the personality [of the influencer] itself is credible …. The thing that we want to match with the person [influencer] is, basically, the purpose of the brand [and that] has to match with the purpose of the person [influencer]." (R3)

However, as per Kelman (1961), credibility in an influential message does not imply that the influencees rationally analyze messages transferred through internalization, but that it is the convincing way that message is conveyed that causes influencees to believe it. Therefore, the influencers should have "perceived credibility" (Scholz, 2021, p. 3) and authenticity for internalization to be effective. Similarly, practitioners adopt several strategies to ensure that OSN influencers are "perceived" as credible, relatable, and authentic by a target audience. Herein, the content of the message becomes increasingly important. For example, R1 stated that:

> "We also then need to think … what kind of stories will resonate with the audience …. So, we try and look for interesting stories they … share. If you feel like it will resonate with the audience online, then we … pick them." (R1)

According to R1, content is more appealing when it demonstrates an awareness of the latest trends and what is generally interesting for the target audience. This strategy of combining the campaign content with events happening in the country at a given time is also used by practitioners to strengthen the influence process (e.g., responses from R2, R3, R8, R15). The coupling of an influencer's perceived credibility and authenticity with an *emotional* message that is relatable to the target audience is one way in which internalization operates differently in OSNs compared with face-to-face interactions. In Kelman's interpretation of internalization, an influencer's general level of expertness and trustworthiness was sufficient for internalization to be effective. However, in OSNs, expertness and trustworthiness need to be more specific and coupled with other factors

(relatedness, authenticity, emotional appeal) for influencees to perceive the message as consistent with their beliefs and values.

The requirement for these additional factors to be present in influence through OSNs based on internalization can also be understood in relation to locus of influence. As highlighted in Section 5.2.3, for a given campaign to be effective, the characteristics of an influencer alone are not sufficient given the coexistence of many other influencers in the OSN space. For an influencer to stand out from the crowd, not only must they appear credible and authentic, but also their message of influence should be specific, timely, and emotionally resonant:

> "People may comment on things … put reactions on certain posts, but they won't just share something if they don't really see that [the campaign] is connected to them or they don't see there is value in sharing something like that." (R3)

In fact, leveraging an emotional tone that resonates with a target audience is an important element of internalization-based OSN campaigns. Even though internalization in its original formulation did not incorporate emotion, in OSNs, the practitioners confirmed the importance of using emotional aspects to ensure that influential messages appeal to the values and beliefs of the users:

> "Just [an] emotion, like a very sad image of someone struggl[ing], someone going through something, is more effective than [a] 10,000 word … well-researched article." (R2)

> "Very raw, emotional things tend to get a lot of reach." (R2)

> "Our finding is mostly our people are very emotional …. Sometimes, we use religious issues, religious means, religious teachings, or at least some religious leaders. We use religious leaders also as influencers. So, they also support our campaigns". (R7)

Overall, it was evident that the applicability of internalization is heightened in OSNs, and this finding is consistent with other research. Liu et al. (2021, p. 98), when focusing on online fundraising campaigns, identified that internalization (Kelman, 1958) has a major influence on the success of fundraising campaigns, manifested through different factors present in a fundraiser's online profile (e.g., "number of followers, post volume, and identity status"). Oliveira et al. (2020), when exploring the reasons for sharing travel experiences online, identified internalization as one of the strongest reasons for sharing travel experiences with others.

However, it is also noteworthy that social influence strategies for OSNs, based on either identification or internalization, require credibility, authenticity, and relatedness. Kelman (1961, p. 66) demonstrated indirect recognition of this requirement when he identified that the "three processes (compliance, identification and internalization) are not mutually exclusive." It is also evident from my interviews with practitioners' that the boundaries between established constructs of social influence (applicable to OSNs) are increasingly difficult to demarcate from one another.

This finding further supports my recommendation in paper 2 (Section B) that distilling the constructs of social influence in the context of OSNs is crucial to their study.

5.4. Exploring the Consequences of Social Influence: Symbolic and Substantive Actions

Since its inception, social influence theory has been extensively explored in relation to attitudinal and behavioral change (Kelman, 1958). However, one notably absent aspect of the theory is a concern for the outcomes of social influence, in particular, how different constructs relate to the range of consequent actions. In Chapter 3, I discussed how features of OSNs lead to different types of actions, from liking and commenting on a post to making a purchase or a financial donation. In Paper 4 (Chandrasekara & Sedera, 2019b) and Paper 5 (Chandrasekara & Sedera, 2019a), I proposed a classification of the consequences of social influence and showed the relationship between salient social influence constructs and symbolic versus substantive actions. In my qualitative study, I sought to explore this phenomenon further and investigate whether the OSN practitioners distinguished between and implemented different social influence strategies depending on the class of outcome desired.

Indeed, the practitioners described how the nature of the actions desired of their target audience was a key consideration in the design of their campaigns:

> "If our objective is just to make people watch the video, like, we don't want them to do anything; we just want him to watch the video only … yeah, the campaign in that sense, based on the objective, the style of the campaign and the format, everything changes." (R6)

For instance, for campaigns for which symbolic actions are the goal—such as *liking a page or a post, commenting on a post*, or even *viewing a video*—little effort is expended on target audience segmentation and the identification of influencers with specific characteristics:

> "If a client want[s] just the awareness, the number of views, so, in that case, we won't much go in detail to the person. But, if [the] product and [the] client is very much concerned about the people we use as influencers, so it will be mainly a look at that personality." (R5)

In the example given by R16, she mentioned that, they attempt to create more general content about their programs and activities without following any specific strategies because their intention is only to make an online presence. Since their focus is 'online presence', they do not concentrate on catering specific target audiences or requirements:

> "We try to show what we do. We try to show where we are at. I mean, we try to show our locations, our programs, our people … what they do in the projects, but we don't really focus on a certain category of people. We try to be general. And we don't really focus on a certain project for a long time." (R16)

This matter was touched upon in Section 5.2.3 (in particular, see Figure 5.1) and Section 5.3.2, where it was observed that practitioners leverage celebrities with general appeal to raise awareness and micro-influencers to effect substantive actions such as purchases. In talking about campaigns that seek to achieve a substantive action, the practitioners were clear that characteristics related to both internalization and identification are important:

> "So, if you take a digital wallet … if you get, let's say a celebrity, a famous actor with two million followers … versus you get a … micro-celebrity with a hundred thousand followers, who is in the lifestyle of, you know, young, tech-savvy, who is maybe always up to date with the latest digital trends, who always talks about things like that. So that sort of person with a hundred thousand following is going to be, I would say, far more effective than a celebrity, an actor with two million followers, right?." (R10)

Micro-influencers with recognizable knowledge in a specific field that the target audience could easily relate to were identified as more effective in campaigns focused on substantive actions. Close online social circles were considered key to campaigns seeking to leverage identification to effect substantive action:

> "The friendship and other family influencers are working rather than [an] influencer, you know. They are believable. If I invite my friend, *machan*[6], come, we have to go [to] this protest, he's coming." (R7)

Practitioners also use internalization-based strategies when seeking to influence an audience to take substantive action. For example, in Section 5.3.3, I observed that the creation of content with emotional appeal was a common approach:

> "It depends on the narrative as well …. You have to be very strategic on that …. You have to hit the mindset of the people within that one or two sentences … or you play with the emotional and the behavioral patterns of that person." (R11)

> "It has to be connected with the story, the audience, and I would believe people are willingly listening and willingly watching or, rather, taking action when we use micro- and macro-influencers targeting the specific action. But, when we use celebrities, it may not work most of the time. You will get awareness for sure, but you have to use them to drive awareness, but not to drive anything else like more product-driven things." (R3)

My findings in relation to the low value of mega-influencers and celebrities to campaigns seeking to effect substantive action are also consistent with the observations of Jin and Phua (2014), who identified the use of celebrity influencers as an effective approach for creating awareness, but not for encouraging buying behavior (for reasons of credibility). Table 5.2 summarizes my findings

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[6] *Machan* is a Sinhala slang word meaning "friend" or "mate."

with respect to how social influence constructs can be applied to achieve symbolic and substantive action.

Table 5.2. Consequences of social influence in relation to social influence constructs and strategies applied by practitioners

Type of action/consequence	Application of social influence and other strategies by practitioners
Symbolic action	Identification is applied to the campaign with the use of celebrities or mega-influencers.
	Internalization is not a key concern for the campaign creation as long as the campaign receives attention from the target audience.
	Low effort is placed on identifying impactful influencers for the campaign.
Substantive action	Identification is applied to the campaign using multiple types of relatable influencers, including close social circles, macro-influencers, and micro-influencers.
	Internalization is crucial and is considered when selecting influencers (compatibility of values between the influencer and the influencee) and the narrative of the campaign (the message is compatible with the beliefs and values of the target audience).

Overall, for substantive actions, social influence takes the form of identification and internalization through which individuals are influenced to commit an action because they identify with those who convey the message (identification) and believe the content of the message because it is congruent with their beliefs and values (internalization). This finding extends the results of my preliminary empirical study, described in Paper 5 (Section B), in which identification was the strongest predictor for symbolic action, and internalization was the strongest predictor for substantive action (Chandrasekara & Sedera, 2019a) but also highlights the importance of strategies that use both identification and internalization to promote substantive action.

5.5. Symbiotic Relationships Facilitated by Two-Way Communication in OSNs

Symbiosis is a technical term in biology and ecology for "an association defined by intimacy of interaction, rather than consequences of that interaction" (Saffo, 1993, p. 18). Saffo (1993), citing De Bary (1879), who coined the term "symbiosis," emphasized that symbiosis should be understood as "the living together of dissimilarly named organisms" (p. 18) by liberating the relationship between the "dissimilar organisms" from the outcomes of the relationship (i.e., the

achievement of a mutually beneficial goal as a result of the relationship or creating a stable equilibrium).

Numerous disciplines have subsequently adopted the term symbiosis, including marketing (e.g., Varadarajan & Rajaratnam, 1986), to describe growth opportunities in the market based on relationships between independent companies; computing (e.g., Licklider, 1960), to emphasize the possibility of building an interdependent relationship between human beings and computers; criminology (e.g., Gravel et al., 2018, p. 257), to examine the relationship between media and police task forces in "gang-related homicides"; tourism (e.g., Ryan, 1991), to identify the role of marketing in the developing tourism sector, and many other disciplines to discuss relationships between dissimilar social groups, domains, and professions.

The importance of considering social influence arising from OSNs as a symbiotic process became apparent in my critical review of the HCI literature (Paper 2, Section B). Notably, in Paper 2, I emphasized how most of the established social influence constructs have been defined based on the qualities of the influencers without paying adequate attention to the influencees' contribution to social influence. Understanding social influence based on the influencer's role is only valid in events where influencees are mere passive recipients of different social influence processes. Yet, in OSNs, this is not the case. In fact, the relevance of symbiotic relationships for OSNs is only beginning to be explored. Even though these relationships are not identified as symbiotic, Mahmoodi et al. (2018) explored how an individual who influences another would also be affected by that other individual. Kizilcec et al. (2018) examined how relationships among individuals in OSNs affect gift exchange. Of greater relevance, Surma (2016) explored the applicability of social exchange theory in OSNs by seeking how an increased number of messages by an influencer would encourage influencees to respond to an influencer more.

Although discussions on reciprocity in social influence are a good starting point to understand the nature of relationships among individuals and groups in the context of OSNs, these fail to elaborate or even consider the relationships and interdependencies among dissimilar groups or individuals. In other words, a relationship between two or more parties is symbiotic only if the interdependent parties are different or dissimilar from one another (Roossinck, 2005). Further, as highlighted by Saffo (1993), symbiotic relationships do not need to be outcome dependent (e.g., the stable equilibrium that is characteristic of many ecological symbiotic relationships).

In the context of OSNs, we can consider the influencers and influencees as dissimilar parties who interact with each other to achieve different objectives. In traditional media, influencees do not have the opportunity to interact with influencers—this is not the case for OSNs, for which a

symbiotic relationship exists. For example, the practitioners described how influencers, even those who have no personal connections with influencees, were very much concerned about the influencees' responses and would modify future posts based upon their responses. Unlike the traditional media, where influencers play a considerable role in changing the attitudes or behaviors of influencees, in OSNs, influencees also shape the strategies employed by influencers and the trajectory of a campaign. Indeed, my interviews uncovered many instances where not only the content of the campaigns was changed, but also the influencers themselves had to be replaced because of negative reactions:

> "I probably do … research because if a person who has a negative perception of that influencer … is in your target audience, that person is probably never going to buy a product or service." (R10)

> "A huge issue came because of some sort of a discrimination [that] happened within the ad [online advertisement] itself. So, communities … connected, and they came to a point that the reputed organization [that created the advertisement] had to shut down the entire advertisement and … apologize for making that." (R3)

Notably, the advertisement referred to by R3 had initially been broadcast on television, for which there was no discernable negative response. However, when the same advertisement was promoted through OSNs, an online discussion emerged that focused on the negativity of the advertisement. This discussion ultimately led the campaign creators to remove the advertisement from OSNs and make a public apology.

The ability of influencees to have an impact on the influencers is the very reason why the term "symbiotic relationship" was purposely selected to describe this two-way communication and its effects in OSNs. Indeed, the relationship between the influencers and influencees in OSNs extends beyond a reciprocal relationship. As much as influencers benefit from creating campaigns through OSNs, the influencees also receive power in OSNs to voice their concerns, as opposed to traditional media, where their voice is unheard. Further, both influencers and influencees have different forms of power and objectives in using OSNs for personal gains. Regardless of the outcome of the relationship (positive or negative) between the influencers and the influencees, they still continue to affect each other.

Throughout this chapter, from the discussions on boundary conditions to the application of social influence strategies, evidence that influencers and influencees affect each other is readily apparent. When we develop methodologies to examine social influence arising through individual interactions in OSNs, it is crucial that we consider this symbiotic relationship between influencers and influencees. The practitioners repeatedly emphasized the importance of attending to the ability

and the power of influencees to affect both influencers and campaign content. Thus, the success of a campaign no longer depends solely on carefully crafted content and the recruitment of appropriate influencers as a vehicle for delivery. In addition, campaign planning now involves anticipating possible reactions from the target audience (influencees) and contingency planning for worst-case scenarios.

Therefore, the symbiotic relationship between the influencer and the influencee must be considered when applying social influence constructs and boundary conditions. Influencees have the power to comment, critique, and reject campaign messages. Thus, for example, campaigns that seek to leverage internalization in OSNs not only run the usual risk of being ineffective but also risk backlash if the content goes against the values and beliefs of the majority of the influencees. The practitioners described how mitigating the potentially negative consequences of the symbiosis was ultimately a matter of practice and experience.

5.6. Chapter Summary

Through the conceptual developments and findings of the preliminary empirical study conducted in the previous phases of my research, I examined salient social influence constructs applied in OSN research, the boundary conditions that should be considered in digital social influence and the relationship between specific constructs and consequences of social influence. However, one objective of my research was also to modify and extend social influence theory based on social influence practice in OSNs. After completing the preliminary empirical study, I realized that a quantitative study would be insufficient to articulate how the established social influence constructs are practically applied to OSNs. Therefore, to achieve this objective, interviewing OSN practitioners was identified as crucial. Given that the main goal of OSN practitioners is to influence as many target audiences as possible through their campaigns, unpicking their social influence strategies and understanding those strategies in relation to social influence theory was deemed more appropriate.

By designing the qualitative study, I was able to unpick the tacit knowledge of practitioners in further refining the boundary conditions and social influence constructs. Hence, the focus in the qualitative study was on utilizing practice to inform theory. The findings of the qualitative study indicated that examining social influence in OSNs can be complex due to the ever-evolving nature of OSNs as a medium of communication. Specifically, during the data analysis, different facets of boundary conditions of social influence and social influence constructs that could not be identified by reviewing past literature became prominent. Further, when considering the types of OSNs available at present, users in different OSNs (e.g., Facebook versus Instagram versus Tiktok) may

respond to various types of content differently (Klassen, Borleis, Brennan, Reid, McCaffrey, & Lim, 2018). Even though I identified the requirement to develop different social influence strategies for different types of OSNs through my qualitative study, future IS and HCI studies can focus more on customizing social influence strategies and content for different types of OSNs.

In practice, digital marketing is a highly competitive field, and practitioners are under significant time pressure to demonstrate results. As such, applying a theory developed in a different era to study a novel phenomenon could be perceived as impractical by most of them. I believe that academics can step in to help practitioners better apply the existing theories to yield positive outcomes. Therefore, refining the existing social influence constructs, reframing them for OSNs by incorporating boundary conditions of social influence, and examining the broad class of actions a user could take based on the influence they receive through OSNs, would help bridge the gap between theory and practice.

Chapter 6

Conclusion

"The medium is the message."

—McLuhan (1994, p. 7)

The theoretical foundations of social influence have been applied across many fields. While the fundamental processes of social influence—manifested through the face-to-face interactions we sustain in our day-to-day lives with our friends, family, superiors, and people around us—remain unchanged, the advent of OSNs has given rise to a new class of relationships. OSNs facilitate new forms of social influence, and with this premise, I began to explore the applicability of established social influence theory to OSNs. The unique contextual factors of OSNs that have often been ignored or applied with limited success in past research lie at the heart of my aim to extend the theory to explain mechanisms of social influence within OSNs better.

6.1.   Achieving the Overarching Aim of the Research: Extending Social Influence Theory to OSNs

The more I studied social influence and OSNs as emphasized in IS and HCI domains, in the early stages of my research, the more I realized that the application of social influence to digital spaces, including OSNs, has been problematic (Paper 1 and Paper 2). There were inconsistencies in social influence applications in the past studies that could not be overlooked, and this led to the formation of my first objective: understanding the limitations of established theory in relation to mechanisms of social influence within OSNs. Pursuing this objective was timely in several ways. First, it allowed me to enumerate the inconsistent findings of past studies and develop an account for why they had occurred. With this understanding of the challenges and limitations, I was able to take the next steps (Objectives 2 and 3) to identify the aspects of social influence theory that are candidates for refinement and modify and extend social influence theory based on an empirical exploration of OSN social influence practice.

6.1.1. Understanding the Limitations of Established Theory

This objective was realized in the first phase of my research by conducting multiple literature reviews and critically analyzing how social influence theory has been explored and applied in IS and HCI studies. The findings of the critical reviews (summarized in Chapter 2 of Section A and detailed in Paper 1 and Paper 2) showed that prior to applying social influence constructs to OSNs, we should first note the existing concerns associated with the applying social influence theory to any context (e.g., overlaps between social influence constructs, overlaps with other similar

concepts, and examining social influence at face value). Indeed, overlaps between constructs can be considered a common challenge for any behavioral theory (Hekler et al., 2013). However, by being aware of these shortcomings, one can mindfully unpick the most appropriate constructs for a given research context without treating different constructs with subtle differences as the same (in an ad hoc manner). Even though the general shortcomings of such behavioral theories have previously been discussed, only a few studies explicitly examined or acknowledged the challenges of picking the most appropriate social influence constructs for a study. Further, from the critical reviews of IS and HCI research, it was readily apparent that the field had very similar limitations in how social influence theory had been employed in studies of OSNs.

Identifying the challenges in the first phase of the research also led to conceptualizing recommendations to apply social influence theory in OSNs better. Although a wide-ranging set of empirical studies is beyond the scope of a PhD research program, I chose to explore several of my recommendations for their practical applicability in the preliminary empirical study and the subsequent qualitative study (e.g., considering the context and medium of communication, distilling the constructs, examining the consequences of social influence, and considering social influence as a symbiotic process).

6.1.2. Identifying the Aspects of Social Influence Theory that are Candidates for Refinement

Even though salient social influence constructs considered in OSN research (e.g., compliance, identification, internalization: (Kelman, 1958); and strength, number, and immediacy: (Latané, 1981) were identified in the first and second phases of my research, direct application of these constructs to OSNs was problematic given the differences between face-to-face communication and interactions within OSNs. Therefore, based on the need to set new conceptual boundaries to delimit the mechanisms of digital social influence, boundary conditions of social influence for OSNs were developed in Phase 2. By reviewing 65 IS studies, five boundary conditions were systematically derived in the second phase of my research: (i) choice, (ii) space and proximity, (iii) locus of influence, (iv) number of people and number of times, and (v) the diversity and variety of social influence. These conditions were developed to allow the refinement of social influence constructs for OSNs, to identify potential moderators (Busse et al., 2017), and to identify the contextual factors that should be incorporated when designing research methods to measure digital social influence.

Another highlight of Phase 2 was examining salient social influence constructs in relation to their consequences. The abundance of different influencers (locus of influence), multiple ways number is manipulated through reactions, comments, and shares (number of people and number of times),

and the diversity of social influence mechanisms facilitated by OSN features (diversity and variety of social influence) problematize the direct and discrete application of constructs. Specifically, for studies that aim to investigate how selected social influence constructs lead to specific outcomes, a classification of potential consequences of social influence exerted through OSNs is desirable. Thus, in my preliminary empirical study, I examined the relationship between social influence constructs and symbolic versus substantive actions. The findings strongly indicated that identification is closely related to the commitment of symbolic action, whereas internalization is necessary for substantive action.

6.1.3. Modifying and Extending Social Influence Theory Based on OSN Social Influence Practice

OSN features that facilitate social influence are in a continuous state of development. Since the ability to conduct large-scale digital social influence experiments is something that only a few global OSN vendors can engage in, my best option was to follow Cialdini (1987) in turning to the explicit and tacit knowledge of OSN influence practitioners. The goal of my qualitative study was to bridge the gap between theory and practice by accounting for OSN social influence practice through further modification and extension of social influence theory. The qualitative study was also of paramount importance in unifying the previous conceptual and empirical works of my research with practical applications of digital social influence. Indeed, the study findings informed how the conceptualized boundary conditions of social influence can be further extended to include more attributes that are central to developing digital social influence strategies.

The empirical exploration of digital social influence through my interview study also demonstrated the importance of empirical qualitative research to theory extension. In fact, in Phase 2, although the preliminary quantitative study helped identify salient social influence constructs applicable for exerting symbolic and substantive action through OSNs, the quantitative study design cannot detect pivotal yet unidentified variables that can account for digital social influence. Through the qualitative study, I was able to unpick factors that would go unnoticed if it were not for the tacit knowledge elicited from the practitioners. In particular, I identified aspects that have not been previously addressed in social influence research in IS and HCI, such as how symbiotic relationships are a significant consideration in digital social influence and the impact of negative social influence. Both are topics worthy of exploration in future studies (see Section 6.3, Limitations and Future Work).

6.2. Theoretical and Practical Contributions

My research makes three primary theoretical contributions. First, I systematically identified the limitations and challenges of applying established social influence theory to OSNs by critically reviewing IS and HCI studies (Paper 1 and Paper 2). Given the existing confusions and misconceptions in IS and HCI domains regarding the application of social influence theory in OSNs, my findings will help future research in these two domains to better scope social influence theory with OSN studies.

Second, I developed a classification of consequences of social influence that can be utilized to refine the most salient social influence constructs for OSNs. Because of the many and diverse interactions that OSNs support, it can be challenging to determine what social influence mechanisms would lead users to take specific actions. Even though concepts such as slacktivism and social influence have been studied previously, only a few studies have considered a different outcome, the symbolic and substantive actions of digital social influence. Finally, in response to the criticism that academic research is far removed from real-world concerns (Anderson et al., 2001; Van de Ven & Johnson, 2006), I explicitly attempted to bridge the gap between theory and practice. In the third phase of my research, I combined an understanding of social influence strategies commonly adopted by OSN practitioners with my conceptual and empirical findings to modify and refine social influence theory as it applies to OSNs.

My research findings also have the potential to support the promotion of effective social influence practices more widely (e.g., social marketing, online activism and advocacy). For practitioners in such fields, the adoption of boundary conditions of social influence and the classification of consequences of social influence have concrete applications in the design of campaign strategies. Overall, the boundary conditions of social influence for OSNs, refinement of salient social influence constructs, symbolic and substantive actions as consequences of digital social influence, and the consideration of symbiotic relationships in OSNs in digital social influence can be identified as unique facets of digital social influence that are key to extending established social influence theory to OSNs. These facets also serve as a set of lenses through which researchers and practitioners can understand social influence mechanisms in OSN research and practice.

6.3. Limitations and Future Work

Like all studies, my research was bounded by time and resource constraints, which meant that I had to decide which of the phenomena to consider closely. The following sections emphasize different aspects of the research that would benefit from further investigation. Researching these

topics would, strengthen my attempt to extend and reframe social influence theory to OSNs and other similar digital spaces.

6.3.1. Further Refinement of Boundary Conditions

The exploration of boundary conditions of social influence for OSNs is a novel contribution that has not been explicitly examined in other studies of OSNs. In developing the five boundary conditions of social influence, I first identified the unique contextual factors discussed in past OSN research through a critical review of IS studies. Then, I interrogated OSN practitioners to check the applicability of these boundary conditions in real-world digital social influence practice. This work enabled me to identify more factors that should be considered under each boundary condition. For example, the boundary condition number of people and number of times was refined due to my analysis of the findings of the practitioner interviews to incorporate the snowballing effect in OSN campaigns. More comprehensive interpretations of these boundary conditions could be developed through further investigations, particularly given that my study is the first time the concept of boundary conditions has been explored in relation to digital social influence.

Further, it is likely to be valuable to inspect how these boundary conditions operate in different fields of digital social influence. For example, when considering the boundary condition diversity and variety of social influence, it was evident that online activists preferred having a more diverse network of users interacting with their campaigns, whereas for digital marketing, too much diversity was sometimes perceived as a threat. Similarly, the importance and applicability of other boundary conditions may also vary based on the nature of the field in which they are applied. Therefore, boundary conditions of social influence that were a cornerstone of my research may have different effects when applied to diverse contexts.

6.3.2. Symbiotic Relationships and Negative Social Influence in OSNs

In Chapter 5, I discussed the importance of considering symbiotic relationships facilitated by two-way communication in OSNs for digital social influence. The concept of symbiotic relationships as an important factor for digital social influence first emerged in the critical review of HCI studies conducted for Paper 2. When reviewing HCI studies, it was noted that attempts to apply established social influence theory in HCI did not account for how influencees' responses or reactions to the messages of influencers affect influencers in return. However, based on practitioners' comments, in OSNs, influencees' perceptions and responses become crucial for the success of campaigns and digital social influence holistically. The two-way interaction facilitated

by OSNs provides both influencers and influencees with different types of power that constitute a symbiotic relationship between them.

A repercussion of such relationships between influencers and influencees is the emergence of negative social influence in OSNs. Negative social influence is one of the most underexplored yet important aspects of OSNs, which, for example, affects customers' purchase behavior (Baethge et al., 2017). Based on my interviews with practitioners, it was clear that negative social influence is a major concern for OSN campaign planners and managers. This concern highlights the necessity of taking the target audience's voice more seriously and strategically communicating with the target audience to maintain credibility. Even though negative social influence was identified as a factor that requires further investigation, I was not able to examine this concept further due to time constraints. A separate study of symbiotic relationships and negative social influence in OSNs would be particularly beneficial for the fields of digital marketing and advertising.

6.3.3. Incorporating Boundary Conditions When Examining Symbolic and Substantive Actions

Symbolic and substantive actions are concepts I developed (Paper 4 and Paper 5) to classify the consequences of social influence that are often ignored in digital social influence studies. Based on the findings of my preliminary empirical study, conducted in the second phase of my research, I identified the relationship between established social influence constructs and symbolic/substantive actions. However, when I conducted the preliminary empirical study, my development of boundary conditions was at a preliminary stage. As a result, I was unable to test how the selected boundary conditions would moderate the relationship between social influence constructs and symbolic versus substantive actions. Since boundary conditions were identified by OSN practitioners as an important set of considerations for digital social influence, there is a clear need to investigate how boundary conditions can be incorporated when examining the relationship between social influence constructs and symbolic versus substantive actions. It is also important to acknowledge that the distinction between symbolic and substantive actions is a high-level classification I developed for digital social influence. Again, time constraints meant I did not refine this classification further, and a future attempt to do so may well result in a productive expansion of this classification that better characterizes the varied potential outcomes of digital social influence.

6.3.4. Digital Social Influence as a Design Consideration for HCI

Future research can also focus on applying my research findings to the design of digital systems and services. In this research, I framed digital social influence as a distinct concept that should be accounted for when examining individual interactions in OSNs. However, these findings can be

applied to other digital spaces where online interactions between individuals or groups are a feature. In particular, boundary conditions of social influence, symbolic and substantive actions, and symbiotic relationships in digital spaces can be developed as principles of digital social influence that should be considered when designing for social influence and related outcomes in digital spaces. The foundations for this research have already been laid in the recommendations of Paper 2 and my other empirical studies. Future studies can investigate what principles of digital social influence can be applied to different design contexts. In other words, social influence theory extension in my research was based on the knowledge and experience of OSN practitioners. In the future, we can explore how these findings can in turn be utilized to strategize practical applications of digital social influence better. Indeed, in my postdoctoral work, I hope to implement the findings of my research in the area of digital health interventions.

Finally, the methods proposed in this research to extend social influence theory to OSNs reflect how my understanding of digital social influence has evolved. The research approach, which commenced with the intention of exploring consequences of digital social influence, quickly morphed to focus on incorporating new theoretical dimensions such as the inclusion of boundary conditions and the consideration of symbolic and substantive actions to digital social influence. Further, when developing digital social influence as a concept, I made an explicit decision to build on the past work in IS and HCI domains. However, to strengthen the foundations of digital social influence, and to be able to argue for the general applicability of such a theory, it is likely that we must also take account of studies of social influence in other domains. Indeed, given the complexities involved in understanding individual attitudinal and behavioral changes due to social influence, especially in digital spaces, I am fully cognizant that the findings of this research are only the very beginnings of an enterprise that itself has no end in sight, given the inevitable future advancements in digital technologies and how we use them.

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Appendix A: Ethics Approval for the Preliminary Empirical Study

Monash University Human Research Ethics Committee

Approval Certificate

This is to certify that the project below was considered by the Monash University Human Research Ethics Committee. The Committee was satisfied that the proposal meets the requirements of the *National Statement on Ethical Conduct in Human Research* and has granted approval.

Project ID:	18231
Project Title:	Investigating the Symbolic versus Substantive Actions in Social Networking Sites
Chief Investigator:	Assoc Professor Darshana Sedera
Approval Date:	24/01/2019
Expiry Date:	24/01/2024

Terms of approval - failure to comply with the terms below is in breach of your approval and the *Australian Code for the Responsible Conduct of Research*.

1. The Chief Investigator is responsible for ensuring that permission letters are obtained, if relevant, before any data collection can occur at the specified organisation.
2. Approval is only valid whilst you hold a position at Monash University.
3. It is responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by MUHREC.
4. You should notify MUHREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash letterhead and the Monash University complaints clause must include your project number.
6. Amendments to approved projects including changes to personnel must not commence without written approval from MUHREC.
7. Annual Report - continued approval of this project is dependent on the submission of an Annual Report.
8. Final Report - should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected completion date.
9. Monitoring - project may be subject to an audit or any other form of monitoring by MUHREC at any time.
10. Retention and storage of data - The Chief Investigator is responsible for the storage and retention of the original data pertaining to the project for a minimum period of five years.

Kind Regards,

Professor Nip Thomson

Chair, MUHREC

CC: Mrs Dharshani Chandrasekara

Appendix B: Explanatory Statement of the Preliminary Empirical Study

EXPLANATORY STATEMENT

Project ID: 18231
Project title: The Moderating effect of Social Influence on Social Media

Chief Investigator's name: Prof. Patrick Olivier
Faculty of Information Technology
Monash University
Phone: ▮▮▮▮▮▮▮▮▮▮
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Student's name: Dharshani Chandrasekara
Faculty of Information Technology
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Chief Investigator's name: Darshana Sedera
Swinburne University of Technology
Phone: ▮▮▮▮▮▮▮
email: darshana.sedera@gmail.com

You are invited to take part in this study. Please read this Explanatory Statement in full before deciding whether or not to participate in this research. If you would like further information regarding any aspect of this project, you are encouraged to contact the researchers via the phone numbers or email addresses listed above.

What does the research involve?

- The objective of this research is to understand how social influence impacts you to engage in substantive actions. In this case, your volunteering activities are considered as a substantive action. The completion of the questions will take approximately 15 minutes. We do not record your name or any identifier that allows us to identify you to your response.
- The participants will then be requested to complete the survey during their meeting and drop the completed survey discretely to a box placed outside the meeting venue. There will not be any coercion applied to any individuals to complete or submit the survey.

Why were you chosen for this research?

- We have chosen you because of the voluntary activities that you contribute to.

Consenting to participate in the project and withdrawing from the research

- By agreeing to complete the survey instrument and returning to the research team, you consent to the study.
- You have the right to withdraw from further participation at any stage, without having to explain the reasons for opting out. There are no consequences for opting out of the study at any stage.
- The survey questionnaire is anonymous, and you do not need to include your personal details.

Possible benefits and risks to participants

- There are no penalties implied or explicit for not taking part or taking part in the study.
- Other than the time required to complete the survey, we are not aware of any potential dangers in taking part in this study.

Confidentiality

- We do not record any personal data that allows us or anyone else to identify your data.
- The survey is anonymous and does not contain any identifiers to recognise your data.
- Organisational names, even during the phase of analyses, will be replaced with pseudonyms to maximise the anonymity of the respondents. No organisational names are necessary for the research findings and will never be reported in subsequent reports.

Storage of data

- Data files will be stored in the office laptops of the researchers involved in the study, cloud storage, and Google drive affiliated to Monash University

Results

- The participants can opt to receive a summary report of the key findings after the study results are published through a refereed journal.

Complaints

Should you have any concerns or complaints about the conduct of the project, you are welcome to contact the Executive Officer, Monash University Human Research Ethics Committee (MUHREC):

Executive Officer
Monash University Human Research Ethics Committee (MUHREC)
Room 111, Chancellery Building D,
26 Sports Walk, Clayton Campus
Research Office
Monash University VIC 3800

Tel: +61 3 9905 2052   Email: muhrec@monash.edu   Fax: +61 3 9905 3831

Thank you,

Patrick Olivier

Chief Investigator's name

Appendix C: Survey on Symbolic Actions [Preliminary Empirical Study]

Project title: The Moderating effect of Social Influence on Social Media

Chief Investigator's name: Prof. Patrick Olivier

Faculty of Information Technology

Monash University
Phone: ▮▮▮▮▮▮▮▮▮▮
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Student's name : Dharshani Chandrasekara

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External Investigator's name: Prof. Darshana Sedera

Swinburne University of Technology

Phone: ▮▮▮▮▮▮▮▮

Email: darshana.sedera@gmail.com

You are invited to take part in this study. Please read this Explanatory Statement in full before deciding whether or not to participate in this research. If you would like further information regarding any aspect of this project, you are encouraged to contact the researchers via the phone numbers or email addresses listed above.

What does the research involve?

- The objective of this research is to understand how social influence impacts you to engage in substantive actions. In this case, your volunteering activities are considered as a substantive action. The completion of the questions will take approximately 15 minutes. We do not record your name or any identifier that allows us to identify you to your response.

Why were you chosen for this research?

- We have chosen you because of the voluntary activities that you contribute to.

Consenting to participate in the project and withdrawing from the research

- By agreeing to complete the survey instrument and returning to the research team, you consent to the study.
- You have the right to withdraw from further participation at any stage, without having to explain the reasons for opting out. There are no consequences for opting out of the study at any stage.
- The survey questionnaire is anonymous, and you do not need to include your personal details.

Possible benefits and risks to participants

- There are no penalties implied or explicit for not taking part or taking part in the study.
- Other than the time required to complete the survey, we are not aware of any potential dangers in taking part in this study.

Confidentiality

- We do not record any personal data that allows us or anyone else to identify your data.
- The survey is anonymous and does not contain any identifiers to recognise your data.
- Organisational names will be replaced with pseudonyms to maximise the anonymity of the respondents.

Storage of data

- Data files will be stored in the office laptops of the researchers involved in the study, cloud storage, and Google drive affiliated to Monash University

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Thank you,

Patrick Olivier

Chief Investigator's name

About You

1.	Gender	Male ☐	Female ☐				
2.	Age	18-28 ☐	29-38 ☐	39-49 ☐	Above 50 ☐		
3.	Number of friends you have in Facebook or another social media platform	Less than 100 ☐	101-200 ☐	201-300 ☐	301-400 ☐	401-500 ☐	Above 500 ☐

Information on Your Social Media Usage & Your Friends Circle in Social Media

Please indicate the extent of agreement or disagreement on the following questions about your current your social media usage and the influence on your friends in social media on you

Where, 1 = strongly disagree, 7 = strongly agree.

	Strongly Disagree			Neutral			Strongly Agree
1. I login to Facebook or another social media platform on a daily basis	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
2. I change my post visibility on Facebook or other social media platforms (privacy settings) depending on who I want to share that post with	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
3. I believe that some of the people who are close to me in Facebook or other social media platforms are not close to me in the same way when I meet them in real life	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
4. When I see any news in Facebook or other social media platforms, I decide whether it is true or false depending on the person who shared it	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
5. When I see any news in Facebook or other social media platforms, I decide whether it is true or false depending on the number of people and the number of times it has been shared	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
6. Compared to people I interact with in real life, the people I interact with in Facebook or other social media platforms are diverse	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
7. Prior to commence volunteering, I searched for the organization I am volunteering with on Facebook or other social media platforms.	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
8. Facebook or other social media platforms have changed the thinking and behavioural patterns of people.	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
9. The posts of my favourite celebrities or popular people I like in Facebook or other social media platforms have affected the way I think and behave.	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐

	Strongly Disagree		Neutral			Strongly Agree

10. I share my beliefs and concerns about different topics of contemporary relevance in Facebook or other social media platforms, to influence other people to think in the same way.
  1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

11. My Facebook profile or other social media accounts include people I respect or I look up to.
  1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

12. I feel close to those who are in my Facebook or other social media accounts regardless of where they live
  1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

Information on Your Actions Exerted through Social Media

	Strongly Disagree		Neutral			Strongly Agree

1. The people who are most important to me in Facebook or other social media have encouraged me to like/ comment/ share posts related to online petitions, good causes, etc.
  1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

2. I have liked/ commented and shared posts of people who are important to me as a way of showing them support
  1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

3. I consider liking, commenting and sharing of my posts by the people who are important to me as rewarding
  1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

4. I do not like/ comment/ share posts that would make the people who are important to me unhappy
  1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

5. I am a valuable member of a friend circle in Facebook or another social media platform who provides feedback to other friends
  1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

6. I feel that engaging in actions that are promoted in Facebook or other social media by my friends through liking, commenting and sharing the posts, is important for me
  1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

7. I consider liking, commenting and sharing posts in Facebook or another social media platform as a goal that I would achieve in the next 2 weeks
  1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

8. I would only like/ comment/ share the posts of my friends that are consistent with my values
  1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

9. I often click 'like' and share Facebook or other social media platform posts/ pages which make me proud of myself
  1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

10. I will continue to like/ comment/ share posts on Facebook or other social media accounts in the future
  1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

End of Survey – Thank you for your participation

Appendix D: Survey on Substantive Actions [Preliminary Empirical Study]

Project title: **The Moderating effect of Social Influence on Social Media**

Chief Investigator's name: Prof. Patrick Olivier

Faculty of Information Technology

Monash University
Phone: ▮▮▮▮▮▮▮▮
email: patrick.olivier@monash.edu

Student's name : Dharshani Chandrasekara

Faculty of Information Technology

Monash University

Phone : ▮▮▮▮▮▮▮▮
email:
dharshani.chandrasekara@monash.edu

External Investigator's name: Prof. Darshana Sedera

Swinburne University of Technology

Phone: ▮▮▮▮▮▮▮▮

Email: darshana.sedera@gmail.com

You are invited to take part in this study. Please read this Explanatory Statement in full before deciding whether or not to participate in this research. If you would like further information regarding any aspect of this project, you are encouraged to contact the researchers via the phone numbers or email addresses listed above.

What does the research involve?

- The objective of this research is to understand how social influence impacts you to engage in substantive actions. In this case, your volunteering activities are considered as a substantive action. The completion of the questions will take approximately 15 minutes. We do not record your name or any identifier that allows us to identify you to your response.

Why were you chosen for this research?

- We have chosen you because of the voluntary activities that you contribute to.

Consenting to participate in the project and withdrawing from the research

- By agreeing to complete the survey instrument and returning to the research team, you consent to the study.
- You have the right to withdraw from further participation at any stage, without having to explain the reasons for opting out. There are no consequences for opting out of the study at any stage.
- The survey questionnaire is anonymous, and you do not need to include your personal details.

Possible benefits and risks to participants

- There are no penalties implied or explicit for not taking part or taking part in the study.
- Other than the time required to complete the survey, we are not aware of any potential dangers in taking part in this study.

Confidentiality

- We do not record any personal data that allows us or anyone else to identify your data.
- The survey is anonymous and does not contain any identifiers to recognise your data.
- Organisational names are not necessary for the study objectives. As such, no information of the organisation, even if known to the researchers, will be reported. Organisation names will be replaced with pseudonyms to maximise the anonymity of the respondents.

Storage of data

- Data files will be stored in the office laptops of the researchers involved in the study, cloud storage, and Google drive affiliated to Monash University

Results

- The participants can opt to receive a summary report of the key findings after the study results are published through a refereed journal.

Complaints

Should you have any concerns or complaints about the conduct of the project, you are welcome to contact the Executive Officer, Monash University Human Research Ethics Committee (MUHREC):

Executive Officer
Monash University Human Research Ethics Committee (MUHREC)
Room 111, Chancellery Building D,
26 Sports Walk, Clayton Campus
Research Office
Monash University VIC 3800

Tel: +61 3 9905 2052   Email: muhrec@monash.edu   Fax: +61 3 9905 3831

Thank you,

Patrick Olivier

Chief Investigator's name

About You

1.	Gender	Male ☐	Female ☐				
2.	Age	18-28 ☐	29-38 ☐	39-49 ☐	Above 50 ☐		
3.	Number of friends you have in Facebook or another social media platform	Less than 100 ☐	101-200 ☐	201-300 ☐	301-400 ☐	401-500 ☐	Above 500 ☐

Information on Your Social Media Usage & Your Friends Circle in Social Media

Please indicate the extent of agreement or disagreement on the following questions about your current your social media usage and the influence on your friends in social media on you

Where, 1 = strongly disagree, 7 = strongly agree.

		Strongly Disagree			Neutral			Strongly Agree
		1	2	3	4	5	6	7
1.	I login to Facebook or another social media platform on a daily basis	☐	☐	☐	☐	☐	☐	☐
2.	I change my post visibility on Facebook or other social media platforms (privacy settings) depending on who I want to share that post with	☐	☐	☐	☐	☐	☐	☐
3.	I believe that some of the people who are close to me in Facebook or other social media platforms are not close to me in the same way when I meet them in real life	☐	☐	☐	☐	☐	☐	☐
4.	When I see any news in Facebook or other social media platforms, I decide whether it is true or false depending on the person who shared it	☐	☐	☐	☐	☐	☐	☐
5.	When I see any news in Facebook or other social media platforms, I decide whether it is true or false depending on the number of people and the number of times it has been shared	☐	☐	☐	☐	☐	☐	☐
6.	Compared to people I interact with in real life, the people I interact with in Facebook or other social media platforms are diverse	☐	☐	☐	☐	☐	☐	☐
7.	Prior to commence volunteering, I searched for the organization I am volunteering with on Facebook or other social media platforms.	☐	☐	☐	☐	☐	☐	☐
8.	Facebook or other social media platforms have changed the thinking and behavioural patterns of people.	☐	☐	☐	☐	☐	☐	☐
9.	The posts of my favourite celebrities or popular people I like in Facebook or other social media platforms have affected the way I think and behave.	☐	☐	☐	☐	☐	☐	☐

	Strongly Disagree			Neutral			Strongly Agree
10. I share my beliefs and concerns about different topics of contemporary relevance in Facebook or other social media platforms, to influence other people to think in the same way.	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
11. My Facebook profile or other social media accounts include people I respect or I look up to.	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
12. I feel close to those who are in my Facebook or other social media accounts regardless of where they live	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐

Information on Your Actions Exerted through Social Media

	Strongly Disagree			Neutral			Strongly Agree
1. The comments of the previous volunteers in Facebook or other social media platforms encouraged me to take part in volunteering	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
2. I am open to engage in an activity that costs my time and money, based on my friends' opinions, comments, and posts published in Facebook or other social media platforms.	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
3. I have been influenced by the posts, comments, and likes of the people who are important to me, to engage in good causes such as volunteering	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
4. Most people who are important to me in Facebook or other social media platforms would approve of me engaging in activities that are promoted in social media (e.g. volunteering, fundraising)	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
5. Most people who are important to me in Facebook or other social media platforms would disapprove of me engaging in activities that are promoted in social media (e.g. volunteering, fundraising)	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
6. I have engaged in an adventurous activity (e.g. visiting another country, volunteering in a risky destination) after being influenced by my social circle in Facebook or other social media platforms	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
7. I developed the interest to do volunteering after seeing the posts/ photographs of my friends doing the same in Facebook or other social media platforms	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐

		Strongly Disagree			Neutral			Strongly Agree
8.	When I engage in an action in the real world (e.g. volunteering, fundraising) which has already been done by my friends and shared in Facebook or other social media platforms, it makes me feel closer to them	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
9.	I would continuously engage in volunteering if my friends are already doing the same and posting in Facebook or other social media platforms	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
10.	I feel that engaging in actions that are promoted in Facebook or other social media platforms by my friends (volunteering, fundraising) is important for me	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
11.	I would engage in an action which has been encouraged in Facebook or other social media platforms by my friends (volunteering, or any other activity that changes my life as a result) only if it does not conflict with my own values	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
12.	I decided to do volunteering only to help the communities in need	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
13.	I will continue to do volunteer work in the future	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐

End of Survey – Thank you for your participation

Appendix E: Ethics Approval for the Qualitative Study

Monash University Human Research Ethics Committee

Approval Certificate

This is to certify that the project below was considered by the Monash University Human Research Ethics Committee. The Committee was satisfied that the proposal meets the requirements of the *National Statement on Ethical Conduct in Human Research* and has granted approval.

Project ID: 21443
Project Title: Investigating Symbolic and Substantive Actions Promoted through Digital Marketing Campaigns
Chief Investigator: Professor Patrick Olivier
Approval Date: 12/02/2020
Expiry Date: 12/02/2025

Terms of approval - failure to comply with the terms below is in breach of your approval and the *Australian Code for the Responsible Conduct of Research*.

1. The Chief Investigator is responsible for ensuring that permission letters are obtained, if relevant, before any data collection can occur at the specified organisation.
2. Approval is only valid whilst you hold a position at Monash University.
3. It is responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by MUHREC.
4. You should notify MUHREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash letterhead and the Monash University complaints clause must include your project number.
6. Amendments to approved projects including changes to personnel must not commence without written approval from MUHREC.
7. Annual Report - continued approval of this project is dependent on the submission of an Annual Report.
8. Final Report - should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected completion date.
9. Monitoring - project may be subject to an audit or any other form of monitoring by MUHREC at any time.
10. Retention and storage of data - The Chief Investigator is responsible for the storage and retention of the original data pertaining to the project for a minimum period of five years.

Kind Regards,

Professor Nip Thomson

Chair, MUHREC

CC: Ms. Dharshani Chandrasekara, Dr Caddie Gao, Prof Darshana Sedera

Appendix F: Explanatory Statement [Qualitative Study]

Project ID: 21443
Project title: Investigating Symbolic and Substantive Actions Promoted through Digital Marketing Companies

Prof. Patrick Olivier
Professor, Monash University
Phone: ▮▮▮▮▮▮▮
email: patrick.olivier@monash.edu

Dharshani Chandrasekara
PhD Student, Monash University
Phone: ▮▮▮▮▮▮▮
email: dharshani.chandrasekara@monash.edu

Dr. Caddie Gao

▮▮▮▮▮▮▮

You are invited to take part in this study as an employee of the digital marketing company you are a part of. Please read this Explanatory Statement in full before deciding whether or not to participate in this research. If you would like further information regarding any aspect of this project, you should contact the researchers using the phone numbers or email addresses listed above.

What does the research involve?
We are inviting you to take part in an interview as someone who has designed digital marketing campaigns launched via Social Networking Sites (SNSs). These interviews are designed to explore how digital marketing companies consider social influence when launching SNS marketing campaigns to encourage SNS users to engage in various actions such as liking a product/service page or purchasing a particular product/service.

What am I invited to do?
For this part of the research project, you will be asked to take part in an interview and share your experiences. During the interview, we are going to ask you several questions regarding the types of the marketing campaigns you have launched in SNSs, the nature of the clientele you serve, the nature of the campaigns in a step by step account, the use of social influence in SNS to reach SNS users, and the outcomes of the marketing campaigns. However, we are **not** asking you to reveal information about your clients (other than the marketing campaigns you have launched and the nature of the product or service). The interviews will be audio recorded for the purposes of transcription, with your consent. The transcription will be done using a reputable automated transcription software with Dharshani Chandrasekara's involvement in editing the transcripts for accuracy. The interviews will be conducted either in person at the digital marketing company or any other place agreed as suitable by you and the PhD student researcher (given that the current travel restrictions due to COVID-19 are eased), or otherwise by remote means (e.g. Zoom, Skype).

How much time will my involvement in the project take?
For an interview, it will not take more than approx. one and half hours of your time.

Consenting to participate in the project and withdrawing from the research
The consent process involves signing and returning the consent form to Dharshani Chandrasekara (in person or via email). You have the right to withdraw from interviews up to fourteen days once the interview is conducted, until the time that names are removed and the data is analysed. Any interview data collected up until that point will not be used in the study and will be destroyed. **Possible benefits and risks to participants**

These interviews are your opportunity to be involved in SNS related research that examine the effects of social influence on SNS users and the outcomes of it. Once the data is analysed, the completely anonymised data of the research will be presented in a report for you. It is hoped that the findings of research will benefit you in streamlining your marketing campaigns. There is no expectation of any negative experiences for participants, beyond those encountered in day-to-day life. You can find more information in the "What if I have a complaint or any concerns?" section at the end of this document.

Confidentiality

Everything produced as a result of the interviews (audio recordings and transcripts,) will be anonymised. If these are quoted in research publications or presentations at a conference, we will make sure that participants cannot be readily identified from the quotations.

Storage of data

All the collected data will be encrypted and stored within the Monash University infrastructure (Google Cloud), for five years following the completion of the project. For the duration of the project, the collected data will be temporarily stored on Dharshani Chandrasekara's laptop (provided by Monash University) with an encrypted hard drive. Access to the collected data will be granted only to members of the research team and co-investigators whose contact details are mentioned above. If data collected from you are used for other research purposes, only aggregate de-identified data will be used as such for research projects for which ethics approval has been granted.

Results

The analysed data from interviews may be published and communicated in the format of thesis, book/book chapters, journal articles, conference proceedings, reports to organizations, which granted permission to conduct interviews with their employees and reports to participants. When such outcomes are published, the PhD student researcher will share the publication details with the organizations through which participants will have access to published research findings.

What if I have a complaint or any concerns?

Should you have any concerns or complaints about the conduct of the project, you are welcome to contact the Executive Officer, Monash University Human Research Ethics Committee (MUHREC):

Executive Officer   M C Rasmin
Monash University Human Research Ethics
Committee (MUHREC)
Room 111, Chancellery Building D   Phone:
26 Sports Walk, Clayton Campus   Email:
Research Office
Monash University VIC 3800
Tel: +61 3 9905 2052
Email: muhrec@monash.edu
Fax: +61 3 9905 3831
Thank you

Prof. Patrick Olivier

Appendix G: Consent Form [Qualitative Study]

Project ID: 21443

Project title: Investigating Symbolic and Substantive Actions Promoted through Digital Marketing Companies

PhD Researcher: Dharshani Chandrasekara

Chief Investigator: Prof. Patrick Olivier

Co-Investigators: Dr. Caddie Gao

This project explores the types of actions that social media users would take based on digital marketing campaigns. More specifically the project aims at understanding how digital marketing companies use strategies around social influence to encourage social media users to take various actions. All collected research data will be de-identified, anonymised, and protected while stored.

I have been invited to take part in interviews in respect of this project. I have read and understood the Explanatory Statement and I hereby consent to participate in this project.

I consent to the following:	Yes	No
I consent to take part in interview(s).	☐	☐
I consent to the interview being audio recorded for subsequent transcription.	☐	☐
I consent for the data to be used (in an anonymised form) in subsequent academic publications, and in Dharshani Chandrasekara's PhD thesis.	☐	☐
I consent the researcher to contact me if further clarification regarding any information discussed at the interview is required.	☐	☐
I understand that data will be held in secure storage at Monash University and accessible only to the researchers during the life of the project and the subsequent 5 years.	☐	☐
I understand that no reports will contain my name.	☐	☐
I understand that research data and findings will be published and presented in journal articles and conference proceedings and presentations.	☐	☐
I understand that my participation is voluntary and that I can withdraw from the project up to the time that names are removed, and the data analysed.	☐	☐
I understand that I can request to see, and will be given access to the transcription of my interview.	☐	☐
I consent for audio recordings from the interviews to be transcribed by a reputable automated transcription software.	☐	☐

Name of Participant: Participant Signature:

Date :   Location :

Appendix H: Recruitment Email

Dear ……………………………,

Thank you very much for showing interest to take part in the research project titled "investigating symbolic and substantive actions promoted through digital marketing campaigns". I am Dharshani Chandrasekara, a Doctoral Researcher at the Faculty of Information Technology, Monash University, Australia. I received your contact details from …………………………………………..

I want to interview social media strategists who launch marketing campaigns in Social Networking Sites (SNSs) to understand how digital marketing campaigns utilize social influence to promote various products and services and thereby encourage individuals to take certain actions based on their campaigns.

This study is an essential component in completing my Doctoral thesis and your cooperation in this project will be highly appreciated. Once the necessary data gathered through interviews are analysed, the completely anonymised findings will be shared with you in a report format. The findings may help you to streamline the marketing campaigns based on different processes of social influence that would encourage SNS users to behave differently.

If you are interested in taking part in the project, please sign the attached consent form and send it to dharshani.chandrasekara@monash.edu. An explanatory statement is also attached to the email for you to get more information about the project. I would also like to know your preferred days and time of the week you would like to attend the online interview.

Further information

If you like to receive further information regarding the project, please email Dharshani Chandrasekara via dharshani.chandrasekara@monash.edu.

Appendix I: Interview Protocol

Introduction

- Summary statement
- Ask if they are comfortable to proceed with it.
- Send the consent forms prior to this.

During the interview

Summarize the ideas they have shared with you to indicate that you have understood what they have said.

Closing the interview

- Ask if there is anything more to add
- Thank them for the time

Detailed Protocol

All interviews will be carried out online. All meetings will be recorded using Zoom (audio recording depending on participants preference).

To be filled by the interviewer (Doctoral researcher)

- The interviewee has read the explanatory statement   ❑ Yes ❑ No
- The interviewee has signed the consent form and sent it to the interviewer   ❑ Yes ❑ No

Questions and Probes

#	Question	e.g./ Probe/Follow up	Related Construct/Concept
1	Could you please give me some background about yourself and what you do?		Background/Professional Experience
2	Could you first elaborate on, what types of social media campaigns have you organized in different social media platforms?	(e.g., products and services, political campaigns, and so on) Are your social media strategies different based on the nature of those products/services? How so?	Context specificity
3	I would also like to know whether you have studied social influence when you learnt about social media strategizing prior to your current career?	If yes, what aspects have you identified as useful for social media? Have you ever referred to any theories of social influence when you plan your campaigns? If yes, can you name a few theories that you have used? What aspects of those theories do you like the most? How useful are they?	Knowledge on theories and application
4	As you know, I attempt to understand how social media professionals use the dynamics of people influencing each other in social media to create successful social media campaigns. Have you considered such aspects of social influence for your online campaigns?	(e.g., using social influencers, micro-influencers, celebrities, authoritative figures, etc.). Are these social influence strategies different from campaign to campaign? Can you give some examples from your own campaigns?	Introduction to constructs of social influence (using language they understand)
5	Have you done any social media marketing campaigns using influencers?	By taking one example of such a campaign, can you tell me what characteristics did you look at when selecting that influential figure? How was that person related to the target audience? Was there any situation where the influencer was concerned with the reactions of the audience? Can you elaborate? If yes, did the influencer act on those reactions of the audience?	Strength, identification, and symbiotic social influence

#	Question	e.g./ Probe/Follow up	Related Construct/Concept
		Is there any shift from using popular influencers to not so popular ones? What is your observation?	
6	Have you used any authoritative figures in influencing your target audience to take a certain action?	Can you give an example of such a campaign? What was the purpose of the campaign? In what situations, would you use such authoritative figures to deliver your message?	Compliance, strength
7	According to your experience, which qualities of influential figures matter the most?	Are there any particular qualities you would look at, only for social media marketing? Do you think such characteristics are specific only for social media or is it the same for types of marketing? When you design a campaign, do you think it would be beneficial to use one particular influential figure to pass your message or would you use many influential figures with different characteristics to pass on the same message?	Boundary condition (Locus of influence)/ compliance/identification
8	Are there any specific strategies you use to make people influence one another through social media marketing campaigns?	What are the most common strategies you use?	Constructs of social influence (further brainstorming)
9	Does the location of your target audience matter when you organize a campaign?	How do you determine the population to which your campaign should reach? Is it mainly by location? Have you attracted any unintended audience to your campaigns? (e.g. customers from a different country/location/group)	Boundary condition (proximity) and immediacy
10	Have you ever created social media campaigns where you wanted your target audience to influence their online social circle (e.g. friends or family)?	Can you give an example of such a campaign? What strategies did you use to make it happen? Were there any situations, where your target audience received contradictory messages from multiple sources?	Identification, Boundary condition (diversity and variety of social influence)

#	Question	e.g./ Probe/Follow up	Related Construct/Concept
11	When you create social media campaigns in which people try to influence each other, should they always have same beliefs and values?	What is the role of social influence in such a campaign?	Internalization, boundary condition (diversity and variety of social influence)
12	In any social media campaign where you try to influence people as much as possible, what aspect matters to you the most?	(e.g. The number of likes, comments, or shares, tagging, followers?) Do you think having a 'high number of likes' to a post mean that the campaign is successful? Are there any examples where numbers do not reflect the campaign was actually successful? When you want people to take more actions on your campaign, what aspect of these social media features matter the most? (conversion)	Boundary condition (number of people and number of times)
13	Do you ever plan campaigns differently based on the action people want to take?	How do you determine the type of influence you want to make depending on the action you want people to take? Based on your previous campaigns, can you elaborate on the types of actions people? (e.g. liking a page, buying a product or a service, etc.)	Symbolic and substantive actions
14	Have you ever changed one of your campaigns because of the way your target audience responded?	If yes, please elaborate.	Symbiotic social influence
15	Can you think of one of the most successful campaigns you created using social influence?	What sort of attention did you receive? What social influence tactics you discussed earlier helped you here?	More information on constructs of social influence
16	Can you think of one of the least successful campaigns you created using social influence?	If an opportunity were given for you to change it, how would you change it? What social influence tactics you discussed earlier did not come to use here? Do you think that social media users have more choice/power in making a campaign least or most successful? If yes, in what ways?	More information on social influence constructs that do not account for OSNs or require change/ Boundary condition (Choice)

#	Question	e.g./ Probe/Follow up	Related Construct/Concept
17	Finally, based on all your knowledge of using social influence of different people in social media for successful social media campaigns, what is social influence in social media for you? Can you define it?

What is the role of people in social media on campaigns? | Do you have any other friends/colleagues you can recommend for this interview? | Social influence (specific definition for social media) |

Section B
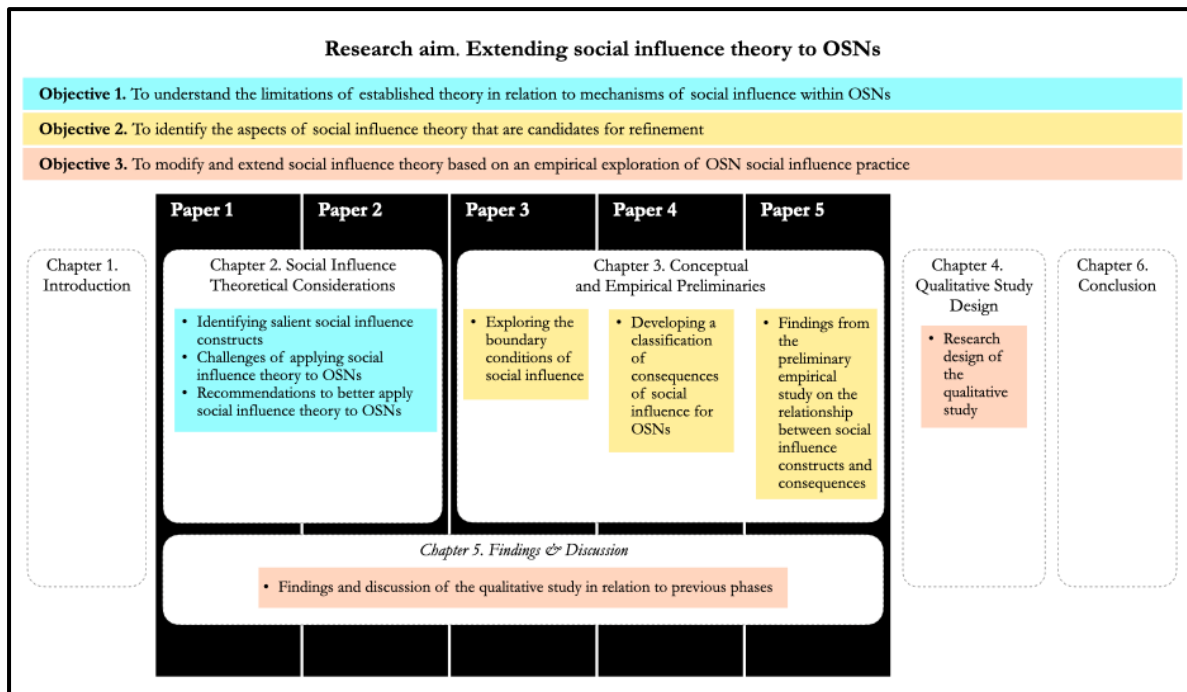
Figure B.1. Situating Papers in Relation to the Research

This Figure depicts the relationship between the research objectives, chapters of Section A, and the five papers included in Section B. As depicted in the Figure, Papers 1 and 2 address the first research objective: to understand the limitations of established theory in relation to mechanisms of social influence within OSNs (color-coded in turquoise). Papers 3, 4 and 5 address the second research objective: to identify the aspects of social influence theory that are candidates for refinement (color-coded in yellow).

Conceptual developments related to digital social influence discussed in the first four papers, and the findings of the preliminary empirical study in Paper 5 informed the qualitative study which was conducted to achieve the third objective of the research: to modify and extend social influence theory based on an empirical exploration of OSN social influence practice (color-coded in orange). The qualitative study design and findings are discussed in Chapter 4 and Chapter 5 (Section A) in detail.

Paper 1: Lessons from the Past: Rethinking the Use of Social Influence in Online Social Networks (Published)
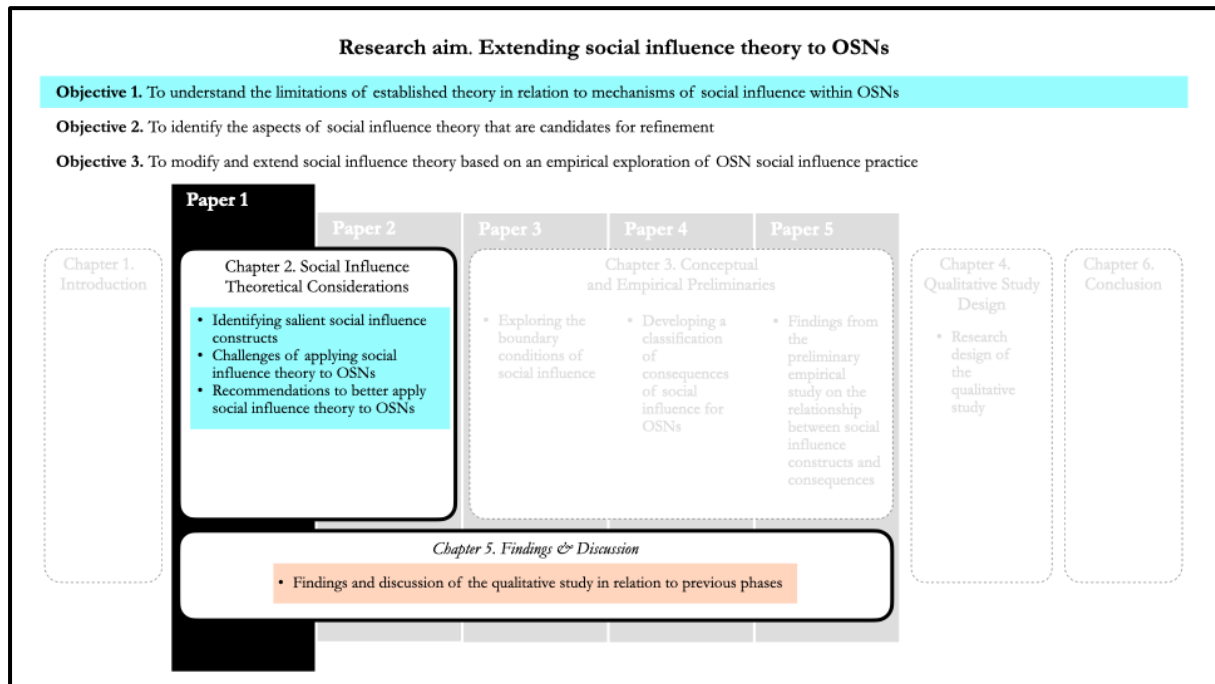
Figure B.2. Situating paper 1 within the project

Paper 1 is related to the first objective of my research. Findings of Paper 1 are summarized in Chapter 2 of Section A. These findings also informed the qualitative study discussed in Chapter 5.

7-12-2021

Lessons from the Past: Rethinking the Use of Social Influence in Online Social Networks Research

Dharshani Chandrasekara
Monash University, Melbourne, Australia, dharshani.chandrasekara@monash.edu

Caddie Gao
Monash University, Melbourne, Australia, Caddie.Gao@monash.edu

Patrick Olivier
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Lessons from the Past: Rethinking the Use of Social Influence in Online Social Networks Research

Completed Research Paper

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Patrick Olivier
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Abstract

Social influence constructs are commonly adopted in Information Systems (IS) research when investigating individual interactions in online social networks (OSNs). However, most of these constructs were developed prior to the advent of OSNs. As a consequence, there is limited research on how the unique attributes of the online environment might cause social influence to operate differently within OSNs. Indeed, IS studies that have applied social influence to OSNs have presented inconsistent findings regarding the most applicable social influence constructs. Through a critical review of 83 IS studies, we investigated the challenges of applying social influence theory in IS research. We synthesised our findings in the form of five recommendations concerning clarity and precision in the use of social influence constructs in OSN research. Our recommendations aim to support IS researchers to frame social influence constructs more effectively for OSNs.

Keywords: Social influence, online social networks, literature review, subjective norm

Introduction

The proliferation of online social networks (OSNs) has allowed individuals, regardless of their geographical location or time zone, to have greater access to each other than ever. Especially with the rapid rise of OSN influencers from celebrities to content creators, OSN users are exposed to different types of social influence (Chandrasekara and Sedera 2018) that encourage them to change their attitudes and behaviours. This does not come without repercussions. Research has shown that OSNs have more tendency than mainstream media to influence individuals to believe in misinformation and disinformation and also to persuade individuals to take substantive actions that can create many negative impacts not only at the individual level but also at the social level (Zhang and Ghorbani 2020). Based on this evidence, it is impossible to ignore the effects of social influence in OSNs.

The moment we log on to an OSN, we allow ourselves to be influenced by hundreds and thousands of other users with whom we may or may not have a direct relationship. The online interactions facilitated especially by OSNs, have specific attributes that make them different from the interactions that take place in a physical environment (Chandrasekara and Sedera 2018). Even though the number of studies that focus on examining social influence generated in OSNs is increasing, studies that discuss how we

can apply social influence theoretical constructs developed in the physical context to the online environment are limited. For example, Zhou (2011) highlights that when applying social influence constructs from the past, some constructs (e.g. compliance, subjective norm) have received more attention in online studies, while other important constructs that could affect individual behaviours have often been ignored. In fact, the lack of studies that clearly articulate the different constructs of social influence and how to apply these constructs in different contexts has resulted in inconsistent findings (Wang et al. 2013).

Given that past research has inconsistent findings with regard to the application of constructs of social influence to OSNs, our objective in this study is to revisit the past to understand the common challenges of applying social influence in OSNs and thereby identify better ways of applying social influence constructs to OSN research. To achieve this objective, we carried out a literature analysis critically reviewing past work on both social influence theoretical constructs and OSNs. Based on our critical review, we propose five recommendations that delineate the best practices when applying social influence constructs to investigate a phenomenon in OSNs. We believe that our findings will pave the way to establishing a protocol for applying social influence constructs to research in OSNs.

The paper is organised in the following manner. First, by drawing from the past research, we provide a descriptive account of how commonly adopted social influence constructs have been defined in the original work. Then, we investigate the attributes of online and physical interactions to understand how online interactions are different from physical interactions. Next, we present the methodology of the study and analyse the use of social influence constructs in IS studies. We also identify challenges related to operationalising social influence constructs. Finally, we propose five recommendations to consider when applying social influence constructs to OSN research.

From the Past to Present: The Journey of Social Influence

Constructs of Social Influence

Social influence can be defined as the attitudinal and behavioural changes that occur in individuals due to the "effects of other people" (Latané 1981, p. 343). The foundational work of social influence was developed during the 20th century, particularly in the domain of social psychology, along with experiments on the impact of society on attitudinal and behavioural change. For example, two famous experiments during this period were Asch's experiment about conformity (Asch 1956) and Bandura's experiments on observational learning, which led to the development of social learning theory (Bandura and Walters 1977). The studies carried out in the 20th century focussed on identifying many different processes of social influence (by social influence processes, we mean different ways through which social influence takes place) to which individuals are exposed in their daily lives. Some scholars presented these processes in the form of theories (e.g. Latané 1981), whereas others have built on past experiments modified the previously established social influence constructs (e.g. Brown et al. 1986; Deutsch and Gerard 1955). For the purpose of this study, we consider social influence constructs that have received the greatest attention in IS based on our literature sample[1]. Table 1 indicates the most frequently adopted social influence constructs in IS along with examples of the studies that have adopted them. However, we acknowledge that it does not consist of all social influence theories adopted in IS. For instance, social influence processes introduced by Cialdini and Goldstein (2004) have also been used in IS research. Yet, we could not find enough examples in our literature analysis to include such constructs in Table 1.

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[1] *To facilitate readers in understanding the history of social influence we included some of the findings of our literature analysis in this section. However, the method of selecting the literature and our detailed findings are presented later in this paper.*

Table 1. Definitions of Key Social Influence Constructs from Seminal Works and Examples of IS Studies

Social influence constructs	Description	Examples
Informational social influence and normative social influence (Deutsch and Gerard 1955)	Informational social influence is defined as "an influence to accept information obtained from another as evidence about reality" whereas normative social influence is defined as "an influence to conform with the positive expectations of another" (Deutsch and Gerard 1955, p. 629).	Kuan et al. 2014; Lu et al. 2005
Compliance, identification and internalisation (Kelman 1958)	Kelman (1958) indicates that compliance occurs when an individual tends to agree with another individual/group to achieve a positive outcome whereas identification occurs when an individual adheres with an outcome when s/he expects to commence or continue a relationship with another individual/group. Finally, internalisation occurs when an individual tends to be influenced when the content of a particular message/behaviour adheres with his/her values and beliefs.	Cheung and Lee 2010; Sedera et al. 2017; Tsai and Bagozzi 2014; Wang et al. 2013
Cognitive social identity, evaluative social identity and affective social identity (Ellemers et al. 1999) developed based on social identity theory by Tajfel (Tajfel 1974)	Cognitive social identity is based on an individual's own awareness of his/her membership of a particular group. Evaluative social identity is based on how individuals evaluate their own self-worth as a member of the group or their importance in the group. Affective social identity refers to an individual's emotional connection with the group that makes him/her attached to the group (Tsai and Bagozzi 2014).	Chiu et al. 2015
Strength, immediacy and number from Latané's social impact theory (Latané 1981)	Strength indicates any factors, may it be social status, economic status, etc. that gives a source of power to the influencer. Immediacy can be considered as the proximity between the influencer and the influencee in terms of 'time and space'. Number means the number of people or sources influencing an individual.	Chan et al. 2018
Peer pressure/peer influence (Brown et al. 1986)	While peer influence is a construct that cannot be traced back to one particular seminal work, one of its earliest applications is from the work of Brown et al. (1986) on understanding how peers influence adolescent behaviour. Peer influence can simply be defined as the influence of friends/peers/colleagues that encourage an individual to change their attitudes or behaviour.	Fang et al. 2019
Subjective norm (Ajzen 1991; Fishbein 1979)	In the theory of planned behaviour, subjective norm has been explicitly defined as "the perceived social pressure to perform or not to perform the behaviour" (Ajzen 1991).	Cheung and Lee 2010; Li et al. 2006

As indicated in Table 1, these constructs have been primarily investigated in a period where online interactions did not exist at the current scale. Thus, the experiments, which initially identified the effects of these social influence constructs over individuals, were developed observing physical interactions. However, can we consider physical and online interactions the same? Are there any attributes in the online environment that make online interactions distinct from physical interactions? We need to examine these concerns prior to applying social influence constructs that were developed in one context to another.

Social Influence and the Attributes of Physical and Online Environments

When looking at social influence in general, one could argue that the processes of social influence regardless of the context it takes place in, would occur in a similar manner. For instance, may it be a physical or an online environment, the individuals who interact could behave in the same way based on their personalities, attitudes, emotions, etc. Yet, given the inconsistent findings in the past IS research in applying social influence constructs developed to examine individual interactions in the physical environment to interactions in OSNs, we argue that when applying social influence constructs to a particular study, it is crucial to frame the constructs based on the attributes of the environment (physical or online). For example, when compared with face-to-face interactions, OSNs offer the ability to connect and maintain relationships with strangers easily (Chandrasekara and Sedera 2018). While in the physical environment, approaching strangers is generally not acceptable, in OSNs, individuals can easily encounter and be influenced by different groups of people. Furthermore, it is challenging to communicate with a large number of people solely through physical interaction, whereas in OSNs individuals are able to maintain ties with a vast number of people (Mangold and Faulds 2009).

Another attribute of the online environment is the ability to communicate with people beyond time and space barriers and to monitor the behaviours of a large number of individuals. In contrast, physical interactions are limited by time and space barriers (Chandrasekara and Sedera 2018). While OSNs allow individuals to communicate with multiple individuals (Liu, Gao and Agarwal 2019) at once regardless of their geographical location or time zone, such interactions are not possible if the same individuals were to meet in person. Social media influencer research is a good example that emphasises how social media influencers who exploit specific features of OSNs could reach a large target audience despite time and space barriers and influence them to change their attitudes and behaviours (Jin, Muqaddam and Ryu 2019). Individuals who interact in a physical setting also benefit from being able to observe the nonverbal cues and gestures of people with whom they are interacting, whereas in OSNs, such observations are more difficult. As such, in OSNs, individuals have to rely heavily on the content that is shared with them, may it be audio, video, or text, to determine the quality of the communication and then make a judgment based on merely what is presented to them by other individual(s).

Another difference between the two types of interactions is in terms of the quality of interaction. Compared to interactions in OSNs, in physical interactions, there is less noise and clutter for the individuals who are involved in the interaction since they have the ability to determine and control the setting or the location in which the interaction takes place to a certain degree. However, in OSNs, since multiple interactions with several individuals can take place all at once, individuals may often feel overwhelmed by the noise generated in the OSNs, affecting the processes of social influence (Levordashka and Utz 2016). OSN users can also be exposed to multiple sources of content carrying conflicting information (Chandrasekara and Sedera 2018). These differences between the physical and online environments could be among the factors that have led to inconsistent findings in applying social influence constructs to IS research (Chandrasekara and Sedera 2019; Chandrasekara and Sedera 2018; Zhou 2011). Herein, it is important to indicate that while the types of social influence indicated by the constructs developed in the past are still relevant to understand social influence in OSNs, there are additional attributes of OSNs that would either strengthen or weaken these different ways in which social influence is manifested in OSNs. Therefore, it is with these differing attributes of physical and online interactions in mind that we need to explore how social influence is being applied in OSN research.

Methodology

The objective of our study is to revisit the past to identify the common challenges in applying social influence to OSNs and thereby propose recommendations to facilitate future IS studies on OSNs. To achieve this objective, it was crucial to revisit past studies on social influence and OSNs and critically

review them. To identify relevant studies for the critical review, we followed several steps. First, we selected the basket-of-8 IS journals to identify relevant research papers. The basket-of-8 IS journals are considered the most recognised and high-quality journals in IS. Then, with the assistance of a University librarian, we decided on the keywords to include in the search criteria and the most suitable databases to use. The Boolean search command used for the literature search is given below.

("Social influence" OR "influence" OR "social impact[2]" OR "impact" OR "social interaction") AND ("social media" OR "social network" OR "online communit*" OR "virtual communit*")

The keyword search for the basket-of-eight IS journals was carried out in several databases: ProQuest Central, Wiley Online library, INFORMS, EBSCOhost Business Source Complete, Taylor & Francis, and Elsevier Science Direct. The timeframe selected for the initial search was from 2006 to 2019 since most of the research around OSNs started blooming around 2006, once one of the most prominent OSNs – Facebook – had become popular among people all over the world. The search elicited a total of 2759 hits across the eight journals. The next task was to decide on the inclusion and exclusion criteria to finalise the most applicable research papers for the study. By doing a title and a keyword search in the papers that appeared in the initial search, we decided to include papers that discussed the concept of social influence in IS or papers that discuss online interactions. Any paper that did not give adequate hints about social influence, online interactions, and OSNs in its title or keywords was excluded when downloading the papers. This step resulted in 135 papers.

All 135 papers were then reviewed to determine further applicability for the study. We aimed at including studies that either explicitly discuss social influence processes or characteristics of OSNs in detail. We identified 49 papers out of the 135 that were directly relevant to our study. Then, using the forward and backward search method (Vom Brocke et al. 2015), we were able to identify 34 more papers applicable for the study. These included nine seminal papers discussing social influence and related constructs (Ajzen 1991; Deutsch and Gerard 1955; Kelman 1958; Latané 1981; Latané 1996; Latané and Bourgeois 1996; Latané et al. 1995; Nowak et al. 1990; Venkatesh and Davis 2000). In this step, we extended our initial timeframe to incorporate seminal papers on social influence and studies that would allow us to gain an understanding of the evolution of social influence from the physical to online context. The final literature sample thus consisted of 83 research papers in total. Even though we commenced our literature search with the basket-of-8 IS journals, due to forward and backward search, we included publications from other venues in the final sample. However, all the papers we included in the final literature sample were published in peer-reviewed journals or conferences, ensuring high quality. Once the final literature sample was complete, we created a literature synthesis matrix to observe whether any study (excluding the seminal papers) implicitly discussed any of the constructs that we identified previously as applicable to studying social influence in online environments. The literature synthesis matrix was inspired by the recommendations of Webster and Watson (2002) in structuring a literature review. After adding the 74 research papers to the literature synthesis matrix[3], we reviewed each paper through several iterations to see whether it contained any explicit or implicit references to any of the social influence constructs.

Analysis

Table 2 shows the number of publications in the literature sample in a given year range. We did not include the seminal work in the literature sample in Table 2, as we wanted to show how the number of studies focusing on technology and online interactions has evolved over time. If we consider the

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[2] "*Social impact*" *was selected as a keyword for the search since Latané's social impact theory (1981) is identified as one of the leading theories of social influence.*

[3] *Access to the complete Table listing all papers in the literature sample including the references can be made available on request.*

timeframe from 2015 to 2019, we can see that the number of publications on social influence in online environments is relatively high compared to other periods. It also shows how social influence related studies in online environments are gradually increasing over time.

Table 2. Number of Publications in the Literature Sample in a Given Year Range

Year range:	Before 2005	2005-2009	2010-2014	2015-2019	Total
Number of publications:	3	12	22	37	74

When the selection of papers by their focus on OSNs is concerned, the first paper in our literature sample discussing OSNs appears in 2009. This specific study by Zeng et al. (2009) focuses on social influence factors that lead OSN users to accept advertising in OSNs. However, most of the research papers selected for our literature sample on social influence in and prior to 2009 were set in different contexts such as virtual communities, which can be considered as the predecessors of OSNs (e.g. Bagozzi and Dholakia 2002; Dholakia et al. 2004), IT adoption and usage (e.g. Eckhardt et al. 2009) and other web/online interactive systems (e.g. Lee et al. 2006; Li et al. 2006). The application of social influence in other online spheres helped us to understand how different constructs of social influence have been applied in online settings compared to the traditional setting governed by physical interactions.

The Use of Constructs

To understand the use of social influence constructs in past studies, we went through the literature through several iterations, identifying the commonly adopted social influence constructs. One of the most examined social influence constructs was subjective norm adopted from the theory of reasoned action (Fishbein and Ajzen 1977) and the theory of planned behaviour (Ajzen 1991). Approximately 15 studies in our literature sample explicitly discussed this construct in relation to their study context or findings (e.g. Lee et al. 2006). It is also important to note that subjective norm has been identified as the same as compliance, one of the social influence constructs theorised by Kelman (1958) (e.g. Cheung and Lee 2010).

Kelman's social influence constructs, namely, compliance, identification and internalisation were also discussed by approximately ten studies in relation to investigating social influence (e.g. Cheung and Lee 2010; Shen et al. 2011; Tsai and Bagozzi 2014; Wang et al. 2013; Zhou 2011). When considering the application of Kelman's (1958) constructs of social influence to online environments, these constructs were initially adopted to examine how individuals engage in intentional social actions in virtual communities due to the influence of external sources (Bagozzi and Dholakia 2002), how social influence affects user participation in virtual communities, and how social influence leads to the adoption and usage of IS (Malhotra and Galletta 2005; Wang et al. 2013). Gradually, the studies also came to discuss how these constructs affect the contribution of OSN users to their online friendship circles (Tsai and Bagozzi 2014), and user experiences in OSNs (Sedera et al. 2017).

Social identity is the third most frequently appearing construct in the past research when discussing social influence (e.g. Chiu et al. 2015; Zeng et al. 2009). However, social identity has also been used interchangeably with 'identification', which is one of the social influence constructs presented by Kelman (1958) (e.g. Zhou 2011). Other commonly adopted theoretical constructs are informational social influence and normative social influence by Deutsch and Gerard (1955) (e.g. Kuan et al. 2014), and peer influence (e.g. Godinho de Matos et al. 2014). Our results also indicated that normative

influence (76%)[4], identification (70%), compliance (62%), peer influence (62%), and strength (62%) are the most commonly discussed constructs in the literature sample.

Even though in the initial analysis we could identify less than five studies that explicitly discussed constructs from social impact theory (Latané 1981) such as strength, number and immediacy (e.g. Miller and Brunner 2008; Wang et al. 2013), once the literature synthesis matrix was completed, we could identify that many studies implicitly discussed strength (62%), number (53%) and immediacy (31%). This could be due to the attributes of online interactions, such as the scale of interaction where a high number of individuals are interacting at once and the power dynamics of influencers that encourage users to behave in a specific way. However, our analysis of the studies also indicated common challenges faced by past studies when applying social influence to examine OSNs. These are discussed in the next sub-section.

Understanding the Challenges in Applying Social Influence Constructs to OSN Research

One of the first applications of social influence constructs in IS occurs in the studies of Venkatesh and Brown (2001) on personal computer adoption and Venkatesh et al. (2003) on user acceptance of information technology. While these two studies are only examples of the application of social influence in IS studies prior to the advent of OSNs, it is evident that in the pre-OSN era, the IS studies that adopted social influence primarily focused on technology adoption and usage. However, along with the rapid proliferation of OSNs and its broader applications at both personal and organisational levels, the focus of IS studies shifted to how social influence generated in online environments could lead individuals/groups to take different actions.

In reviewing past work, we identified that IS studies that investigated how social influence leads to the adoption and use of technology have inspired studies that investigated the operation of social influence in OSNs. For example, one of the most commonly adopted social influence constructs in examining information technology adoption, acceptance, and usage is subjective norms (e.g. Lee et al. 2006; Venkatesh and Brown 2001; Venkatesh et al. 2003). Subjective norm is defined as "the perceived pressure to perform or not to perform the behaviour" (Ajzen 1991, p. 188). However, this construct fails to include other important factors that should be counted in identifying social influence, such as the source of influence, the relationship between the influencer and the influencee, and the power balance that could determine the extent to which an individual would become influenced by another person or a group to change his/her attitudes or behaviour. This could be one reason why Schepers and Wetzels (2007) found that studies that included subjective norm have had mixed findings regarding its role in technology acceptance. This limitation of subjective norm in being inadequate to explain social influence was even acknowledged in a study by Eckhardt et al. (2009) who claimed that the reason why the effect of social influence could not be properly identified in some of the past research is the obscure nature of this construct. However, regardless of these criticisms about subjective norm being an inadequate construct, we could observe that it has been discussed and applied (e.g. Cheung and Lee 2010) in different contexts.

Another concern that affects the proper operationalisation of social influence constructs is the presence of multiple theoretical constructs explaining the same process leading to confusion in past research. Several studies in our sample adopted social influence constructs from different theoretical developments and identified them as similar (e.g. Bagozzi and Dholakia 2002; Cheung et al. 2011; Dholakia et al. 2004; Shen et al. 2011). For example, Dholakia et al. (2004) identifies "social identity" and "group norms" – two constructs developed based on the work of Tajfel (1974) and Postmes et al. (2000) as similar to "identification" and "internalisation" (initially developed by Kelman (1958) when discussing different processes of social influence). It is crucial to note here that social identity itself is

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[4] *These numbers indicate the percentage of studies that have explicitly or implicitly discussed each construct.*

composed of three components, namely cognitive, evaluative, and affective identities (Ellemers et al. 1999) whereas identification refers to a more holistic process of an individual's adoption or change of behaviour due to the need to start or maintain a relationship with another person or a group (Kelman 1958). Therefore, it is important that these subtle differences between constructs be acknowledged in the studies to ensure that the underlying meanings are correctly grasped.

A similar comparison of social influence constructs can be found in the work of Lu et al. (2005), who, citing the work of Karahanna et al. (1999), claim that "informational social influence" operates through "internalisation" whereas "normative social influence" operates through "identification". In the same way, Cheung and Lee (2010) identify "compliance", "identification" and "internalisation" (Kelman 1958) as the same as "subjective norm" (Ajzen 1991), "group norm" (Postmes et al. 2000) and "social identity" (Tajfel 1974), respectively. Further analysis of literature allowed us to observe that this practice of comparing constructs from different theoretical backgrounds and finding them to be the same has been followed in several other studies in IS too (e.g. Cheung et al. 2011). In fact, it is evident that not only in IS but also in other domains such as Human-Computer Interaction, the overabundance of constructs from behavioural theories has been acknowledged as a common issue that affects the rigor in research (Hekler et al. 2013). Such presence of constructs from different theoretical backgrounds with similar meanings could be problematic since even though these constructs may appear to be the same, the original work could posit them differently (Hekler et al. 2013). Overcomplicating the operationalisation of constructs by relating them to other similar constructs could even lead to the generation of inconsistent and mixed findings in research. It has already been proven that when social influence research is considered, most of the time, the studies either produce inconsistent findings with regard to the application of social influence in different contexts or have a narrow focus on only a few selected constructs without appropriate justification (Lee et al. 2006; Wang et al. 2013; Zhou 2011).

Most of these theoretical constructs of social influence applied in research were developed prior to the advent of OSNs. Therefore, they mainly focus on understanding human interactions that take place in a physical environment. When physical and online interactions are considered, the attributes specific to each type of interaction can encourage individuals to behave differently. For example, the options available for individuals in OSNs to reveal their identity or to hide their identity, connect with individuals outside their geographical boundaries and time zones, and access information from multiple and diverse sources make the social influence processes in OSNs different from those in physical interactions (Chandrasekara and Sedera 2018). Therefore, when multiple constructs are mixed together and identified as the same, there is a possibility of missing important attributes specific to each construct that could yield better results if applied directly to the online environment. For example, cognitive, evaluative, and affective social identity (Ellemers et al. 1999), have the capacity to incorporate three facets of social identity, whereas identification (Kelman 1958) mainly looks at whether an individual would act in a certain way when s/he needs to identify or form a relationship with another group or a person.

In summary, when applying social influence constructs to OSNs, researchers should pay closer attention to a range of factors from operationalising the social influence constructs properly to ensuring the applied social influence constructs are the most suitable for the specific context in which the research takes place.

Recommendations to Apply Social Influence Constructs to OSN Research

Our findings indicate that the presence of overlapping social influence constructs and the lack of acknowledgement of the differences between online and physical contexts in terms of individual interactions have led to inconsistencies in the results of past social influence studies. Even though these inconsistencies have been identified and acknowledged in recent studies, there is no point of reference for researchers to identify how social influence studies in IS have been developed over time and thereby explore the aspects they need to look out for when applying social influence to OSNs. Therefore, we

propose five recommendations for future IS researchers to consider when investigating social influence in OSNs.

Defining 'Social Influence' in a Holistic Manner

Evidence from past research shows a lack of clarity in the way social influence has been defined. For example, one study (Fang et al. 2019, p. 748) that discusses social influence in online games indicates that social influence "occurs when talking with each other, working in the same room, or living nearby". While this is only one instance where social influence occurs, it is important to acknowledge that social influence consists of various components. Further, such a definition is more suitable to describe a physical interaction rather than an online interaction since online interactions can take place beyond time and space barriers. Lee et al. (2006) also indicate that social influence, which is also identified by different terms such as "social factors, social pressure, and social norms" (p. 61) has always been measured using the same scales that are used to measure subjective norms. Yet subjective norm is a construct that covers only one aspect of social influence. There are many other constructs touching different aspects of social influence, and it is not appropriate to identify social influence in relation to only one aspect, given that it could mislead future studies on social influence. Shen et al. (2011) commented on the tendency of the IS studies to define social influence by referring only to the normative aspects of social influence, and identified that gradually studies are shifting towards incorporating more inclusive interpretations of social influence where different processes of social influence are considered. Therefore, for studies that examine social influence in OSNs, first it is important that they clearly define social influence considering the different processes and components of social influence. Then, a particular process or a component can be selected based on the objective of the study for further examination.

Distinguishing the Different Constructs of Social Influence Clearly

We found cases where researchers have identified two constructs coming from different theories as the same (e.g. Cheung et al. 2011; Shen et al. 2011). While seemingly two constructs may appear to be the same, studies should clearly distinguish different constructs of social influence by citing their original work. This would not only allow future researchers to identify the origin of each construct correctly but would also ensure the correct operationalisation of constructs.

We also recommend that researchers apply social influence constructs that are well established and operationalised where possible. For example, when discussing social influence, Malhotra and Galletta (2005), applying Kelman's social influence processes (1958) to study commitment, show that Kelman's social influence processes are well established and specific. Yet a construct like subjective norm (Ajzen, 1991) has a broader meaning and can be interpreted as having characteristics of many other social influence constructs such as compliance, identification (Kelman 1958) and even normative influence (Deutsch and Gerard 1955). This means the researcher should clearly articulate which aspect of subjective norm is addressed in the study or ensure that s/he applies well-articulated or specific constructs in the study to avoid confusion. In the meantime, to prevent the overabundance of social influence related constructs, researchers can go through the social influence related constructs we have identified in this paper and adopt those that best match the nature of their study. For example, Dewan et al. (2017) study two types of social influence in an online music community, namely, popularity influence and proximity influence. These two types of influence show high similarity to identification from the work of Kelman (1958) and immediacy from the work of Latané (1981). Therefore, in such instances, rather than adopting completely new constructs which have not been validated, a study can benefit from adopting established constructs from the past.

Tracing Social Influence Constructs back to their Origins

Previously, we examined the definitions of a range of social influence constructs that have been commonly adopted in IS research. Yet, due to the presence of multiple constructs conveying the same meaning, it has been challenging for IS studies to narrow down the most applicable social influence constructs in the past. This difficulty is demonstrated by the presence of inconsistent findings as indicated in past research. In order to make this process easier, we recommend that future studies trace the constructs to their origins to understand in what circumstances the application of such constructs would be most meaningful. For instance, if a researcher expects to identify the different ways in which social influence operates in OSNs and how these affect individual behaviours, Kelman's three processes of social influence would be a good starting point. However, if the research is about understanding how characteristics of OSNs facilitate social influence, Latané's theory (1981), in which the importance of number, proximity between individuals, and the strength of the influencers are discussed, would lead to more accurate findings. Another area of interest when understanding social influence in OSNs is to examine how individuals take actions based on the relationships they maintain with others via OSNs. In such instances, the three components of social identity – cognitive, evaluative and affective - (Ellemers et al. 1999) would facilitate the understanding of social influence generated through the perceptions of an individual about different relationships maintained by him/her. For a study exploring how the different forms of power one has over another leads to influence, an initial point of reference would be the work by French and Raven (1959). We believe that familiarity with this foundational work of social influence would enable studies to become more context-specific and facilitate the careful selection of the most appropriate constructs for the purpose of the study.

Examining the Unique Attributes of Online and Physical Environments

At the beginning of our study, we specifically identified how the attributes of online environment are different from physical environment. When selecting the most suitable social influence constructs to investigate online interactions, researchers can first explore the unique attributes of OSNs and then determine the social influence constructs that should be examined accordingly. For example, in studying the application of social norms in an online community, Liu et al. (2019) identified that those who share information in the online community and have a high number of followers are more receptive to social norms than others. Such attributes of having a high number of followers or sharing information using different audio or visual content are only specific to online environment and not physical environment. One of the seminal works of social influence (Latané et al. 1995) also indicates that technology has the ability to affect the way social influence operates among individuals. Based on these facts, we can revisit past social influence constructs and carefully select those that would make the most sense to the research context that we want to investigate. Further, some social influence constructs, such as number (Latané 1981) and informational social influence (Deutsch and Gerard 1955), would become more meaningful for understanding online interactions because these constructs explore how the number of individuals present in a specific environment or how access to information in a given situation could change the attitudes and behaviours of individuals. Therefore, when applying social influence constructs to OSNs, rather than applying the same constructs as previous studies, it is more important to look at the attributes of the online environment one wants to explore and then decide on the most suitable social influence constructs to examine the online interactions. Incorporating this step into OSN research also means that when developing research methods to examine social influence in OSNs (e.g. surveys, interviews, experiments), researchers can investigate social influence in relation to the presence of these attributes and investigate how the different attributes of the online environment would either increase or decrease levels of social influence.

Paying Attention to the Consequences of Social Influence where Applicable

Understanding social influence in relation to the nature of an action taken by an individual is not a new concept. For example, Bagozzi and Lee (2002) studied how individual intentions versus shared intentions were affected by different social influence processes. While social influence can result in a range of decisions from a simple change in attitude to taking a substantive action, it is crucial that researchers pay attention to the consequences of social influence they expect to study in their research where applicable. For instance, in the physical world, a researcher can experiment to understand how a particular construct of social influence would generate a certain behavioural change. Yet, in OSNs, due to the presence of many stimuli in the environment, ranging from a large number of individuals who are constantly interacting with each other to the exposure of diverse and contradictory messages on the same aspect (Chandrasekara and Sedera 2018), it would be difficult to understand the potential consequences of being exposed to different types of social influence. Indeed, it is essential to understand the variety of consequences of social influence that can take place in OSNs. For instance, an OSN user can simply change his/her attitude and not do anything about it visibly, engage in a symbolic gesture (symbolic action) such as liking a post, commenting or sharing a post, or take a substantive action like attending a political rally or making a donation (Chandrasekara and Sedera 2019). Given that there is a range of consequences from symbolic actions to more substantive ones, different social influence constructs could lead to various attitudinal and behavioural changes. Yet, in IS, there is limited focus on understanding the relationship between diverse social influence constructs and related consequences in the online environment. We believe more research looking at this relationship would lead to more robust contributions.

Conclusion

Even though OSN studies are on the rise in domains like IS and Human-Computer Interaction, evidence from past studies indicates that there is still some confusion in these domains regarding the applicability of social influence constructs due to inconsistencies in the past findings. Our findings from analysing 83 studies showed that due to the overabundance of social influence constructs, different constructs have been overcomplicated and even misinterpreted in some of the past research. Further, it is impossible for studies to investigate all the different constructs of social influence prior to their application given that social influence constructs adopted in IS are scattered across a different period and range of disciplines such as social psychology, sociology, and political science (French and Raven 1959). Therefore, by compiling the most commonly adopted social influence constructs in IS, our study first examined how the different social influence constructs are defined by tracing them back to their original work. The identification of the most applied social influence constructs by relating them to their original work would assist future IS researchers to correctly locate the original social influence constructs and determine whether or not those constructs are suitable for the purpose of the research. Our recommendations would also guide researchers to develop more suitable research instruments to measure social influence in OSNs. Hence, we believe these recommendations would not only have implications for IS research but also for other domains like Human-Computer Interaction and decision support systems.

We also identified the most specific attributes of online environments that differentiate online interactions from physical interactions. We invite future researchers to explore how different constructs of social influence would operate given the different attributes of online and physical interactions. Our critical review led to the identification of several challenges experienced by past studies in terms of applying social influence constructs in IS. Identifying these challenges gave us the confidence to propose five recommendations to streamline the application of social influence to OSNs. We believe these recommendations will set the foundation for establishing a protocol to apply social influence constructs in the context of OSNs more rigorously. Overall, it is noteworthy that, given the upward trend we identified in our literature sample (Table 2), OSN studies in IS are increasing. Our literature

analysis provided adequate evidence that social influence has been one of the most popular topics of discussion in OSN studies, given the influence individuals have over one another in OSNs. Hence, identification of the challenges experienced by IS researchers when applying social influence and recommendations for the application of social influence in OSNs can be considered as a timely need that is fulfilled by our study. In doing so, we believe we are able to contribute to the growing area of IS research on OSNs.

Similar to any research, our study also comes with certain limitations. We have only touched the tip of the iceberg by directing the attention of IS researchers to the challenges related to the application of social influence constructs for OSNs. Our critical review has provided the foundation to streamline future research on social influence, yet further empirical tests are required to build on our recommendations. Therefore, future studies could apply our recommendations to not only identify which recommendations would bring out the most accurate results when examining social influence in OSNs, but also to examine how features of different types of OSNs (e.g. Tiktok versus Instagram) would generate social influence differently. We also suggest further investigation into the operationalisation of the constructs we have identified as suitable for OSN research.

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Paper 2: Social Influence and Human-Computer Interaction: Misconceptions, Mismatches and Missed Opportunities (Under review)
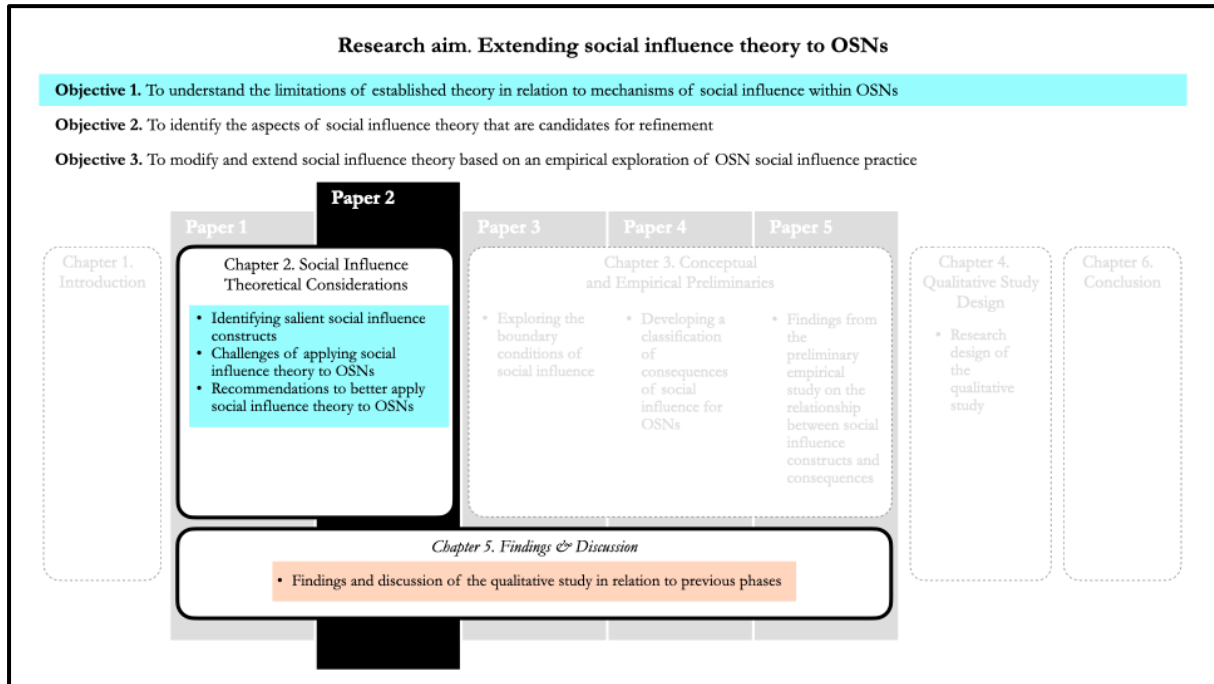
Figure B.3. Situating paper 2 within the project

Similar to Paper 1, Paper 2 is related to the first objective of my research. Findings of Paper 2 are summarized in Chapter 2 (Section A). These findings also informed the qualitative study discussed in Chapter 5.

Social Influence and Human-Computer Interaction: Misconceptions, Mismatches and Missed Opportunities

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ABSTRACT

The ubiquity of digital social connection has caused the nature and mechanisms of social influence be a matter of significant concern for researchers, designers, policy makers, and the general public. However, the application of social influence theory to human-computer interaction is challenging. Theories and constructs are many and complex, and most were formulated prior to widespread adoption of the internet, raising questions regarding their applicability. Through a review of a representative sample of ten years of human-computer interaction research, we characterize the ways in which researchers have engaged with social influence theory, and identify common misconceptions and sources of confusion. Finally, we propose a deeper engagement with theories and constructs of social influence, and the need to take explicit account of shortcomings in the suitability and application of these theories in research and design.

Keywords and Phrases: Social influence, social media, theory, design, critical review

1 INTRODUCTION

Only the most techno-optimistic turn-of-the-century futurist could have anticipated current levels of online social network (OSN) use, and the capabilities and access to data of algorithmic recommendation technologies. Social influence as exerted through such systems does not present a point of contention. However, growing skepticism regarding the ethics of the business models of OSN companies [95] and high profile "scandals" ranging from surreptitiously targeted social media campaigns to exert political influence [11] to large-scale experiments in social contagion [5], have foregrounded the questions of "how" and "why" social influence is exercised, and "who" should have access to its orchestration. Consequently, social influence—the ability of individuals to

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encourage one another to change each other's attitudes or behaviors, has received much attention from human-computer interaction (HCI) researchers and designers. In the process of incorporating social influence in their studies, researchers and designers have interpreted the concept in diverse and, sometimes, confusing ways.

Further, even the most contemporary works on social influence and persuasion (i.e. [32] and [21, 22]) were formulated before the emergence of the current landscape of connectedness and influence. This is not to say that the fundamental aspects of how individuals' mutual interactions affect upon their attitudes and behaviors are different in the digital age. Instead, it is vital to reflect upon whether the context in which these social influence processes occur and the associated mediums (be they physical or digital) affect attitudinal and behavioral change in individuals differently (to that predicted by the original theories). However, the potential impacts of the new and diverse ways in which people can interact with each other, the content and connections to which they are algorithmically exposed, and the scale at which this all occurs require us to review the applicability of current models of social influence.

With this in mind, we start from the position of established theories and constructs of social influence and attempt to identify the factors that are likely to make social influence (in the context of large-scale many-to-many interactive connectivity) distinct from social influence arising from essentially physical interactions. We have sought to untangle confusion around the adoption of social influence theory and its constructs by revisiting past research to better understand how it has been applied across the HCI landscape. Our critical examination of how studies have conceptualized social influence points to the need for a reboot. That is, a revision of the ways in which HCI and interaction design should move forward in its thinking on how social influence could and should be used as a conceptual resource in the design and evaluation of sociotechnical systems.

Although grounded in theory, our contributions are intentionally practical. First, we identify the most popular theories and constructs of social influence used in HCI research and critically examine the ways HCI researchers have applied them. We invite HCI researchers and interaction designers to engage more deeply with theories of social influence and rethink their strategies in applying social influence in design. By reviewing past studies, we identify issues in HCI's conceptualization of social influence, and widespread confusion of social influence with similar concepts. In conclusion, we identify aspects of social influence theories and constructs that need to be extended or elaborated to meet the needs of HCI researchers and practitioners more effectively.

2 A PRIMER ON SOCIAL INFLUENCE: THEORIES AND CONSTRUCTS

Interest in social influence arose in the 1950s, particularly within social psychology [26]. Since then, conceptual and empirical research (i.e., many tens of thousands of studies) have created an abundance of social influence theories and constructs that are now applied to explore individual attitudinal and behavioral change. One of the challenges that occur when examining this multitude of social influence theories and constructs is the confusion that arises from the similarities between constructs. To clarify this, we have created four categories organizing social influence constructs with similar foci together. However, these categories are not mutually exclusive; some constructs under one category can also be defined under another. The purpose of creating these categories was merely to emphasize that selecting social influence constructs for a particular context can be challenging due to the complexities arising from similarities between the constructs. Further, when multiple constructs are available to explain similar phenomena, it is easy to overlook specific constructs that would be relevant to a particular study. Therefore, we believe that organizing commonly adopted social influence

constructs in our field into the following categories would provide future studies with a key point of reference in identifying suitable theoretical constructs to investigate user behaviors in OSNs.

2.1 Social Influence Theories and Constructs on Group Pressure

One of the first aspects of social influence that social psychologists explored was how group pressure affected individuals differently. Landmark studies included those of Asch in the 1950s on "conformity", in which he demonstrated that individual participants would give knowingly incorrect responses where these were consistent with those of a group of co-participants (in this case, confederates of the experimenter) [6, 7]. Another construct, "normative influence" [25] emphasizes the tendency of individuals to behave in certain ways to conform with others. "Peer influence" also focuses on the effect of peer groups in changing the attitudes and behaviors of individuals. Peer influence can be elaborated further as the influence arising from people around an individual (e.g., friends or colleagues) that leads the individual to change his/her attitudes or behavior [54]. Although peer influence was examined by a wide range of studies, one of its earliest applications was Brown et al.'s account of how peers influence adolescent behavior [10]. Notably, constructs such as conformity and normative influence examine groups in a somewhat general manner—they do not identify specific mechanisms by which groups or other external forces influence an individual.

2.2 Social Influence Constructs on Types and Processes of Social Influence

Studies of social influence that only focus solely on group pressure were criticized heavily by researchers such as Deutsch and Gerard [25] as "careless" and not adequately differentiating between dynamic "social factors" (p. 629). With this critique, Deutsch and Gerard distinguished two classes of social influence—normative social influence and informational social influence— to explain the different circumstances in which individuals would change their attitudes and behaviors based on external factors. They defined informational social influence as "an influence to accept information obtained from another as evidence about reality" and normative social influence as "an influence to conform with the positive expectations of another" (p.629).

Kelman [44] proposed three processes of social influence: compliance, identification, and internalization. "Compliance" occurs when an individual tends to agree with another individual or group to achieve a positive outcome, whereas "identification" occurs when an individual adheres to an outcome when she expects to commence or continue a relationship with another individual or group. Finally, "internalization" occurs when an individual tends to be influenced when the content of a particular message or behavior adheres with his/her values and beliefs.

Further, studies on more specific aspects of social influence such as "obedience" were also conducted by Milgram [58] to examine how individuals would be encouraged to adopt behaviors due to the influence of authoritative figures. "Obedience" identified by Milgram as an important area of focus in social influence [58], also shows some similarity to "compliance" in Kelman's work.

Latané proposed three different social constructs that affect on individual behavior: strength, immediacy and number [49]. "Strength" refers to any factor, such as social status or economic status, that gives a source of power to the influencer; "immediacy" characterizes the proximity between the influencer and the influencee, in terms of time and space; and "number" refers to the number of people or sources influencing an individual. Latané suggested that the social impact that occurs in a given situation is "a multiplicative function of the strength, immediacy, and number of other people" (p. 343). Therefore, when a particular social influence

process takes place, the high or low levels of strength possessed by an influencer, the number of people present in that particular context, and the level of proximity between the influencer(s) and the influencee would affect the extent to which the specific individual is influenced to change her attitudes or behaviors.

Kelman and Latané's constructs enabled researchers to extend the theoretical boundaries of social influence by incorporating the various ways groups or individuals could influence one another. Despite this, various criticisms arose of all these theories and constructs, relating to their overemphasis on social and external factors, without adequately emphasizing the individual traits and cognitive functions that play a role in attitudinal and behavioral change. This gave rise to the emergence of work that focused on understanding social influence and attitudinal and behavioral change as a combinative product of both social and psychological factors.

2.3 Understanding Social Influence as Reciprocation between Social and Psychological Factors

Social comparison theory, introduced by Festinger [28], paid considerable attention to human cognition and self-evaluation abilities of individuals (in comparing themselves with others) as important determinants of attitudinal and behavioral change. As originally formulated, Festinger's theory highlights the tendency for an individual with no objective facts against which to evaluate his/her ability, attitudes and traits, to compare himself/herself with others, and that this tendency increases along with the degree of similarity between the individual and the group [28]. Since its original formulation in the 1950s, the theory has been refined to account for the different goals that an individual may have and how they affect the way people engage in social comparison. Motivations for self-evaluation, and subsequent social comparison behavior, were refined to distinguish self-enhancement, self-assessment, self-verification, and self-improvement [81]. Here, the motive impacts upon both the selected targets of comparison (e.g., upward or downward) and tendencies in the processing of information gleaned from comparison (e.g. biased interpretations).

While Festinger's work characterized social influence in terms of motivations for, and processes of, self-evaluation, Bandura's social learning theory [8] provided an account of how the actual behavior of an individual reciprocates with the environment in which one engages in that behavior. Under social learning theory, the environment does not solely determine the behavior of the individual, but rather, the cognitive functions and the behavior of the individual also affect the environment. This claim has specific importance to social influence because it suggests that social influence is not a unidirectional process. It has been highly influential on psychological research and practice by framing people as individuals with agency, who can change their attitudes or behaviors, rather than helpless beings who can be easily manipulated.

2.4   Contemporary Work on Social Influence

While the theories and constructs developed by Kelman, Latané, Festinger, Bandura and others, continue to be applied widely in modern studies of social influence, several contemporary formulations of social influence have repackaged, and built on these foundational approaches. The most notable is Cialdini's six principles (or "weapons") of influence [20, 22]: reciprocation, commitment & consistency, social proof, liking, authority, and scarcity. Each principle is heavily nuanced; however, in simple terms, we can understand them as a set of tendencies we exhibit when making choices or acting. "Reciprocation" is to be bound to return a favor; "commitment and consistency" is to maintain consistency with choices we have already made and acts already performed; "social proof" is to decide how to behave in a particular instance by observing the behavior of others that are similar to us; "liking" is to be influenced by someone because we like them; "authority" is to be disposed

to behave in a manner that is desired by those in positions of perceived power; and finally "scarcity" indicates the tendency to be attracted to an opportunity when is perceived as limited in some way.

Cialdini's principles of influence, also identified as principles of persuasion [20], draw heavily on the social and psychological factors previously identified as leading to attitudinal and behavioral change. However, it is noteworthy that Cialdini's work focuses more on how to change the attitudes and behaviors of another individual intentionally (i.e. persuasion) than understanding social influence more widely. In the realm of digital technologies, Fogg's "persuasive technology" is, arguably, the best-known framework for describing how interactive systems can be designed to affect users' attitudes and behaviors [32, 33]. Like Cialdini, Fogg draws on many of the established social influence constructs and theories, such as normative social influence and social comparison [32], and articulates how persuasion is an aspect of social influence [32] in which an act is performed intentionally to affect change [33]. This distinction becomes particularly important later in our account when we draw the necessary distinction between social influence and persuasion and their application in HCI.

3 METHODOLOGY

The starting point of our study is a critical review of published works in HCI that incorporates aspects of social influence, with the goal of revealing the nature and range of researchers' engagement with current theories and constructs. We followed the literature search protocol of Seering et al. [75] by explicitly using a single keyword to identify papers that either engaged with theories and constructs of social influence or applied social influence to digital systems in a straightforward manner. In summary, we began by restricting our search to full papers published at ACM SIGCHI sponsored venues (i.e. venues considered high quality within the HCI community) using a full-text keyword search of the single term "social influence" (i.e., topic). Given the overly inclusive and ubiquitous nature of the search term, we were able to identify a wide range of studies that have examined different dimensions of social influence. While we acknowledge that social influence can be studied using other terms such as peer pressure, social factors, and conformity, we used Seering et al.'s search strategy [75] since our principal concern was to investigate studies that explicitly engaged and utilized the term "social influence" and related psychological theory in their work. Given that all well-established and original social influence constructs used the specific term "social influence" (e.g. [22, 25, 44, 49]), this search strategy should yield those studies that illustrate approaches in HCI in the most positive light with respect to their engagement with theory. The selected timeframe for the literature search was from January 2010 to May 2020. This timeframe provided us with a relatively wide window onto how social influence has been incorporated in HCI and corresponds to a period when many currently popular OSNs (e.g. Facebook, Instagram, and Twitter) were undergoing rapid growth [92].

In the second step, papers with titles and abstracts that referenced the use of virtual agents (typically embodied conversational agents) and human-robot interaction were removed in order to exclude papers whose primary focus was interaction in the absence of social factors or human presence. The third step was to remove publications that we could not guarantee were fully peer-reviewed substantive research publications (e.g., abstracts, extended abstracts, posters, works-in-progress, pictorials, panels, student research papers).We also removed those that we found, on close reading of the abstract, introduction and conclusion sections, and the full text around occurrences of the search term "social influence", did not in fact engage with theory of constructs of social influence or did not have adequate evidence to show that it focused on social influence at a general level. In this step, the decision was made specifically by using specific reference to the definition of social

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influence, which we aimed to study in this research. Herein, we define social influence as changes in attitudes and behaviors that occur in individuals when they are exposed to direct or indirect communication conveyed by other individuals and/or groups [14, 49]. Therefore, if any study referred to social influence at a vernacular level without specifically focusing on the interaction occurring among individuals or groups we removed such studies from the literature sample. Another exclusion criterion was in relation to the depth of the discussion on social influence. For instance, even though the study by Figueiredo et al. [30], got through the second step, in the third step it was removed since it is clearly mentioned in the introduction of the study that the authors focus on the content in OSNs in contrast to social influence. Consequently, the discussion of social influence in that study was inadequate the meet the requirements of our study. Finally, in the third step, publications which had adequate evidence for social influence but did not substantially examine it in relation to a digital artefact or a service were also excluded from the sample. Table 1 summarizes our search strategy and application of inclusion/exclusion criteria in selecting publications to review.

Table 1. Search scope, Inclusion and Exclusion Criteria, and Their Application in Selecting Papers to Review

Literature Selection Step	Inclusion/Exclusion Criteria	# of papers
Keyword search in ACM Digital Library.	Inclusion criteria: • Keyword: "social influence" (full text) • Dates: January 2010 to May 2020 • Venue: ACM SIGCHI sponsored venues	402
Review of publication titles & abstracts.	Exclusion criteria: • Publication title and abstract explicitly reference virtual agents, human-robot interaction, etc.	251
Targeted review of full text: Detailed examination of contribution type. Close reading of abstract, introduction & conclusion sections. Close reading of full text around occurrences of "social influence".	Exclusion criteria: • Abstracts, extended abstracts, posters, works-in-progress, pictorials, panels, etc. • Student research papers. • Papers that discuss social influence at a vernacular level • Papers that do not discuss social influence in depth. • Papers that do not discuss social influence in relation to a digital system or service.	90

For example, Sun et al.'s [79] study of YouTube watching behavior was excluded in Step 3 because the individual interactions and behaviors examined in the study were independent of digital service itself. In contrast, Zhang and Xu's [91] work was included because it focused on designing privacy nudges by incorporating social

influence within mobile applications to increase user awareness of privacy. Table 2 provides two examples of entries in the literature synthesis matrix that are typical of the larger set. The first example, Kizilcec et al. [46], applies various theories and constructs of social influence to understand the dynamics of online gift giving; whereas in the second example, Wohn [88] explores social influence as a general concept without reference to a specific theory or construct. Thus, the final review sample included studies of both types allowing us to investigate the various means through which social influence has been incorporated in HCI studies.

Application of the inclusion and exclusion criteria reduced the original search result of 402 publications to 90 research papers. Our next step was to undertake a close reading of each paper in relation to its use of social influence theory and constructs, and develop a literature synthesis matrix for analytical purposes. Our design of the literature synthesis matrix aligned with the concept-centric approach recommended by Webster and Watson [86]. In addition to collating the year of publication and venue of publication, we examined several aspects of each paper and coded the papers against the matrix accordingly (see Table 2). The coding process was guided by: (i) whether the paper refers to any specific social influence theory or construct; (ii) the types of social influence theories and constructs used; (iii) the types of behaviors or attitudes examined; (iv) the digital system in relation to which social influence is utilized (e.g. OSNs, persuasive systems, and recommender systems); (v) how social influence has been conceptualized; and (vi) other comments (including our own observations about the paper in general). From the commencement of the first step of the literature review (e.g., conducting the keyword search in the ACM Digital library) to including suitable publications in the literature synthesis matrix, the lead author held structured meetings with other authors to review and iterate the observations and insights gained in each step [9]. Further, to ensure that the coding process was consistent across the literature sample, the second author co-coded 10% of the 90 papers by randomly selecting nine papers, verifying the accuracy of the overall coding.

Table 2. Examples of Entries in the Synthesis Matrix: Kizilcec et al. [46] and Wohn [88]

Kizilcec et al. (Social influence and reciprocity in online gift giving) [46]		
Year	**Theory & Constructs**	**Application context**
2018	Social learning theory (Bandura), reciprocity (Cialdini) and peer influence.	OSNs (Facebook)
Venue	**Behaviors & Attitudes**	**Conceptualization**
CHI	Diffusion of online gift giving.	The study explores the susceptibility of OSN users to engage in online gift giving behaviors by observing and reciprocating the behaviors of people who are known to them both online and offline.
Social Influence (Y/N)		
Y		
Wohn (Spending real money: Purchasing patterns of virtual goods in an online social game) [88]		
Year	**Theory & Constructs**	**Application Context**
2014	N/A	Multiplayer online games

Venue	Behaviors & Attitudes	Conceptualization
CHI	Tendency to spend real money in online social games.	The study examines how social factors including social influence (characterized through "number of friends, giving and receiving virtual goods" p. 3361) would encourage online game players to spend real money within the game.
Social Influence (Y/N)		
N		

4 HOW HCI ENGAGES WITH SOCIAL INFLUENCE

The literature search identified research publications from eight ACM SIGCHI sponsored venues, with more than 70% of the papers coming from three venues: (i) ACM CHI (Conference on Human Factors in Computing Systems), (ii) ACM CSCW (Computer Supported Cooperative Work and Social Computing), and (iii) ACM UMAP (Conference on User Modeling, Adaptation and Personalization) respectively.

4.1 Conceptualization and Application of Social Influence in Past Studies

After developing the literature review matrix using the 90 papers, we undertook several iterations of analysis to cluster papers according to how authors conceptualized and applied social influence in their work. As illustrated in Figure 1, 39 of the 90 papers that engaged with social influence (i.e., met all of our inclusion criteria), did not explicitly employ social influence theories or constructs (two publications from 2020 have not been included in Fig. 1. Neither employed any theory or construct of social influence).

Many of these studies used data driven approaches that adopted social influence as a general concept to understand online interaction without taking a position   grounded in social influence theory. For example, in their attempt to leverage user-generated content to improve social media recommender algorithms, Lu et al. [52] described how social influence is naturally accounted for as a contextual factor in their data driven probabilistic model of what users are 'known for'. In another study, Yamashita et al. [90] describe their design and evaluation of a sharing feature added to an existing application by which informal caregivers track family members. Although both of these examples either motivate or justify aspects of their work by reference to notions of social influence – that is, as a contextual factor in [52], and by reference to other works that claim to apply social influence theory in [90]—neither demonstrate substantive engagement with theory or constructs.
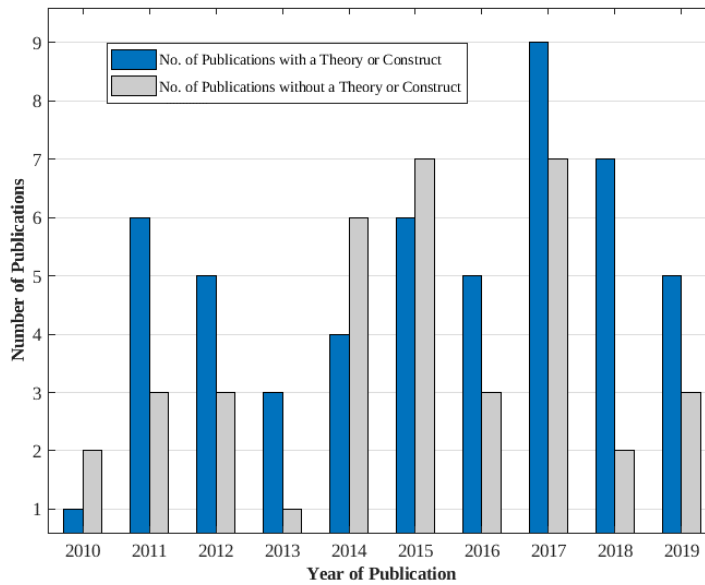
Figure 1. Number of publications (by year) meeting the inclusion criteria, that have (dark blue) or have not (gray) explicitly employed social influence theories and/or constructs.

Our sample of HCI studies that utilized social influence as a theoretical grounding applied it to develop design principles for digital systems, to persuade users to adopt certain behaviors and also to justify their findings in exploring different user behaviors. Here we only include studies that explicitly identified different types of social influence and applied those specific types of social influence as a core component of their methodology. For example, Das et al. [24] explored the role of social influence in security feature adoption and applied the concept of social proof to security feature adoption, discovering that the likelihood of a user adopting a security feature correlated positively with his/her awareness of his/her friends doing the same. Maruyama et al. [55] used social influence theoretical concepts, including majority influence [22] and informational and normative influence [25], to underpin an examination of how exposure to Twitter affected on the voting behavior of active Twitter users and lurkers. Caraban et al. [13] presented a framework that includes 23 mechanisms for nudging, organized according to six categories, including "social influence" which subsumes Cialdini's reciprocity principle [19], public commitment, (a reframing of Festinger's cognitive consistency [29] via Staw's escalation of commitment [78]) and social comparison [28].

The majority of such theoretically grounded studies applied Cialdini's influence principles (one or more principles) [20, 22] to understand online interactions (e.g. [1, 13, 24, 40, 51, 59, 68, 84, 85]). Other commonly applied theories and constructs of social influence included Festinger's social comparison theory [28] (e.g. [36, 64, 66]), Bandura's theories of social learning [8] (e.g. [2, 47, 65, 93], peer influence (e.g. [46, 54, 57]), informational and normative social influence [25] (e.g. [55, 61, 62]) and Fogg's persuasive strategies [34] (e.g. [43, 63, 74]).

4.2 Social Influence and Main Areas of Focus

We also examined the types of systems and services that have been examined in relation to social influence. Thirty percent of papers focused on social influence in OSNs; 21% on online communities other than OSNs

(e.g., online forums, social trading platforms and blogs); 10% on mobile personal informatics; 10% on recommender systems; and the remainder on a range of products and services from e-commerce platforms to online games and Massive Open Online Courses (MOOCS). Finally, we grouped the 90 research papers according to their main area of focus. We identified six broad categories: (i) understanding individual behaviors, (ii) understanding user decisions, (iii) understanding online communities, (iv) the development of design recommendations, (v) modeling social influence, and (vi) methodology development. While these categories are not mutually exclusive, they guided us to understand the diverse ways in which social influence has been applied in HCI research. The great majority of papers fell into one or more of these categories.

Regarding understanding individual behavior based on social influence we identified several studies that focused on the relationship between behavior change and social influence (e.g., [47, 54, 82, 89]). For example, Maitland and Chalmers [54] explored how social influence can be utilized to facilitate behavior change, and the implications of this for next generation weight-loss programs, and Vashistha et al. [84] explored how social proof [20] can influence participant response bias and eliciting feedback. Social influence is also utilized in research to understand the determinants of an individual's adoption of new behaviors. For example, State and Adamic [77] studied the mechanisms by which social influence could lead OSN users to participate in online social movements.

Research focusing on understanding user decisions also incorporates social influence to identify how different processes of social influence facilitate the decision-making processes of individuals in digital systems. Following a similar path, Zhao et al. [93] aimed to understand how social influence affects people's judgement particularly regarding taking financial risks. Zhu et al. [94] also investigated how social influence encourages users of online recommender systems to change their choices. Another study by Hullman et al. [40] explored how social proof affects visual judgments within the context of social visualization systems. Research focusing on understanding online communities has applied social influence similarly. For example, through an investigation of an online programming community, Sylvan [80] demonstrated that social influence contributes to underpin relationships among members of the community and facilitates an understanding of how information flows within it. Dabbish et al. [23] explored how social influence in online communities affects participant turnover, and Canossa et al. [12] investigated how influential players affect on the play time of other individuals within online games.

Social influence also plays a pivotal role in research into methodologies and research that focuses on the operationalization of social influence in the design of systems. For example, Cherubini et al. [18] proposed a methodology based on social influence that can be applied to enhance a user's (digital) social presence. Sharma and Cosley [76] introduced a statistical procedure that would allow practitioners to differentiate between actions that occur due to social influence and those that are individuals' own choices. In addition, several design-focused studies adopted social influence-informed design features to realize behavior change in users (e.g. [13, 53, 63]). Finally, several studies sought to develop models for social networks in which social influence theory was applied to predict user behavior (e.g., [17, 41, 73]; for example, Salehi-Abari and Boutilier [73] drew on the concepts of homophily and social influence to infer individual OSN user preferences and, in turn, group decision making.

5 THE CASE FOR RESEARCHERS AND DESIGNERS ENGAGING WITH SOCIAL INFLUENCE THEORY

Our review has demonstrated that social influence theory has been applied for a diverse range of purposes, from exploring individual decision-making to operationalizing social influence in system design. Studies engaging with the concept of social influence in HCI have taken either a data-driven approach, in which social influence is taken at face value, or a theory-driven approach, where different theories and constructs of social influence are considered and applied to understand individual and group interactions. While we argue for the benefits of taking a theory driven approach, it is important to acknowledge that there are contradictory views about the application of theories from other disciplines to HCI. Despite this, Rogers [71] has emphasized that such theories can help HCI in diverse ways, from providing conceptual frameworks to investigate a particular phenomenon to acting as guidelines to design robust systems. Following Rogers [71], we have developed an account of the different ways in which social influence theories and constructs can guide HCI researchers, and designers in particular.

5.1 Social Influence Theories and Constructs as Resources for Design

As we summarized in Section 2, social influence theories and constructs focus on a wide range of social influence processes. As Rogers [71] argued, incorporating a properly selected theory – in this case social influence theory – has several benefits. Most obviously, when designing systems, the application of a theory of user behavior supports the identification of factors warranting attention. Rogers [70] characterized the historical use of theory as either informative (i.e., providing useful research findings), predictive (i.e., providing tools to model user behavior), or prescriptive (i.e., providing advice as to how to design or evaluate). In practical terms, for HCI researchers and designers, this means that theory can be used analytically, as a tool for critiquing designs, or generatively, as a resource to support the framing of a design problem. Theory also allows researchers to make stronger claims (i.e., that are grounded in theory) about causal relations between aspects of design and user behavior; thus, they can focus on the evaluation of designs and systems and the process of iterative improvement through prototypes or full system evaluations.

However, leveraging theory and constructs of social influence in the service of better design is challenging, and our close reading of the publications yielded numerous examples of studies that only engaged with social influence at face value (e.g. [3, 37, 60]). For example, Aharony et al. [3] introduced a "mobile-phone based social and behavioral sensing system" in their attempt to "design social mechanisms in the real world" (p. 445). They described the use of a peer-reward social influence mechanism for a "fitness-centered social intervention design" (p. 449). Although the authors aimed to exploit "social influence" in their intervention design, there was no attempt to ground the design theoretically. As a result, despite the claim that social influence works more effectively as a design principle, they stated that they are yet to "understand if and how the social influence and pressure was exerted" (p. 452). This shortcoming emerged from many of the papers under review. By failing to engage with the possible social influence constructs that could have been applied in the given context and exploited to enhance the effectiveness of the design, the study was unable to address the "how" and "why" questions of the design.

Similarly, Moser et al. [60] applied a "social influence" lens to the exploration of the design practices of e-commerce sites that aim to encourage impulse buying. They interpreted social influence on e-commerce sites in terms of the impact of customer reviews, ratings, and purchases made by friends, without relating them (or the mechanics of their production and consumption) to an explicit theory. Through not using theory or constructs

of social influence the researchers were unable to account for how different levels of social influence arising from different sources either decrease or increase the motivation of individuals to impulse buy.

We can only speculate regarding why HCI researchers and interaction designers are not turning to deeper social psychological accounts of social influence in their work. It may be due to the profusion of complementary and competing theories. Indeed, one often cited shortcoming of behavioral theories, including social influence, is their "fragmentation" and "overabundance" [39] (p. 3313). Within the papers in our literature sample that discussed or adopted social influence theories or constructs, more than 35 different theories or constructs of social influence were applied—this demonstrates how challenging it is for HCI researchers and designers to select the most appropriate theory or construct(s) to apply in their work.

5.2 Engaging with Theory Carefully

When considering the use of theory, particularly in design, Rogers [70] highlighted that a theory can be effective only if it is appropriate to the particular context. However, selecting an appropriate theory for a study can be extremely challenging. One survey on the use of theory by designers in HCI revealed that the difficulty of understanding theory is one reason why designers do not engage with it in their work [70]. Our literature review also demonstrated that it has been challenging for HCI researchers and designers to apply social influence theories and constructs in their studies, and that there is a tendency to confuse them with concepts such as persuasion and homophily. For example, Klasnja et al. [47], in their account of how to evaluate technology for health behavior change, claimed social influence as a major factor in realizing behavior change without differentiating between persuasion and social influence. Similarly, Adaji and Vassileva's [2] work on personalizing social influence strategies in an OSN uses the term "persuasive strategies" interchangeably with "social influence strategies." Yet, persuasion occurs when an individual is convinced to behave in a certain way due to the strategies employed by an agent (human or technological) [34], whereas social influence is an umbrella term under which persuasion is only one dimension. In other words, social influence can occur when an individual changes his/her attitudes or engages in an action due to the social environment or people around him/her, without being intentionally persuaded (by an agent or agents) to behave in a certain way [44, 49]. This complexity is not unique to social influence. A study of usability by Tractinsky [83] showed that constructs with multiple facets should be considered as umbrella constructs, so that each facet can be individually operationalized in the understanding of phenomena of concern.

Further, "homophily" is defined as the effect arising when individuals and groups with some level of similarity interact and connect due to those similarities [56]. In contrast, social influence can be identified in relation to the wide range of attitudinal and behavioral changes that can occur in people due to the influence of another individual or a group far beyond the sharing of common beliefs and values (e.g. [25, 44, 49]). Many studies examined social influence in digital systems without differentiating appropriately between homophily and social influence (e.g. [38, 42, 52, 72]). While homophily can be a confounding effect, especially when conducting studies on social influence [12], system and service designs can be optimized and improved by understanding the complex interactions between sub-elements of social influence, such as homophily. Indeed, several studies clearly articulated the differences between concepts such as homophily, social influence, and persuasion—in such cases the benefits are striking. Canossa et al. [12], in their study of influencers in online games, clearly distinguished between homophily and social influence, which allowed them to "quasi-experimentally observe changes in player's playtime and social behaviors before and after joining another

player's social network" (p. 4). The resulting insights into the socially contagious nature of influencers and their importance to retention, have obvious application to the design of in-game networks.

5.3 The Need for Design-Ready Guidelines of Social Influence

Shortcomings in the engagement with social influence and its application to research and design can partly be explained by the existence of so many competing and similar constructs and theories. Constructs such as social proof [20, 22], which have been adopted in HCI (e.g. [24, 40, 76, 84]), appear to have much in common (to social psychology outsiders) with constructs such as homophily [56], identification (from Kelman's social influence theory [44]) and number (from Latané's social impact theory [49]). The choice of one specific theory or construct over another is rarely justified explicitly. For example, Cialdini's principle of authority [20, 22], which has been applied in work ranging from studies of eCommerce shopping behavior [1] to the design of engagement strategies in mHealth (e.g. [1, 85]), shows remarkable similarity to compliance from Kelman's social influence theory [44] and strength in Latané's social impact theory [49]. Likewise, Deutsch's normative influence [25] has also been applied widely in HCI research (e.g., [55, 61, 62]) without discussion of potential alternatives, such as the theory of planned behavior's subjective norm [4].

In an attempt to minimize issues that can arise (from the abundance of concepts) in the interpretation, use, and development of behavioral theories in HCI, Hekler et al. [39] proposed the creation of classifications and taxonomies of theories and concepts. Such classifications and taxonomies would provide researchers and designers with access to external representations [45, 48, 71] of social influence and simplify the application of social influence theories and constructs. We identified several studies that have attempted to develop such classifications. The most notable of these include Fogg's categorization of social cues and their impact on persuasive technology [31] and 35 types of behavior to consider when designing persuasive systems [35] and Caraban et al.'s list of 23 different ways that nudging can be leveraged when designing effective technologies to facilitate behavior change [13]. Such approaches go some way toward organizing and distilling the benefits of social influence theories and constructs; however, one might argue that they have gone too far in under-explaining theory and presenting a set of readily applicable heuristics. Indeed, there remains much to be done in the production of guidelines, classifications, and/or taxonomies to scaffold meaningful engagement with theory and the use of social influence as a resource for design.

6 PROPOSED RECOMMENDATIONS FOR DIGITAL INFLUENCE IN HCI

Our review indicates that HCI has faced challenges in conceptualizing social influence and applying different constructs of social influence to understand online interactions. Our critique of past HCI studies provided sufficient evidence to identify a mismatch between the conceptual resources required by researchers and designers and the established theories and constructs of social influence. Due to limitations of applying social influence theories and constructs, there is a dire need for design-focused guidelines for the application of social influence. Although there are multiple theories and constructs of social influence, we must focus on the external representation [45, 48, 71] of these social influence theories and constructs to enable them to be linked to match the characteristics of the subject of the design (e.g., OSNs). To lay the foundation for such an interaction-design focused theory of social influence, we propose a set of recommendations that could be considered in the design space of HCI to investigate individual interactions.

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6.1 Distilling the Constructs of Social Influence

Social influence processes as described by various theories (see Section 2) are multifaceted. Sometimes, the same construct established by one theory could be described in a slightly different manner by another theory (e.g., compliance [44] vs. authority [20]; identification [44] vs. social proof [20, 22]; normative influence [25] vs. subjective norm [4]). The overlap of such social influence theories and constructs [39] makes it even more challenging for researchers to identify the most relevant constructs for their studies.

Therefore, what is the most reliable way to begin the process of applying the most suitable social influence construct or theory for a particular HCI study? Let us assume that a researcher has identified social proof as a suitable concept for their study [20, 22]. When exploring this construct further, it is evident that social proof incorporates many factors: the presence of like-minded people around an individual, the number of people indicating the same message, and the tendency of individuals to observe others in uncertain environments and look for information [20, 22]. Thus, it is apparent that within this single construct, we can see the presence of many other constructs of social influence. In other words, one way social proof can operate is through the presence of like-minded people. This shows similarity to the concept of homophily [56]. Further, the number of people indicating the same message in social proof is similar to Latané's construct of number [49]. Finally, the tendency of individuals to observe others in uncertain environments and look for information is similar to informational influence [25].

If we consider peer influence, another commonly applied social influence construct in HCI [2, 17, 46, 57], it is crucial to specify exactly what we mean by peer influence in the given study. For instance, in one study, peer influence could indicate influence by workplace colleagues, whereas in another study, peer influence could mean influence by immediate friends and family [54]. Thus, by distilling this construct and specifying exactly what we mean by peer influence, we will be able to bring more clarity and focus to the study. Distilling constructs for better understanding is not an uncommon suggestion for HCI. For example, in examining usability in HCI, Tractinsky claimed that, by distilling broader constructs to "coherent constructs," researchers will be able to explore how specific aspects of usability would be meaningful in different circumstances [83] (p.160). Similarly, Maitland and Chalmers [54] proposed a taxonomy of peer involvement and highlighted the necessity of explicitly defining the type of peer group in system design. By distilling the constructs, researchers and designers will be able to unravel the most important attributes of social influence for any given context. When a researcher is unsure which social influence constructs to select, we suggest they turn to seminal works—such as Kelman's social influence theory or Latané's social impact theory—to gain an in-depth understanding of the most fundamental constructs of social influence prior to their distillation. This step would allow researchers to identify more simplified constructs to apply in the digital setting.

6.2 Paying Attention to the Medium

Due to the diversity of sociotechnical systems presently available, different platforms may have various features that make individual interactions in each platform distinct from one another. For instance, for an OSN like Instagram, posts' visual appearance is its most important feature, whereas a platform like Twitter privileges publishing concise content within a given character limit. However, in the context in which most social influence theories and constructs were established, it was not necessary to consider the medium of communication because the communication mainly occurred in a face-to-face setting. Consequently, as we now move further

into digital systems, it becomes crucial to incorporate the features of the medium through which a particular form of social influence is transferred from one individual or group to another.

The importance of investigating the medium in which social influence occurs was highlighted in several studies in our literature sample (e.g. [27, 43, 80]), with evidence of different characteristics of digital systems leading to the generation of different types of social influence. Therefore, we recommend that HCI researchers and interaction designers analyze distinct features of the digital system they examine and try to link those features with social influence constructs to determine the combination of features of digital systems and constructs of social influence that would be most logical for their study.

For example, if we take the number construct from Latané's social impact theory [49], having a high number of people conveying the same message is insufficient to understand the social influence occurring in digital systems such as OSNs, recommender systems, persuasive systems or other interaction based mobile applications. This construct would behave differently based on the nature of the digital system, the number of people available in that respective product or service, and even the number of counter messages available in the digital product or service as opposed to the initial message. One study from our sample examined online games and claimed that a player having a high number of friends in an online game does not necessarily guarantee that he/she would spend money on the game [88]. Thus, this study challenged the notion that a high number of people being in a particular environment entails that the individual will behave in a certain way. Another example can be given from an HCI study that explores how the medium through which the interactions occur (e.g. Wikipedia vs. Facebook) affects social influence and the interactions [27]. A recent study by Wijenayake et al. [87] examining online conformity also highlighted the necessity of considering different features in online communication to better understand the social influence group dynamics in digital spaces.

All such evidence leads us in one conclusion. That is, the same social influence construct can be examined in multiple ways based on the medium and the characteristics of the medium through which social influence occurs. Therefore, when we adopt constructs from theories established in the past, those constructs should be understood in relation to the specific digital product or service we investigate.

6.3 Considering Digital Social Influence as a Symbiotic Process

A careful observation of the established theories and constructs of social influence has illustrated that social influence and its related constructs have predominantly been defined in relation to the characteristics of the influencers. Key constructs such as compliance and identification from Kelman's social influence theory [44], authority from Cialdini's work [20], strength from Latané's social impact theory [49], or subjective norm in the theory of planned behavior [4] position social influence giving less power and choice to the individuals (influencees) who are subject to social influence. One potential explanation for this tendency is that these works were developed at a time when social influence was predominantly possessed by powerful people (e.g., in terms of social status, economic position, expertise, or other influential qualities). For example, when a celebrity communicates a message through a radio or a television channel, the audience may not have a way to respond to that message because the communication is unidirectional.

However, the status quo has changed since this time. It is noteworthy that digital systems are predominantly established so that individuals do not serve as mere passive recipients of messages. Instead, they engage actively in interactions and even produce counter content if they identify a cue from external sources as inappropriate or inapplicable. Therefore, particularly in consumer marketing, researchers now identify

consumers as prosumers who actively participate in the production process [69]. In such systems, this phenomenon extends beyond the production process, allowing individuals to express their opinions freely and raise their voice even against the most famous influencers. Therefore, in this context, it is critical to view individuals as having increased power to make choices. Ultimately, while influencers still play a key role in encouraging people to change their attitudes or to behave in a certain way, it is equally vital to understand the relationship between influencers and influencees as symbiotic. Therefore, we encourage HCI researchers to consider the influencer-influencee relationship as a symbiotic process and understand social influence as multidirectional rather than unidirectional.

6.4 Identifying Digital Social Influence in Relation to its Consequences

We have observed that HCI researchers have examined a range of attitudinal and behavioral changes through applying social influence. Some of these consequences arising from such studies include actions within OSNs that do not require significant effort, such as sharing content [17], online community participation [23], music recommendation [67] and online activism [50]. Other actions are more substantive in their character, such as decision making in financial markets [93] and online purchasing behaviors [62]. However, we found only a few studies that have paid closer attention to understanding how different social influence constructs could play a more (or less) substantial role based on the consequences of the study. Although HCI research does not adequately consider about understanding social influence in relation to its consequences, evidence from research conducted in domains such as Information Systems has shown that different constructs of social influence need to be understood in relation to their consequences because not all constructs lead to the same attitudinal and behavioral changes in individuals [15, 16]. One such study [15] applied Kelman's three processes of social influence: compliance, identification and internalization [44] to examine whether there is a relationship between each social influence process and the types of actions performed. The results indicated that, for symbolic actions (i.e., actions that are taken by people without much effort or risk such as liking a post, commenting on a post or sharing a post), identification is the strongest predictor, whereas for substantive actions (i.e., actions that require much effort, risk, and actual commitment) internalization is the strongest predictor [15].

Similarly, when designing systems, interaction designers could explore which social influence constructs should be adopted based on the behavior change they expect to study or change through the respective system. For example, if an HCI researcher or interaction designer is interested in exploring whether or not an individual intends to invest in a financial market based on the opinions of his/her online circle, it would be beneficial for him/her to determine what type of social influence construct (e.g., peer influence vs. authority) would be most applicable to that situation. Therefore, understanding how different social influence constructs work in relation to different behaviors or actions would allow researchers to weigh different social influence constructs critically and apply the most appropriate social influence construct based on the behavior they are researching.

7 CONCLUSION

Through our proposed recommendations, we re-emphasized the importance of several aspects such as distilling social influence constructs for digital systems, paying close attention to the specific features of the technologies or the medium, understanding digital social influence as a symbiotic process and finally, selecting appropriate social influence constructs based on the nature of the consequences. Careful consideration of our

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proposed recommendations will assist both HCI researchers and interaction designers to apply social influence to research in a comprehensive manner. At a larger scale, our study has highlighted the necessity of thinking beyond the traditional knowledge base, particularly when applying established theories and constructs from the past to study modern technical systems that are characterized by substantive networking among individuals. While we acknowledge that some of our recommendations require careful scrutiny as they might affect the validity of the original constructs (much like Tractinsky's understanding of issues pertaining to the application of usability [83]), if we are to engage meaningfully with social influence in HCI, it is crucial to discuss the concerns of applying social influence to HCI explicitly. Thus, we expect our recommendations to encourage HCI researchers and interaction designers to critically review overrated social influence constructs and make rational choices in selecting social influence constructs and theories for their studies.

Our findings also have implications for practitioners that apply social influence to system design without any theoretical grounding. Through critiquing 90 studies, we have shown multiple ways through which interaction designers and practitioners can adopt social influence for digital systems in ways that would yield accurate findings. Our recommendations would allow them to untangle common confusions in the HCI field regarding key concepts related to social influence, such as homophily and persuasion. We also believe our study to be the first in the HCI domain to review social influence literature critically and produce recommendations for applying social influence more effectively in HCI research and interaction design.

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Paper 3: Determining Boundary Conditions of Social Influence for Social Networking Site Research (Published)
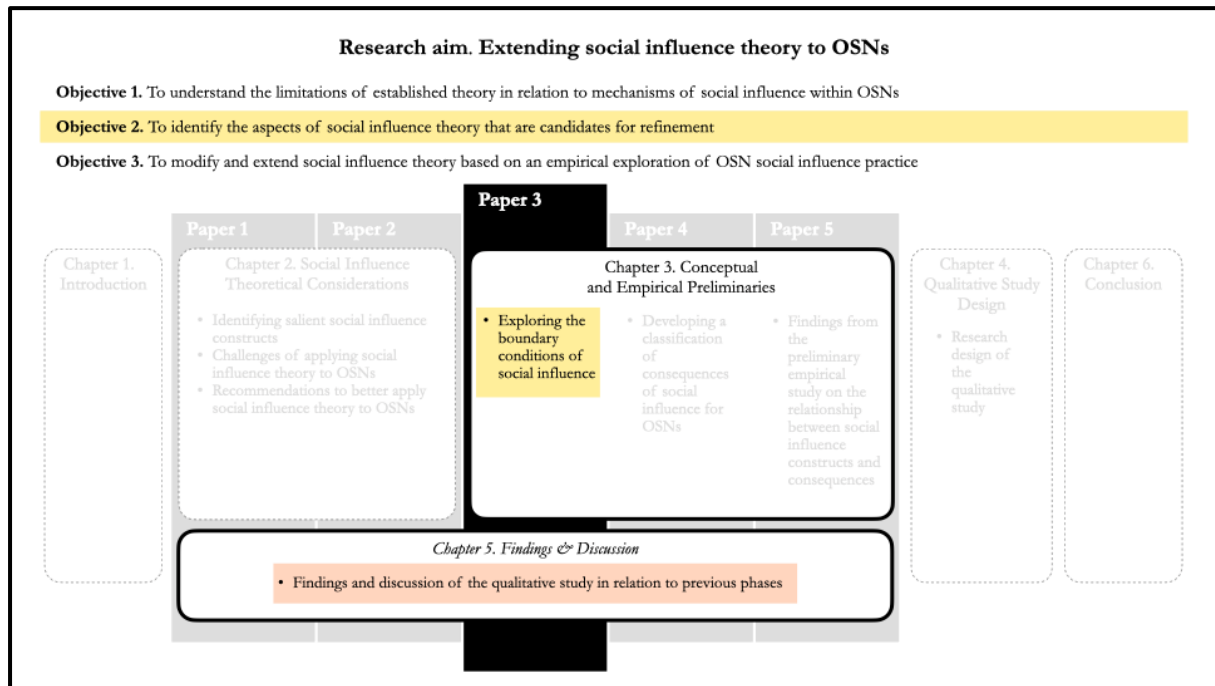

Figure B.4. Situating paper 3 within the project

Paper 3 is related to the second objective of my research. Findings of Paper 3 are summarized in Chapter 3 (Section A). The boundary conditions developed in this paper were refined and extended in the qualitative study discussed in Chapter 5.

Determining Boundary Conditions of Social Influence for Social Networking Site Research

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Abstract

Social influence theoretical constructs have been utilized substantially by researchers in Information Systems (IS) to examine interactions in Social Networking Sites (SNSs). However, most of the theoretical constructs of social influence applied in IS studies have been adopted from social influence theories developed before the advent of SNSs. Yet, research on theory development indicates that when applying an existing theory to a novel context, the specification of boundary conditions is crucial. Therefore, in this study, by examining how different social influence constructs have been utilized in past IS studies, we derive five boundary conditions that can be applied to future SNS research. The boundary conditions for SNS research were determined by conducting a literature review with a sample of 65 research papers. Deriving boundary conditions by analyzing recurring patterns in the literature allowed us to generate a foundational knowledge of the use of boundary conditions of social influence for SNS research, which would aid researchers in generating accurate findings. Our findings demonstrate that when applying a theory to a novel context, identification of boundary conditions of a theory would not only contribute to the rigor in research but also support the validation of its practical implications.

Keywords: Social media, Boundary conditions, Theory and philosophy

1 Introduction

Along with the advent of Social Networking Sites (SNSs) like Facebook and Twitter, people around the world have been able to reach a new level of social interaction. According to the latest statistics, the global population using SNSs has reached 3.96 billion, with an annual increase of 10.5% (Chaffey, 2020). Therefore, the effect of social influence is also increasing through SNSs. For example, it is estimated that the average Facebook user has 338 friends (Smith, 2017), while 15% of Facebook users have more than 500 friends (Smith, 2014). The average Twitter user has 707 followers (MacCarthy, 2016). The high number of individuals interacting with and influencing each other on a daily basis via SNSs shows how the novel context of SNSs has enabled individuals to widen their social circles compared to the low number of members individuals had in their social circles before the advent of SNSs. The effect of such high volumes of influence means that the theoretical boundaries of even well-established theories of social influence must be reconsidered.

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The growing SNSs research has revealed that social influence generated by individuals via SNSs, while similar in many aspects to social influence in the pre-SNS era, differs from and challenges the traditional boundaries of social influence (Bagozzi & Dholakia, 2002; Zhou, 2011). For instance, reach in terms of the number of associates in a social circle (Mangold & Faulds, 2009) and geographical coverage (Tufekci & Wilson, 2012) easily exceed the traditional social influence boundaries. Similarly, the frequency of interaction between members in a social circle (Fischer & Reuber, 2011) also provides potential differences between traditional social influence and social influence facilitated by SNSs.

As such, while the fundamental premise of social influence theories (Zhou, 2011; Zeng et al., 2009) remain relevant, their boundary conditions must be revisited to understand how the changes arising through SNSs could affect a well-established theoretical foundation.

Boundary conditions can simply be defined as the "Who, Where, When" conditions of a theory that "constitute the range of the theory" (Whetten, 1989, p.492). According to Dubin (1969, p. 126) "an experimental situation is different from another by its boundary conditions". When context-specific research is conducted, identifying the boundary conditions that are relevant to that context is the key to conducting the research successfully. Based on this premise, Information Systems (IS) researchers would benefit from identifying the boundary conditions that are applicable for examining social influence in the specific context of SNSs as opposed to social influence that takes place in the physical world, to generate more accurate findings based on the gradual shift that has taken place in human interactions from physical space to digital space (Palekar, Atapattu, Sedera, & Lokuge, 2018). Therefore, we conducted this study with the objective of assessing the boundary conditions of social influence theoretical perspective, especially in light of the novelty in SNSs. Aligning with this objective, the research question we aim to address through this study is: "What boundary conditions should be considered when engaging in social influence research in the context of SNSs?"

To assess our assertion, we investigated a rigorously selected sample of 65 studies on social influence and SNSs published in top-tier journals. In those selected studies, we made insightful observations about the use of constructs of social influence, theoretical applications, and whether the studies had considered the natural expansions to the underlying foundations that had taken place as a result of SNSs. However, with regard to the theoretical expansion of social influence, we found little evidence that boundary conditions are established, reviewed, or revised explicitly. Therefore, based on our literature review, we derived five boundary conditions necessary for the utilization of the theoretical perspective of social influence in SNSs.

The paper proceeds in the following manner. First, it provides an overview of the theoretical foundations of social influence. Then it investigates the constructs employed in social influence using the literature sample and identifies the most applicable constructs of social influence for SNSs. Next, we show how we derived five boundary conditions of social influence for SNSs and explain the boundary conditions in light of the constructs employed in the social influence studies. Finally, we explain how researchers and practitioners can apply boundary conditions in their SNS research to increase rigor in both theory and practice.

2 Theoretical Foundations of Social Influence

Throughout the history of humankind, individuals have attempted to maintain relationships with one another in groups or networks, and the formation and characteristics of such groups

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have always evolved with time (McPherson, Popielarz, & Drobnic, 1992). In its simplest form, a social network can be defined as "a set of people (or organizations or other social entities) connected by a set of social relationships such as friendship, co-working or information exchange" (Garton, Haythornthwaite, & Wellman, 1997, para 1). With the advancement of technology, such social networks have been expanded to digital spheres and are visible in the form of SNSs (Boyd & Ellison, 2007; Chang, Liu, & Chen, 2014). Even before the proliferation of SNSs, there has been a continuous effort to understand the influence individuals have on one another in such social networks where there are frequent interactions among individuals (Coleman, 1986; Galaskiewicz & Wasserman, 1993; Kelman, 1958; Latané, 1981).

For the past several decades, studies have delivered various theories and frameworks to better understand social influence (e.g., Bagozzi & Dholakia, 2002; Kelman, 1958; Kuan, Zhong & Chau, 2014; Latané, 1981). Especially with the advent and mass proliferation of SNSs, it is evident that social influence is growing and changing (Bagozzi & Dholakia, 2002; Zeng. et al., 2009). Various disciplines including IS (Palekar et al., 2018), marketing (Dholakia, Bagozzi & Pearo, 2004), organizational environment (Arvidsson & Holmström, 2013), political science Tufekci & Wilson, 2012) and sociology (Golder & Macy, 2014; Zhang & Centola, 2019), have examined social influence that occurs as a result of people's interactions in SNSs. Moreover, the social influence generated by individuals in SNSs has been discussed in various sectors, including the automobile industry (Wang, Susarla & Sambamurthy, 2015), music (Dewan, Ho & Ramaprasad, 2017), and the film industry (Oh, Roumani & Nwankpa, 2017). In particular, in the special issue on Recent Advances in Social Media in the Australasian Journal of Information Systems in 2018, many of the published studies (e.g., Grottke, Hacker, & Durst, 2018; Morgan, Cheong, & Bedingfield, 2018; Palekar & Sedera, 2018; Wang, Alahakoon, & De Silva, 2018; Whiteside, Aleti, Pallant, & Zeleznikow, 2018) have discussed the importance of social influence generated in SNSs on various aspects of attitudinal and behavioral change (refer to Table 1).

Study	Aspect discussed in relation to social influence and SNSs
Grottke et al. (2018)	How online interactions influence individuals in terms of generating social capital.
Palekar & Sedera (2018)	How SNS users influence news consumption in social broadcasting networks.
Wang et al. (2018)	How SNS users influence the interpretation of media content.
Whiteside et al. (2018)	The means through which interactions with different individuals (who may or may not belong to an individual's physical social circle) can influence one's intimate relationships.

Table 1. The Importance of Social Influence for SNSs (AJIS special issue)

The studies mentioned above emphasize that when examining different phenomenon in the context of SNSs, social influence has always been an area of interest for IS research. This not only proves that examining social influence in SNSs could allow us to understand online interactions better, but it also highlights that we should pay more attention to whether social influence theories which have been established by observing the individual interactions in the physical world could be applied in the same manner for SNSs.

According to Dubin (1969, p. 126), when conducting research, there is a need to identify the "boundary conditions" or "initial conditions" which differentiate one particular study context from another to specify a theoretical model accurately. Considering that there are substantial differences in the way individuals interact in digital spaces such as SNSs and the physical world (Bagozzi & Dholakia, 2002) it is essential to identify what social influence constructs

have been discussed in the past in general and what social influence constructs are discussed at present in relation to SNSs. Such an understanding of the way social influence constructs have been adopted in different contexts would allow us to identify whether there are any conditions we should consider in the process of adopting social influence constructs to study various phenomena in the SNSs.

2.1   Key Theoretical Constructs of Social Influence

Theoretical foundations of social influence mainly lie in the discipline of social psychology and consist of many different constructs used across several disciplines to understand how social influence can affect individuals. For instance, Deutsch and Gerard (1955) introduced a theory of social influence that consists of two main constructs, namely, *normative social influence* and *informational social influence*. Kelman (1958) in his social influence theory, came up with three constructs of social influence, namely, *compliance, identification*, and *internalization* to indicate the processes through which people change their attitudes and behaviors based on the influence of others. Introducing social impact theory, Latané (1981) identified another three constructs of social influence, namely, *strength, immediacy*, and *the number of people*, which allow us to better understand social influence processes.

Peer pressure (Kandel & Lazear, 1992), also identified as peer influence, is another commonly adopted social influence construct that examines the role of peers in affecting individual decisions. Further, in the paper "Social influence: Compliance and conformity", Cialdini and Goldstein (2004) discussed two types of social influence namely, *compliance* and *conformity* and highlighted that an individual can be influenced based on three types of rewarding goals; *goal of accuracy, goal of affiliation* and *goal of maintaining a positive self-concept*. When examining social influence from a theoretical perspective, all these constructs have contributed to our understanding of the different processes of social influence which can influence individuals to form different attitudes and behaviors. Most of these constructs have been adopted by various disciplines to investigate the role of social influence in creating attitudinal and behavioral changes in individuals. Our investigation into how these constructs have been utilized over time in various domains has revealed the breadth of social influence and highlighted the need to identify the social influence constructs that have been widely used in IS.

2.2 Constructs of Social Influence Used in IS Research

The role of social influence in digital spheres has been an area of interest for IS for a considerable period (Bagozzi & Dholakia, 2002; Tsai & Bagozzi, 2014). IS researchers have employed several constructs of social influence to investigate various phenomena in the digital spheres. Table 2 illustrates the key social influence constructs examined in IS studies chronologically by the year in which the key study related to the social influence construct(s) was published.

This illustration of social influence constructs examined in IS studies indicates that even when digital spaces such as SNSs were selected as the study context, IS studies have used social influence constructs that were developed prior to the advent of SNSs (e.g., Deutsch & Gerard, 1955; Hovland, Janis, & Kelley, 1953; Kelman, 1958; Latané, 1981; Nemeth, 1986).

When considering the applicability of each of these constructs to IS, Kuan et al. (2014) utilized *informational social influence* and *normative social influe*nce to understand how purchase decisions in group buying sites can be affected by social influence. In this study, *informational influence* has been applied in situations where people make decisions based on others' actions

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and judgments, thus treating them as sources of information, and *normative influence* is applied when people make decisions to comply with others, based on others' preferences or expectations. Further, Kuan et al. (2014) indicated that both *informational* and *normative social influences* are contributing to conformity. Kwahk & Ge (2012) also recognized that SNSs facilitate the promotion of *informational influence* due to the dissemination of information and knowledge, encouraging SNS users to engage in e-commerce activities more. However, whether or not such theoretical constructs can be applied as they are has not been adequately addressed in these past IS studies.

Social Influence construct(s)	Key theory publication related to the construct(s)	Examples of IS studies that have examined the social influence construct(s)
Informational social influence and normative social influence	(Deutsch & Gerard, 1955)	(Kuan, et al., 2014; K. Zhang, Lee, & Zhao, 2010; Zhao, Stylianou, & Zheng, 2018)
Compliance, identification and internalization	(Kelman, 1958)	(Bagozzi & Dholakia, 2002; Bagozzi, Dholakia, & Mookerjee, 2006; Bagozzi, Dholakia, & Pearo, 2007; Cheung, Chiu, & Lee, 2011; Cheung & Lee, 2010; Datta, 2011; Dholakia, Bagozzi, & Pearo, 2004; Shen, Lee, Cheung, & Chen, 2010; Tsai & Bagozzi, 2014; Wang, Meister, & Gray, 2013; Zhou, 2011)
Strength, immediacy and number	(Latané, 1981)	(Chan, Skoumpopoulou, & Yu, 2018; Kwahk & Ge, 2012; Miller & Brunner, 2008; Mir & Zaheer, 2012)
Peer pressure/peer influence	(Kandel & Lazear, 1992)	(Godinho de Matos, Ferreira, & Krackhardt, 2014; Zhang, Pavlou, & Krishnan, 2018; Zhang, Susarla, & Krishnan, 2014)

Table 2. A Chronological Presentation of Social Influence Constructs
Note: The order of the social influence constructs is presented by the year in which the seminal theory paper related to the constructs was published.

Kelman's social influence theory (1958) and Latané's social impact theory (1981) have also widely been used in IS to analyze individual actions and attitude changes in relation to social influence (refer to Table 2). Notably, the literature analysis conducted through this study indicated these latter two theories as the most applied social influence theories for the context of SNSs. The three social influence constructs of Kelman (1958) were introduced to the academic community in his study on "Compliance, identification, and internalization: Three processes of attitude change". According to this particular study (Kelman, 1958), social influence can be accepted by three different types of processes, namely, *compliance*, *identification* and *internalization*. Herein, *complianc*e refers to the influential capabilities of significant others or powerful people in the influencee's life (Bagozzi and Dholakia, 2002). *Identification* refers to the process whereby a person acts in a certain way to gain acceptance or a feeling of belongingness to a particular group or an individual (Kelman, 1958). *Internalization* refers to the process through which a person engages in a particular behavior because the behavior aligns with his/her value system (Kelman, 1958). The foundation for social influence studies in IS, particularly on SNSs, has been mainly laid with the support of Kelman's substantial contribution. A number of IS studies exploring social influence in digital spaces have utilized Kelman's theory on social influence as the basis for their research (refer to Table 2).

When the utilization of social impact theory is considered, Latané (1981, p. 343) defined social impact as "the great variety of changes in physiological states and subjective feelings, motives

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and emotions, cognitions and beliefs, values and behavior, that occur in an individual, human or animal, as a result of the real, implied, or imagined presence or actions of other individuals". In order to influence an individual, he suggested three factors that should be present when an interaction takes place: *strength* - "the salience, power, importance, or intensity of a given source to the target", *immediacy* - "closeness in space or time and absence of intervening barriers or filters" and *number* - "how many people there are" (Latané, 1981, p. 344).

Even though social impact theory was established before the advent of SNSs, several studies have utilized the theory explicitly in explaining the behavior of individuals in digital spaces (Chan, Skoumpopoulou, & Yu, 2018; Kwahk & Ge, 2012; Miller & Brunner, 2008; Mir & Zaheer, 2012). Miller and Brunner (2008) even redefined the constructs to be appropriate to the online setting. For instance, when relating the construct of *immediacy*, which is mainly regarding the physical proximity between the source and the target of impact, Miller and Brunner (2008) defined *immediacy* in the digital environment in terms of user engagement in chatroom dialogues. Concerning the construct of *strength*, the same study used interpersonal factors such as assertiveness and exaggeration as indicators of strength in the person having an influence online. Such changes to the definitions of social influence constructs further denote the necessity of revisiting the theoretical constructs of social influence in light of SNSs.

Peer influence is another social influence construct that has been widely discussed in IS. This can be defined as the process in which peers or friends play an important role when a specific individual decides to act in a certain way (Godinho de Matos, Ferreira & Krackhardt, 2014). Bapna and Umyarov (2015) investigated *peer influence* in SNSs in relation to online purchase decisions. Aral and Walker (2011) also studied the effect of *peer influence* by experimenting on viral marketing campaigns online. In addition to these social influence constructs that had been discussed even before the advent of SNSs, Dewan et al. (2017) used *popularity influence* and *proximity influence* to identify how social influence is generated in SNSs. Herein, the construct of *popularity influence* is explained in relation to the concept of word-of-mouth and observational learning through which consumers are influenced by their interactions with others. *Proximity influence* is defined in the same study as influence generated by close social circles in the social network.

In summary, in reviewing IS studies that have examined social influence, we identified that social influence studies in IS mainly employ the constructs[1] of *compliance, identification, internalization, peer influence, informational social influence, normative social influence, strength, immediacy,* and *number of people* as the key variables in analyzing the behaviors of people (e.g. Bagozzi & Dholakia, 2002; Kuan et al., 2014; Kwahk & Ge, 2012; Mir & Zaheer, 1970; Sedera, Lokuge, Atapattu, & Gretzel, 2017; Zhang, Pavlou, & Krishnan, 2018). While these studies have contributed to the extension of knowledge greatly, one crucial factor that has not been studied adequately is whether these constructs can be applied in the same way to SNSs considering they were developed prior to the advent of SNSs. In order to investigate this matter further, we conducted a literature review to analyze the use of the social influence constructs in past social influence and SNS research and to examine what types of boundary conditions should be specified when social influence constructs are applied to SNSs.

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[1] The logical derivation of the most applied social influence constructs in IS discussed in detail in Section 3.

3   Methodology and Analysis

3.1 Overview of the Literature Sample

Steps	Results/Comments
1. Identification of suitable publishing outlets to conduct the literature search.	**Selecting the Basket-of-08 IS journals:** Management Information Systems Quarterly, European Journal of Information Systems, Information Systems Research, Information Systems Journal, Journal of Information Technology, Journal of Strategic Information Systems, Journal of Management Information Systems, Journal of the Association for Information Systems
2. Identification of appropriate keywords/strings for the literature search.	**Keywords:** "social influence", "influence", "social influence and social media", "social influence and social networks", "social media", "social impact", "social impact and social media", "impact", "social interaction and social media"
3. Selecting the time period for the literature search.	**2008 to 2018** was selected as the appropriate period for the initial set of research papers relevant to the objectives of the research.
4. Carrying out the Literature Search using the keywords and downloading the relevant papers.	**Inclusion criteria:** (i) Papers with titles and abstracts with a focus on either human interactions in digital spaces or social influence in the context of Information Technology or IS, (ii) Papers using both qualitative and qualitative methods, and literature reviews. **Downloaded 193 papers in total.**
5. Reviewing full content of the downloaded papers to identify the most relevant papers for the study.	**Exclusion criteria:** Papers that did not discuss or examine the occurrence of different types of social influence. **Finalized 13 papers relevant to the research from the initial search.**
6. Engaging in backward search (reviewing the reference lists of the 13 papers) and forward search (reviewing the studies that have cited the 13 papers using Google Scholar database) to identify more suitable papers for the literature sample.	**Inclusion criteria:** (i) Seminal studies on social influence, (ii) Papers discussing either human interactions in digital spaces or social influence in the context of Information Technology or IS. **45 papers were added to the literature sample.**
7. Adding PlumX highly cited SNS research that was not identified in the previous stages to the literature sample *Note: The PlumX metrics "gathers and brings together appropriate research metrics for all types of scholarly research output" (PlumX Metrics - Plum Analytics, n.d.)*	**Inclusion criteria:** Papers discussing either human interactions in SNSs or social influence in SNSs. **7 papers were added to the literature sample.**
Total no. of papers selected for the literature sample	13+45+7 = **65**

Table 3. The Methodology for Selecting Papers Relevant for the Literature Review

The objectives of the literature analysis were to: (i) develop an understanding of the importance of revisiting social influence theory for SNSs; (ii) identify the social influence constructs applicable for SNSs, and (iii) derive boundary conditions for SNS research as necessary. The literature analysis was deemed to be the most appropriate approach for the

study as we established that even though different theoretical constructs of social influence have been widely utilized in the domain of IS, (Bagozzi et al., 2006; Bagozzi & Dholakia, 2002; Eckhardt, Laumer, & Weitzel, 2009; Kuan et al., 2014; Sedera et al., 2017; Tsai & Bagozzi, 2014; Vannoy & Palvia, 2010), to date, a comprehensive literature analysis on this topic has not been conducted. In the meantime, a literature analysis would lay a strong foundation for future research employing social influence constructs to examine social interactions in SNSs. Notably, IS as a discipline has emphasized the necessity of producing literature reviews to strengthen the foundation of IS in terms of both theory development and progression as a discipline (Webster & Watson, 2002). The methodology for selecting literature is outlined in Table 3.

3.2 Analysis

Once the literature sample of 65 studies was assembled, we distilled the constructs of measurement. We first identified papers in the sample that discussed theoretical constructs of social influence in relation to human interactions and attitudinal/behavioral change. We then narrowed down the most common constructs of social influence emphasized in the studies. In papers where constructs of social influence were not explicitly discussed, we assigned the most appropriate constructs for the study based on the discussions presented by authors regarding the type of influence taking place in their study. Table 4 includes the study[2] and the corresponding constructs employed, denoted in columns 'A' to 'I'. The constructs denoted in Table 4 include three from Kelman's social influence theory (1958); (A) *compliance*, (B) *identification*, (C) *internalization*, other commonly used social influence constructs in IS; (D) *peer influence*, (E) *informational influence*, and (F) *normative influence*, and three constructs from Latané's social impact theory (1981); (G) *immediacy*, (H) *strength*, and (I) *number of people*.

The initial mapping of the constructs was completed by one author and verified by the other two authors. A comparison of the individual classifications revealed average inter-coder reliability exceeding 80%[3]. Then we added binary values to the Table: 'Y' if the study explicitly or implicitly discussed a particular construct and 'N' if the study did not discuss a particular construct at all. The Table was designed following the "concept matrix augmented with units of analysis" structure recommended by Webster & Watson (2002, p. xvii) in the MIS Quarterly guest editorial titled 'Analyzing the Past to Prepare for the Future: Writing a Literature Review'.

Table 4 also allowed us to identify some common themes along which the analysis can be carried out. According to Webster and Watson (2002, p. xvii) "isolating concepts by units of analysis should result in a crisp review because it is easier to detect when you let a concept stray outside the scope of its domain". Hence, using Table 4, we identified the most used constructs of social influence, overlaps between the social influence constructs, and the evolution of constructs. Finally, once the literature sample was analyzed under these themes, we derived the boundary conditions of social influence that could be established for SNS research.

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[2] The complete list of references for Table 4 can be found in Appendix A.

[3] Krippendorff (1980) recommends inter-coder reliability of at least 70%.

Study	A	B	C	D	E	F	G	H	I
(Kelman, 1958)	Y	Y	Y	N	Y	Y	N	Y	N
(Latané, 1981)	Y	N	N	N	N	Y	Y	Y	Y
(Nowak et al., 1990)	Y	N	N	N	Y	Y	Y	Y	Y
(Latané et al., 1995)	Y	N	N	N	N	Y	Y	Y	Y
(Latané, 1996)	Y	Y	N	N	N	Y	Y	Y	Y
* (Latané and Bourgeois, 1996)	N	N	N	N	N	N	Y	Y	Y
(Venkatesh and Davis, 2000)	Y	Y	Y	N	Y	Y	N	Y	N
*(Bagozzi and Dholakia, 2002)	Y	Y	Y	N	Y	Y	N	N	Y
(Dholakia and Talukdar, 2004)	Y	N	N	N	Y	Y	N	Y	N
*(Dholakia et al., 2004)	Y	Y	Y	N	Y	Y	N	N	N
(Algesheimer et al., 2005)	Y	Y	N	N	Y	Y	N	Y	Y
(Lu et al., 2005)	Y	Y	Y	N	Y	Y	N	Y	N
(Gallivan et al., 2005)	Y	N	Y	Y	Y	Y	N	Y	N
(Lee et al., 2006)	Y	N	Y	N	N	Y	N	N	N
*(Song and Kim, 2006)	Y	Y	N	Y	Y	Y	N	Y	N
(Li et al., 2006)	Y	N	Y	N	N	Y	N	N	N
*(Bagozzi et al., 2006)	Y	Y	Y	N	N	Y	N	Y	N
*(Bagozzi et al., 2007)	Y	Y	Y	N	N	Y	Y	Y	N
*(Miller and Brunner, 2008)	Y	N	N	Y	N	Y	Y	Y	Y
**(Walther et al., 2008)	N	N	N	Y	N	N	Y	N	N
(Eckhardt et al., 2009)	Y	N	N	Y	Y	Y	N	Y	N
(Yang et al., 2009)	Y	Y	Y	N	Y	Y	Y	Y	Y
**(Mangold and Faulds, 2009)	N	N	N	N	Y	N	N	N	N
**(Pempek et al., 2009)	N	N	N	Y	N	Y	N	N	N
(Kulviwat et al., 2009)	Y	Y	Y	N	Y	Y	N	Y	N
**(Zeng et al., 2009)	N	Y	Y	N	N	Y	N	N	N
**(Kaplan and Haenlein, 2010)	Y	Y	N	N	N	Y	Y	N	N
*(Shen et al., 2010)	Y	Y	Y	Y	N	Y	N	Y	N
*(Posey et al., 2010)	N	Y	N	N	Y	Y	N	N	N
*(Huffaker, 2010)	Y	N	N	N	Y	Y	Y	Y	Y
(Glass and Li, 2010)	Y	N	N	Y	N	Y	N	Y	Y
(Vannoy and Palvia, 2010)	Y	N	N	N	N	Y	N	Y	N
**(Cheung and Lee, 2010)	Y	Y	Y	N	N	Y	N	Y	Y
**(Zhou, 2011)	Y	Y	Y	N	N	Y	N	Y	N
(Datta, 2011)	Y	Y	Y	N	N	Y	N	Y	N
(Shen et al., 2011)	Y	Y	Y	N	N	Y	N	Y	N
**(Cheung et al., 2011)	Y	Y	Y	N	Y	Y	N	Y	N
**(Kietzmann et al., 2011)	N	N	N	Y	N	N	N	Y	Y

	A	B	C	D	E	F	G	H	I
**(Hanna et al., 2011)	N	N	N	Y	Y	N	N	N	N
**(Fischer and Reuber, 2011)	N	N	N	N	N	Y	N	N	N
**(Mir and Zaheer, 2012)	N	N	N	N	Y	N	Y	Y	Y
**(Kwahk and Ge, 2012)	Y	Y	N	N	Y	Y	Y	Y	Y
**(Tufekci and Wilson, 2012)	N	N	N	N	Y	N	N	Y	N
**(Lipsman et al., 2012)	N	N	N	Y	N	N	Y	N	Y
**(Gensler et al., 2013)	N	N	N	Y	Y	N	N	Y	Y
(Singh and Phelps, 2013)	Y	N	N	Y	Y	Y	Y	Y	N
**(Hildebrand et al., 2013)	Y	Y	Y	N	Y	Y	N	Y	N
(Wang et al., 2013)	Y	Y	Y	Y	Y	Y	Y	Y	N
*(Tsai and Bagozzi, 2014)	Y	Y	Y	N	Y	Y	N	Y	Y
*(Kuan et al., 2014)	Y	Y	N	Y	Y	Y	N	Y	Y
**(Zhang et al., 2014)	N	N	N	Y	N	N	Y	N	Y
(Godinho de Matos et al., 2014)	N	Y	N	Y	N	Y	N	Y	N
**(Hu et al., 2015)	N	N	N	N	N	N	N	N	N
**(Wang et al., 2015)	N	N	N	N	N	N	N	N	N
**(Matook et al., 2015)	Y	Y	N	Y	N	Y	N	Y	N
**(Tussyadiah et al., 2015)	N	Y	Y	Y	Y	Y	N	Y	N
**(Oh et al., 2017)	N	N	N	N	Y	N	N	N	N
**(Sedera et al., 2017)	Y	Y	Y	Y	Y	Y	N	Y	Y
**(Thomaz et al., 2017)	N	N	N	N	N	N	N	N	N
**(James et al., 2017)	N	N	N	Y	N	N	N	N	N
*(Liao et al., 2017)	N	N	N	N	N	N	N	N	N
**(Rueda et al., 2017)	Y	Y	N	Y	N	Y	N	Y	N
**(Brandt et al., 2017)	N	N	N	N	N	N	N	N	N
**(Dewan et al., 2017)	N	N	N	Y	N	N	N	N	Y
(Zhang et al., 2018)	N	N	N	Y	N	N	N	N	Y

Table 4. Literature Synthesis

<small>*Note: A – Compliance, B – Identification, C – Internalization, D – Peer Influence, E – Informational Social Influence, F – Normative Social Influence, G – Immediacy, H – Strength, I – Number of People*</small>

3.2.1 Most Used Constructs

Considering that the number of SNS users had risen significantly by 2007 (Kaplan & Haenlein, 2010), the period before 2008 was set as the pre-SNS era and 2008 onwards as the SNS era for the purpose of identifying and comparing the use of social influence constructs in the literature. According to the analysis, the most discussed social influence constructs before 2008 were *compliance* (94%), *normative social influence* (94%), and *strength* (78%). When comparing these constructs with the most used social influence constructs after the advent of SNSs (2008 onwards), it was evident that *normative social influence* (62%) was the most discussed construct, followed by *strength* (57%) and *compliance* (49%). Even though *compliance* remained among the top three constructs discussed, its emphasis in IS studies decreased after the advent of SNSs.

This finding adheres to the argument in the study by Zhou (2011), which indicated that constructs such as *compliance* cannot be applied to SNSs since individuals have the ability to make voluntary choices in SNSs.

3.2.2 Overlaps between Constructs

The analysis highlighted that there is a possible (and perhaps unintentional) overlap between the constructs of Kelman's social influence theory (1958) and Latané's social impact theory (1981). For instance, Latané (1981, p. 344), defines *strength* in social impact as "the salience, power, importance, or intensity of a given source to the target". Kelman (1958) refers to *compliance* as a process due to which an individual would behave in a particular way in order to receive rewards or approval from a person or a group, or due to the fear of being rejected (Bagozzi & Lee, 2002; Datta, 2011; Shen et al., 2010; Zhou, 2011). Hence, when an individual is influenced due to *compliance*, it is because the influencer is either an important or a powerful person in his/her life. The literature analysis indicated *compliance* (49%) and *strength* (57%) as two of the most discussed constructs in the SNS era. Due to the similar nature of these constructs, when a study explicitly discusses one construct, it is possible to discuss the other construct implicitly, and that could be one reason why both constructs appear in the top three social influence constructs in IS studies.

Further, Kelman (1958) refers to *identification* as a process due to which a person is influenced to either establish or continue a successful relationship with another person or a group (Cheung et al., 2011; Wang et al., 2013). Kelman (1958, p.53), adds that for these two processes to be successful, the determinants of influence, namely "the relative importance of the anticipated effect" and "the relative power of the influencing agent" should be considered. While *strength* in social impact research has been discussed in the perspective of the source of impact, *compliance* and *identification* have been discussed in the perspective of the target. However, power, salience, intensity, and importance can be considered as attributes that should be possessed by the influencer under *compliance* and *identification* to influence another person. Therefore, such constructs of social impact should be best perceived as moderating constructs that affect the social influence processes. Further, these overlaps may influence the boundary conditions discussed later on in this study.

When considering the social influence constructs in terms of definitions, *informational social influence* showed similarity to the construct *internalization* (Bagozzi & Lee, 2002; Venkatesh & Davis, 2000), and *peer influence* showed similarity to the construct *identification*. It was also observed that the *normative social influence* construct provided a high-level observation of the overall social influence rather than providing a specific construct to measure social influence. This could be one reason why *normative social influence* was one of the most discussed constructs in both pre-SNS era (94%) and SNS era (62%) studies. Thus, considering all the observed constructs of social influence in the literature sample, the constructs proposed in Kelman's social influence theory (1958): *compliance*, *identification*, and *internalization* were identified as the more explicit and dominating constructs of social influence.

3.2.3 The Evolution of Constructs

The literature sample in Table 4 is chronologically ordered. While it was expected that the number of studies employing social influence would increase over time (with the advent and proliferation of SNSs), in reality, the number of such studies is plateauing. The comparison between the periods in which the studies were published (i.e., pre-SNS era and SNS era) highlighted that there are no substantial differences in the application of social influence

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constructs in the two different contexts. The lack of acknowledgment of the novel context could be one of the reasons why the same social influence constructs (while there are minor differences in the order they are discussed) have been highlighted in IS studies.

However, when considering the least discussed constructs, it was evident that *peer influence* (11%), which was one of the least discussed constructs in the pre-SNS era, was replaced by *internalization* (30%) in the SNS era. The high number of members in an individual's social circle in the SNS era could be one reason why *peer influence* has been discussed more in the studies since 2008. Most interestingly, both *immediacy* and *number of people* remained among the least discussed constructs in both the pre-SNS and SNS eras.

The complexity in considering a variety of social influence constructs in both the pre-SNS and SNS eras emphasizes the necessity of investigating boundary conditions for SNS by revisiting social influence theory and deriving the most appropriate constructs to examine attitudinal and behavioral changes in individuals. For instance, if the increase in interactions facilitated by the high number of people available in SNS (Smith, 2017) is considered, social influence constructs such as the *number of people*, and *immediacy* would become more important in the SNS era compared to the pre-SNS era. Yet, such constructs still receive limited attention in SNS studies since the social influence constructs that were considered important in the pre-SNS era are being applied to the SNS era without acknowledging these contextual differences. Even though several new constructs, such as *popularity influence* and *proximity influence* (Dewan et al., 2017) were introduced in IS studies to capture the social influence generated by people in SNSs, the emphasis placed on these constructs is still inadequate.

3.2.4 Context of the Study

The context of social influence is an important consideration as it can affect the study outcomes. For example, the theoretical perspective of social influence originated in the face-to-face, physical context of human interactions. However, we observed that this theory was employed by approximately 65% of studies that considered SNSs or virtual community as the context (denoted with an (*) for virtual community studies and (**) for SNS studies in Table 4). In contrast with the studies employing other social interaction media, no study in our sample explicitly observed the theoretical challenges in employing the social influence theory in SNSs.

When considering the virtual community studies (*), Bagozzi and Dholakia (2002) examined how different social influence processes lead individuals to actively participate in virtual chat rooms. Song and Kim (2006) investigated the willingness of individuals to use virtual services based on social influence processes. While these two studies mainly focussed on how individuals would engage with a particular online service due to social influence, Miller and Brunner (2008) explored how different characteristics of individuals expressed through the digital sphere and their mere online presence would influence others to behave differently.

When SNS studies (**) are considered, Zeng et al., (2009) examined how *social identity* and *group norms* affected "community users" group intentions to accept advertising in "online social networking communities" (Zeng et al., 2009, p. 1). Cheung and Lee (2010, p.24) investigated the role of *compliance, identification*, and *internalization* in "the decision to use an online social network". Such diverse use of social influence constructs in both virtual community and SNS studies indicates the necessity of rethinking the adaption of social influence constructs to the specific context of SNSs. In other words, due to the range of

attitudinal and behavioural changes that take place within SNSs as a result of social influence, simply applying the same social influence constructs from pre SNS era may not be adequate to understand how social influence operates in SNSs. Further, while both virtual community and SNS studies have highlighted the importance of adopting selected constructs of social influence, such studies have rarely addressed the necessity of further refining the theoretical perspective of social influence to apply it successfully to the context of SNSs. This limitation encouraged us to look into boundary conditions that could allow IS researchers to streamline social influence for SNSs better.

Therefore, the next step of the analysis was to derive *boundary conditions* based on the study sample. We followed a logical approach to determine what boundary conditions would be suitable for SNSs when examining social influence. First, referring to selected seminal works on *boundary conditions* and *theory building*, we identified how *boundary conditions* could be utilized to better apply a theory to a particular context and yield accurate findings (Bacharach, 1989; Busse, Kach, & Wagner, 2017; Dubin, 1969; Weber, 2012; Whetten, 1989). Then, we carefully reviewed the papers in the literature sample, through several iterations, to examine the recurring notions/themes in the literature sample that have been identified as useful when applying social influence to the context of SNSs. For instance, if several studies in the sample identified that the ability of SNS users to include or exclude people from their social circles (having a choice) should be considered when investigating social influence in SNSs, we looked at all the papers in the study sample, using that condition as a lens, to determine whether that condition could be applied to examine social influence in SNS related research more effectively. The conditions identified in this way were included as boundary conditions of social influence for SNSs. We continued this exercise, on identifying the conditions considered essential for studying social influence in SNSs across all 65 papers and derived five boundary conditions.

4   Focus on Boundary Conditions

The literature sample demonstrates that, while we have made substantial leaps in technology by creating SNSs, arriving at a hyper-connected society, our theoretical foundations employed in IS studies have barely changed. This notion has also been highlighted in a study on social network analysis and SNSs (Kane, Alavi, Labianca, & Borgatti, 2014) which claims that researchers should not merely rely on theories developed prior to the advent of SNSs to understand the SNS related phenomena, since SNSs have changed the way social networks operate at present. Similarly, in our study, we argue that even though social influence processes would still be affected by the influencer's popularity, the influencer's relationship with the influencee, and the internal values of the influencee (Hovland et al., 1953) as in the pre SNS era, there are certain conditions (boundary conditions) facilitated by SNSs that make the social influence processes different to those operating in the traditional context.

In particular, only a limited number of studies in our literature sample pay attention to possible boundary conditions at least implicitly when applying a theoretical foundation that was derived based on face-to-face human influence to the context of augmented, inflated, and excessive social influence of SNSs. For instance, Venkatesh and Davis (2000) examined the concept of *voluntariness* as affecting *compliance* and highlighted that *compliance* would be effective only in situations where a particular action is *mandatory*. Yet, the study is not specific to the context of SNSs. However, Zhou (2011), when studying SNS user participation,

indicated that *compliance* does not affect SNS user participation since participation is a voluntary decision made by the user. This factor is further discussed later in this study.

While consistency in employing the constructs of social influence would lead to a cumulative tradition of research, the lack of acknowledgment of a major shift in the context - face-to-face to virtual - not only weakens our observations, but it also precludes us from forming a precise understanding of the nature of social influence in the new context (Busse et al., 2017).

Hence, these gaps in the research could be addressed by revisiting boundary conditions and identifying which boundary conditions can be applied to the context of SNSs to analyze the actions that take place within this context. Even though various disciplines have studied the nature of social influence generated in SNSs among individuals, much of the theoretical work underpinning these discussions has been based on the theories that were developed prior to the advent of SNSs.

Herein we specifically propose that, when considering social influence, studies must specify and observe *conditions that the constructs are bounded* by (Dubin 1969). The boundary conditions are derived through a comparison of the conditions upon which the traditional social interactions (e.g., face-to-face) are based against the conditions upon which the digital interaction happens. These *limiting values* are particularly potent in the SNS context. Lack of boundary condition specificity in emerging research could lead to either type-I or type-II errors. For example, you may reject the true null hypothesis (type-I) or fail to reject a false null hypothesis (type-II), by inadvertently selecting a particular sample that may not be *random*.

In order to better illustrate this, we derived five salient boundary conditions through the analysis of our literature sample that affect the nature of social influence in the SNS era. These five factors can provide what Dubin called the *boundaries* of the theory. Dubin (1969, p.125), stated that "in order that a model may represent an empirical system, it has to have the boundaries corresponding to the empirical system. The boundaries are important to the specification of any theoretical model." The derived five boundary conditions; (i) *the choice*, (ii) *space and proximity*, (iii) *the locus of social influence*, (iv) *the number of people and times*, (v) *the diversity and the variety of social influence*, would thus add meaning to the future social influence studies in the context of SNSs.

4.1   The Choice of the Social Circle
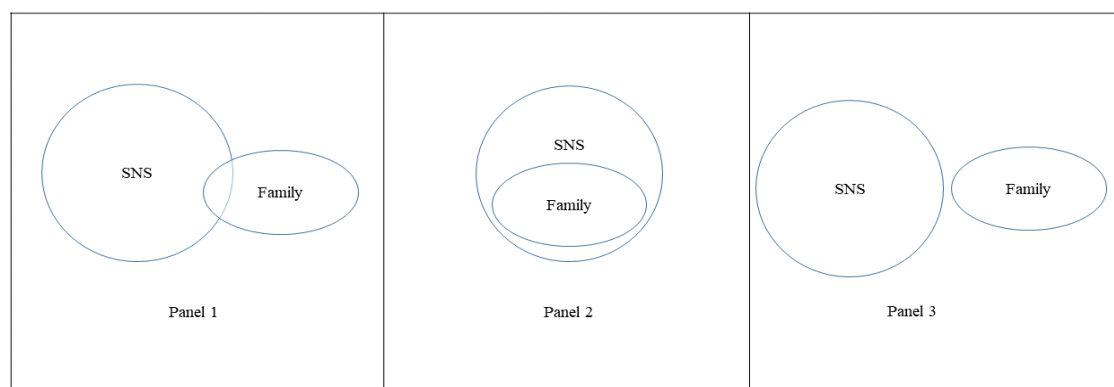
Figure 1. The Choice of the Social Circle [4]

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[4] Figure 1 to Figure 5 have been inspired and adapted by Dubin's (1969) work on boundary conditions.

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Figure 1 outlines the *choice* condition, which is necessary for SNS studies. For instance, as illustrated in panel 1, some of your family members can be a part of your social circle in the SNSs, or as depicted in panel 2, all your family members can be members of your SNS social circle. Another condition that could be applicable for an individual in SNSs is illustrated in panel 3, when the individual decides to keep his/her family members away from the SNS's social circle. Thus, the individual has a choice when making decisions in SNSs or when adding or removing a person from the social circle of a SNS.

Bagozzi and Dholakia (2002) differentiated such conditions in virtual communities from the conditions in traditional communities, stating that members of SNSs have a voluntary association with the membership. Therein, the individual could quit the network at any given time without participation. Hall and Fagen (1956) described such boundary conditions as exterior boundary conditions. It is argued that when a new unit of measurement must be introduced into a theorem, the unit must be designated affirmatively, as must be the theorem (Dubin 1969). Hall and Fagen (1956) emphasized that in cases when an exterior boundary condition changes the outcome of a proposed model, such variables should be considered as intervening variables (moderation, mediation assumed). Therefore, in social influence studies, the choice one would exert in determining one's own social network should be considered.

Zhang et al. (2018) investigated the *direct* vs. *indirect peer influence* in social networks, arguing that "Peer influence can arise from immediate neighbors in the network and from indirect peers who share common neighbors (p. 1)". Their findings, based on an analysis of call logs, demonstrate significant differences between the direct and indirect influences. Given that in SNSs, individuals are exposed to a large number of direct and indirect peer influences at once, the choice of an individual in SNSs to exclude/include people from his/her social circles affects the influence they receive.

Identifying the most used constructs in the literature sample, such as *normative social influence*, *compliance*, and *identification*, further confirmed the necessity of considering the boundary condition *choice of the social circle*. In SNSs, individuals have to comply with diverse types of rules because the individual can belong to many groups. Zhou (2011) highlighted that since participation in SNSs is a voluntary choice a person makes; the opinions of others do not matter in decision making. In contrast, Cheung and Lee (2010) showed that *compliance* and *identification* determine a person's motive for using SNSs. Even though both Cheung and Lee (2010) and Zhou (2011) discussed only the user's participation in SNSs, these studies confirm the necessity of a boundary condition on choice for SNSs.

Therefore, for studies on social influence, the choice condition should be specified, as the social influence would only arise from those whom you have selected to be included in your SNS profile. For example, when constructs like (A) *compliance*, (B) *identification*, (C) *internalization* or (D) *peer influence* are considered, the choice that the individual has consciously made must be considered. Similarly, when measuring social impact through constructs like (G) *immediacy* and (H) *strength*, these constructs are be impacted by the choice condition.

4.2 Space and Proximity

p	q	p^q
True	True	True
True	False	False
False	True	False
False	False	False

Figure 2. Space and Proximity

Figure 2 outlines an example of a truth table for the proximity condition. We argue that both 'p' and 'q' must be understood in social influence studies, where 'p' is the *digital proximity*, and 'q' is the *physical proximity* that one has to a network or its subjects. By digital proximity, we mean the proximity between SNS users in terms of belonging to the same online group, or being members of the same SNS page, due to which the SNS users feel a form of connectedness. By physical proximity, we mean the proximity maintained due to one's geographical location. People belonging to the same region or area would be influenced by each other more. Latané and Bourgeois (1996) in their works on the Dynamic Social Impact theory[5] highlighted that social influence, at least concerning memorable interactions, seems to decrease with the square of the distance. However, the same study suggests that with the influence of technology, the social space between people will be affected, and the effective distance between people reduced. Digital proximity is how this aspect is changed due to the influence of the technology, where people feel closer to each other in spite of their physical distance.

When applied to social influence in SNSs, the presence of both physical and digital proximity between an influencer and an influencee would mean social influence processes such as (C) *internalization* as investigated in Table 4, would become more optimal. Similarly, the proximity of influence must be considered in (G) *immediacy* to recognize the physical and digital distances of the influencer. The consideration of a boundary condition on *space and proximity* allows us to examine how different social influence processes would become less or more optimal based on digital and physical proximities between influencers and influencees. Our literature analysis showed that one of the least used constructs in the study sample was *immediacy*, which indicates that researchers have underutilized constructs that could add more depth to our understanding of social influence in SNSs. However, there are SNS and digital space focused studies that have identified the application of *proximity* conditions in digital interactions (Miller & Brunner, 2008; Singh & Phelps, 2013; Wang et al., 2013). For instance, the study by Dewan et al. (2018), implicitly discusses the proximity condition. They acknowledge the difficulties in assessing proximity in SNSs, stating that "identifying proximity influence using observational data is challenging due to homophily, which may influence both the formation of social ties and music consumption decisions" (p. 119).

Furthermore, Miller & Brunner (2008, p. 2977), in examining online social influence using the theory of social impact, discussed the *immediacy* construct in online communities as "a participant's proximity to the chat room dialogue as evidenced by a participant's number of

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[5] Dynamic social impact theory consists of four constructs, namely clustering, correlation, consolidation and continuing diversity. Latané and Bourgeois (1996) have utilized these 4 constructs to analyze user behaviors in electronic groups and thereby to explore the operation of social impact in social space.

contributions and their total number of contributed words". Pempek, Yermolayeva, and Calvert (2009) indicated that college students maintain connections on SNSs, usually with people who have been known to them in the physical world. These previous works highlight how physical proximity can influence SNS users in their decisions and confirm the necessity of considering both digital proximity and physical proximity when engaging in social influence research in the context of SNSs.

4.3   The Locus of Social Influence
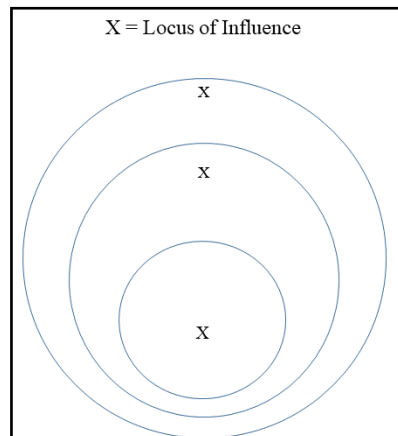
Figure 3. The Locus of Social Influence

Figure 3 denotes *the locus of social influence*. It recognizes that there are multiple *realms* of networks, not just one layer of social network around an individual. As such, social influence may arise from any of those realms. However, it is asserted that not all realms have the same level of social influence. Depending on the nature of the event and the nature of the influencer or the group affiliated, the individual could be receptive to the influencer. For example, the *#Metoo* movement against sexual harassment had active participation from 85 countries (Park, 2017).

Furthermore, the locus of social influence would have an effect on studies employing the (C) *internalization* as an aspect of social influence. Given the realms of social networks, *internalization* may be short-term or long-lasting, depending on the locus of social influence. For instance, Tufekci and Wilson (2012), examining a political protest in Egypt, indicated how the political content generated by a few groups such as journalists, and activists, escalated to the level of a real-world protest due to the adoption and acceptance of the political ideology spread through SNSs by the general public. Particularly as depicted in Table 4, this study has implicitly identified social influence constructs such as (E) *informational influence* and (H) *strength* to elaborate how individuals coming from various realms in SNSs motivated other individuals to take part in this political protest. As such, exploring the boundary condition of locus of social influence in future studies would enable us to explore social influence processes more precisely, considering the nature of the influencers in changing the attitudes and behaviors of other individuals using SNSs.

In addition, the *ice bucket challenge* can be considered as another good example that shows the applicability of the boundary condition of the locus of social influence. The Ice bucket challenge was first initiated by celebrities who are famous worldwide (Ni, Chan, Leung, Lau, & Pang, 2014). As per Facebook (2014) "over 28 million people have joined the conversation about the ice bucket challenge including posting, commenting or liking a challenge post" and

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"2.4 million videos related to the ice bucket challenge have been shared on Facebook". This trend implicitly denotes the nature of social influence in SNSs. It also emphasizes how an initiative of celebrities could escalate into a mass sharing of videos by the SNS population that would motivate individuals to act based on the influence generated in various realms. Cheung, Chiu, and Lee (2011, p. 1340) stated that in SNSs, "if a user joins too many communities, it is hard for him/her to create a sense of belonging to a specific group". In such instances, the users may be confused in determining whether or not to engage in a certain action, as he/she could be receiving contradictory messages from multiple influencers. As such, the observations we made under the analysis of the literature sample denoted that further investigation of boundary conditions such as the locus of social influence is crucial in examining the social influence in complex platforms such as SNSs.

## 4.4   The Number of People and Number of Times
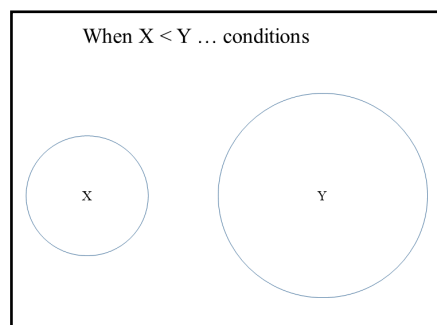
Figure 4. The number of People and Times

Figure 4 demonstrates the possible effect that *the number of people* and *the number of times* has on social influence constructs. Herein, we claim that the more people you are exposed to in SNSs, and the more times a particular message is circulated, the higher the tendency of a person to be influenced in the context of SNSs. For instance, Facebook indicates that individuals have an average of 338 friends (Smith, 2017). While the exact number may be debatable, it is evident that SNSs allow one to connect with more friends than pre SNS era (Mangold and Faulds 2009). When a statement or a post is cited by a high number of people in your network, it is likely to have a strong influence. The fundamental premise of *repeated message* (Black, 1949) is developed on the premise of the influence of the number and time premises. Thus, constructs like (E) *informational social influence*, and (F) *normative social influence* will be affected by the number of people and number of times. For instance, Kuan et al. (2014) in their study on online buying behaviors, highlighted that information on the number of people who have bought a product (*informational social influence*, and thereby the number of times and number of people) and the type of people who have *liked* a product (*normative influence*) in SNSs, affect the purchase decisions of consumers.

As illustrated in Table 4, the study of Kuan et al. (2014) has investigated many constructs of social influence such as (A) *compliance*, (B) *identification*, (D) *peer influence*, (E) *informational social influence*, (F) *normative social influence*, (H) *strength* and (I) *number of people*, implicitly to examine the actions of consumers. Herein, the application of the boundary condition of the number of people and number of times would allow us to explore the power that lies in SNSs to spread social influence to a larger population due to the repetition of the same message by many influencers in SNSs. Furthermore, Kwahk & Ge (2012, p.1817) in studying the impact of SNSs on e-commerce, state that "more social media interaction ties can bring higher group pressure and lead one to conform to the group" (number of people). This aspect also denotes the

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possibility of applying the boundary condition of the number of people and number of times to SNS research in examining social influence.

## 4.5 The Diversity and the Variety of Social Influence
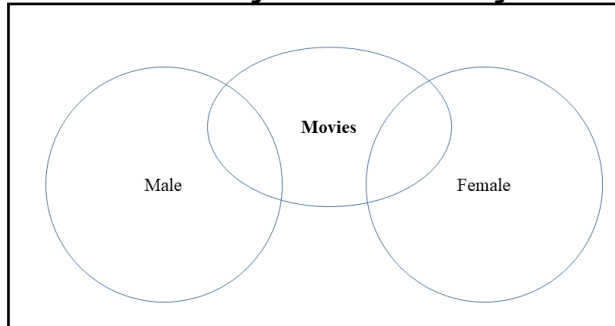
Figure 5. The Diversity and the Variety of Social Influence

Figure 5 recognizes *the diversity* and *the variety* of connections maintained in SNSs (Walther et al. 2008). As expressed in Figure 5, maleness plus movies has a narrower domain than either one alone. When comparing the diversity and the variety of social influence in traditional vs. SNSs, Kwahk and Ge (2012, p. 1816) indicated that in the past, social circles had narrower diversity, but with the proliferation of SNSs, social influence is getting "broader and stronger" making the presence of SNSs a critical aspect of peoples' lives. Shen, Lee, Cheung, and Chen (2010) explored how social influence and other related factors affect men and women differently when taking part in SNSs based team collaborations. Particularly when investigating multiple constructs of social influence in the context of SNSs such as (A) *compliance*, (B) *identification*, (D) *peer influence*, (H) *strength* as depicted in Table 4, diversity and the variety of social influence allows us to examine the role of diverse influencers in SNSs in encouraging individuals to change attitudes or behaviors. The researcher has an obligation to specify *which* spectrum of social influence is sought based on the diversity and the variety of social influence a study population receives in SNSs.

In summary, the literature analysis conducted in the study indicates that applying social influence directly to SNSs and other digital spaces without considering these theoretical boundaries could lead to inconsistencies as well as ambiguities in the findings (Busse et al., 2017). As such, the above mentioned five boundary conditions, which we derived through several iterations of the literature review, would guide future research to apply social influence theoretical constructs to SNSs precisely and generate valid results relevant to the specific context of SNSs (Busse et al., 2017).

5   Conclusion

Social influence is an important stream of research that allows us to understand how the interactions among individuals in society lead to attitude and behavioral change. The existing theoretical foundations that investigate social influence, particularly in IS are under increasing pressure due to the advent and proliferation of SNSs. While much of the works on social influence have made substantial contributions to research, studies lack a nuanced view of the *boundary conditions* that are entrenched in SNSs. For instance, when utilizing the constructs generated by the social influence theories, previous studies have identified that not all constructs that generate social influence in the physical world can be applied in the same way to understand the social influence in SNSs (Datta, 2011; Shen, 2010; Zhou, 2011). By identifying

this limitation in applying social influence on SNSs, this paper derived five boundary conditions based on a literature analysis and demonstrated how recognizing such boundary conditions up-front can provide better insights (Bacharach, 1989; Busse et al., 2017; Dubin, 1969; Gonzalez-Mulé & Aguinis, 2018; Whetten, 1989).

Our analysis of the 65 past studies suggests that the boundary conditions are applicable to understand social influence in the contemporary setting of SNSs. The overlaps between the constructs of social influence, the acknowledgment in previous studies regarding the contextual differences between the society before and after the advent of SNSs, and the application of the five boundary conditions to constructs of social influence suggest the validity of this broader application.

Through this study, we make both theoretical and practical contributions to IS. Even though many IS studies have considered the theoretical perspective of social influence in examining individual attitude and behavioral changes, to date, no study has explicitly acknowledged the necessity of developing boundary conditions for SNS research. As such, the findings of this study can be utilized to investigate social influence in SNSs further. The identification of the five boundary conditions means that researchers can now develop instruments and procedures to measure these conditions (Busse et al. 2017; Dubin, 1969; Weber, 2012). Therefore, in terms of knowledge generation, we believe the findings of this study will serve as a lens in the domain of IS, allowing us to look at social influence generated by SNSs from a new perspective. Furthermore, seminal works on theory development have highlighted the contribution of boundary conditions in assisting researchers to generate valid findings (Busse et al., 2017; Dubin, 1969) and improving the generalizability of theories (Busse et al., 2017; Whetten, 1989). Similarly, by exploring five boundary conditions for social influence research in SNSs, we have identified that paying closer attention to boundary conditions when applying an existing theory to a new context would allow future studies to contribute to more rigorous research.

The derived boundary conditions would also enable future studies to be more specific when using social influence and make their findings more relevant to the context of SNSs. Further to this, practitioners will be able to develop strategies which can yield better outcomes with regard to their SNS campaigns. Notably, in terms of SNS marketing, the boundary conditions would allow practitioners to identify the optimal conditions for maximum social influence, and thus, encourage different behaviors among consumers. Moreover, we should also bear in mind that the exploration of boundary conditions has already been proven to reduce the gap between theory and practice (Busse et al., 2017). As such, whenever a researcher applies theory to any novel context including SNSs, determining the boundary conditions of the selected theory and examining whether or not the theory fits into the new contextual dimensions would not only facilitate the generation of accurate results but also ensure that the findings have practical implications.

However, one of the limitations we would like to acknowledge in this study is the formulation of boundary conditions based only on literature analysis. The five boundary conditions were determined based on literature, and the number of boundary conditions for SNSs social influence studies may vary depending on further empirical tests. For instance, conducting a social network analysis to examine the applicability of these boundary conditions would have been useful for the study. Nevertheless, our aim at this point is to highlight the necessity of developing boundary conditions for SNSs social influence studies, which we have

accomplished through this study. Our study encourages future research to incorporate these boundary conditions for social influence in studies on SNSs so that the theoretical constructs of social influence can be applied in a novel way to relate to the context of SNSs. Further, the derivation of boundary conditions for the theoretical perspective of social influence can be improved if a comparative analysis of social influence theories could be conducted across different disciplines. Even though our findings reliant mainly on IS literature, included research findings from other disciplines including psychology, sociology, marketing, management studies, political science and communication studies, it was not within the scope of our study to conduct a comparative analysis of the use of social influence theoretical constructs for SNSs by placing equal emphasis on studies published in all disciplines.

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Appendix A – List of References for the Literature Synthesis Table (Table 4)

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Paper 4: Exploring Activities of Social Influence Asserted through Social Networking Sites: A Stage Theory Approach (Published)
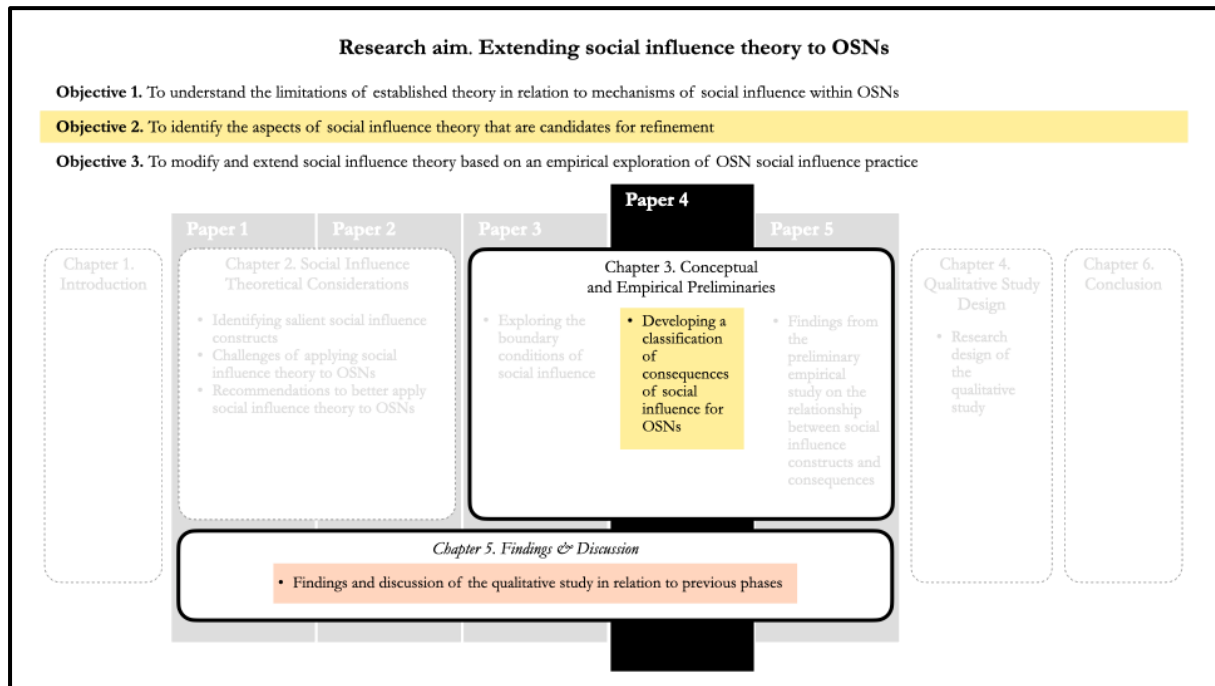
Figure B.5. Situating paper 4 within the project

Paper 4 is related to the second objective of my research. Findings of Paper 4 are summarized in Chapter 3 (Section A). The conceptualization of symbolic and substantive actions in this paper was further examined in the qualitative study discussed in Chapter 5.

Exploring Activities of Social Influence Asserted through Social Networking Sites: A Stage Theory Approach

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Abstract

The advent of Social Networking Sites (SNS) took social influence to a new level allowing a large number of individuals to interact, and influence each other unlike the traditional society bound by face-to-face interactions. While this substantial change generated by SNS has motivated information systems researchers to examine social influence and attitude and behavioural change in individuals in the context of SNS, the studies have not paid adequate attention to exploring how individuals behave in light of the social influence s/he receives. As such, adopting a literature meta-analysis approach, and reviewing 65 studies, this research identified four distinct categories of responses to social influence given by individuals in SNS, based on social influence theoretical perspective. While the study was completed in SNS context, the broader implications of this study are applied to research development and methodology, where the study implications apply broadly across all research contexts.

Keywords: Social influence, symbolic action, substantive action, research methods, social networking sites

Introduction

"This holiday season all of us need (and all of us can give) love, kindness, and community. I believe kindness can change the world so please join me in pledging to #MultiplyYourGood today!..." (Lady Gaga December 17, 2018).

This particular *tweet* by the popular celebrity Lady Gaga was liked by 23,363 users of Social Networking Sites (SNS) and *retweeted* 3987 times as of January 15, 2019. While the celebrity encouraged her followers to join her in supporting a social cause, what would make an individual to actually take part in joining the cause or simply engage in *retweeting* or *liking* the message? Will such a message simply make an attitude change in an individual or make the individual act in a certain way? Do all individuals in SNS behave in the same manner when they get exposed to such a post, or would they act differently based on the relationship they have with the person who influences them? This research paper seeks to investigate the relationship between such varying actions exerted through SNS and the effect of social influence received by individuals through their social circles in SNS, utilizing a unique methodological approach.

Since the advent of SNS, an individual's average number of friends has increased up to 338 (Smith 2017) from 10 to 20 friends a person had prior to the advent of SNS (Parks as cited in Tong et al. 2008). Such a leap in the number of people an individual would interact with, as opposed to the traditional

society bounded by face-to-face interactions, has only become possible due to opportunities provided by SNS to reach a vast number of people at once regardless of space and time barriers (Palekar et al. 2015; Palekar et al. 2013; Palekar and Sedera 2012). Particularly, in a time in which scholars are expecting information technology to play a crucial role in the fourth industrial revolution, understanding the power of social influence facilitated by SNS becomes crucial. In an article to the World Economic Forum (WEF) on the fourth industrial revolution, for instance, Schwab (2016), the founder and executive chairman of WEF, indicated the power of SNS that could be utilized in a negative way if not properly guided, as follows.

"Discontent can also be fuelled by the pervasiveness of digital technologies and the dynamics of information sharing typified by social media. More than 30 percent of the global population now uses social media platforms to connect, learn, and share information. In an ideal world, these interactions would provide an opportunity for cross-cultural understanding and cohesion. However, they can also create and propagate unrealistic expectations as to what constitutes success for an individual or a group, as well as offer opportunities for extreme ideas and ideologies to spread".

Considering the ability of SNS to bring people together to interact with each other and thereby to influence each other (Alarifi et al. 2015; Alarifi and Sedera 2014), it is a timely need to understand in what ways the social influence generated through such a mass population online could lead individuals to change their attitudes or engage in different types of actions.

While exploring this relationship between the social influence generated by fellow individuals in SNS, researchers in Information Systems (IS) have used various theories of social influence. As such, two of the commonly used theories in IS to investigate social influence are, social influence theory by Kelman (1958) and social impact theory by Latané (1981). However, previous studies that employed different constructs of social influence have come up with inconsistent findings in relation to the application of social influence constructs to SNS (Lim et al. 2016; Zhou 2011) due to the complexity of SNS as opposed to the traditional society.

At the same time, another issue that has been identified when referring to previous studies is that very limited attention has been paid to the response an individual would give based on the social influence received through SNS. The outcomes of social influence could be a change in the attitude, or a commitment of an action (Kelman 1958). In particular, the *actions* committed post social influence would not be the same. Therefore, not considering the variations between the responses that an individual could generate, starting from an attitude change to the commitment of various types of actions, would make it difficult for the researchers to make a complex assessment based on the social influence exerted through SNS. As such, it is crucial to understand the possible variations of actions that an individual could commit based on the types of social influence s/he receives.

Considering these concerns in employing social influence for SNS, in this study, we aim to (i) review an anthology of social influence literature to understand how individuals respond to social influence exerted through SNS; (ii) revisit varying actions exerted through SNS; and (iii) introduce a different methodological approach that could be used to classify varying responses of individuals in the SNS context. Hence, this study presents a classification system of responses an individual would give based on social influence s/he receives through SNS. While the classification derived herein pertains to SNS, we see a broader application in other disciplines and fields of studies.

Literature Review

Theoretical foundations of social influence mainly lie in the discipline of social psychology and consists of a number of different constructs used across many disciplines in understanding how social influence could affect the attitudinal change and behaviours of people. Deutsch and Gerard (1955) came up with two constructs namely *informational influence* and *normative influence*, which have been utilized in IS to examine negative firestorms on social media (Chan 2018; Sedera and Lokuge 2018; Sedera et al. 2017b). Cialdini and Goldstein (2004) discussed two types of social influence namely, *compliance* and *conformity* and highlighted an individual would be influenced based on three types of rewarding goals; goal of accuracy, goal of affiliation, and goal of maintaining a positive self-concept. In addition, the

concept of *spiral of silence* (Palekar et al. 2015) has also been utilized in IS to examine the relationship between social influence and passivity of SNS users in terms of participation in SNS.

After carefully considering such theories of social influence, this study employed social influence theory of Kelman (1958) and social impact theory of Latané (1981) to investigate the actions exerted through SNS. Kelman's social influence theory consists of three constructs; *compliance*, *identification*, and *internalization*. Compliance can be defined as the process in which an individual engages in a certain behaviour expecting the receiving of gain(s), or in avoidance of punishment(s); identification can be defined as the process in which an individual would be susceptible for influence because s/he wants to form or continue a relationship with another individual or a group; internalization can be defined as the process in which an individual becomes influenced by the message rather than the messenger since it adheres with the beliefs/ values of the individual (Kelman, 1958).

This theory was decided as appropriate for the objectives of the study due to multiple reasons. First, there is a substantial amount of literature in IS that have confirmed the applicability of the three constructs of the social influence theory as applicable for IS when compared with other social influence theories (Sedera et al. 2017a; Shen et al. 2010; Tsai and Bagozzi 2014; Zhou 2011). Second, constructs of 'compliance', 'identification' and 'internalization' have also been identified by these previous studies as measurement constructs of social influence in SNS.

When considering the social impact theory of Latané (1981), through the literature analysis, this too was identified as a suitable theory to examine social influence in SNS. Particularly, Kelman's social theory mainly discusses about the processes through which individuals get influenced without considering aspects such as how the number of people in an individual's social circle, the power of the influencer, and the proximity of the influencer to the influencee would directly affect the social influence process and thereby the attitude and behavioural change of the particular individual. Latané's social impact theory provides explanations for these missing points, which make both theories complement each other. Social impact theory (Latané 1981) consists of three constructs; *strength* – the power of the person who influences a person determines whether the individual would follow him/ her or not, *immediacy* – the proximity of the person who influences an individual has an impact on the influence process, and *the number of people* – the higher the number of people influencing an individual on a particular aspect, the more that individual would accept the influence. Simply, social impact theory claims that social influence processes can be better understood as resulting from the operation of these three constructs; meaning increases in the 'strength', 'immediacy' and 'the number of people' who are the source of influence should lead to increases in their effect on an individual. In addition, similarly to social influence theory, the applicability of social impact theory in the digital sphere has also been validated by previous research (Chan et al. 2018; Kwahk and Ge 2012; Miller and Brunner 2008; Mir and Zaheer 2012).

While the findings of previous studies that have employed these two theories in IS have contributed to a wealth of knowledge, application of these theories to the context of SNS has often led to inconsistent findings. Zhou (2011), for instance, claimed social influence constructs such as internalization and identification affect online community participation the most whereas social influence constructs such as compliance which is based on rewards and punishments cannot be applied to SNS. However, evidence shows that individuals using SNS would consider even actions such as 'liking' a post as a reward (Sherman et al. 2016) confirming the possibility of employing social influence constructs such as 'compliance' to examine individual actions exerted through SNS due to social influence. Considering these issues that are present when applying social influence constructs to the context of SNS, we argue that the social influence processes that are exerted through SNS should be understood with the actions or the attitude changes that take place following social influence. In fact, lack of investigation on different social influence processes leading to varying actions, could be the reason behind inconsistent findings of the previous studies which have failed to identify this distinct relationship between different social influence constructs and varying individual responses.

Depending on the nature of the social influence construct, the behaviour a certain individual engages via SNS may be subject to change. Therefore, in the following section, adopting the *stage theory*

approach, we propose four categories of responses to social influence that could be taken into account when conducting social influence studies for the specific SNS context.

Methodology and Theoretical Basis of Categories

Weinstein et al. (1998) in their study on "stage theories of health behaviour: conceptual and methodological issues" indicated the necessity of considering stage theories to predict diverse actions of individuals. Providing examples from continuum theories such as theory of reasoned action (Fishbein and Ajzen 1977) and theory of planned behaviour (Ajzen 1991), Weinstein et al. (1998) argued that such approaches which have only *"single prediction equations"*(p. 291) do not consider the diversity of actions that could be committed by various individuals based on certain variables, and expect the responses of the individuals to be the same, ignoring the different stages that could exist in the process of behavioural change. This can be further explained using the same example of the tweet by *Lady Gaga* (2018) mentioned in the *introduction* section of this paper. The tweet was an open invitation for individuals to donate for a good cause. However, the individuals who see the tweet would respond to it in different ways. Some people would retweet the message, some would ignore it, and some would actually make a financial contribution. The influence of the celebrity would thus result in multiple responses among different individuals without all individual actions following a continuum. Understanding such responses in a continuum may not be appropriate because it would only indicate that there is one single outcome for that influence. But considering these responses in terms of stages would allow the researchers to acknowledge the possibility of individuals engaging in different responses in relation to various social influence constructs they were exposed to.

Further supporting the view on considering the changes of behaviours or the commitment of different actions by individuals in relation to the stage theory, Weinstein et al (1998) proposed four guidelines that should be understood in the stage theory as follows.

(i) Categorizing the stages

Developing classifications for responses individuals would give in a certain circumstance would allow the researchers to differentiate individuals based on the various ways they behave and identify which individuals should be grouped together depending on similar characteristics. For example, in relation to Lady Gaga's *tweet,* some individuals would simply form an attitude about the tweet by being *happy* or *excited* about the initiative of the celebrity, and some would retweet the post which would be a simple action that would not require much effort. In the meantime, some individuals would take extra effort in response to the tweet and decide to donate or volunteer to support the cause. Thus, depending on the nature of the response given by individuals to social influence, different categories of responses can be created.

(ii) Organizing the stages in a sequence

This means, when considering the different ways an individual would react to social influence, identifying those varying actions a person would take in a sequence is important. However, it is crucial to highlight that this does not indicate a person would follow the exact same sequence when engaging in a certain behaviour. It is possible that some individuals would skip certain stages when modifying their behaviour. In relation to Lady Gaga's *tweet*, this means there is a possibility for the individual form an a) attitude (e.g. be happy about the *tweet*), which leads the individual to b) generate an intention to act, and finally, if the conditions to engage in a particular action are satisfied, the individual would c) commit a specific action. These three factors show there is a possibility to organize the individual response in a sequence satisfying the criteria of the stage theory.

(iii) Individuals within the same stage facing similar barriers

This guideline indicates that once individuals are put into a category or a stage, all individuals in the same category should face the same barriers. If we relate this to social influence, the social influence constructs that are identified in relation to the commitment of a particular action should be the same for all individuals who become subject to those constructs thereby leading those individuals to act in a similar manner.

(iv) The same barriers should not be present in different stages

This highlights that if the factors leading to different actions are the same, such situations could be explained in terms of a continuum rather than using 'stage' approach. As such, if different actions are considered in relation to 'stages', the aspects you identify with one stage should not be the same with another stage. Considering Lady Gaga's *tweet*, this would mean individuals will act in a certain way only because they are susceptible to the influence of this particular celebrity, and different responses given by the individuals would be triggered by different sources of influence. Hence, individuals behaving in the same manner should have been exposed to the same constructs of social influence.

Selection of the Literature Sample

Next, following the stage theory approach and its four guidelines, we looked into 65 studies of social influence and SNS to observe whether the responses of individuals based on social influence they receive can be identified in relation to different stages. The 65 studies for this purpose were selected following five steps. First we identified the keywords in relation to social influence and SNS, and did a literature search on the key words "social media", "social influence", "influence", "social impact", "social influence and social networks", "social influence and social media", "social impact and social media", "impact", and "social interaction and social media". Second, literature related to these keywords were searched in the basket-of-eight journals in information systems in the period from 2008 to 2018. From approximately 300 research papers that appeared in the search results, only the most relevant research papers that discuss social influence and SNS were selected in this step by removing the research papers that do not serve the purpose of this study. Third we included the most cited social influence studies in the literature sample. Fourth, PlumX highly cited SNS studies that were not identified in the first two events were added to the literature sample. Finally, based on the list of references in the selected papers, we identified more papers relevant to our study using the snowball method.

Once all these steps were completed, a total of 65 research papers remained in the literature sample. These research papers were then tabulated chronologically to identify which social influence constructs as per Kelman's social influence theory (1958) and Latané's social impact theory (1981) have been explicitly or implicitly examined in each study (refer to Appendix A). The six social influence constructs studied were compliance, identification and internalization (from Kelman's social influence theory) as well as strength, immediacy and the number of people (from Latané's social impact theory). If a certain social influence construct was discussed in a specific study, the column relating to that construct was marked with 'Y' indicating 'yes', and if not, the column was marked with 'N', indicating 'no'. The outcomes of the social influence received by individuals or the individual responses to social influence were also examined by the two co-authors. All such responses identified in each study were mapped by one author and confirmed by the other following the guidelines of stage theory. This resulted in the identification of four different categories of outcomes/ responses of individuals; (i) attitudes, (ii) attitudes towards actions, (iii) symbolic actions, and (iv) substantive actions (The definitions and characteristics of these four categories of behavioural responses are illustrated in Table 1). As such, the Table in Appendix A also includes a separate column illustrating the outcome of social influence or the response to social influence by individuals in the form of above mentioned four categories. The studies that have not specifically discussed social influence constructs in relation to individual responses were marked as 'not applicable' (N/A).

The identification of such a classification of responses of individuals who are influenced by SNS becomes crucial due to several reasons. First, the previous SNS and social influence studies have mainly focused on the responses to social influence in a continuum leading the researchers to consider the variety of actions in a *single prediction equation* as highlighted by Weinstein et al. (1998). Considering the substantial differences between SNS and traditional era (Bagozzi and Dholakia 2002) coupled with the magnitude of influence generated due to a large number of individuals interacting with each other at once, understanding the individual responses in a continuum would hinder the IS researchers from forming assessments that consider the diversity of the context.

As such, the classification approach followed in this study not only allows IS researchers to modify their research methodologies specifically to the context of SNS, but also enables them to rethink about adopting research strategies from other disciplines to examine individual behaviours in specific contexts to IS.

Table 1. Classification of Individual Responses to Social Influence

	Attitude	**Attitude towards Action**	**Symbolic Action**	**Substantive Action**
Definition	"A cognitive representation that summarizes an individual's evaluation of a particular person, group, thing, action or idea (Smith and Mackie 2007, p. 229).	Formation of an attitude that could possibly guide an individual to form a particular behaviour through intention (Smith and Mackie 2007).	An action that expresses, signals, or symbolizes what the individual feels, wants or believes (Burke 1966).	A substantive action is an an activity that involves some risks, allocation of time, maintenance of a vision to reach an objective and active engagement with the cause throughout the process of achieving that objective (Cabrera et al. 2017).
Characteristics	An attitude is formed in response to a particular situation (LaPiere 1934). Attitudes prepare individuals to behave in a particular manner (LaPiere 1934). Forming a particular attitude doesn't mean an individual would always behave in congruence to the attitude formed (Smith and Mackie 2007).	Attitude towards action is the stepping stone between formed attitude and the expected behaviour which can be identified as 'intention to act' when a decision is taken thoughtfully (Smith and Mackie 2007). This consists of two aspects namely attitude and the pressure of the society that affect the intention of the individual to engage in a particular behaviour (Madden et al. 1992).	The action is committed ceremonially without actual implementation (Meyer and Rowan 1977). The action only 'appears' to adhere to the society (Richardson 1985). The action does not take much effort as only the 'appearance' matters, and less risk is involved due to that reason (Ashforth and Mael 1989).	The action involves an actual change and active engagement to support a particular belief of the society (Ashforth and Gibbs 1990). A real change takes place as a result of the action to adhere with the society (Richardson 1985). The action should be implemented after proper planning to produce a good outcome and it involves risks (Berrone et al. 2009).

Table 1 combined with the literature analysis table in Appendix A provide information as to how past studies have focussed on exploring different consequences of social influence utilizing the same social influence constructs. This further denotes the necessity of revisiting social influence constructs to understand how they operate when individuals are encouraged to think/ behave in a certain way based on the nature of the social influence they receive.

The classification of individual responses into four categories also emphasizes the necessity of differentiating *intentions to act* from *actual actions*. Smith and Mackie (2007), for instance, indicated that even though the intention to act mostly predicts the behaviour the individual would engage in the future, it may not necessarily guarantee that s/he would engage in the exact action. This distinction between intention to act (attitude towards action) and engagement in a real action (symbolic versus substantive action) encouraged us to pay further attention to varying actions exerted through SNS.

Investigating Symbolic versus Substantive Actions in SNS

While social influence in SNS can take place in the form of constructs discussed above, the end results of such processes of social influence, meaning the type of actions that are being exerted based on such social influence constructs are not adequately emphasized in the previous literature as opposed to attitudes towards actions (Refer to Appendix A[1]). In IS, Even though there has been ample research conducted on social influence in SNS, mainly focusing the user participation (Zhou 2011), contribution behaviours of users in SNS (Tsai and Bagozzi 2014), effect of SNS on e-commerce (Kwahk and Ge 2012), and impact of SNS on consumer behaviours (Matook et al. 2015), there is lack of discussion on what salient social influence constructs may lead an individual to engage in varying actions in SNS. In fact, not all individual actions exerted through SNS are similar in nature and the social influence constructs would affect these varying actions differently. Furthermore, most IS studies in the selected literature sample examined *attitudes towards actions* (as indicated in appendix A) rather than investigating the actual actions of individuals. This highlights the importance of looking into possible actions that could be exerted in SNS in relation to social influence. It is also vital to note that IS researchers have a responsibility to acknowledge these varying actions exerted through and investigate the relationship between different social influence constructs and behavioural responses of individuals.

When revisiting the past studies on varying actions exerted through SNS, Heimans and Timms (2014) have focused on varying actions taking place online such as consuming, sharing, shaping, funding, producing and co-owning in relation to power and participation level of people. While this study has focused on actions in terms of the power dynamics which have transformed SNS users from passive recipients to active contributors, the range of actions they discuss is limited to organizational and management related activities, and group behaviours. However, when considering the diverse range of activities that could be exerted through SNS, it is important to consider classifications that could facilitate the inclusion of diverse individual behaviours exerted through SNS.

Albarracin et al. (2011) differentiated *activity* from *inactivity* by considering the high effort levels involved in engaging in a certain action. As such, non-engagement or inaction would indicate the *resting state* of an individual (McCulloch et al. 2012). While these aspects experienced by an individual may be personal aspects relevant only to that particular individual, McCulloch et al. (2012) argued that *socialization* should be taken into account when understanding activities. Considering this aspect of socialization and social influence that plays a vital role in SNS, in relation to *activities* or actions, one could commence from the view point of symbolic vs. substantive actions as stated in the institutional theory (Berrone et al. 2009).

While these actions were broadly applied to organizational settings (Oliver 1991; Suchman 1995), this study applies these two types of actions to SNS. A symbolic action inherits less risks for the individual and costs little or nothing (Lee and Hsieh 2013). Moreover, a symbolic action bears less effect on the outcomes (Shulman 2009), and requires low engagement of the individual who is making the action

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[1] The list of the references for the table in Appendix A is available in the following link. https://docs.google.com/document/d/1K9gthHIXacCng5a7-ozRPbIf4Mm-LrRfJr-Pnx91ack/edit?usp=sharing

(Walker and Wan 2012). In the context of SNS, examples of such symbolic actions are common. "Following" charities in social campaigns on Twitter, *re-tweeting*/sharing their links, clicking a "like" on Facebook, adding stickers to profile pictures supporting various campaigns, or writing generic comments in one's YouTube channels on mundane activities can be considered as examples for symbolic actions. On the other hand, substantive actions require much effort as opposed to symbolic actions and carry a certain level of risk with them (Cabrera et al. 2017). Activities such as donating money, dedicating time for volunteering or fundraising are examples of substantive actions (McAdam 1986).

One important fact to note when differentiating between these two types of actions is, under certain circumstances, even 'clicking a like' can be counted as a substantive action. Assume you are a citizen of a country which is ruled by a dictator. In that particular context, clicking a 'like' in SNS against that particular ruler or the government could bring some risk for you. Such efforts by individuals would be counted as a substantive action. Hence, the context in which the action takes place would lead to the amount of risk/ effort involved in the action and based on those factors, the action exerted through SNS would be classified either as a symbolic action or a substantive action.

The characteristics identified in Table 1 would allow the researchers to determine whether the action committed by an individual via SNS is symbolic or substantive or simply a change in the attitude. However, when considering the previous social influence studies on SNS as well as outside SNS, one common aspect we noticed is that the researchers have attempted to link the same social influence constructs with either attitude change or an action, without considering how different social influence constructs would allow individuals to come up with different types of responses. Therefore, with the generation of a classification system to identify individual responses exerted through SNS, this study allows researchers to go beyond the traditional research methods adopted in IS to look into social influence in SNS.

Conclusion

This study examined the different types of individual responses that could be generated through SNS in relation to key social influence constructs as identified in Kelman's social influence theory (1958) and Latané's social impact theory (1981). While both theories have been utilized in the past IS research to examine social influence (Mir and Zaheer 2012; Sedera et al. 2017a; Zhou 2011), this study further justifies the applicability of these two theories for SNS by emphasizing on the substantial changes of SNS as opposed to physical world which can be investigated clearly with the constructs that are discussed in these two theories (e.g. the high number of members in one's online social circle as opposed to the number of people interacting with an individual in the physical world). By following a methodological approach adopted from the stage theory (Weinstein et al. 1998), we highlighted the possibility of improving IS research utilizing research methods and philosophies from different disciplines. This study contributes to knowledge in two ways. In terms of theoretical contributions, the study extends the social influence theory by adopting constructs from Kelman's social influence theory (1958) and Latané's social impact theory (1981) to incorporate a classification of responses that are applicable for SNS. The study also makes a distinction between varying actions exerted through SNS by determining two types of actions; symbolic and substantive actions. Since social influence theory has not been extended by taking the diversity of actions exerted via SNS into account, this too will contribute towards theory extension and thereby the generation of new knowledge. Most importantly, this study adopted a different methodological approach that could be followed by future IS researchers as well as researchers in the general domain of information technology to explore behavioural classifications when applying theoretical constructs to novel contexts within information technology.

In terms of practical implications, the practitioners particularly related to digital marketing organize their campaigns for a variety of purposes, such as enhancing "brand awareness, and brand liking" and promoting "customer engagement and loyalty", ensuring "word-of-mouth communication about the brand", and leading "traffic to brand locations on and offline" (Ashley and Tuten 2015, p. 17). Such statements indicate the complexity of SNS marketing and the expectations of the practitioners to engage customers in different ways. In other words, in some instances, the practitioners would expect the

customers to engage in either symbolic or substantive actions depending on the objective of the campaign. Some marketing campaigns can also be planned merely to generate a positive attitude among the consumers regarding a particular brand. Hence, the findings of this study will have direct implications on the practitioners and the results can be utilised by them to modify SNS campaigns based on the type of action they would expect the clients to take. It would also allow the public to understand the different means through which they are susceptible to social influence in SNS.

Using the literature as evidence, we propose the following conceptual model. Therein, we argue that (i) compliance, (ii) identification and (iii) internalization are *constructs* that would form a direct relationship with social influence, whereas (iv) strength, (v) immediacy and (vi) number of people are playing the role of moderators. Further, in the conceptual model in Figure 1, the width of the arrow (from darkest to lightest) highlights the use of that construct in the literature.
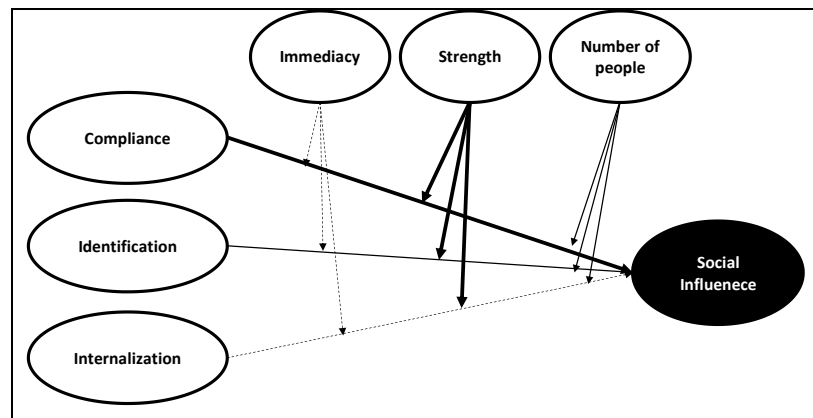
Figure 1. Conceptual Model

The study acknowledges certain limitations that could be investigated further through future research. First, based on the literature sample, the authors identified two main types of actions exerted through SNS as symbolic and substantive actions. This does not mean that actions exerted through SNS are limited only to these two categories. Future studies can investigate more varying actions that are committed by individuals in response to social influence in SNS. Second this study engages in a conceptual discussion following a literature review. Empirical studies should be conducted to validate these findings. However, the findings of this study would pave the path for future IS researchers to consider classification systems following a stage theory approach to examine the diverse nature of human behaviour, as opposed to formulating research models merely based on a continuum.

Acknowledgements

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Appendix A: Table Depicting the Relationship between Social Influence Constructs and Individual Responses

Study	A	B	C	D	E	F	Outcome of the Social Influence Received	Study	A	B	C	D	E	F	Outcome of the Social Influence Received
(Kelman 1958)	Y	Y	Y	N	Y	N	attitude	(Zhou 2011)	Y	Y	Y	N	Y	N	attitude towards action
(Latané 1981)	Y	N	N	Y	Y	Y	N/A	(Datta 2011)	Y	Y	Y	N	Y	N	Substantive action
(Nowak et al. 1990)	Y	N	N	Y	Y	Y	attitude	(Shen et al. 2011)	Y	Y	Y	N	Y	N	attitude towards action
(Latané et al. 1995)	Y	N	N	Y	Y	Y	Symbolic action	(Cheung et al. 2011)	Y	Y	Y	N	Y	N	attitude towards action
(Latané 1996)	Y	Y	N	Y	Y	Y	Symbolic action	(Kietzmann et al. 2011)	N	N	N	N	Y	Y	N/A
(Latané and Bourgeois 1996)	N	N	N	Y	Y	Y	attitude	(Hanna et al. 2011)	N	N	N	N	N	N	N/A
(Venkatesh and Davis 2000)	Y	Y	Y	N	Y	N	attitude towards action	(Fischer and Reuber 2011)	N	N	N	N	N	N	N/A
(Bagozzi and Dholakia 2002)	Y	Y	Y	N	N	Y	attitude towards action	(Mir and Zaheer 2012)	N	N	N	Y	Y	Y	attitude towards action
(Dholakia and Talukdar 2004)	Y	N	N	N	Y	N	Substantive action	(Kwahk and Ge 2012)	Y	Y	N	Y	Y	Y	attitude towards action
(Dholakia et al. 2004)	Y	Y	Y	N	N	N	Symbolic action	(Tufekci and Wilson 2012)	N	N	N	N	N	N	Substantive action
(Algesheimer et al. 2005)	Y	Y	N	N	Y	Y	Symbolic action	(Lipsman et al. 2012)	N	N	N	Y	N	Y	N/A
(Lu et al. 2005)	Y	Y	Y	N	Y	N	attitude towards action	(Gensler et al. 2013)	N	N	N	N	Y	Y	N/A
(Gallivan et al. 2005)	Y	N	Y	N	Y	N	Substantive action	(Singh and Phelps 2013)	Y	N	N	Y	Y	N	attitude towards action
(Lee et al. 2006)	Y	N	Y	N	N	N	attitude towards action	(Hildebrand et al. 2013)	Y	Y	Y	N	Y	N	attitude
(Song and Kim 2006)	Y	Y	N	N	Y	N	attitude towards action	(Wang et al. 2013)	Y	Y	Y	Y	Y	N	Substantive action
(Li et al. 2006)	Y	N	Y	N	N	N	attitude	(Tsai and Bagozzi 2014)	Y	Y	Y	N	Y	Y	Symbolic action
(Bagozzi et al. 2006)	Y	Y	Y	N	Y	N	Symbolic action	(Kuan et al. 2014)	Y	Y	N	N	Y	Y	attitude towards action
(Bagozzi et al. 2007)	Y	Y	Y	Y	Y	N	Symbolic action	(Zhang et al. 2014)	N	N	N	Y	N	Y	Symbolic action
(Miller and Brunner 2008)	Y	N	N	Y	Y	Y	Symbolic action	(Godinho de Matos et al. 2014)	N	Y	N	N	N	Y	attitude towards action
(Walther et al. 2008)	N	N	N	Y	N	N	attitude	(Hu et al. 2015)	N	N	N	N	N	N	Symbolic action
(Eckhardt et al. 2009)	Y	N	N	N	Y	N	attitude towards action	(Wang et al. 2015)	N	N	N	N	N	N	N/A
(Yang et al. 2009)	Y	Y	Y	Y	Y	Y	attitude towards action	(Matook et al. 2015)	Y	Y	N	N	Y	N	attitude towards action
(Mangold and Faulds 2009)	N	N	N	N	N	N	Symbolic action	(Tussyadiah et al. 2015)	N	Y	Y	N	Y	N	Substantive action
(Pempek et al. 2009)	N	N	N	N	N	N	Symbolic action	(Oh et al. 2017)	N	N	N	N	N	N	N/A
(Kulviwat et al. 2009)	Y	Y	Y	N	Y	N	attitude towards action	(Sedera et al. 2017)	Y	Y	Y	N	Y	Y	Attitude
(Zeng et al. 2009)	N	Y	Y	N	Y	N	attitude towards action	(Thomaz et al. 2017)	N	N	N	N	N	N	N/A
(Kaplan and Haenlein 2010)	Y	Y	N	Y	N	N	N/A	(James et al. 2017)	N	N	N	N	N	N	N/A
(Shen et al. 2010)	Y	Y	Y	N	Y	N	attitude towards action	(Liao et al. 2017)	N	N	N	N	N	N	N/A
(Posey et al. 2010)	N	Y	N	N	N	N	Symbolic action	(Rueda et al. 2017)	Y	Y	N	N	Y	N	Attitude
(Huffaker 2010)	Y	N	N	Y	Y	Y	Symbolic action	(Brandt et al. 2017)	N	N	N	N	N	N	N/A
(Glass and Li 2010)	Y	N	N	N	Y	Y	Symbolic action	(Dewan et al. 2017)	N	N	N	N	N	Y	Symbolic action
(Vannoy and Palvia 2010)	Y	N	N	N	Y	N	Substantive action	(Zhang et al. 2018)	N	N	N	N	N	Y	Substantive action
(Cheung and Lee 2010)	Y	Y	Y	N	Y	Y	attitude towards action								

A – Compliance, B – Identification, C – Internalization, D – Immediacy, E – Strength, F – Number of people

Paper 5: #Activism versus Real Activism: Manifestations of Digital Social Influence in Social Networking Sites (Published)
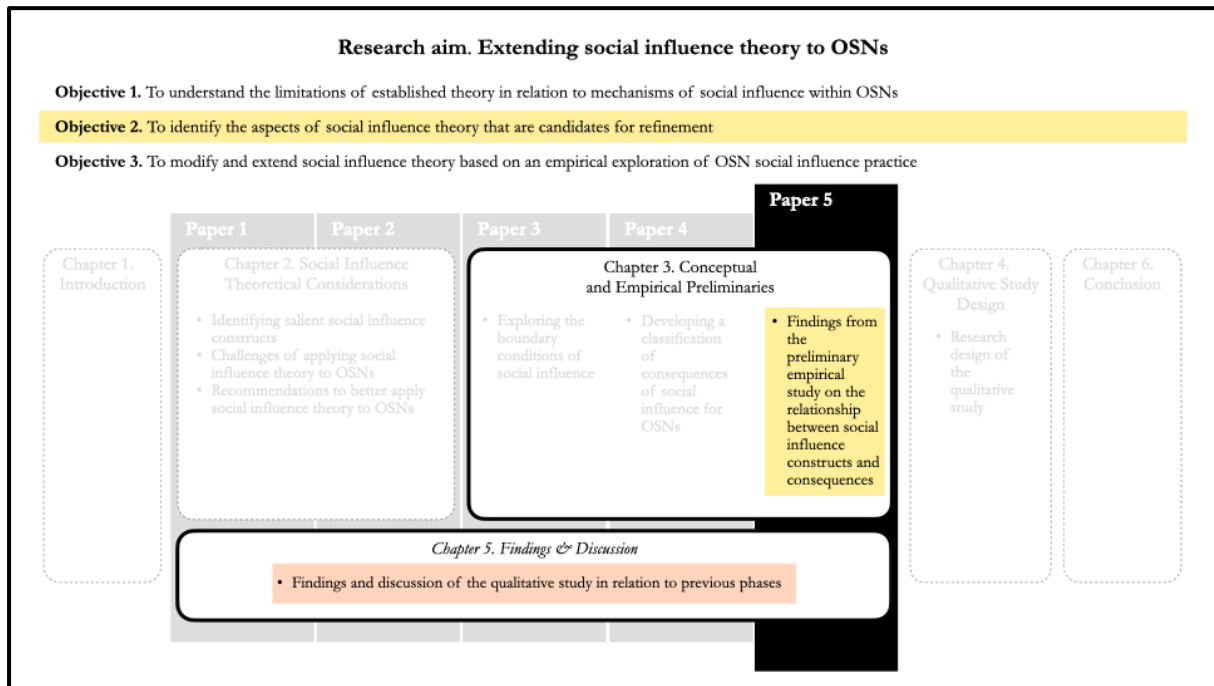
Figure B.6. Situating paper 5 within the project

Paper 5 is related to the second objective of my research. Findings of the preliminary empirical study reported in Paper 5 are summarized in Chapter 3 of Section A. The operationalization of symbolic and substantive actions in relation to salient social influence constructs in this paper was further examined in the qualitative study discussed in Chapter 5.

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#Activism versus Real Activism: Manifestations of Digital Social Influence in Social Networks

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#Activism versus Real Activism: Manifestations of Digital Social Influence in Social Networking Sites

Completed Research Paper

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Abstract

Along with the rapid proliferation of Social Networking Sites (SNSs), there is renewed discussion on the influence of substantial and highly interactive digital social circles. There is much debate about an individual's interactions with his/her digital social circles and how s/he forms behaviours as a result of such interactions. This study hypothesizes two salient types of actions that individuals are likely to engage in, as a consequence of social influence from SNSs: symbolic (e.g. #activism) and substantive actions (e.g. real activism). Using a paired sample of survey data gathered from 311 respondents, this research attempts to understand which social influence perspectives are likely to influence symbolic and substantive actions.

Keywords: Social Networking Sites, digital social influence, social impact, symbolic action, substantive action

Introduction

An individual's social circle, which can be defined as an informal group of people who are linked with each other at least via a third party that share similar values or interests (Kadushin 1968), has grown an average of 10 times with the advent of Social Networking Sites (SNSs) (Parks as cited in Tong et al. 2008; Ugander et al. 2011). The high growth of members in one's social circle due to the proliferation of SNSs, has led to substantial changes in attitudinal and behavioural formation in people (Miller and Brunner 2008; Sedera et al. 2017a; Tufekci and Wilson 2012). Traditionally, *social influence* generated by social circles was an interesting area to many behavioural science research disciplines like sociology (Carli 2001), psychology (Cialdini and Goldstein 2004), theology (Sedera et al. 2017b) and criminology (Young and Weerman 2013). The generation of digital spaces for interactions such as SNSs has reinvigorated attention towards social influence (Bagozzi and Dholakia 2002; Dholakia and Talukdar 2004; Sedera et al. 2017a).

The current research on social influence of social circles in the digitized society (henceforth referred to as *digital social influence*) has been investigated in disciplines like management (Wang et al. 2013), marketing (Bagozzi and Dholakia 2002), information systems (IS) (Sedera et al. 2017a), political science (Tufekci and Wilson 2012), psychology (Pempek et al. 2009), communication (Huffaker 2010; Walther et al. 2008), consumer engagement and communication studies (Mangold and Faulds 2009; Oh et al. 2017), hospitality and tourism studies (Koo et al. 2017), and organizational environment (Arvidsson and Holmström 2013)[1].

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[1] Past research is summarized in Appendix B using 64 studies.

An individual's actions as a result of digital social influence manifest in two types of salient actions: (i) clicking (e.g. liking/ following/ sharing), which is restricted to the actions within the SNSs or #activism (Gerodimos and Justinussen 2015), and (ii) proactive engagement or real activism (Tufekci and Wilson 2012), which takes place in the real world as an action. For instance, some people may just *like* a post, *follow* a cause, or sign a petition in a profile of SNSs for which the effort s/he takes is either low or moderate, and not engage actively in that particular cause in the outer world at all. Such actions with low effort or cost have been identified in research as *clicktivism* or *slacktivism* (Alarifi et al. 2015; Kristofferson et al. 2013; Palekar et al. 2015). The amount of effort an individual puts in each of these activities in terms of time, resources, and mental processing can range from low to high respectively for each of the above-mentioned activities (Kabadayi and Price 2014). The distinction between the two types of actions, considering the differences in low effort actions and high effort actions, has led to the first being considered as *symbolic* and the last being considered as a *substantive action*. A symbolic action inherits low-risk/ low cost (Lee and Hsieh 2013), less effective outcomes (Shulman 2009), and overall low engagement (Walker and Wan 2012).

So what perspectives of social influence make a person to engage in symbolic actions and others to engage in substantive actions apart from their innate psychological predispositions? Research suggests that psychological predisposition alone is not a predictor of one's behaviour towards substantive actions (McAdam 1986; McAdam and Paulsen 1993). Studies have established that structural factors (e.g., strong friendships with the activists) alone could not explain activist behaviour (participation) adequately.

A key conclusion of such studies is that one's decision to take part in substantive actions depends on the linkages between his/her salient identity and the support of the social circle which helps to sustain this identity (and absence of opposition stemmed from other salient identities) (McAdam and Paulsen 1993). In other words, along with the psychological predisposition to take part in substantive actions, support from a person's social circle will influence an individual to maintain their psychological predisposition or develop new psychological dispositions in relation to substantive actions (McAdam and Paulsen 1993).

With the aforementioned background, it is intriguing to understand the effects of digital social influence on an individual's likelihood of engaging in substantive actions. A study investigating the effects of digital social influence on individual substantive actions will make substantial knowledge contributions to both researchers and practitioners. Such a study will demonstrate different constructs of digital social influence would lead participants to behave differently and engage in two prominent actions exerted through SNSs; symbolic and substantive actions.

The driving research question of the study, therefore, is "what social influence construct/s, as per social influence theory, would lead to substantive actions?" The same question can be then formed for the symbolic actions as well. In order to test this relationship between digital social influence and substantive actions, we selected the context of volunteering. Herein, we would explore under what conditions of social influence in SNSs, a person would engage in volunteering (substantive action) or would simply engage in symbolic actions (e.g. clicking).

In order to differentiate between symbolic and substantive actions, the study gathered data from two groups of respondents. One group consisted of people who took part in volunteering activities whereas the other group consisted of people who have engaged in symbolic actions in SNSs. We identified that there is a high tendency among respondents to recommit to volunteering when the members of their close social circles in SNSs influence them once they post about their volunteering activities. The next sections of the research paper provide evidence and a systematic analysis of how we identified the relationship between recommitment to volunteering (which is a substantive action) and digital social influence.

Literature on Social Influence and Actions

It is not uncommon in IS to adopt theories from behavioural sciences in order to analyse human actions occurring as a result of the advancement of information technology (Schlagwein 2018). As such, various theories of social influence have been widely applied in the studies concerning digital spaces. Some of the most common social influence constructs applied to investigate various individual behaviours in digital spaces are compliance, identification, internalization (Kelman 1958), strength, immediacy, number of people (Latané 1981), informational influence, normative influence (Deutsch and Gerard 1955) and peer influence (Crandall 1988). If we consider the period in which these constructs were introduced, it is evident

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that all these constructs have been introduced in a time in which online interactions among individuals were not prominent. While the adoption of these constructs for digital spaces has contributed to a wealth of knowledge particularly in exploring attitudinal and behavioural changes in individuals due to the social influence generated online, it is vital to investigate what are the most accurate constructs in determining symbolic and substantive actions exerted through SNSs due to social influence. The following sub-section on digital social influence addresses this issue by deriving the most applicable social influence constructs for SNSs to investigate symbolic and substantive actions.

Digital Social Influence

In order to understand the nature of digital social influence, we select the theory of social influence (Kelman 1958). However, prior to selecting Kelman's social influence theory, several other theories were also taken into consideration to explore how social influence constructs have been utilized in the past to understand attitudinal and behavioural change in individuals. The social influence theory in general is suitable for SNSs because (i) SNSs allow individuals to form communities, express their ideas and cooperate with each other generating social influence among online social circles (Tussyadiah et al. 2018), and (ii) facilitate a large number of individuals to interact with each other as compared with the physical world in which face-to-face interactions are prominent (Huberman et al. 2008). In this context, an individual would interact with other SNS users in many ways. First, let us assume that an individual posts on a particular topic in a SNS. For this post, the individual would receive different types of feedback which would influence him/her to respond or behave in a particular way. The influence a particular individual receives which motivates him/her to behave in a particular way can be identified as social influence. Thus, the generation of such a social influence has been depicted by scholars in different ways leading to the formation of multiple theories of social influence.

 For instance, Latané (1981) stated that, in order to make an impact or an influence on another person, three attributes namely, strength, immediacy and the number of people should be present. These characteristics are particularly high in digital social influence. It is abundantly evident that SNSs like Facebook dramatically increase the number of associates that an individual interacts with (Manago et al. 2012). The heightened number of interactions between the associates and the individual potentially increases the strength of the relationships (Manago et al. 2012). Further, SNSs also enhance social influence and the tendency of individuals to act in a certain way particularly by encouraging them to add experts from different areas of interest into their social circles who may indirectly affect the decisions of individuals (Reichelt. et al. 2014). Finally, digital platforms allow immediate interactions between the associates and the individual (Hanna et al. 2011). Moreover, in light of the high daily usage of SNSs (Zephoria 2019), growth of users (Zephoria 2019) and growth of mobility (Gerbaudo 2018), there is ample evidence to argue that SNS is a vehicle to insert substantial influence on an individual which can be considered as digital social influence.

Social Influence theory of Deutsch and Gerard (1955) allows us to observe how individuals would be influenced by his/her social circles. According to Deutsch and Gerard (1955), social influence could take place in terms of normative influence and informational influence. Normative influence occurs when an individual acts to conform to others expectations, whereas informational influence occurs when an individual accepts a certain reality depending on the information provided by others. When these two processes are applied to the sphere of SNSs where digital social influence would be present, an individual would engage in a particular behaviour in a SNS either because s/he wants to conform to the expectations of fellow SNS users who are connected with him/ her, or because the individual accepts the information passed by other people as correct. Kuan et al. (2014) utilized the constructs: informational influence and normative social influence in the digital space to explore how these constructs lead to customer purchase decisions particularly by "affecting attitude, intention, and emotion" (p. 173).

Another perspective of social influence was introduced by Kelman (1958) to explore the change of attitudes of people due to three types of processes that take place under social influence, namely, compliance, identification and internalization. *Compliance* can be defined as the process of being influenced when an individual behaves in a particular way expecting a positive reaction from another person or a group, or to avoid punishment (Kelman 1958). Identification takes place when an individual behaves in a certain way to establish a place within a group, or to maintain a proper relationship with a group or another person. Hence, the expectation of a person who is being influenced by *identification* and commits a certain action is to

maintain a satisfying relationship with the influencer (Kelman 1958). Internalization occurs when an individual is influenced because the content of the message being conveyed to him/ her is congruent with his/ her value system (Kelman 1958). In other words, a person would be influenced to engage in a particular behaviour via *internalization* because the content of that behaviour s/he is encouraged to engage in is "intrinsically rewarding" (Kelman 1958, p. 53). When applying this theory to understand the behaviour of SNS users, the behaviour of a particular SNS user can be described under these three processes. For instance, an SNS user would be influenced to act in a certain way; after s/he receives feedback for his/ her SNS activity from significant others (compliance), or the individual's action would be determined by his/ her need to identify with a particular person or a group in the SNS who reacted to his/ her SNS activity (identification), or the individual's act would be determined by the comments of the people which he/ she thinks as congruent with his/ her own beliefs (internalization). The constructs of Kelman's social influence theory have also been examined in previous research to study actions of individuals in digital spaces including SNS (Bagozzi and Dholakia 2002; Sedera et al. 2017a; Tsai and Bagozzi 2014; Tussyadiah et al. 2018; Zhou 2011).

Peer influence has also been studied as an important construct of social influence (Sedera et al. 2016b). The foundations of peer influence lie in the work of several scholars including Crandall (1988) on binge eating, Brook et al. (1997) on smoking behaviours of young adults and Rodgers and Rowe (1993) on sexual behaviours among adolescents. Peer influence can be defined as a process in which attitude and behavioural changes would occur in individuals due to the influence of his/ her friends or peers (Godinho de Matos et al. 2014). In SNS studies, peer influence has been adopted to examine how individuals would behave differently due to the influence they receive from peers who they know directly as well as from peers they have distant ties with (Zhang et al. 2018).

Considering this wide application of various social influence constructs to examine different actions and attitudinal changes in digital spaces like SNSs, the authors decided to investigate which social influence constructs have been utilized the most in previous research to explore attitudinal and behavioural changes. In order to achieve this objective, the authors created a literature synthesis table compiling previous studies in IS on social influence. First, a keyword search on social influence was carried out in the basket-of-eight journals in IS. In addition, highly cited SNS research papers in PlumX and the most cited research papers on social influence theories were also examined to identify the most relevant research papers for the literature synthesis.

The selected keywords for the search in the basket-of-eight IS journals were "social influence", "social impact", "influence", "social media", "social influence and social media", "impact", "social impact and social media", "social influence and social networks", and "social interaction and social media". Once the initial search was complete, the irrelevant papers were removed from the sample using a deductive approach. After retaining the most applicable papers from the initial search, the reference lists of the selected papers were used to identify more relevant papers for the literature sample based on the snowball method. Once this step was completed, it resulted in 64 papers suitable for the purpose of the study. Then the papers were tabulated in chronological order to see whether the constructs of social influence (*compliance, identification, internalization, peer influence, informational influence, normative influence, immediacy, strength, and number of people*) have been discussed either explicitly or implicitly in these papers (Refer to Appendix B). If a paper discussed a particular construct, the column was marked with "Y". If a paper did not discuss a construct, that column was marked with "N". Once the tabulation was complete, the data were analysed to identify the most discussed constructs of the previous studies. The results revealed that *normative influence, compliance,* and *identification* were the most discussed social influence constructs. However, in-depth reviews of studies by authors revealed that some selected constructs such as peer influence (Zhang et al. 2018) versus identification, informational influence (Kuan et al. 2014) versus internalization were identical to each other. Further, the construct – normative influence depicted an abstract overview of social influence when compared with other measurable constructs of social influence. As such, compliance, identification, and internalization from Kelman's social influence theory (1958) were considered as the most appropriate independent variables for the study.

In addition, constructs such as strength, immediacy and the number of people (Latané 1981) were also identified through the literature analysis as having a substantial relevance to SNSs. The previous studies have particularly shown that the increase of the number of people an individual can interact due to the proliferation of SNSs, the proximity of people in the network (immediacy), and the power of the influencer

(strength), could affect the extent to which an individual is being influenced online (Kwahk and Ge 2012; Miller and Brunner 2008). As such, by introducing the term *digital social influence* we argue that social influence occurring in digital spaces such as SNSs is different from the social influence generated in the physical world. Particularly, we identify that the digital social influence would lead to the generation of two distinct actions exerted through SNSs namely symbolic and substantive actions. This study thus addresses the research question "under what conditions of social influence as per digital social influence would an individual undertake substantive actions rather than symbolic actions?." In order to emphasise this argument better the next section provides a detailed discussion on symbolic and substantive actions.

Individual Actions as a Result of Social Influence

The foundation of symbolic and substantive actions influenced by the institutional theory lies in the work of Meyer and Rowan (1977) and DiMaggio and Powell (1983). The institutional theory indicates that organizations may engage in various types of actions due to the influence they receive from their social circle and thereby act in a certain manner to comply with the norms and values of the society they operate in (Berrone et al. 2009; Delmas and Montes-Sancho 2010; DiMaggio and Powell 1983; Meyer and Rowan 1977). For instance, Meyer and Rowan (1977) studying about the adoption of formal structures by organizations highlighted the difference between ceremonial adoption of various policies and activities (symbolic actions) as opposed to the actual implementation of a policy or activity that enhance the efficiency of an organization (substantive actions). Furthermore, Oliver (1991) considered the adoption of *symbolic actions* or simply, the pretention of organizations to engage in a particular activity without necessarily implementing it, as a *concealment* tactic utilized by organizations to react to the outside pressures. In addition, Suchman (1995) in discussing three main types of legitimacy in organizations, namely, pragmatic, moral, and cognitive legitimacy, stated that under moral legitimacy, symbolic actions are used by organizations to comply with the norms and values of the society in which the organization operates. Symbolic and substantive actions committed due to social influence have been adopted to examine different contexts including e-business (Liu et al. 2016), quality rating and improvement systems (Tarrant and Huerta 2015), studies focussing environment related aspects (Delmas and Montes-Sancho 2010; Kim and Lyon 2012; Milne and Patten 2002), corporate social responsibility (Faisal et al. 2019), and strategic change (Fiss and Zajac 2006). Such studies that have acknowledged how social influence leads to the commitment of symbolic and substantive actions inspired this study to apply these two types of actions to SNSs. At the individual level, we consider symbolic actions as actions committed by individuals at a symbolic level to make them appear congruent with that of the accepted norms and values of the society whereas substantive actions involve real and practical engagement to achieve a visible change (Ashforth and Gibbs 1990).

This study further differentiates between symbolic and substantive actions by relating these two concepts with the movement literature. For instance, McAdam (1986) in his work discusses two types of activism namely, low-risk/cost and high-risk/cost activism which can be perceived as symbolic and substantive actions respectively. Especially when discussing substantive actions or high-risk/ cost activism, McAdam (1986, p. 67) indicates that by cost the "time, money, and energy that are required of a person to engage in any particular form of activism" are highlighted whereas by risk "anticipated dangers – whether legal, social, physical, financial, and so forth" are emphasized.

Based on these implications, herein, we consider a substantive action takes place when a person has to spend time, money, and energy to engage in a particular form of behaviour, which has potential risks involved. However, symbolic actions take place when a person engages in following, liking, and sharing in SNSs without necessarily taking any step beyond the engagement in the digital sphere and have no risk, financial contribution, or extra effort involved. Symbolic actions in SNSs can be evidenced in a petition a person signs in a SNS where the risk and engagement with the actual cause is lower than that of a substantive action which may involve participating in an action that involves high risk, maintenance of a vision to reach an objective and active engagement with the cause throughout the process of achieving that objective (Cabrera et al. 2017).

As such, a symbolic action can be considered as an action committed by an individual to give a perception to the society that s/he adheres with the norms, rules, and regulations. Most importantly, this action would not require much effort or spending of money, and thus be considered as an *appearance* rather than a real action that would entail a certain risk for the individual engaged in it. On the contrary, a substantive action requires the active engagement of an individual to meet certain ends or achieve a prior set goal or an

objective (Cabrera et al. 2017). The characteristics of these two actions can be elaborated further as follows (refer to Table 1).

Table 1. Characteristics of Symbolic and Substantive Actions			
	Appearance versus actual commitment	**Transformation**	**Effort and risk**
Symbolic action	A symbolic action simply appears to conform or comply with the society and may not focus on an actual implementation of an action (Walker et al. 2012).	A symbolic action may not necessarily transform a situation as it is done for the sake of an appearance to make a change without real implementation (Stevens et al. 2005).	Since symbolic action is about maintaining appearance and not making an actual change, it requires less effort and has less risks (Berrone et al. 2009).
Substantive action	A substantive action is about what can be done about changing a situation and actually engaging in that action to make a difference (Walker et al. 2012).	Once a substantive action is committed there is evidence of a visible outcome, or a change has been made (Delmas and Montes-Sancho 2010).	Engaging in a substantive action requires planning and taking risks to achieve goals (Berrone et al. 2009).

When relating these characteristics of symbolic and substantive actions with social influence constructs, it is vital to investigate whether social influence constructs affect individuals differently to commit a symbolic or a substantive action. Kelman (1958, p. 52) states that "changes in attitudes and actions produced by social influence may occur at different "levels". Yet, previous studies that utilized the theory of social influence have not adequately examined how constructs of social influence would lead to the commitment of actions at such "different levels" (Kelman 1958, p.52). Even though we explained in the previous sub-section on digital social influence how these theories of social influence could motivate the next action of an individual based on the responses s/he receives for his/ her SNS activity, social influence theories do not clearly examine how social influence could particularly lead a person to take a substantive action.

If we consider the social influence theory of Kelman (1958) in the domain of IS, many studies have attempted to explore how one or two of the three constructs could be effective in generating social influence more than the other construct, resulting a change of the behaviour of an individual (Cheung and Lee 2010; Glass and Li 2010; Venkatesh and Davis 2000). Furthermore, there is a lack of emphasis on how different conditionalities of social influence would affect symbolic or substantive actions of individuals. This further denotes the contradictions of findings among the researchers in the domain of IS concerning the applicability of three processes under social influence on attitudinal and behavioural change. For instance, there are studies that have explored social influence and symbolic actions such as instant messaging adoption (Glass and Li 2010; Shen et al. 2011), the use of SNS (Posey et al. 2010) or how *likes* would enhance brand awareness among consumers (Lipsman et al. 2012); and social influence and substantive actions such as the participation in political protests (Tufekci and Wilson 2012) or consumer purchase decisions (Kwahk and Ge 2012). However, such studies have not distinguished whether there could be any differences among the conditionalities of social influence when leading individuals to engage in symbolic and substantive actions.

In order to investigate whether social influence constructs would encourage individuals to engage in symbolic and substantive actions differently, we identified a particular context in which substantive actions occur based on the characteristics of symbolic and substantive actions as illustrated in Table 1. As such, *volunteering* was considered as an appropriate context to study substantive actions since volunteering adheres with all the characteristics of substantive actions. Volunteering can be defined as "any activity in which time is given freely to benefit another person, group or cause" (Wilson 2000, p. 215). Herein the person who engages in a volunteering activity makes an actual commitment to engage in a particular activity to fulfil the objective of contributing to the greater good of the society (Wilson 2000). Further, volunteering has also been identified as a high risk activity since the individuals who engage in volunteering will put themselves into a situation which is unfamiliar for them thereby encountering threatening situations during

social interactions with people from different backgrounds (Dong 2015). All these factors regarding volunteering make it an ideal context to study about substantive actions (Further details about the context of the research will be explained in another section). After identifying the most suitable context to study the difference between symbolic and substantive actions in relation to social influence constructs, which were logically derived through literature synthesis, a research model was developed.

Research Model

In order to understand the effect of social influence on individuals as measured by compliance, internalization and identification, and then to ascertain how they affect substantive actions versus symbolic actions, we devised a theoretically grounded research model as shown in Figure 1. Therein, Panel 1 shows the research model that captures substantive actions, while Panel 2 demonstrates the effect of social influence in symbolic actions. The differences between symbolic and substantive actions were derived through the parameters described in Table 1. As illustrated in Figure 1, constructs such as strength, immediacy and the number of people, derived from Latané's social impact theory (1981) have been identified as moderating constructs.

Herein, we emphasize that the three constructs of social influence would behave differently for both symbolic and substantive actions. As such, the foundation for our research model was built through the analysis of previous literature in which the researchers have identified social influence constructs affect differently when people are committing certain actions. For instance, Shen et al. (2011) indicated that when considering desire and we-intention to use instant messaging, identification and internalization are more significant than compliance in influencing people. Similarly, Zhou (2011) examined internalization and identification affect online community participation, whereas there was no relationship between compliance and participation. Further, Datta (2011) highlighted that compliance is the strongest construct of social influence that affects developing countries in adopting e-commerce. In fact, it is these different levels of influence generated by the social influence constructs at various instances motivated us to explore whether the same social influence constructs would behave differently when symbolic and substantive actions are initiated at the SNS level. As such, it is argued that in digital social influence, the constructs depicted in the research model behave differently for individuals who commit symbolic and substantive actions.
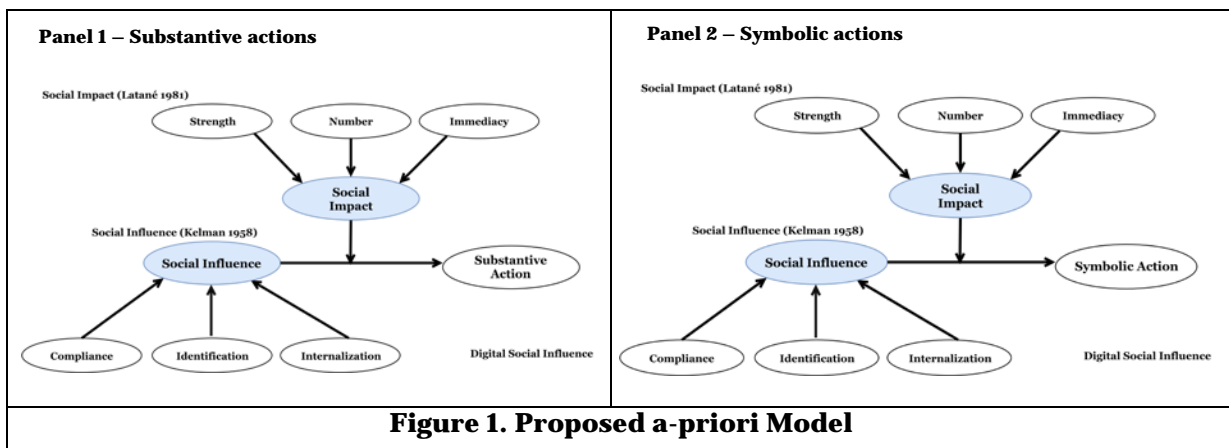
Figure 1. Proposed a-priori Model

The study model employs the social impact theory variables to examine whether there is a moderation effect of three variables. The moderation effect is sought for (i) the number of individuals in the SNS, (ii) perceived strength of the relationships and (iii) perceived immediacy of the SNS. These three variables are been commonly employed in SNS studies investigating social influence (Chan et al. 2018; Kwahk and Ge 2012; Miller and Brunner 2008). The measurement of moderation follows the procedures outlined in Aiken et al. (1991) and Cohen et al. (2014) wherein the simple argument is that the nature and/or strength of two variables change as a function of a third variable. In other words, similar to Sedera et al. (2016a), we argue that social influence on substantive or symbolic actions will change (e.g. positive or negative effect), based on either one or all of the moderation variables. Note that the study model does not conceive a moderation

of social impact at the sub-construct levels. Once the overall research model was designed, the model was tested using data gathered through two surveys from two samples. The background of the samples is described in the next section – *research context.*

Research Context

The context selected in this study to examine symbolic versus substantive actions is *volunteering.* Once volunteering was decided as a suitable context to observe the engagement of individuals in substantive actions, members of a volunteering community of a large hospital in Australia were selected as the participants for this research. As such, once the ethics approval was received to recruit participants for the study, two surveys for symbolic and substantive actions were carried out for volunteers at the respective hospital. The selected volunteering community consisted of individuals who are assisting patients in the hospital by providing information for patients, directing patients towards the correct location within the hospital to obtain necessary treatments, and supporting the patients when required or as advised by administration staff members.

Three hundred and fifty (350) volunteers providing services at the hospital took part in surveys on (i) substantive actions and (ii) symbolic actions. Only 311 volunteers responded back with both surveys. Volunteers who are also active users of SNS were selected for the study in order to ensure their symbolic actions could also be accurately recorded via the survey on symbolic actions. Herein, the active SNS usage meant logging into a SNS account at least once daily and engaging in any activity ranging from observing others comments/ likes to the respective individuals posts, *liking* the posts of the social circle in the individual's SNS account, *commenting* on posts and *sharing* posts in the SNS account. Researchers ensured that undue bias of extraneous variables is reduced as much as possible by having a large sample size and participants with similar demographic characteristics.

Analysis

The model and construct validation in this research are reported under four headings: (i) content validity (which was tested using the content validity ratio), (ii) construct validity (which was tested using the composite reliability, average variance extracted – AVE, and factor analysis), (iii) testing the structural model (which was tested using the partial least squares technique), and (iv) investigating the moderation effect (which were tested to determine the relationship between the independent variable, moderating variable and the dependent variable).

Content Validity

Since the sub-constructs were derived specifically for the study, the establishment of content validity was a priority. The current study followed the guidelines of McKenzie et al. (1999) for establishing content validity, which entailed four steps[2]: (i) using the guidelines of Lynn (1986), an initial draft of the survey instrument was created by canvassing the related literature in order to derive its measures; (ii) following the guidelines of the American Educational Research Association (2002), a panel of sample respondents was established to review and evaluate the possible survey questions[3], ensuring that the panel had the necessary training, experience and qualifications; (iii) the panel critiqued the survey constructs; and (iv) the panel conducted a review of the questionnaire, assessing how well each item was represented as a reflective measure of each sub-construct. In this fourth step, a quantitative assessment was made, establishing the content validity ratio (CVR) for each item/question based on the formula by Lawshe (1975). Based on the pilot tests, the minimum CVR value of 0.72 was observed at a statistical significance of $p<0.05$. Feedback from the pilot round respondents resulted in minor modifications to the wording of the survey items (Lawshe 1975; Lynn 1986; McKenzie et al. 1999; Murphy 2009), and endorsement of the research model, its sub-constructs and measures.

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[2] The four-step approach followed here is analogous to the Q-sort approach for attaining content validity [162-164].

[3] Sample questions from the survey on substantive actions are attached in Appendix A.

Construct Validity

Construct validity for each sub-construct was established using factor analysis, composite reliability and average variance extracted (AVE). The three formative sub-constructs (compliance, identification, internalization) were measured using reflective items qualified through content validity. In establishing construct validity, we first determined the discriminant and convergent validity through factor analysis, whereby the individual item loadings of the sub-constructs were all above 0.5 on their assigned factor, and the loadings within the sub-constructs were higher than those across the sub-constructs. The measures demonstrated satisfactory reliability as the reflective factor loadings were all above 0.71, which is well above the proposed threshold level of 0.5 (Hulland 1999). Further, there were no substantial cross-factor loadings.

Second, two measurement models (as depicted in panel 1 – substantive and 2 – symbolic in Figure 1) were assessed by estimating the internal consistency, as well as the discriminant and convergent validity, following similar studies (e.g. Wixom and Todd 2005). Strong and significant composite reliability was observed for all the sub-constructs of social influence in *substantive* actions (panel 1), reporting above 0.79 (Nunnally 1967), with alpha values of 0.811 for compliance, 0.872 for identification, and 0.807 for internalization (symbolic actions in panel 2 reported 0.901, 0.833, and 0.925). Similarly, the composite reliability of the measures of social impact too demonstrated similarly high alpha values, significant at 0.001 levels; with values of 0.896 for the composite social impact construct for substantive actions sample (and 0.900 for symbolic sample). The measures of the dependent variable reported alpha value of 0.826 for substantial actions and 0.922 for symbolic actions at significant levels of 0.001.

Finally, convergent validity was established through the AVE. All the sub-constructs demonstrated satisfactory convergent and discriminant validity, with the AVE for all the sub-constructs measuring above 0.5 (Fornell and Larcker 1981), and the AVE of each sub-construct is greater than the variance shared between the sub-construct and other sub-constructs in the model (Chin et al. 1988), indicating strong discriminant validity. The AVE for compliance sub-construct was 0.86, while for identification and internalization; it was 0.88 and 0.91 respectively (and 0.91, 0.87 and 0.93 for symbolic actions). The AVE of the composite social impact moderator was 0.87 for substantive actions and 0.85 for symbolic actions.

Testing the Structural Model

For the testing of the outer and inner models, the study employed the partial least squares technique using ADANCO 2.0.1 software (Dijkstra 2010). The partial least squares test (Wold 1989) is a structural equation modeling technique that is well suited for highly complex predictive models and that supports the mapping of formative observed variables (Becker et al. 2012; Chin et al. 1988; Henseler and Sarstedt 2013; Wold 1989). ADANCO 2.0.1 was used together with the bootstrap resampling method (4999 resamples) to determine the significance of the paths within the structural model (Gefen and Boudreau 2000; Petter and Rai 2007). As suggested by Diamantopoulos and Winklhofer (2001, p.272), the test of the outer model employs global items that "summarize the essence of the construct that the index purports to measure" and examine the extent to which the items associated with the index correlate with these global items. The cross-item loadings indicated that there were no major cross-factor loadings, confirming our earlier observations. Correlating the measurement items with the two global measures demonstrated significant correlation coefficients at the 0.001 level. Next, two measurement models were established separately, for social influence and social impact. Table 2 presents the results. Collectively, the three constructs accounted for 90.1% variance of social influence and 89.3% of the variance of social impact, demonstrating strong external validity of the substantive actions sample. The values in brackets are calculated using the *symbolic actions* sample. The convergent validity of the sub-constructs (See Table 2) conformed to the heuristics of Gefen and Straub (2005), whereby all the t-values of the outer model loadings exceeded the one-sided[4] cut-off of 1.645 levels[5], significant at the 0.05 alpha protection level.

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[4] A one-sided test is appropriate because we only hypothesize a positive contribution of the formative components. A two-sided cut-off of 1.96 is used otherwise.

[5] The t-values of the loadings are, in essence, equivalent to t-values in least-squares regressions. Each measurement item is explained by the linear regression of its latent construct and its measurement error (Diamantopoulos and Winklhofer 2001).

Table 2. Measurement Model Analysis			
	Weight	**t-value**	**R-square**
Social Influence	**Substantive (Symbolic)**	**Substantive (Symbolic)**	**Substantive (Symbolic)**
Compliance	0.368 (0.466)	3.76 (4.21)	0.901 (0.873)
Identification	0.495 (0.665)	4.73 (5.88)	
Internalization	0.751 (0.225)	7.98 (2.39)	
Social Impact	**Substantive (Symbolic)**	**Substantive (Symbolic)**	**Substantive (Symbolic)**
Strength	0.296 (0.714)	3.01 (6.51)	0.732 (0.893)
Number	0.221 (0.615)	2.65 (5.34)	
Immediacy	0.391 (0.566)	3.54 (4.09)	

Investigating the Moderation Effect

Next, the study employs the social influence theory, paired with the social impact theory to examine whether there is a moderation effect of social impact (measured using strength, number and immediacy) on the relationship between formative social influence and substantive or symbolic action. As mentioned earlier, the model does not purport a moderation effect of social impact on the relationship between the social influence sub-constructs and the symbolic/substantive actions. The measurement of moderation follows the procedures outlined by Aiken et al (1991) and Cohen and Cohen (1983), wherein the simple argument is that the nature and/or strength of two variables change as a function of a third variable. Results indicate that (using Figure 1 as the model), the dependent variable (i.e. substantive or symbolic action) is predicted by the interaction effect of social influence and social impact on substantive actions, demonstrating a significant relationship with a standardized beta of 0.530 (significant at 0.001) outlining the moderation effect of social impact. Similarly, for symbolic actions, the moderation was significant with a standardized beta of 0.581 (significant at 0.001).

Summary of Findings

The aforementioned findings indicate that, *identification* is the strongest predictor for committing symbolic actions whereas *internalization* is the strongest predictor for committing substantive actions. This emphasizes that for those who commit substantive actions, the beliefs and values they hold play a crucial role in addition to the social influence they receive from their social circle in SNS. The innate motivation for individuals that comes in the form of internalization can be considered as the turning point, which makes them engage in substantive actions, as opposed to symbolic actions, which are taken merely, based on the social influence received from online social circles in the form of identification. Further, when considering substantive actions, *compliance* was identified as the lowest predictor in this study. This finding corroborates previous research by Zhou (2011) and Shen et al. (2011) which have indicated that in online spheres, compliance is not as strong as other two constructs of social influence: identification and internalization. This study thus confirms previous findings and provides additional evidence that suggests that different social influence constructs can lead to two distinct actions: symbolic and substantive actions. The empirical findings of this study also provide a new understanding to explore interactions in SNSs and its related consequences by introducing *digital social influence*, which is an extension of traditional constructs of social influence to incorporate the actions exerted by individuals through SNSs. The major contributions of our study have been further discussed in the next section.

Theoretical and Practical Implications

There are several theoretical contributions of this study. First, through the analysis of 64 previous studies on social influence and SNSs, we logically derived the most applicable social influence constructs for SNSs. While previous studies in IS have observed different social influence constructs in relation to a variety of

actions, there was lack of consistency regarding the most applicable social influence constructs for digital spaces (e.g. Datta 2011, Zhou 2011) particularly when investigating the relationship between social influence and symbolic versus substantive actions. We attempted to address this issue by carrying out a literature synthesis on previous IS studies on social influence and SNSs. Second, we extended the social influence theory to SNSs incorporating two types of actions; (i) symbolic actions and (ii) substantive actions exerted through SNSs. The study findings indicated the possibility of various social influence constructs to lead individuals to behave differently based on the type of social influence they receive. Third, the identification of the most applicable social influence constructs for SNSs and deriving the types of actions that will be exerted through SNS based on social influence led to the development of the concept of *digital social influence* as opposed to social influence generated in the physical world. As such, this study contests the claim that digital social influence would be leading to two types of actions such as symbolic and substantive actions through SNSs. In terms of practical implications, even though the study has been carried out in the context of volunteering, the findings of the study can be applied to a broader context in which different organizations could facilitate individuals to engage in SNS interactions to promote symbolic and substantive actions based on the outcome the organization seeks. The study findings will also guide individuals to be mindful about their day-to-day interactions with their social circles in SNSs and be aware of how their symbolic and substantive actions are determined by digital social influence. Moreover, most of the past studies have focussed on peer pressure in relation to social influence and its' both intended and unintended consequences (Brzozowski et al. 2009; Nouh et al. 2014; Quan-Haase and Young 2010). Our study has elaborated on a unique aspect of peer influence; peer appreciation and its related consequences in the form of two types of actions – symbolic and substantive actions. Particularly, with regards to digital social influence, peer appreciation will lead practitioners to look at a new type of social influence through which symbolic and substantive actions would be committed by individuals. While we acknowledge this study has limited actions exerted through SNSs into two broad categories, the future research can focus on extending these two distinct actions in a continuum to include a diverse range of activities in between the extremes of symbolic and substantive actions. Future studies would increase the generalizability from a multi-method approach that includes experimentations to control the effect of strength, immediacy, and the number of people.

Acknowledgements

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Appendix A: Sample Questions from the Survey on Substantive Actions

- I login to Facebook or another social media platform on a daily basis.
- I change my post visibility on Facebook or other social media platforms (privacy settings) depending on who I want to share that post with.
- I believe that some of the people who are close to me in Facebook or other social media platforms are not close to me in the same way when I meet them in real life.
- When I see any news in Facebook or other social media platforms, I decide whether it is true or false depending on the person who shared it.
- When I see any news in Facebook or other social media platforms, I decide whether it is true or false depending on the number of people and the number of times it has been shared.
- Compared to people I interact with in real life, the people I interact with in Facebook or other social media platforms are diverse.
- Prior to commence volunteering, I searched for the organization I am volunteering with on Facebook or other social media platforms.
- Facebook or other social media platforms have changed the thinking and behavioural patterns of people. The posts of my favourite celebrities or popular people I like in Facebook or other social media platforms have affected the way I think and behave.
- I share my beliefs and concerns about different topics of contemporary relevance in Facebook or other social media platforms, to influence other people to think in the same way.
- My Facebook profile or other social media accounts include people I respect or I look up to.
- I feel close to those who are in my Facebook or other social media accounts regardless of where they live.
- The comments of the previous volunteers in Facebook or other social media platforms encouraged me to take part in volunteering.
- I am open to engage in an activity that costs my time and money, based on my friends' opinions, comments, and posts published in Facebook or other social media platforms.
- I have been influenced by the posts, comments, and likes of the people who are important to me, to engage in good causes such as volunteering.
- Most people who are important to me in Facebook or other social media platforms would approve of me engaging in activities that are promoted in social media (e.g. volunteering, fundraising).
- Most people who are important to me in Facebook or other social media platforms would disapprove of me engaging in activities that are promoted in social media (e.g. volunteering, fundraising).
- I have engaged in an adventurous activity (e.g. visiting another country, volunteering in a risky destination) after being influenced by my social circle in Facebook or other social media platforms.
- I developed the interest to do volunteering after seeing the posts/ photographs of my friends doing the same in Facebook or other social media platforms.
- When I engage in an action in the real world (e.g. volunteering, fundraising) which has already been done by my friends and shared in Facebook or other social media platforms, it makes me feel closer to them.
- I would continuously engage in volunteering if my friends are already doing the same and posting in Facebook or other social media platforms.
- I feel that engaging in actions that are promoted in Facebook or other social media platforms by my friends (volunteering, fundraising) is important for me.
- I would engage in an action which has been encouraged in Facebook or other social media platforms by my friends (volunteering, or any other activity that changes my life as a result) only if it does not conflict with my own values.
- I decided to do volunteering only to help the communities in need.
- I will continue to do volunteer work in the future.

Appendix B: Literature Synthesis Table

Study	A	B	C	D	E	F	G	H	I	Study	A	B	C	D	E	F	G	H	I
(Kelman 1958)	Y	Y	Y	N	Y	Y	N	Y	N	(Zhou 2011)	Y	Y	Y	N	N	Y	N	Y	N
(Latané 1981)	Y	N	N	N	N	Y	Y	Y	Y	(Datta 2011)	Y	Y	Y	N	N	Y	N	Y	N
(Nowak et al. 1990)	Y	N	N	N	Y	Y	Y	Y	Y	(Shen et al. 2011)	Y	Y	Y	N	N	Y	N	Y	N
(Latané et al. 1995)	Y	N	N	N	N	Y	Y	Y	Y	(Cheung et al. 2011)	Y	Y	Y	N	Y	Y	N	Y	N
(Latané 1996)	Y	Y	N	N	N	Y	Y	Y	Y	(Kietzmann et al. 2011)	N	N	N	Y	N	N	N	Y	Y
(Latané and Bourgeois 1996)	N	N	N	N	N	N	Y	Y	Y	(Hanna et al. 2011)	N	N	N	Y	Y	N	N	N	N
(Venkatesh and Davis 2000)	Y	Y	Y	N	Y	Y	N	Y	N	(Fischer and Reuber 2011)	N	N	N	N	N	Y	N	N	N
(Bagozzi and Dholakia 2002)	Y	Y	Y	N	Y	Y	N	Y	Y	(Kwahk and Ge 2012)	Y	Y	N	N	Y	Y	Y	Y	Y
(Dholakia and Talukdar 2004)	Y	N	N	N	Y	Y	N	Y	N	(Tufekci and Wilson 2012)	N	N	N	Y	N	N	N	Y	N
(Dholakia et al. 2004)	Y	Y	Y	N	Y	Y	N	N	N	(Lipsman et al. 2012)	N	N	N	Y	N	N	Y	N	Y
(Algesheimer et al. 2005)	Y	Y	N	N	Y	Y	N	Y	Y	(Gensler et al. 2013)	N	N	N	Y	Y	N	N	Y	Y
(Lu et al. 2005)	Y	Y	Y	N	Y	Y	N	Y	N	(Singh and Phelps 2013)	Y	N	N	Y	Y	Y	Y	Y	N
(Gallivan et al. 2005)	Y	N	Y	Y	Y	Y	N	Y	N	(Hildebrand et al. 2013)	Y	Y	Y	N	Y	Y	N	Y	N
(Lee et al. 2006)	Y	N	Y	N	N	Y	N	N	N	(Wang et al. 2013)	Y	Y	Y	Y	Y	Y	Y	Y	Y
(Song and Kim 2006)	Y	Y	N	Y	Y	Y	N	Y	N	(Tsai and Bagozzi 2014)	Y	Y	Y	N	Y	Y	N	Y	Y
(Li et al. 2006)	Y	N	Y	N	N	Y	N	N	N	(Kuan et al. 2014)	Y	Y	N	Y	Y	Y	N	Y	Y
(Bagozzi et al. 2006)	Y	Y	Y	N	N	Y	N	Y	N	(Zhang et al. 2014)	N	N	N	Y	N	N	Y	N	Y
(Bagozzi et al. 2007)	Y	Y	Y	N	N	Y	Y	Y	N	(Godinho de Matos et al. 2014)	N	Y	N	Y	N	Y	N	N	Y
(Miller and Brunner 2008)	Y	N	N	Y	N	Y	Y	Y	Y	(Hu et al. 2015)	N	N	N	N	N	N	N	N	N
(Walther et al. 2008)	N	N	N	Y	N	N	Y	N	N	(Wang et al. 2015)	N	N	N	N	N	N	N	N	N
(Eckhardt et al. 2009)	Y	N	N	Y	Y	Y	N	Y	N	(Matook et al. 2015)	Y	Y	N	Y	N	Y	N	Y	N
(Yang et al. 2009)	Y	Y	Y	N	Y	Y	Y	Y	Y	(Tussyadiah et al. 2015)	N	Y	Y	Y	Y	Y	N	Y	N
(Mangold and Faulds 2009)	N	N	N	N	Y	N	N	N	N	(Oh et al. 2017)	N	N	N	N	Y	N	N	N	N
(Pempek et al. 2009)	N	N	N	Y	N	Y	N	N	N	(Sedera et al. 2017a)	Y	Y	Y	Y	Y	Y	N	Y	Y
(Kulviwat et al. 2009)	Y	Y	Y	N	Y	Y	N	Y	N	(Thomaz et al. 2017)	N	N	N	N	N	N	N	N	N
(Zeng et al. 2009)	N	Y	Y	N	N	Y	N	N	N	(James et al. 2017)	N	N	N	Y	N	N	N	N	N
(Kaplan and Haenlein 2010)	Y	Y	N	N	N	Y	Y	N	N	(Liao et al. 2017)	N	N	N	N	N	N	N	N	N
(Shen et al. 2010)	Y	Y	Y	Y	N	Y	N	Y	N	(Rueda et al. 2017)	Y	Y	N	Y	N	Y	N	Y	N
(Posey et al. 2010)	N	Y	N	N	Y	Y	N	N	N	(Brandt et al. 2017)	N	N	N	N	N	N	N	N	N
(Huffaker 2010)	Y	N	N	N	Y	Y	Y	Y	Y	(Dewan et al. 2017)	N	N	N	Y	N	N	N	N	Y
(Glass and Li 2010)	Y	N	N	Y	N	Y	N	Y	Y	(Zhang et al. 2018)	N	N	N	Y	N	N	N	N	Y
(Vannoy and Palvia 2010)	Y	N	N	N	N	Y	N	Y	N										
(Cheung and Lee 2010)	Y	Y	Y	N	N	Y	N	Y	Y										

(A) compliance, (B) identification, (C) internalization, (D) peer influence, (E) informational influence, and (F) normative influence (G) immediacy, (H) strength, (I) number of people