



Social Comparisons on Instagram and Adolescent Identity Development: A Mixed-Methods Study

NOON, Edward John

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**Social Comparisons on Instagram and Adolescent Identity Development: A Mixed-
Methods Study**

Edward John Noon

A thesis submitted in partial fulfilment of the requirements of
Sheffield Hallam University
for the degree of Doctor of Philosophy

December 2020

Candidate Declaration

I hereby declare that:

1. I have not been enrolled for another award of the University, or other academic or professional organisation, whilst undertaking my research degree.
2. None of the material contained in the thesis has been used in any other submission for an academic award.
3. I am aware of and understand the University's policy on plagiarism and certify that this thesis is my own work. The use of all published or other sources of material consulted have been properly and fully acknowledged. Parts of this work have been published in *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*¹ and *Cyberpsychology, Social Networking, and Behavior*². In both instances, the literature used to frame the studies and discuss their results is used in this thesis. For the latter publication, I was the lead author in a collaboration with Dr. Adrian Meier; I was responsible for writing the paper, whilst Dr. Meier provided critical input. The references for both papers can be found in the footnote.
4. The work undertaken towards the thesis has been conducted in accordance with the SHU Principles of Integrity in Research and the SHU Research Ethics Policy.
5. The word count of the thesis is 69,582.

Name	Edward John Noon
Date	12/12/20
Award	PhD
Faculty	College of Social Sciences and Arts
Director of Studies	Professor Guy Merchant

¹ Noon, E. J. (2020). Compare and despair or compare and explore? Instagram social comparisons of ability and opinion predict adolescent identity development. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 14 (2), Article 1.

² Noon, E. J., & Meier, A. (2019). Inspired by Friends: Adolescents' Network Homophily Moderates the Relationship Between Social Comparison, Envy, and Inspiration on Instagram. *Cyberpsychology, Behavior, and Social Networking*, 22 (12), 787-793.

Abstract

The formation of a coherent and synthesised sense of identity is a key developmental task for adolescents, and over the past decade, young people have increasingly been using social networking sites (SNSs) as platforms for self-expression, self-construction, and identity exploration. Whilst previous research has evidenced how self-presentations on SNSs can inform identity development, less is known about the identity implications of other-focused SNS behaviours. To shed light on this gap in the literature, this investigation drew upon social comparison theory to examine how social comparisons on Instagram inform the process of identity development during adolescence. Following the sequential explanatory design, an initial cross-sectional survey of British adolescents sought to determine the linear relationship between ability and opinion comparisons on Instagram and three key identity processes (commitment, in-depth exploration, and reconsideration of commitment). The moderator effects of age, gender, and Instagram network composition (network homophily and tie strength) were also examined. Subsequent qualitative interviews with adolescents built upon the results of the quantitative analysis and explored the nuances and mechanisms which may help to explain them. Overall, findings indicate that social comparisons on Instagram are not inherently ‘bad’ for young people (as is often suggested by the media and academic literature), and that both ability and opinion comparisons on the platform can support identity development during adolescence by increasing self-focus, strengthening commitments, and prompting further exploration. Nevertheless, females were more prone to experiencing the maladaptive implications of competitive ability comparisons on Instagram, whilst developmental maturity informed the comparison targets most supportive of identity development. Results therefore evidence the importance of Feed curation for ensuring that comparisons on Instagram have adaptive outcomes for young people, and the implications that these findings have for future research and practical work are discussed.

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Chapter 1. Introduction

1.1 The Problem

Adolescence (here defined as ages 13-18 years) is a time of significant physical, psychological, and social change, and these changes often provoke uncertainty regarding self, relationships, and place in the world. During this period, a sense of belonging and being accepted by one's peers is considered increasingly important by young people, and it is common for adolescents to ask questions such as 'Who am I?', 'What are my beliefs?', and 'What do I want to do in my life?' (Hogg, Siegal & Hohman, 2011; Schwartz, Zamboanga, Luyckx, Meca & Ritchie, 2013). Across the developmental literature, this is typically referred to as adolescents' 'identity crisis' (Erikson, 1950), and during this crisis, young people are expected to explore their options in a range of relevant domains (such as education, work, politics, or religion) before finding an identity that 'fits' (Crocetti, Rubini & Meeus, 2008; Erikson, 1950; Marcia, 1966). Whilst historical milieu and social interaction, particularly with peers, inevitably inform adolescents' search for identity (Beyers & Goossens, 2008), current knowledge regarding this key developmental task is predominantly based on adolescents' experiences in offline contexts (Long & Chen, 2007). However, over recent years, computer-mediated communication has become increasingly commonplace amongst young people, to the extent that adolescent peer interaction and relationship building and maintenance is now strongly mediated by experiences in digital environments (Favotto, Michaelson, Pickett & Davison, 2019). Indeed, the social lives of young people are increasingly embedded in computer-mediated contexts (Nesi, Choukas-Bradley & Prinstein, 2018), and given that interpersonal communication is a key component of identity formation (McKenna & Bargh, 1999), these practices warrant academic attention should we wish to truly understand identity development in this digital age.

One of the most significant technological advancements that has transformed the landscape of adolescent peer interaction has been the proliferation and widespread use of social networking sites (SNSs). SNSs are here broadly defined as any platform (website/app) on which individuals "1) have uniquely identifiable profiles that consist of user-supplied content, content provided by other users, and/or system-level data; 2) can publicly

articulate connections that can be viewed and traversed by others; and 3) can consume, produce, and/or interact with streams of user-generated content provided by their connections on the site” (Ellison & boyd, 2013, p. 158). Such technologies have provided young people with new platforms for communication, observation, and self-expression, and today, SNSs are used ubiquitously by young people in many parts of the world. For example, in the UK, recent research has found that 69% of those aged 12-15 and 93% of those aged 16-24 have an account on a SNS (OFCOM, 2018, 2019a), whilst a study of over 11,000 British adolescents found that two thirds of young people spend over an hour per day on such platforms (Scott, Biello & Woods, 2018). SNSs are therefore deeply ingrained in the lives of many adolescents, and as the popularity of SNSs continues to grow, so has the scholarly interest in both the positive and negative psychological consequences of adolescent SNS usage (Allen, Ryan, Gray, McInerney & Waters, 2014; Kim, 2016; Uhls, Ellison & Subrahmanyam, 2017). Despite this, relative to social scientists in other academic disciplines, developmental researchers have been slow to react to the structural changes in adolescent behaviour, and although it is generally assumed that online contexts are important in identity development, we still know very little about how adolescents’ experiences on SNSs inform their search for identity (Wangqvist & Frisen, 2016).

As adolescents create, construct, and experience their ‘online worlds’, they are likely to bring many of their peer-driven developmental tasks (such as identity) into SNS contexts (Nesi et al., 2018). Emerging evidence does indeed support this hypothesis, and of the limited investigations that have considered SNS use and identity development, much of the literature has studied how such platforms present young people with convenient and powerful venues for self-presentation (Fullwood, James & Chen-Wilson, 2016; Michikyan, Dennis & Subrahmanyam, 2015; Strimbu & O'Connell, 2019). These studies have contributed initial insights into how adolescents’ experiences on SNSs inform identity development, and results suggest that such platforms provide young people with new opportunities to experiment with different versions of the self, to reflect on who they are and how they appear in the eyes of others, and to receive peer feedback (Yang, 2014). Though significant, in focusing exclusively on adolescents’ self-presentational behaviour, these investigations have provided limited insight into how SNS content shared by *others*

may also influence the process of identity development. As young people spend considerably more time observing SNS content posted by other users than they do creating content themselves (Drogos, 2015; Pempek, Yermolayeva, & Calvert, 2009; van Driel, Pouwels, Beyens, Keijsers, & Valkenburg, 2019), this is a significant gap in the literature which requires further study.

Given that contemporary SNSs provide their users with such convenient channels for self-expression, they also afford abundant opportunities for *social comparison* (Cramer, Song & Drent, 2016). Social comparisons - comparisons between the self and others - are significant mechanisms for producing self-knowledge, and are often used as a means of self-evaluation, self-improvement, and self-enhancement (Corcoran, Crusius & Mussweiler, 2011). Evidence from recent quantitative and qualitative studies (e.g., Doster, 2018; Divine, Watson, Baker & Hall, 2019; Noon & Meier, 2019) suggests that comparing the self to others on SNSs is common practice amongst British adolescents, and it is therefore possible that such behaviour may help to increase self-focus, intensify identity issues, and challenge young people to confront them with greater urgency (Nesi & Prinstein, 2015). However, although scholars have started to investigate the effects of SNS social comparisons, much of the extant literature has concerned their psycho-emotional consequences, rather than their identity implications. In the limited research that has been conducted regarding social comparisons on SNSs and identity development (i.e., Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018), participants have consisted exclusively of emerging adults (ages 18-25), and it is possible that developmental differences may result in such behaviour having different consequences for earlier identity development during adolescence. Furthermore, all previous studies with emerging adults have been quantitative in nature and generalist approaches to SNS social comparisons have been adopted, whereby respondents have reported their mean comparison behaviour across all SNSs. Significantly, this approach does not enable researchers to understand the contexts in which the social comparisons measured occurred, and since each SNS platform is a distinct environment, it is possible that social comparison behaviour differs across platforms in terms of both its frequency and its identity implications. Differentiating between SNSs is therefore necessary, and thus, to help shed light on this gap in the literature, this investigation draws upon neo-Eriksonian theories

of identity (Crocetti et al., 2008) to examine the extent to which social comparisons on *Instagram* inform adolescent identity development.

1.2 The Context

Instagram, owned by Facebook, is an image sharing SNS and one of the fastest growing and most engaging platforms of recent years: having started 2017 with 150 million daily users (Balakrishnan & Boorstin, 2017), Instagram now has over 1 billion active accounts, with more than half of these visiting the platform daily (Facebook, 2020). Instagram enables its users to post images or short videos, often accompanied by a text-based caption and hashtags³. Importantly, the platform contains in-built 'filters' or editing tools, and therefore invites its users to enrich or modify their content before sharing it with their online communities (Keep, Janssen & Amon, 2019). Content that individuals share on the platform appears on their Profile and on the 'Feeds' of individuals who 'follow' them; the Instagram Feed refers to the stream of user generated content around which Instagram is organised, and in effect, when individuals follow others on the platform, they are subscribing to receive their updates in their Feed. The majority of Instagram user engagement involves navigating or 'scrolling through' the Feed (Carroll, 2017), and during this time, individuals are able to engage with content shared by others, and should they so wish, provide feedback through 'Likes' or 'Comments'. In addition to these core features, Instagram users can also live stream video content, send private messages to peers, and share daily 'Stories'. Instagram Stories differ from visual content shared on the Feed in that they a) expire after 24 hours, b) appear in a chronological slide-show format, and c) are not posted on users' Profiles (Instagram, 2016).

Significantly, Instagram has proved particularly popular with young people, and recent OFCOM (2018, 2019a) data suggests that in the UK, around two thirds of those aged 12-24

³ Hashtags are words prepended with a hash (#) which typically reflect the content of the shared image/video (Giannoulakis & Tsapatsoulis, 2016). Hashtags are often used for emphasis, and their use can help Instagram users to share content with, and discover content shared by, individuals beyond their immediate networks. Indeed, Instagram users can find content shared by others regarding a topic of interest by searching the relevant hashtag.

have an account on the platform. Instagram is also one of the platforms used most intensely by young people (Alhabash & Ma, 2017), with around a quarter (24%) of those aged 12-15 reporting that Instagram is their 'main' SNS, with only Snapchat (27%) and Facebook (22%) scoring similarly (OFCOM, 2019b). Instagram therefore plays an important role in the social lives of many British adolescents, and the amount of time young people spend engaging with content on the platform also appears to be increasing: in 2017, under 25s spent on average 32 minutes per day on Instagram (Instagram, 2017), whilst a more recent study with American teens found that on average, young people spend nearly 80 minutes per day on the platform (Kennedy, 2019). Similarly, in a study of young people in Ireland, 37.6% of participants reported to spend more than two hours per day on Instagram (Kalinina, 2019). Whilst used widely by both male and female adolescents, research has evidenced that Instagram is particularly popular amongst females (e.g., Sheldon & Bryant, 2016). For instance, research with Dutch teens found that adolescent females were twice as likely to check Instagram 12 or more times per day (female: 23%; male: 10%) and spend more than an hour per day on the platform (female: 30%; male: 17%) (van Driel et al., 2019).

Although Instagram provides its adolescent users with creative freedom to share visual content regarding whatever they please - as long as it adheres with the platform's Community Guidelines (see Instagram, 2020), content shared on Instagram is largely autobiographical in nature, relating to oneself, one's peers, and/or one's daily activities (Hu, Manikonda & Kambhampati, 2014). It is perhaps unsurprising, then, that young people typically use the platform as a venue for self-documentation, self-expression, and peer surveillance (Lowe-Calverley, Grieve & Padgett, 2019; Sheldon & Bryant, 2016). Given that viewing content shared by others is often cited as a key motivation for using Instagram (Huang & Su, 2018; Lee, Lee, Moon & Sung, 2015), social comparison behaviour is likely to be commonplace, and recent studies have indeed evidenced that young people often compare themselves to others on the platform (Chang, Li, Loh & Chua, 2019; de Vries, Moller, Wieringa, Eigenraam & Hamelink, 2018; Yang, 2016). Significantly, researchers have argued that the content individuals engage with on Instagram differs from that on more established SNSs in three primary ways, each of which may have profound consequences in terms of the identity-related implications of social comparison behaviour:

- First, Instagram is image-centric, setting it apart from platforms that are more dependent on the written form of communication, such as Twitter and Facebook. Though images and videos can be, and are, posted on Twitter and Facebook, Instagram is *solely* for sharing visual content, and posts cannot be made without the inclusion of an image or short video (Laestadius, 2016; Lee & Borah, 2020). Thus, should a picture *really* speak a thousand words, there is reason to believe that Instagram is amongst the most powerful and influential SNSs.
- Second, researchers have argued that relative to other SNSs, Instagram users are typically more focused on self-presentation and self-promotion (e.g., Jackson & Luchner, 2017). This is reflected in the type of content shared on the platform, in that individuals seek to document their lives to others and showcase their creativity (Dumas, Maxwell-Smith, Davis & Giulietti, 2017). Although many SNS users selectively self-present in an attempt to appear more interesting, attractive, and/or successful online, content shared on Instagram reflects a particularly biased and aesthetic visual culture. This may well be a consequence of the photo-enhancing features provided by the platform in that users are invited to edit their content before sharing, thus creating a culture of polishing and perfecting (de Vries et al., 2018). Since the perceived similarity between the performance of the comparer and the comparison target informs the implications of ability-based comparisons (Smith, 2000), it is possible that the positively skewed nature of Instagram content may lead social comparisons on the platform to have different consequences for identity development than those on other SNSs.
- Third, Instagram Profiles and posts are public by default - though they can be made private, should the user wish - and connections are non-reciprocal; users are therefore provided with the opportunity to follow, view content shared by, and interact with, individuals they do not know in offline contexts. As such, unlike other SNSs such as Facebook - where users generally 'befriend' friends, family, and acquaintances (Alhabash & Ma, 2017), Instagram users tend to follow a wider range of individuals, such as their favourite sports stars, celebrities, and/or Instagram

‘influencers’⁴. Recent research found that less than 60% of adolescents in America follow mainly peers on the platform (Lockhart, 2019), thus suggesting that young people are indeed using these opportunities to extend their networks and view content shared by individuals they do not know (or do not know as well) in offline contexts. Although it is unclear as to whether adolescents use these features to engage with alternative perspectives or whether they seek out similar others, considerable research has evidenced how both relational closeness (to ability comparison targets) and perceived similarity (to opinion comparison targets) can inform the implications of social comparison behaviour (e.g., Kruglanski, 1989; Lin & Utz, 2015). Thus, it is possible that these new opportunities to extend one’s social network beyond those known in offline contexts may also lead social comparisons on Instagram to have different identity implications than those conducted on other platforms.

These characteristics (image-centric, a focus on positively biased self-presentation, and non-reciprocal relationships) help to differentiate Instagram from other popular SNSs, and it is argued throughout this thesis that Instagram provides its users with a *unique* context for social comparison behaviour. To examine the extent to which these characteristics do indeed inform the identity implications of social comparisons on the platform, this investigation not only examined the direct relationship between social comparisons on Instagram and adolescent identity, but also considered the moderating effect of network composition. Specifically, guided by the social comparison literature, the positively biased content that is typically shared on Instagram, and the fact that its users tend to extend their Instagram networks beyond their immediate peer groups, the moderating effects of network homophily and tie strength were investigated.

⁴ Instagram influencers are an emerging form of micro-celebrity, here defined as “users who accumulate a relatively large following...through the textual and visual narration of their personal lives and lifestyles, engage with their following in ‘digital’ and ‘physical’ spaces, and monetize their following by integrating ‘advertorials’ into their blogs or social media posts” (Adidin, 2015, p. 3).

1.3 Primary Contributions

This investigation makes a significant contribution to knowledge in three primary ways.

First, given that much of the literature regarding SNS use and identity concerns self-presentational behaviour, this research extends existing knowledge by being the first investigation to examine how social comparisons on Instagram (or indeed any SNS) can inform the process of identity development during adolescence. Findings shed initial light on the identity implications of other-focused SNS behaviour during adolescence, and thus provide new insight into the opportunities and challenges that SNSs such as Instagram present to young people.

Second, this study also contributes to the literature by considering the extent to which network composition moderates the identity implications of social comparison behaviour on Instagram. Whilst significant theoretical and empirical literature has evidenced that the effects of social comparisons in offline contexts are informed by *who* the comparison target is (e.g., Smith, 2000), there has been relatively little research determining whether these results replicate in online contexts. By learning more about who young people surround themselves with, and compare themselves to, on Instagram, this investigation helps to elucidate the comparison targets who are most (and least) supportive of identity development during adolescence. This contribution can therefore help to inform the guidance provided for young people regarding the importance of Feed curation and social media literacy.

Third, this investigation adds to the cross-disciplinary literature concerning adolescent Instagram use. Significantly, Instagram's rise to prominence has only occurred over recent years, and thus, when compared to more established SNSs such as Facebook, research regarding Instagram remains in its infancy (Alhabash & Ma, 2017; Trifiro, 2018). Despite growing societal concerns regarding the impact that idealised Instagram content may have on young people, this thesis adds to the increasing literature (e.g., Meier, Gilbert, Borner & Possler, 2020; Noon & Meier, 2019) which evidences that social comparison behaviour on

the platform is not inherently 'bad' for young people, and can in fact have adaptive implications for identity development.

1.4 Research Design

This investigation draws on mixed-method pragmatism and utilises the sequential explanatory design (Creswell, Plano Clark, Gutmann & Hanson, 2003). Data collection is therefore structured into two distinct phases, and the first stage is quantitative. The initial quantitative phase consists of a cross-sectional survey with adolescents ($N = 173$) attending a secondary school and sixth form college in central England; data were collected between December 2018 and February 2019. The survey sought to determine the relationship between social comparison behaviour on Instagram and adolescent identity development. Furthermore, this phase also examined the moderator effects of age, gender, and two Instagram network composition variables (network homophily and tie strength).

In the second phase of data collection, semi-structured individual interviews were conducted with 14 adolescents in June and July 2019. Following the sequential explanatory design, this secondary phase sought to refine, explain, and elaborate on, the results of initial quantitative stage. During the interviews, participants were invited to log in to their Instagram accounts, and guided by the pre-determined schedule and a novel think-aloud approach, discussion provided additional depth to the quantitative results. This investigation therefore makes a further contribution to knowledge by being the first study to have drawn on qualitative methods to explore how social comparisons on SNSs may inform the process of identity development. In doing so, richer data regarding the processes guiding social comparison behaviour and the identity domains shaped by such comparisons were generated, thus providing a more nuanced understanding of the phenomenon under investigation relative to previous quantitative studies.

1.5 Thesis Structure

In Chapter 2, the theoretical framework for this study is laid. The psychological study of identity development is grounded in the theoretical work of Erikson (1950) and Marcia's

(1966) empirical elaboration of Eriksonian theorising. The chapter therefore begins with an introduction to Erikson's (1950) stage theory of psychosocial development, and a discussion of his ideas regarding adolescent identity. Marcia's (1966) influential empirical elaboration of Erikson's work is then outlined, before an explanation is provided as to why such an approach is ill-fitting for this investigation. Following this, the neo-Eriksonian three-factor model (Crocetti et al., 2008) of identity development which acts as this study's framework for understanding the processes through which adolescents form, maintain, and revise their identity was introduced. The extant literature which also draws upon the three-factor model was then reviewed to evidence its cross-cultural, cross-gender, and convergent validity. Since psychosocial models of identity development recognise the influence of historical and social context, the chapter ends with a discussion regarding how SNSs have fundamentally changed adolescent peer interactions and have therefore provided young people with new contexts for identity exploration.

Chapter 3 first reviews the existing literature regarding Instagram and adolescent identity. This involves discussion of the self-presentational strategies that young people utilise on Instagram, the gender differences in terms of what adolescents share on the platform, and how SNS self-presentations can engender self-reflection and elicit peer feedback. Following this, drawing upon the theoretical and empirical social comparison literature, the review outlines how social comparisons of ability and opinion on Instagram *may* inform identity development during adolescence. The extent to which Instagram network composition may moderate the impact of such comparisons on identity development is also discussed. Guided by the literature outlined in Chapters 2 and 3, the research questions for this study are presented at the end of this chapter.

In Chapter 4, the methodological framework for this investigation is presented. The pragmatic philosophy adopted throughout this research is explained, and a rationale for the use of a mixed-method approach is provided. The sequential explanatory design used in this investigation is then described, and the school from which data was collected for both phases of this study is introduced. Following this, the quantitative and qualitative phases of

this research are outlined. The aims of each phase are discussed; the sampling strategies and final samples are described; and the procedures for data collection and analysis are explained. At the end of this chapter, the steps taken to ensure that this research was conducted in an ethical manner are discussed.

Chapter 5 reports on the analysis of data collected during the initial quantitative phase of this research. At the beginning of the chapter, the final sample is defined and the results of the reliability and validity tests that were run on the scale measures used in the survey are outlined. Following an initial exploratory analysis of the data, the results of four multivariate multiple regression models which sought to determine the linear relationship between social comparisons of ability and opinion on Instagram and the three identity processes (i.e., commitment, in-depth exploration, and reconsideration of commitment) are presented. Findings suggest that both forms of social comparison on Instagram often have adaptive identity implications during adolescence, and that ability comparisons on the platform may have fewer negative consequences for adolescent males. Results also suggest that ability comparisons with strong ties on Instagram may support the strengthening of commitments, whilst possible developmental differences were identified in terms of the perceived similarity between the comparer and the comparison target which was most likely to prompt further identity exploration. Results are discussed in relation to the relevant academic literature, and findings helped to guide the aims of the subsequent qualitative phase of this investigation.

In Chapter 6, the analysis of interview data collected during the qualitative phase of this investigation is presented. The results of the template analysis evidence that adolescents often compare themselves to role models on Instagram to help reflect on future possibilities and guide future behaviour, rather than to evaluate their current self. However, gender differences were identified in terms of the self-relevance and perceived attainability of content shared on Instagram, and this often resulted in performance-related comparisons having more maladaptive identity implications for adolescent females. Furthermore, adolescents discussed how comparisons with superior close ties enhanced self-evaluation

and strengthened their desire to achieve their own identity-related goals. In terms of social comparisons of opinion, comparisons were found to have implications for both commitment and exploration. However, the consequences of such comparisons appeared to be largely informed by how similar the opinion of the comparison target was to that of the comparer, and how committed the adolescent was to the opinion under comparison.

In Chapter 7, the results of both phases of this investigation are integrated and discussed in relation to the research questions outlined at the end of Chapter 3. Overall, findings suggest that developmental differences may lead some forms of social comparisons on SNSs to have different implications for identity development during adolescence than during emerging adulthood. Furthermore, results also indicate that developmental maturity and gender may influence the comparison targets most supportive of identity development. Having discussed the results of this thesis, the contributions made by this research are outlined, and recommendations regarding how best to support adolescents to benefit most from social comparisons on Instagram, whilst safeguarding them against the maladaptive processes that such behaviour can evoke, are presented. The limitations of this research are then reflected upon, and future lines of enquiry which may shed further light on the identity implications of social comparisons on SNSs are considered. At the end of this chapter, some concluding thoughts regarding this investigation and its findings are shared.

Chapter 2. Theoretical Foundations: Adolescent Identity Development

2.1 Introduction

This chapter will lay the theoretical foundations for this investigation and begins by introducing the theoretical work of Erik Erikson (1902-1994). Erikson is widely considered to be the pioneer of psychological research on identity (Cote & Levine, 2002; Pratt & Matsuba, 2018), and as part of his psychosocial model of human development, he proposed that biological, psychological, and sociological forces prompt adolescents to form a self-chosen identity. Erikson's writings regarding adolescent identity have served as a springboard for many later scholars studying identity development (Kroger, 2017), and they will indeed form the theoretical framework for this investigation. Following discussion of Erikson's original work on identity, this chapter will outline James Marcia's influential empirical elaboration of Eriksonian thought. Whilst Marcia's (1966) identity status paradigm is used widely across the academic literature, it is ill-fitting for this study. Thus, Marcia's (1966) model is critically examined, and it is argued within this chapter that a process-orientated model of identity development is more appropriate for this investigation. The neo-Eriksonian three-factor model of identity development (Crocetti et al., 2008) that will act as this study's empirical framework for understanding the processes through which young people maintain and revise their identities is then presented.

Central to Eriksonian and neo-Eriksonian theorising is the belief that historical milieu and social interaction, particularly with peers, informs identity development. The final section of the chapter will therefore first highlight the role peers play in the process of identity development during adolescence. It then discusses how the contexts in which peers communicate - and subsequently explore their identity - have been subject to notable structural change in recent years. In doing so, the importance of examining the role SNSs play in identity development during adolescence is highlighted.

2.2 Erikson's Stages of Psychosocial Development

2.2.1 Stage Model

Erikson was a German-born American developmental psychologist, best known for his stage theory of psychosocial development. Erikson was a student of Anna Freud (1895-1982), and central to his work was his belief that human growth unfolds according to an epigenetic principle: "anything that grows has a ground plan, and that out of this ground plan the parts arise, each part having its time of special ascendancy, until all parts have risen to form a functional whole" (Erikson, 1968, p. 92). Thus, as with physical development - where children must crawl before they can walk, Erikson believed that personality must also develop through a series of stages, each of which is developmentally related, "whether in the form of an earlier condition or of a later consequence" (Erikson, 1998, p. 61). Whilst he held that all humans must traverse through these universal, predetermined sequences, Erikson emphasised that the timetable for doing so is not simply dependent upon biological maturation, but also the social, cultural, and historical context in which individuals reside.

In his seminal chapter *Eight Stages of Man*, Erikson (1950) identified eight successive stages of development that all individuals must progress through from infancy to late adulthood. He posited that during each stage, individuals encounter a psychosocial crisis triggered by biological maturation and newly emerging social demands and opportunities (Ochse & Plug, 1986). Erikson used the term 'crisis' to refer not to an impending catastrophe, but "a necessary turning point, a crucial moment, when development must move one way or another" (Erikson, 1968, p. 16). Each crisis is characterised by two bipolar outcomes - one positive and one negative, and individuals are expected to confront and resolve their conflict by finding a favourable balance between the two opposing forces. Should an individual successfully overcome this crisis, they re-emerge with "an increased sense of inner unity, with an increase of good judgment, and an increase in the capacity 'to do well' according to his own standards and to the standards of those who are significant to him" (Erikson, 1968, p. 92). Furthermore, they also acquire the basic virtue associated with that stage, and a "given strength is added to a widening ensemble and reintegrated at each later stage in order to play its part in a full cycle" (Erikson, 1993, p. 38). Yet, if a conflict persists past its time, or is resolved unsatisfactorily, individuals not only fail to obtain the basic

virtue, but they may also experience a reduced ability to master future stages. For example, should an infant achieve a favourable balance between trust and mistrust, they are more likely to become autonomous during early childhood than those who had developed a greater sense of mistrust. The opposite of a virtue as understood here, then, is not a vice or an 'evil', but rather a developmental deficit (Hook, 2009). Erikson did note, however, that in cases where individuals fail to overcome such crises, stages can be revisited and resolved later in life (Pressley & McCormick, 2007).

Although Erikson's theory proposes eight stages of development (for summary, see Table 1), it is his fifth stage - ego identity vs role confusion - where he placed the greatest emphasis. He viewed this stage as a major crossroads in one's life, and the one in which young people make the transition from childhood to adulthood. Prompted by concomitant biological, psychological, and social change, Erikson believed that adolescents begin to engage in a special kind of project: themselves (Syed & McLean, 2017). Erikson (1950) identified this identity crisis as the key characteristic of adolescence, and his theorising regarding this stage forms the theoretical framework of this investigation. His ideas regarding the ego identity vs role confusion stage are discussed in more detail in the following sub-section.

2.2.2 Ego Identity vs Role Confusion

Adolescence is a period of significant change. Following the onset of puberty, hormonal changes cause dramatic physical alterations to the body in terms of rapid physical growth, changes in facial structure, and the appearance of secondary sexual characteristics (Blackmore, Burnett & Dahl, 2010). Puberty is also responsible for changes in brain structure which typically result in more advanced patterns of reasoning, with adolescents demonstrating an increased ability to think logically, abstractly, and complexly (Bell, 2016). Coinciding with these internal changes, there is also notable social change, and particularly in Western societies, adolescents are expected to forge a new sense of independence and autonomy (Van Petegem, Beyers, Vansteenkiste & Soenens, 2012). Erikson (1950, 1968) held that such biological, psychological, and social change can provoke uncertainty regarding self, relationships, and place in the world, and he believed that this uncertainty

Table 1. *Erikson's Eight Stages of Psychosocial Development (1950)*

Stage	Age (Approximate)	Basic Virtue	Psychosocial Issue	Significant Relationships	Existential Questions
1	Infancy 0-18 months	Hope	Trust vs Mistrust	Mother	Can I be secure?
2	Early Childhood 2-4 years	Will	Autonomy vs Shame	Parents	Can I be independent?
3	Preschool age 4-5 years	Purpose	Initiative vs Guilt	Family	Is it OK for me to do, move, and act?
4	School age 5-13 years	Competency	Industry vs Inferiority	Neighbourhood School	Can I be good?
5	Adolescence 13-18 years	Fidelity	Ego identity vs Role Confusion	Peer groups	Who am I? How do I fit into the adult world?
6	Early Adulthood 19-39 years	Love	Intimacy vs Isolation	Partners Friends	Can I love?
7	Adulthood 40-64 years	Care	Generativity vs Stagnation	Household Work	Can I make my life count?
8	Maturity 65-death	Wisdom	Ego integrity vs Despair	Mankind	Is it OK to have been me?

triggers the need for young people to develop a coherent and synthesised sense of identity. Identity here refers to a “persistent sameness within oneself (self-sameness) and a persistent sharing of some kind of essential character with others” (Erikson, 1956, p. 57). Thus, as young people mature and make their transition from childhood to adulthood, they are expected to think about themselves, to reflect on the kind of people they want to become, and to find their place in society (Crocetti, 2017). To enable them to do so, they must seek answers to the twin identity questions: ‘Who am I?’ and ‘How do I fit into the adult world?’.

Identity formation begins when one’s childhood identifications - the values and attributes previously adopted from significant others - are no longer deemed satisfactory (Kroger, 2004a). To solve one’s identity struggles, sustained reflection upon one’s past, present, and future selves is requisite: adolescents must re-examine, transform, and reorganise their childhood identifications in line with their own talents, interests, and abilities, and identify valued life goals and aspirations (Newman & Newman, 2012). For Erikson (1964) then, fidelity is the essence of this stage: no matter how one has previously been raised, adolescents must now commit and become faithful to their own ideological worldview, and find a cause reflective of their basic values and worthy of their vocational energies (Kroger, 2004b).

During this identity crisis, “all...continuities relied on earlier are more or less questioned again”, and when previous “samenesses” are abandoned, some degree of role-confusion is commonplace (Erikson, 1995, p. 235). Although this means that adolescence can be a time of increased self-doubt, vulnerability, and impulsivity, Erikson (1956) recognised this to be a ‘normative crisis’. With the countless options and alternatives before them, adolescents tend to experiment with a range of differing vocations, ideologies, and relationships in their quest to overcome this “war within themselves” and find an identity that truly ‘fits’ (Erikson, 1968, p. 17). Erikson (1968, p. 157) explained that in ideal conditions, societies permit adolescents a psychosocial moratorium - a period of societal permissiveness wherein “individuals are free to experiment with various roles and are not expected to accept or to

carry permanent responsibilities and commitments". This often coincides with individuals' involvement with education, and when young people emerge from their moratorium, they are expected to be capable of resolving their identity crisis (Cote & Levine, 1987) through finding a healthy balance between identity synthesis and identity confusion (Schwartz, 2006).

Whilst most young people do experience some degree of uncertainty during this period (Kroger, 2004b), they are generally able to resolve these issues through matching their personal attributes with outlets for expression available in the environment (Sokol, 2009), finding - and committing to - a "niche which is firmly defined and yet seems to be uniquely made for [them]" (Erikson, 1994, p. 120). Successful identity formation, Erikson (1950, p. 165) argued, provides young people with a deep ideological commitment, a sense of well-being, "a feeling of being at home in one's body, [and] a sense of 'knowing where one is going'". However, in cases where a healthy sense of identity is not achieved, individuals miss out on meaningful commitments that may have provided them with a sense of direction (Crocetti, 2018), and will therefore experience self-doubt and a relative lack of self-knowledge and responsibility. They may also indulge in self-destructive behaviours, becoming morbidly preoccupied with the opinions of others, or, conversely, becoming socially withdrawn and no longer caring what others think of them.

2.2.3 Critique of Erikson's Theory

Since introducing the idea that identity is a universal developmental task (Rogers, 2018), Erikson's oeuvre has been highly influential across the academic literature, guiding countless studies and shaping policy and practice across several disciplines, including counselling, education, and social work (e.g., Armstrong, 2013; Miller, 1973; Studer, 2007). Despite this, several prominent critiques of his work exist. For example, feminist scholars have argued that identity development researchers need to examine "the utility of their own grand theory", and have suggested that as Erikson's theorising reflects his own search for personal and social belonging (thus emphasising the experience of white, middle class, European and American men), it may fail to adequately capture identity development in contemporary,

global societies (Sorell & Montgomery, 2001, p. 99). Researchers drawing upon Eriksonian and neo-Eriksonian frameworks heeded such calls and have since conducted empirical studies regarding identity development in several non-Western cultural contexts - including Egypt, Ghana, India, Israel, South Africa, and South Korea (Marcia, 1993a), with majority and minority populations (e.g., Crocetti, Fermani, Pojaghi & Meeus, 2011), and with both male and female participants. Importantly, significant differences have indeed been found, and the results of such studies will be discussed in more detail later in this chapter.

Scholars have also questioned the linearity of Erikson's model, noting that development is not restricted to the specified age range; for example, Cramer, Flynn and LaFave (1997) argued that identity development not only occurs during the adolescent years, and discussed how adults often rediscover themselves following changes in their lives. However, Erikson (1956, p. 69) himself wrote that identity "neither begins nor ends in adolescence", and he explained that crises are emphasised in specific stages as it is during these periods where the assigned conflict is most prominent. Yet, whilst overcoming one's identity crisis may well have been the primary psychosocial task of adolescence during the mid-20th century, neo-Eriksonian theorists have argued that in many contemporary Western societies, social and economic forces have prolonged the psychosocial moratorium beyond the adolescent years and into one's mid-late 20s (e.g., Arnett, 2000, 2015). Indeed, in many contexts, it is no longer normative for those in their late-teens and early-20s to be settling into long-term adult roles. For example, in the UK, around a third of 18-year olds now go on to study three year undergraduate courses at university (UCAS, 2018); average age at first marriage is above 30 for both males and females (Office for National Statistics, 2019a); and the average age of first-time mothers is nearly 29, whilst for first-time fathers, it is above 33 (Office for National Statistics, 2019b). Postponing such transitions means that large numbers of young people are increasingly spending more time 'in between' adolescence and adulthood (Schwartz et al., 2013), and this has created a new developmental period for self-focus, experimentation, and exploring possible life directions, a period Arnett (2000) referred to as *emerging adulthood*. Consistent with the progressive nature of identity development, then, relative to adolescents, emerging adults are more likely to strongly identify with their commitments (Luyckx, Klimstra, Durie, Van Petegam & Beyers 2013),

conduct more ‘serious’ and ‘focused’ exploration (Arnett, 2015), and experience greater societal pressure to make important decisions and start performing in identity-relevant domains (Raiu, Roth & Haragus, 2014). Thus, whilst Erikson (1950) had originally posited that making firm, enduring identity commitments was the primary psychosocial task of adolescence, it is important to recognise that for many adolescents taking part in this study, their experiences will reflect the *beginning* of an exploratory journey that will continue *beyond* their adolescent years.

Other critiques include the fact that whilst Erikson’s theory provides a useful *description* of human development, it does not provide an adequate *explanation* about the causes of development and how/why it occurs. Furthermore, Erikson’s theorising regarding identity was guided by rich psychobiographical studies (e.g., *Gandhi’s Truth*, 1969; *Young Man Luther*, 1958;) and work with World War II veterans. These samples were therefore small and unrepresentative (Eysenck, 2000), and the methods he used were extremely time-consuming, challenging to replicate, open to researcher bias, and did not allow for generalisations. Erikson’s theory was therefore difficult to empirically ‘test’ (Sigelman & Rider, 2009), and it was not until Marcia’s (1966) *identity status paradigm* that an approach to operationalising Eriksonian theorising gained acceptance for the systematic study of identity development. Having critiqued and extended the work of Erikson, Marcia’s (1966) identity statuses have gone on to inspire hundreds of investigations, and the identity status paradigm remains the most commonly used model for empirically investigating identity development through an Eriksonian lens (Klimstra, Hale, Raaijmakers, Branje & Meeus, 2010). The identity status model will be introduced in the following section.

2.3 Marcia’s Identity Status Model

2.3.1 Identity Statuses

Marcia is a Canadian clinical and developmental psychologist, best known for his empirical elaboration of Erikson’s stage theory of psychosocial development (Kroger, 2015). He defined identity as “a self-structure - an internal, self-constructed, dynamic organization of drives, abilities, beliefs, and individual history”, and, like Erikson, considered adolescence to

be a crucial period for identity formation (Marcia, 1980, p. 159). Marcia did, however, contest Erikson's premise that the adolescent stage was a simple ego identity vs. role confusion dichotomy (Kunnen & Metz, 2015). Instead, he proposed identity 'statuses' based upon the extent to which individuals had experienced crisis - "[a] period of engagement in choosing among meaningful alternatives" - and made commitments - or "personal investment[s]" - in identity-relevant domains (Marcia, 1966, p. 551).

Marcia (1966) developed a semi-structured interview to investigate adolescents' crises and commitments. The original identity status interview was conducted with 86 students at an American university and lasted approximately 15-30 minutes, during which the domains of occupational choice, religious values, and political ideology were discussed. Based on the amount of crisis and commitment adolescents reported, Marcia (1966) found that young people could be assigned to one of four identity statuses (Table 2): in the *diffusion* status, young people had not made commitments, nor had they explored their identity; in the *foreclosure* status, adolescents had made commitments with little or no exploration; in the *moratorium* status, adolescents were actively exploring their identity but were yet to form firm commitments; and in the *achievement* status, adolescents had explored their identity and made commitments.

Table 2. *Marcia's Identity Status Model (1966)*

Commitment	Crisis	
	Present	Absent
Present	Identity Achievement	Foreclosure
Absent	Moratorium	Identity Diffusion

Although Marcia (1980) had originally intended for his model to measure the outcome of identity conflict during late adolescence, he later recognised that his statuses could also be used to illustrate how identity develops during early and middle adolescence (Marcia,

1993b). His statuses - whilst based upon the cross-tabulation of crisis and commitment - vary hierarchically regarding self-regulatory maturity and complexity of social functioning (Marcia, 1964). Identity achievement and identity diffusion represent the “polar alternatives of status inherent in Erikson's theory”, whereas moratorium and foreclosure are “roughly intermediate in this distribution” (Marcia, 1966, pp. 551, 552). A significant amount of research has tested these assumptions by investigating identity status trajectories. Such studies have provided considerable empirical evidence to support Erikson’s and Marcia’s theorising regarding identity development, with findings consistently evidencing developmental progression: cross-sectional studies have found that the proportion of young people in the achievement status increases and the proportion of young people in the diffusion status decreases during adolescence and emerging adulthood, whilst longitudinal research has found that young people are more likely to move in the direction of achievement - rather than diffusion - over time (Kroger, Martinussen & Marcia, 2010). For instance, in a study of 7,906 Flemish adolescents and emerging adults, Verschueren, Rassart, Claes, Moon and Luyckx (2017) found that high school students were overrepresented in the diffusion status whilst university students were mainly in the achievement status. Furthermore, empirical research has also found that each status relates differently to a range of external correlates, all of which reflect this hierarchy (Cote & Levine, 2002). The following sub-sections will briefly discuss the results of empirical research which has found both healthy and pathological aspects to each status, except for identity achievement, which is largely positive; stages will be discussed in order of their developmental maturity.

2.3.2 Identity Diffusion

Identity diffusion is adjudged to be the least mature and least complex stage of Marcia’s theory (Cote, 2009). Often, young people are overwhelmed by the necessity of identity development and elect to neither explore nor commit across life-defining areas (e.g., romantic relationships, career choices, and worldviews). Whether identity diffused individuals have experienced a crisis or not, they do not consider their future in any great detail, and appear disinterested in doing so (Marcia, 1966). Those in this stage experience little anxiety as there are very few things in which they are truly invested (Marcia, 2017),

and appear content to “go where the wind blows” (Kroger, 2003, p. 213); however, they are also likely to be socially withdrawn, have low self-esteem, be prone to drug abuse, and partake in risky sexual behaviour (Jones, 1992; Jones & Hartmann, 1988; Kroger, 2003; Orlofsky, Marcia & Lesser, 1973; White, 2000). Furthermore, young people in the diffusion status have also reported low levels of autonomy, agreeableness, and conscientiousness, and high levels of conformity, neuroticism, and shyness, thus suggesting impaired psychosocial development (Kroger, 2003).

2.3.3 Foreclosure

Adolescents in foreclosure express commitment despite having not experienced a crisis (Marcia, 1966). Whilst it is considered a more mature stage than diffusion in that some form of occupational and ideological commitments have been embraced, these commitments are often parentally chosen, rather than self-chosen (Marcia, 1980). Marcia (2017, p. 340) presented an explicit example:

The individual about to become a Methodist, Republican farmer like his Methodist, Republican farmer father, with little or no thought in the matter, certainly cannot be said to have "achieved" an identity, in spite of his commitment.

Young people in the foreclosure status have reported low levels of anxiety and drug use (Jones & Hartmann, 1988; Meeus, 1996), yet as this status is often characterised by obedience, it is also associated with closed-mindedness, an external locus of control, and over-identifying with parents (Adams, Dyk & Bennion, 1987; Clancy & Dollinger, 1993; Titus, 2006).

2.3.4 Moratorium

Here, the adolescent is in crisis and is proactively considering identity alternatives; their commitments, however, remain rather vague. This exploratory period is more functionally complex than the previous stages - the young person is attempting to compromise amongst the wishes of their parents, societal demands, and their own capabilities (Marcia, 1966). Anxiety is the key variable associated with this status, and whilst moratoriums generally

obtain high levels of intimacy, social satisfaction, and involvement in activities (Adams, 1998), individuals' internal preoccupation and inability to make predictions during this stage can lead to increased uncertainty, depression, and scepticism (Boyes & Chandker, 1992; Luyckx, Goossens, Soenens, Beyers & Vansteenkiste, 2005; Meeus, 1996; Meeus, Iedema, Helsen & Vollebergh, 1999).

2.3.5 Identity Achievement

Identity achieved individuals have experienced a period of crisis, considered several alternatives, made related commitments, and have started to pursue self-chosen occupational and ideological goals. Having re-evaluated past beliefs, individuals have attained their own sense of direction, and are now able to act freely; this marks "the end of childhood and the beginning of adulthood" (Marcia, 1993b, p. 3). Research has consistently evidenced that the achieved identity status positively associates with all five identity 'functions' as outlined by Adams and Marshall (1996) (i.e., self-structure, meaning and direction, a sense of personal control, internal consistency, and the ability to recognise future possibilities and alternative choices) (Crocetti, Sica, Schwartz, Serafini & Meeus, 2013). These young people are also unlikely to be overwhelmed by sudden shifts in environment and/or responsibilities (Marcia, 1966), are most capable of utilising planned, rational, and logical decision-making strategies (Blustein & Phillips, 1990; Boyes & Chandler, 1992), and have been found to have high levels of personal agency, intimacy, self-esteem, and motivation (Kroger, 2003; Orlofsky, 1978; Waterman, 1992; Weiten, 2013).

2.3.6 Critique of Marcia's Model

Since providing an empirical elaboration to Erikson's identity theory, Marcia's status model has dominated the identity development literature (French, Seidman, Allen & Aber, 2006). Studies drawing upon this model have provided significant evidence of developmental progression during adolescence; they have also found that young people 'do' better and feel better about themselves and those around them when they have 'achieved' an identity (Marcia, 1980). This concept of identity therefore has clear educational and clinical value,

and thanks to Marcia's (1966) identity status interview⁵, it can be measured fairly reliably. However, as the identity status paradigm was initially intended to measure the outcome of identity conflict during late adolescence (Marcia, 1980), much of the research that has drawn upon this framework has sought to classify individuals. Yet, classification fails to recognise that identity development is an ongoing process (Cote & Levine, 1988), and several scholars - including Marcia (1993a) himself - have noted the importance of studying the *process* of identity development, rather than just its *outcomes*.

Over the past few decades, several theoretical models have been developed which seek to extend the work of Erikson (1950) and Marcia (1966) to capture the process of identity development during adolescence. Two of the prevailing models in the psychosocial literature are the *five-dimensional model* devised by Luyckx et al. (2008), and the *three-factor model* proposed by Crocetti et al. (2008). Though both models share the same conceptual bases, they have subtle differences in terms of their parsimony and their underpinning assumptions regarding identity commitments at the beginning of adolescence (for a more thorough comparison of the two models, see Crocetti, 2017). Perhaps the most significant difference between the models, however, regards the identity-related behaviours they wish to capture: whilst the five-dimensional model concerns *future* plans, the three-factor model measures *current* identity exploration and commitment. Although this means that both models could be used concurrently to complement one another (Pop, 2015), given that the primary aims of this investigation are to determine the impact of Instagram-based social comparison behaviour on *current* identity exploration and commitment, the three-factor model provided the most useful lens for examining adolescent identity development during this research. The three-factor model is therefore presented in the following section, and the empirical literature evidencing its validity is discussed.

⁵ Contemporary researchers often use self-report survey measures such as the Extended Objective Measure of Ego Identity Status II (Bennion & Adams, 1986) rather than the full identity status interview.

2.4 The Three-Factor Identity Model

2.4.1 Three-Factor Model

Crocetti et al. (2008) proposed a three-factor model which sought to describe the mechanism through which adolescents form, evaluate, and revise their identities. They believed that one's identity is shaped and modified through the continuous interplay of three critical identity dimensions: commitment, in-depth exploration, and reconsideration of commitment. Here, *commitment* refers to the "enduring choices that [individuals] make in various...domains and the self-confidence they derive from these choices" (Dimitrova et al., 2016, p. 120). In contrast to Marcia (1966) - who assessed one form of exploration, the three-factor model distinguishes two exploratory dimensions: in-depth exploration and reconsideration of commitment (Crocetti, Schwartz, Fermani & Meeus, 2010). *In-depth exploration* occurs when individuals consciously reflect upon, and seek additional information about, their current commitments, whereas *reconsideration of commitment* involves comparing present commitments with alternatives.

The three-factor model (Figure 1) assumes that young people enter adolescence with some ideological and interpersonal commitments, most of which are internalised from parents or other figures of authority. During adolescence, individuals can then decide whether they wish to maintain or revise their commitments through an iterative dual-cycle process (Crocetti, Schwartz, Fermani, Klimstra & Meeus, 2012). Indeed, all three dimensions of the model are interrelated, thus giving the identity formation process a cyclical character (Pop, 2015).

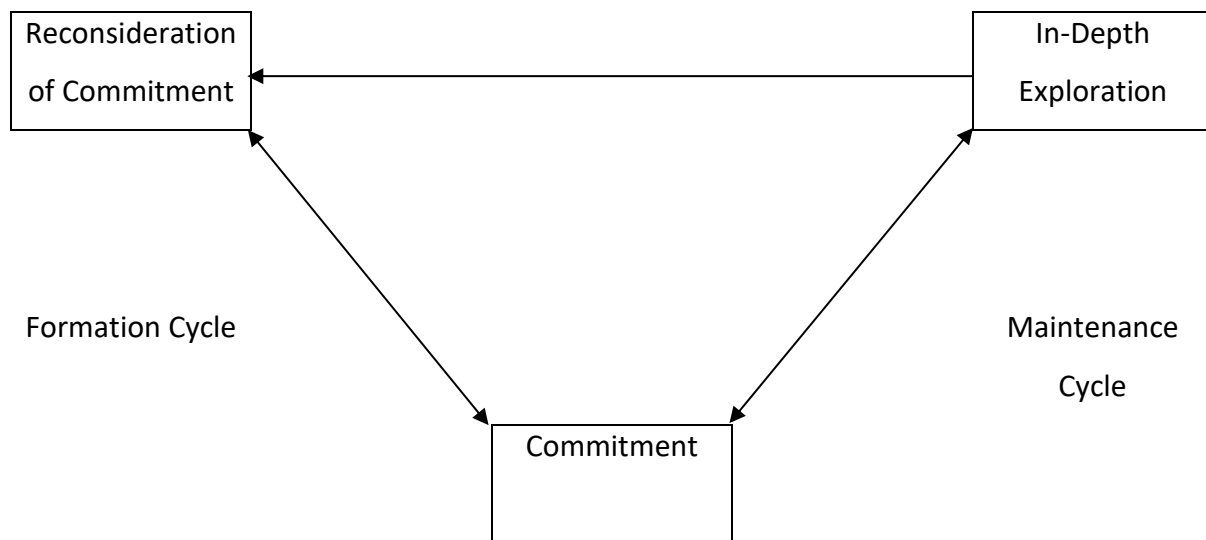


Figure 1. *The Three-Factor Identity Model (Crocetti et al., 2008)*

First, in-depth exploration is positively associated with commitment, and enables young people to actively explore their current commitments in greater detail. This may, for example, involve tasks such as reflecting on one's commitments, discussing them with others, or searching for additional information regarding their choices. If, following this process, adolescents believe their commitments to be consistent with their overall talents and potential, they are justified and validated. This 'maintenance cycle' demonstrates a synthesised identity (Meeus, 2011), and captures the adaptive nature of in-depth exploration. However, in-depth exploration can also become maladaptive, leading adolescents to doubt, or ruminate about, their current commitments. Should in-depth exploration lead adolescents to question their identity commitments, they may then be prompted into the identity 'formation cycle'. Here, adolescents may compare and contrast their current commitments with more appealing alternatives, and should they deem their prior choices to be inadequate, they are revised (Crocetti, 2017). This cycle captures the turbulent or 'crisis-like' nature of identity formation, in that individuals are seeking to overcome the uncertainty caused by their current unsatisfactory commitments. Indeed, commitment and reconsideration of commitment are negatively related, thus indicating how the two dimensions lead identity development in opposing directions: commitment provides a sense of stability and security (i.e., identity synthesis or certainty) whilst

reconsideration of commitment reflects questioning of the self (i.e., identity confusion or uncertainty).

Significantly, studies have found the relationships between the three identity dimensions to be statistically similar across gender and cultural context. For example, Crocetti, Cieciuch, et al. (2015) found that the associations between commitment, in-depth exploration, and reconsideration of commitment were similar across both male and female university students in Europe (Italy, the Netherlands, Poland, Portugal, Romania, and Switzerland), the Middle East (Turkey), and Asia (China, Japan, and Taiwan). Similarly, with adolescent participants, Dimitrova et al. (2016) reported invariant covariance between the identity dimensions across several European countries (Bulgaria, the Czech Republic, Italy, Kosovo, Romania, Slovenia, and the Netherlands). Although significant differences between identity dimension mean scores have been found across nations (Dimitrova et al., 2016) and across ethnic groups within nations (Crocetti et al., 2011) - which are often explained by significant socio-economic and cultural differences, such results suggest that the three-factor model is structurally valid. As the identity dimensions are similar across culture, it can therefore be concluded that examining identity processes during adolescence is not only relevant in individualistic cultures - where much of the theoretical and empirical scholarship concerning identity development has emanated, but also in cultural contexts characterised by more collectivist orientations (Dimitrova et al., 2016), and those outside of Europe and North America.

2.4.2 External Correlates

Scholars have also tested the convergent validity of the three-factor model, and consistent with Eriksonian thought - which holds that identity synthesis is central to psychosocial functioning during adolescence, researchers have found identity certainty (i.e., commitment) to be associated with several positive correlates at the individual, relational, and societal levels (Crocetti, 2017). At an *individual* level, identity commitment has been

found to associate with high self-concept clarity⁶ (Crocetti et al., 2010); emotional stability (Crocetti & Meeus, 2014); high levels of well-being, self-esteem, and satisfaction with life (Karas, Cieciuch, Negru, & Crocetti, 2015; Sugimura et al., 2015); low anxiety and depression (Crocetti, Hale, et al., 2015; Crocetti, Scrignaro, Sica, & Magrin, 2012); and low levels of delinquency (Crocetti et al., 2008). At the *relational* level, commitment is associated with strong peer and familial relationships (Crocetti, Branje, Rubini, Koot & Meeus, 2017; Crocetti et al., 2008), whilst at the *societal* level, it is positively related to social responsibility, volunteering, and civic engagement (Crocetti, Jahromi & Meeus, 2012). These results therefore provide evidence to suggest that commitment is intertwined with healthy adjustment during adolescence.

In terms of the exploratory dimensions, since reconsideration of commitment reflects uncertainty regarding commitments, it has short-term detrimental effects for young people (Klimstra et al., 2010). Indeed, this process negatively associates with self-concept clarity (Crocetti et al., 2008), and positively correlates with depression, anxiety, and poor familial relationships (Crocetti, Klimstra, et al., 2009), thus suggesting that reconsideration of commitment creates disequilibrium and distress. In contrast, research has empirically evidenced both the adaptive *and* maladaptive implications of in-depth exploration: although this dimension has proved to be positively associated with agreeableness, conscientiousness, openness to new experiences (Crocetti et al., 2008), and positive parent-adolescent relationships (Crocetti, Klimstra, et al., 2009), it is also positively related with internalising problems, and negatively associated with self-concept clarity and emotional stability (Crocetti et al., 2008; Crocetti et al., 2010). These results therefore suggest that

⁶ Whilst some authors have argued that identity and self are interchangeable (Oyserman, Elmore & Smith, 2012), this study draws upon neo-Eriksonian reasoning which recognises that these concepts represent different parts of the process through which individuals develop a sense of who they are. Whilst *identity* refers to the process of searching for, and committing to, a set of personal standards and life roles, *self* represents one's overall view of oneself (e.g., one's competence) which develops from, and influences, one's identity commitments. *Self-concept clarity*, then, refers to the extent to which individuals can confidently and clearly define themselves in positive and consistent ways (Schwartz et al., 2011). This therefore differs from *identity clarity* (a term used throughout this thesis) which denotes the extent to which an individual has fashioned their values and goals into a coherent sense of identity (Yang, Holden & Carter, 2018).

whilst in-depth exploration is characterised by intellectual curiosity and a desire to learn more about current commitments, it can also result in feelings of confusion and distress.

Though there is limited cross-cultural research considering the relationship between the identity dimensions and external correlates, Crocetti et al. (2010) did find that associations were consistent across Italian and Dutch adolescents, and significant differences were found in only two (13%) of the 15 associations examined. Likewise, emerging adults across Southern (Italy) and Eastern (Poland and Romania) Europe have also reported a consistent pattern of associations (Karas et al., 2015), as have Hebrew and Muslim adolescents in Israel (Crocetti, Benish-Weisman & McDonald, 2020). Such results therefore provide empirical evidence of the cross-cultural validity of the three-factor model, not only in terms of its overall structure and processes, but also of the external correlates associated with each identity dimension.

2.4.3 Identity Progression

In addition to studies which have considered its structural and convergent validity, researchers have also sought to track developmental progression using the three-factor model. As Waterman (1982, p. 342) explained, “[a]t its simplest, the basic hypothesis of identity development is that the transition from adolescence to adulthood involves a progressive strengthening in the sense of identity”. In terms of the three identity processes, then, one would expect that those in late adolescence should score higher in commitment and in-depth exploration, and lower in reconsideration of commitment, when compared to those in early adolescence⁷. Consistent with a significant amount of research which has utilised the identity status approach (Meeus, 2011), cross-sectional and longitudinal studies drawing on the three-factor model have evidenced such progression in both Western (e.g., the Netherlands: Crocetti, Klimstra, et al., 2009; Klimstra et al., 2010) and non-Western cultural contexts (e.g., Japan: Hatano, Sugimura & Crocetti, 2016), with older adolescents

⁷ Although there is considerable debate concerning when adolescence begins and ends (e.g., Degner, 2006), informed by the taxonomies used by Klimstra et al. (2010), this investigation broadly defines early adolescence as ages 13-14, mid-adolescence as ages 15-16, and late adolescence as ages 17-18.

tending to report increases in commitment and in-depth exploration and decreases in reconsideration of commitment. This progressive strengthening of identity then appears to continue into emerging adulthood, and as emerging adults become more sure of their commitments, their tendency to reconsider them decreases (Crocetti et al., 2008) whilst their in-depth exploration increases (Klimstra et al., 2010). These results therefore help to illustrate the differences in identity development during adolescence and emerging adulthood, in that the adolescent years are often viewed as a time to tentatively consider and reconsider alternatives, whilst emerging adulthood is the time when young people tend to make enduring decisions and consolidate their sense of identity (Arnett, 2000).

Interestingly, studies have also identified significant gender differences in terms of identity progression during adolescence. During early-to-mid adolescence, females are typically more committed to their identity, score higher in in-depth exploration, and lower in reconsideration of commitment, when compared to males (Crocetti, Klimstra, et al., 2009; Hatano et al., 2016; Klimstra et al., 2010). Adolescent males tend to 'catch up' with females during mid-to-late adolescence (Klimstra et al., 2010), to the point where gender difference during the late teens and early twenties are non-significant or only small in effect size (Crocetti et al., 2013). Nevertheless, these results do suggest that females have a 'head start' over their male counterparts in terms of identity development during early-to-mid adolescence. Such gender differences are typically explained by the earlier physical and cognitive maturation experienced by adolescent females, thus leading to the earlier onset of identity formation. Given that there are also significant age and gender differences in terms of Instagram use and social comparison behaviour (as will be discussed in more detail in the following chapter), it will be important to inspect these demographic differences in all subsequent analyses.

2.4.4 Summary of the Three-Factor Model

In summary, the three-factor model (Crocetti et al., 2008) extends the work of Erikson (1950) and Marcia (1966) and provides researchers with a parsimonious framework for understanding the *process* of identity development. It holds that identity is developed

through the continuous interplay between three critical dimensions - commitment, in-depth exploration, and reconsideration of commitment, and has been found to have high cross-gender, cross-cultural, and convergent validity. Furthermore, in contrast to other process-orientated models, the three-factor model concerns *current* identity exploration and commitment. Thus, since these processes are likely to guide and/or be evoked by adolescents' behaviour on SNSs, it was determined that the three-factor model was a fitting framework for understanding how social comparisons on Instagram inform adolescent identity development. However, there is, to date, no published literature citing the use of the three-factor model in the UK context, thus suggesting that this study will be the first to test the validity of the three-factor model for the empirical investigation of identity development with British⁸ adolescents.

Importantly, although the writings of Erikson (1950), Marcia (1966), and Crocetti et al. (2008) critique, refine, and extend one another, they are all grounded in psychosocial thought. That is, they all hold that individual development cannot be detached from its social and historical context. In this respect, identity is not created in a vacuum (Gyberg & Frisen, 2017): identity is "in the core of the individual and yet also in the core of his communal culture" (Erikson, 1968, p. 22), and is therefore developed through the interaction between inner *and* outer worlds. In light of this, the final section of this chapter contextualises identity development socially and historically to illustrate the importance of considering the identity implications of Instagram use during adolescence.

2.5 Social and Historical Context and Identity Development

Whilst considerable research has examined how adolescents' interactions with significant others (e.g., parent, siblings, teachers) can inform their identity-related decisions, goals, and behaviours, peers are widely believed to be the most important, and thus influential, social relationship during adolescence (e.g., Brown & Larson, 2009). Therefore, this section begins

⁸ The population under investigation was described as 'British' throughout this research, as whilst all data were collected in England, the specific ethnicity questions used during data collection all used the descriptor 'British'.

with a discussion regarding how peers can support and/or impede identity development during adolescence. Peer relationships are then contextualised historically to emphasise how adolescent peer communication has increasingly become embedded in computer-mediated contexts. In doing so, this section highlights how SNSs have transformed the landscape of adolescent peer interaction and have provided young people with new contexts for identity exploration. Given its popularity amongst young people and its perceived ability to support identity development, this section ends by reaffirming the importance of studying the identity implications of Instagram-based behaviours.

2.5.1 Peer Relationships

As young people progress into adolescence, they typically leave behind much of their dependency on parents and other adults that characterised their earlier years. Indeed, although adolescents are still denied the full autonomy of adulthood, in their search for individuation, young people become increasingly concerned with defining themselves independently of their family. During this period, then, adolescents tend to move away from the controlled environment of the family home, and progressively spend less time with their parents and more time with their peers (Albareello, Crocetti & Rubini, 2020; McElhaney, Antonishak & Allen, 2008). Moreover, the nature of peer relationships also evolves during adolescence: peer networks grow larger and more complex, young people increasingly value the opinions of their friends (Brown & Larson, 2009), and adolescent friendships become more focused on intimate self-disclosure and social support (Darling, 2005). Peer relationships are therefore not only a central feature of adolescent life, but they also represent valuable networks through which adolescents can explore and clarify their sense of identity.

Although peer approval is a major concern during adolescence, adolescent friendships tend to be less judgemental and controlling than parent-adolescent relationships (Reel, 2013); they therefore typically provide young people with 'safer' environments to freely explore their identity under the safeguard of acceptance, trust, and reciprocal self-disclosure (de Guzman, 2007; Giordano, 1995; Smollar & Youniss, 1982). Adolescent friendships are also

largely characterised by similarity (be that in age, gender, ethnicity, interests, and/or values), and this congruence of interest can help to engender a sense of companionship, inclusion, and belonging (Hamm & Faircloth, 2005). Peers therefore represent useful, convenient, and trusted targets for social comparison processes and social/emotional support, and during adolescence, young people progressively engage in more feedback-seeking behaviour to glean self-relevant information from their friends (Nesi et al., 2018). Significantly, in contrast to previous peer relationships, self-disclosures with friends during adolescence often prompt lengthy and emotional discussions regarding the nature of problems and their potential resolutions (Parker, Rubin, Erath, Wojslawowicz & Bruskirk, 2006). This seems to be particularly the case for adolescent females, whose friendships are typically characterised by intimacy, empathy, and a need for nurturance; in contrast, for adolescent males, peer relationships are more likely to be characterised by companionship, competition, and control, and this can lead to increased levels of conflict (de Goede, 2009; Galambos, 2004). Nevertheless, regardless of gender, friends not only provide adolescents with reassurance, support, and encouragement in times of uncertainty, but through communicating their behavioural and attitudinal expectations, they also signal what is, and is not, socially endorsed. In this sense, friends play “benevolent authority to each other, each being the others co-conspirator, each serving as applauding audience and as a cautioning chorus” (Erikson, 1968, p. 35). In doing so, peers serve a variety of identity-related functions, and support young people to learn a considerable amount of information relating to the self, social and group conformity, and ostracism (Iarocci & Gardiner, 2015).

Erikson (1950) himself suggested that peers are the key social agents of adolescent identity development, and importantly, the significance of friendships during adolescence and emerging adulthood has been empirically evidenced in several studies drawing upon neo-Eriksonian frameworks. For example, Meeus, Oosterwegel and Vollebergh (2002) found educational and relational exploration were positively associated with peer communication, and relational commitment was related with peer trust. Furthermore, peer conflict has been found to associate with reduced identity clarity (Reis & Youniss, 2004); peer attachment associates with identifying with commitments (Rassart, Luyckx, Apers, Goossens & Moons, 2012); and the informational identity style (Berzonsky, 1990, 2011; characterised by active

identity exploration) positively relates to friendship quality, whilst the diffuse-avoidant identity style (characterised by the active avoidance of self-relevant conflicts) positively relates to loneliness (Doumen et al., 2012). Studies drawing upon identity status approaches have also reported similar results, finding that support within friendships is positively related to achievement and negatively to diffusion, whilst peer conflict positively associates with diffusion and moratorium (Jones, Vaterlaus, Jackson & Morril, 2014). Such results therefore suggest that supportive friends can indeed stimulate adolescents to explore their identity and help them to affirm their self-definitions.

2.5.2 Peer Relationships and SNSs

Although the significance of peer relationships during adolescence has long been recognised (Erikson, 1950), it is important to note that the social norms, expectations, and experiences associated with the particular social and historical milieu of young people will inevitably influence the strategies and processes they draw upon to interact with their peers. Indeed, in many contemporary Western nations, the contexts in which young people gather, socialise, and consequently explore their identity has been subject to notable structural change in recent years. For example, it has been suggested that over the past decade, US adolescents have had less face-to-face interaction with peers than any generation going back to 1976 (Twenge, Spitzberg & Campbell, 2019), and in her book *It's Complicated: The Social Lives of Networked Teens*, boyd (2014, pp. 21-22) claimed that for many young people, “the hectic and heavily scheduled nature of their day-to-day lives, their lack of physical mobility, and the fears of their parents have made...face-to-face interactions increasingly impossible”. More recent research seems to corroborate such conclusions, with the Pew Research Center (2018) reporting that 41% of American teens feel as if they have too many obligations to physically spend time with their friends outside of school, 34% claim that their friends are too busy to see them, whilst 32% said issues surrounding transportation prevent them from seeing their friends more often. Similar results regarding limited face-to-face peer interaction outside of school during adolescence have also been reported in the UK. For instance, a study conducted by the World Health Organization (2016) found that in England, around nine in ten of those aged 13 (87% of males, 91% of

females) and 15 (88% of males, 93% of females) do not spend time with their friends every day of the week.

This does not, however, mean that contemporary adolescents are experiencing *less* peer interaction. Importantly, such phenomena have coincided with the development and mass ownership of sophisticated digital communication technologies, and over the past decade, adolescent socialising and relationship building and maintenance has become strongly driven by computer-mediated communication (Favotto et al., 2019). Indeed, the social lives of young people are increasingly embedded in computer-mediated contexts (Nesi et al., 2018), with recent World Health Organization (2020) data finding that over a third of 13 (40% female; 29% male) and 15 year old's (43% female; 37% male) in England report to be in contact with peers 'almost all of the time' using digital communication technology. Importantly, one of the most notable technological advancements which has helped to transform the landscape of adolescent peer interaction has been the proliferation of SNSs, with such technologies proving particularly popular with young people. In the UK, data suggests that 69% of those aged 12-15 and 93% of those aged 16-24 have an account on a SNS (OFCOM, 2018, 2019a), whilst research has found that two thirds of adolescents now spend over an hour per day on such platforms (Scott et al., 2018). Having provided adolescents with convenient and easily accessible channels for peer communication and self-expression, such technologies have enabled young people to - should they so wish - remain constantly connected with online streams of interaction, largely bypassing geographical barriers. SNSs have therefore come to be seen as indispensable components of the daily lives of many young people, and have, for some adolescents, become the primary means of communicating with, and acquiring information about, those in their social networks (Shapiro & Margolin, 2014). They have also provided young people with new opportunities to widen their peer networks to channel more social support (Kim, 2016), and thus, the near ubiquitous use of SNSs has had a profound effect on adolescent social interaction (Nesi et al., 2018).

Whilst SNSs have provided notable structural changes to adolescents' peer relations, it has been argued that the activities young people participate in using these technologies are not dissimilar to those experienced by past generations in offline contexts (Ahn, 2011; boyd, 2007; Ito et al. 2009): young people often use SNSs recreationally to pass time, give or receive social support, discuss personal problems, keep in touch with social norms, and engage in self-presentation and social comparison (Schaffer & Debb, 2020). Given that we know that such behaviours can inform adolescent identity in offline contexts, it appears that young people may also be playing out identity-related issues and challenges in SNS environments (Nesi et al., 2018).

Despite the link between Eriksonian thought, peer relationships, and historical context, there has been surprisingly limited academic scholarship which has empirically studied the extent to which adolescents' experiences on SNSs influence their identity development. Initial evidence does, however, suggest that young people are increasingly using such platforms for self-construction and self-expression (Patchin & Hinduja, 2017). For example, a recent study of American adolescents found that the majority of young people believed that their experiences on SNSs exposed them to new types of people (74%), helped to make them feel more accepted (68%), supported them to work out how they feel about important issues (65%), and assisted them to get through challenging times in their life (55%) (Pew Research Center, 2018). Yet, whilst there are commonalities across SNSs (e.g., most contemporary SNSs are organised around streams of user-generated content), it is important to note that each respective platform represents its own individual context for exploration, each with its own technological affordances and 'site' culture. For instance, some platforms are largely image-based (e.g., Instagram), whilst others are more dependent on the written form of communication (e.g., Twitter); some SNSs are predominantly used as contexts for self-presentation and self-promotion (e.g., Instagram), whilst others are used more for entertainment (e.g., TikTok) or social interaction (e.g., Snapchat); and on some platforms, users tend to be 'befriend' friends, family, and acquaintances (e.g., Facebook), whilst on others, they often follow individuals not known in offline contexts (e.g., Instagram). These distinguishing features mean that research conducted on one platform may not necessarily be transferable to another (Wong, Amon & Keep, 2019). Therefore, it is

important to differentiate between platforms as it is possible that some SNSs inform adolescent identity in different ways, and to different extents, relative to others.

This investigation seeks to learn more about the identity implications of Instagram use during adolescence, and as discussed in the introductory chapter of this thesis (see 1.2), Instagram's defining characteristics (i.e., image-centric, positively biased content, and non-reciprocal relationships) make the platform a unique context for identity exploration. Importantly, Instagram is one of the most popular SNSs amongst British adolescents (OFCOM, 2018, 2019a), and initial research suggests that young people consider Instagram to be amongst the platforms *most* supportive of identity development. For example, a UK-wide study of young people aged 14-24 found that when compared to YouTube, Twitter, Facebook, and Snapchat, Instagram was ranked the best outlet for self-expression and self-definition (Royal Society for Public Health, 2017a). Such results replicate those of an earlier study with American emerging adults, where participants rated Instagram as best for self-expression and second behind only Snapchat for self-documentation (Alhabash & Ma, 2017). Given that Instagram is proving increasingly popular amongst British adolescents and is widely considered to be a useful outlet for identity exploration, there is a clear need to learn more about the extent to which adolescents' experiences on the platform inform their sense of identity.

2.6 Conclusion

In this chapter, the theoretical foundations of this thesis were laid. By drawing on the theoretical ideas of Erikson (1950, 1968), this research recognises that biological maturation and new societal demands prompt adolescents to seek a more coherent understanding of themselves and how they fit into wider society. Importantly, Erikson believed that identity formation was the primary psychosocial task of adolescence, and he suggested that should young people successfully overcome their identity 'crisis', they would experience an enhanced sense of well-being and improved psychosocial functioning. Though several prominent critiques of his theory were discussed in this chapter, significant empirical research has supported his ideas regarding the importance of identity formation during

adolescence. Much of this research has utilised Marcia's (1966) influential identity status paradigm. However, given that identity status research focuses on categorising young people, this approach was deemed ill-fitting for this thesis. Having critically evaluated the work of Marcia (1966), the three-factor model of identity development (Crocetti et al., 2008) which acts as this investigation's framework for understanding the process through which identity is shaped and modified was introduced. This process-orientated approach holds that identity develops through the interplay between three key dimensions - commitment, in-depth exploration, and reconsideration of commitment, and previous research has found this model to have high cross-gender, cross-cultural, and convergent validity.

Central to Eriksonian and neo-Eriksonian theories of identity development is the belief that social and historical context plays a significant role in shaping the strategies adolescents utilise to explore their identity. Evidence points to the fact that in the current milieu, SNSs have the potential to have a profound impact upon adolescent peer interaction. SNSs therefore appear to provide young people with new contexts for communication, observation, and identity exploration. Initial research suggests that Instagram is one of the platforms most supportive of identity development. This begs the question: *how* does Instagram support young people to forge their sense of identity? This question will be addressed in the following chapter, and the answers provided will help to shape the goals of this investigation.

Chapter 3. Literature Review: Instagram and Adolescent Identity Development

3.1 Introduction

As discussed at the end of the previous chapter, SNSs are now deeply embedded in the lives of many young people, and they provide adolescents with new platforms for identity exploration. Whilst initial evidence suggests that Instagram is amongst the platforms most supportive of identity exploration, there has been little scholarly research regarding SNS use and adolescent identity development. Indeed, the existing research regarding identity online has primarily focused on identity expression or performance, rather than identity development (Wangqvist & Frisen, 2016). Of the limited available scholarship concerning SNSs and adolescent identity development, much of it explores the fact that such platforms provide young people with convenient and powerful venues for selective self-presentation. Though this line of reasoning recognises how self-focused (Vogel & Rose, 2016) behaviour on SNSs may support adolescent identity, it provides limited insight into how SNS content shared by other users may also influence the process of identity development. The research reported in this thesis intends to shed light on this gap in the literature, and as such, this chapter maps the current state of research and is divided into two primary sections.

In the first section, the literature regarding identity performance and development is synthesised to outline how sharing content on Instagram might inform adolescent identity. The section begins with a brief theoretical overview of self-presentational behaviour and a reflection on how SNSs have provided young people with new opportunities to creatively self-express and self-present. Discussion then turns to Instagram: the self-presentational styles typically used on the platform are outlined, and the ways in which such behaviour may inform identity development are considered.

The second section considers how - through social comparison processes - the content shared by other Instagram users *may* inform identity development during adolescence. Here, social comparison theory is outlined and the emerging literature concerning social comparisons on SNSs is introduced. Suggestions are then made regarding how social

comparisons of ability and opinion on Instagram may support and/or inhibit adolescents' search for a synthesised and coherent sense of self. Guided by the literature discussed in both this and the preceding chapter, the research questions for this investigation are threaded throughout the second section of this chapter and are then brought together in the conclusion.

3.1.1 Scope of Review

Since Instagram provides its users with a unique context for social comparison behaviour and identity development, wherever possible, Instagram-specific literature is reviewed in this chapter. However, given that Instagram's rise to prominence has only occurred in recent years, research that specifically focuses on Instagram is still in its infancy (Alhabash & Ma, 2017; Trifiro, 2018). As a result, in instances where scholarship regarding Instagram is not available, research concerning alternative SNSs (or indeed SNSs in 'general') will be reviewed; subsequent discussion will then consider what the results of these studies *may* mean in relation to adolescent Instagram use. Likewise, attempts are also made to ensure that the reviewed literature concerns the online experiences of adolescents. However, as previously discussed in this introductory section to this chapter, research regarding SNS use and identity *development* is also limited. Therefore, given that exploratory behaviour is characteristic across both adolescence and emerging adulthood, studies concerning young people up to the age of 25 are frequently discussed in this review. In instances where empirical studies concerning SNS use contained predominantly adult samples (here defined as those aged 25+), this is made explicit in the text.

3.2 Self-Presentation

3.2.1 Self-Presentation and SNSs

During social interactions, individuals often attempt to manage the impression others have of them (Fullwood, 2019), and any form of behaviour which seeks to create, modify, or maintain an impression of ourselves in the minds of others is known as *self-presentation* (Brown, 2007). Self-presentations are therefore goal-orientated and are generally used to obtain social and material benefits, such as friendship, power, and identity validation (Boz,

Uhls & Greenfield, 2016). One of the first scholars to give self-presentation serious academic consideration was the sociologist Erving Goffman (1922-1982). Using a dramaturgical metaphor, Goffman (1959) argued that during interpersonal interactions, individuals - or 'actors' - are consciously aware that they are being observed by their 'audience'. Subsequently, individuals 'perform' when in the presence of others (or on 'front stage'), observing certain rules and social conventions to help them to achieve their social goals and project a desirable image. Arkin (1981) later outlined two primary strategies that individuals utilise to achieve the 'performance' outlined by Goffman (1959): acquisitive self-presentation and protective self-presentation. *Acquisitive self-presentations* refer to those where individuals emphasise their most attractive traits in an attempt to elicit approval, social rewards, and success (Rui & Stefanone, 2013). In contrast, *protective self-presentations* are aimed at avoiding disapproval, and often include modest self-descriptions, the use of uncertain expressions, and a reduction in the frequency of social interaction (Schutz, 1998). With this in mind, there appears to be two broad motivations for self-presentational behaviour: the motive to succeed (acquisitive self-presentations) and the motive to avoid failure (protective self-presentations) (Renner, Laux, Schutz & Tedeschi, 2004).

Historically, self-presentations have occurred in physical, face-to-face contexts. However, through enabling their users to express salient aspects of their identity for others to see and interpret in highly public arenas (boyd, 2007), SNSs have provided young people with new platforms or 'stages' for public commentary, performance, and online self-presentation (Nesi & Prinstein, 2015). Significantly, when compared to face-to-face interaction, such technologies present their users with greater control over which aspects of their identity they wish to share with their online networks; that is, through the affordances granted by asynchronous communication and content editing, individuals are equipped with additional tools to strategically edit and 'manage' the image and lifestyle they portray to others. This led many of the early writers on 'online identity' to consider online communities as 'identity playgrounds', 'identity testing grounds', and 'social laboratories', wherein individuals were granted unlimited possibilities to take on multiple personas and reinvent themselves (e.g., Gross, 2004; Sweeney, 1999; Turkle, 1995). However, early online communities tended to

afford their users with anonymity, something not characteristic of contemporary SNSs. Instead, contemporary SNSs tether 'online identity' to 'offline identity' in several ways, and they often invite their users to share their real names and images of themselves. Although such technological changes may have reduced adolescents' opportunities for unfettered online experimentation (Yang, 2014), many young people still explore their identity on SNSs through selective self-presentation. Indeed, research has consistently evidenced the instability of self-presentations on SNSs, with Facebook-based studies reporting that young people experiencing identity uncertainty are more likely to present different versions of the self to explore identity alternatives or to win favour with peers (Fullwood et al., 2016; Michikyan et al., 2015; Strimbu & O'Connell, 2019). In contrast, adolescents and emerging adults with a more coherent and stable sense of self - who therefore have little desire to 'try out' different identities - appear more likely to share content that is consistent with their offline self. Given that self-presentation is an intentional, goal-orientated task, it is perhaps unsurprising that young people experiencing self-uncertainty are utilising SNS self-presentations to experiment with their identity. In the following section, the self-presentational styles that young people typically utilise on Instagram are outlined, and the ways in which sharing content on the platform may inform identity development are discussed.

3.2.2 Self-Presentation and Instagram

3.2.2.1 Identity Performance on Instagram

Young people often cite self-expression and self-promotion as primary motives for Instagram use (Lowe-Calverley et al., 2019; Sheldon & Bryant, 2016), and thus, it is evident that self-presentation plays a central role in adolescents' social experiences on the platform. Importantly, content shared on Instagram is largely autobiographical in nature, whereby users tend to post images/videos relating to themselves, their friends/family, and their daily activities (Hu et al., 2014). Although adolescents may utilise a range of self-presentational behaviours when sharing self-related content on the platform, presenting an 'idealised' version of the self is thought to be the predominant strategy adopted by Instagram users (Harris & Bardey, 2019). Across the academic literature, this has also been referred to as conveying the 'possible self', whereby users seek to present authentic aspects of self,

alongside socially desirable, yet seemingly achievable, elements (Bell, 2019). Typically, then, content shared on the platform is positively biased, and whilst it tends to remain connected to one's 'offline identity', it often reflects what could be described as a slightly polished version of it.

Researchers have argued that Instagram's design (image-based) and technological features (editing tools) have contributed towards the creation of this idealised culture in which polishing and perfecting are commonplace (de Vries et al., 2018). Importantly, such customs then place pressure on Instagram users to maintain an appealing, attractive, or inspiring 'look' (Harris & Bardey, 2019). As such, young people often display a reluctance to share their mundane, day-to-day activities on Instagram, and are often careful to only post what they consider to be their most significant, appealing, and 'Insta-worthy' moments (Freed, 2017). Self-presentations on the platform therefore invite meticulous 'backstage' behaviour (Goffman, 1959). In terms of acquisitive behaviour, adolescent Instagram users tend to share images or videos of themselves depicted as interesting, likeable, or attractive (Yau & Reich, 2019), and often manipulate this content before, during, and/or after photographs/videos are taken (Harris & Bardey, 2019). Several common practices include pre-planning content in 'desirable' locations or during 'cool' events (Yau & Reich, 2019), taking several versions of the same image and sharing the most 'attractive' or 'appealing' option (Bell, 2019), and utilising Instagram's image modification features (Mingoia, Hutchinson, Gleaves & Wilson, 2019). To 'keep up' this appearance, young people also draw upon protective behaviours such as removing or 'untagging'⁹ themselves from unwanted content (Rui & Stefanone, 2013).

Interestingly, significant gender differences have been found in terms of the content adolescents share on Instagram and the idealised image they seek to portray. Although variation has been found within gender groups, research suggests that males tend to post

⁹ Users can 'tag' other individuals in the content they share on Instagram. A tag notifies the individual that they are referred to in another users post, and the tag itself provides a direct link back to their profile, thus identifying the individual who was tagged.

content relating to leisure activities or hobbies (Thelwall & Vis, 2017), and often attempt to portray masculinity and humour (Nilsson, 2016; Yau & Reich, 2019). In contrast, females tend to share more images of themselves (Sorokowska et al., 2016; Souza et al., 2015) or with friends and family (Thelwall & Vis, 2017), and are more likely to attempt to appear popular, physically attractive, and glamorous (Nilsson, 2016; Yau & Reich, 2019). Studies also suggest that females are more likely to share self-presentations which emphasise their positive traits (Lee & Borah, 2020), and spend more time and effort attempting to present the 'perfect' image (Adorjan & Ricciardelli, 2019). These findings are consistent with studies concerning the gender differences in adolescent and emerging adult behaviour on alternative SNSs (e.g., Haferkamp, Eimler, Papadakis & Kruck, 2012; Stefanone, Lackaff & Rosen, 2011; Toma & Hancock, 2010), and such results are often explained by the fact that females tend to be more concerned about how they are perceived by others than males (Dolgin & Minowa, 1997; Williams, 1995). Thus, given the idealised nature of Instagram posts and the photo-enhancing features provided by the platform, it is perhaps unsurprising that females tend to take greater care when crafting their self-presentations on Instagram.

Whilst some have suggested that adolescents' concern regarding how their Instagram content appears to others may lead to increased self-centredness and narcissistic behaviour (Hill & Denman, 2016), reflecting on one's options prior to sharing content could also be considered an exploratory process, whereby young people must select a satisfying identity to share with their online network. Indeed, each post represents a conscious statement of the self, as if the user is proclaiming who and what they are to their followers. Such self-reflective processes have been evidenced in several studies. For example, a study of adolescent Instagram users in Singapore found that young people often thought about what they intended to post prior to taking their photos (Chua & Chang, 2016), whilst for American adolescents, sharing content on the platform is often considered 'work', and they frequently enlist the help of their friends to assist in creating the most favourable content (Yau & Reich, 2019). Instagram self-presentations therefore demand consideration and self-focus, and given that self-reflection can promote identity integration, identity commitment, and the identity achievement status (Luyckx et al., 2007; Shain & Farber, 1989), creating and sharing

content on the platform is likely to provoke adolescents to reflect upon their thoughts, feelings, and behaviour, and in the process, support them in strengthening their identity.

3.2.2.2 Peer Feedback on Instagram

Presented Instagram content appears on an individual's Profile and on the Feeds of their followers, thus potentiating peer engagement and feedback. In offline contexts, young people often rely upon their peers for identity-related feedback (Steinberg & Morris, 2001), and scholars have suggested that peer validation on Instagram is amongst the primary motives for adolescents to share content (Dumas et al., 2017). Indeed, young people with a strong need to belong post more frequently on Instagram (Wong et al., 2019), may engage in deceptive behaviour (such as buying Likes and image manipulation) (Dumas et al., 2017), and are more likely to share ingratiating content on the platform (Sarita & Suleeman, 2017). These studies suggest that adolescents are indeed using Instagram to support identity formation through peer acceptance. Feedback on Instagram has both qualitative forms (through Direct Messages or Comments) and quantitative forms (the number of Likes). Recent research suggests that the young people may give Instagram Likes more credence than other forms of feedback. Likes are considered to be unambiguous and quantifiable positive reinforcement (Bell, 2019), and insights from neuroimaging studies have evidenced that in instances where adolescents achieve a high number of Likes, greater neural activity is recorded in areas of the brain involved in social cognition, reward learning, and motivation (Sherman, Payton, Hernandez, Greenfield & Dapretto, 2015). Instagram Likes are therefore socially rewarding (McLean, Jarman & Rodgers, 2019) and may be particularly important by young people with low self-worth (Bay, 2015) and self-esteem (Li, Chang, Chua & Loh, 2018), thus implying that such feedback can be especially impactful for those experiencing self-uncertainty and insecurity.

Importantly, most peer feedback on SNSs is positive in nature (Valkenburg, Peter & Schouten, 2006; Yang & Brown, 2014), and this is often explained by the fact that contemporary SNSs are designed to stimulate positive feedback (i.e., Like but not Dislike buttons) and provide their users ample opportunity for selective self-presentation

(Koutamanis, Vossen & Valkenburg, 2015). Nevertheless, young people - particularly adolescent females - often go to great lengths to receive their validity feedback on Instagram, such as only posting during peak traffic hours, asking peers to like their content, and even purchasing Likes from secondary source sites (Chua & Chang, 2016; Dumas et al., 2017; Yau & Reich, 2019). As with studies in offline contexts, research has found that positive peer feedback on SNSs can achieve several identity-related purposes. It can: help young people to determine what is socially endorsed (Valkenburg & Peter, 2011); engender feelings of affiliation and belonging (Jong & Drummond, 2016; Tobin, Vanman, Verreynne & Saeri, 2015); significantly boost self-esteem and well-being (Valkenburg et al., 2006) - particularly in those with a low sense of purpose (Burrow & Rainone, 2017); affirm one's identity choices (Mascheroni, Vincent & Jimenez, 2015; Walther et al., 2011); and even help to propel movement towards one's ideal self (Isaranon, 2016).

Though understood to occur less frequently, young people may also experience negative or inadequate feedback on Instagram in the form of hurtful Comments or insufficient Likes. An example of the latter was provided by Chua and Chang (2016), who found that adolescent Instagram users often expect their content to receive a certain amount of Likes, and in instances where the final number was less than expected, frustration and embarrassment was experienced. In this sense, whilst positive feedback can be rewarding, negative/insufficient feedback can be considered punishing, and this is particularly detrimental to Instagram users with maladaptive self-definition (Jackson & Luchner, 2017), as it is often interpreted as peer rejection or loss of approval. Moreover, research on other SNSs suggests that negative feedback can lead to reduced self-esteem (Valkenburg et al., 2006), increased depressive symptoms (Davilla et al., 2012), and even risky behaviours such as self-harm (Chua & Chang, 2016). In instances where adolescents' Instagram content receives negative or insufficient feedback, it is often deleted (Chua & Chang, 2016), as if that identity has been rejected. Young people may then go on to explore alternative identities - in both online and offline contexts - as they continue in their quest to achieve self-validation and peer acceptance. Thus, although positive feedback is significantly more commonplace on Instagram, it appears that peer feedback on the platform is capable of eliciting both identity certainty *and* self-doubt.

3.2.2.3 Summary of Self-Presentation on Instagram and Adolescent Identity Development

Contemporary SNSs such as Instagram have provided adolescents with new platforms for selective self-presentation. Whilst several self-presentational strategies are utilised by young people online, Instagram users tend to present idealised versions of the self, leading the platform to reflect a particularly biased and aesthetic visual culture. Research has found that adolescent Instagram users often post images/videos of themselves depicted as interesting, humorous, or attractive, and whilst this content is largely consistent with stereotypical gender norms, initial evidence suggests that adolescent females spend more time crafting the content they wish to share with their followers. Furthermore, although much of the research concerning self-presentation on Instagram has considered identity performance, there is also initial evidence to suggest that SNS self-presentations can support adolescent identity development through demanding self-reflection and eliciting peer feedback.

Whilst the literature reviewed thus far in this chapter has provided initial insight into how adolescents' experiences on Instagram can inform identity, it is important to recognise that these self-presentations do not occur in a vacuum. Indeed, because Instagram *does* provide its users with a convenient platform for self-expression, it also affords young people abundant opportunities for social comparison. Social comparisons can have significant judgmental, affective, and behavioural consequences (Mussweiler & Strack 2000), and recent studies with adolescents and emerging adults suggest that comparing the self to others is common practice on Instagram (e.g., Chua & Chang, 2016; Meier & Schafer, 2018; Noon & Meier, 2019). However, whilst scholars have started to consider the impact of social comparisons on SNSs, most studies have investigated their psycho-emotional consequences, rather than their identity implications. As such, there is, to date, no published research regarding social comparisons on SNSs and adolescent identity development. The study reported on in this thesis sheds light on this significant gap in the literature, and in the following section, social comparison theory will be introduced; the literature concerning SNS social comparisons will be outlined; and suggestions will be made as to how social comparisons on Instagram may inform adolescent identity development.

3.3 Social Comparison

3.3.1 Social Comparison Theory

Social comparisons - comparisons between the self and others - are a major mechanism of self-knowledge, and can have a profound impact upon our judgements, experiences, and behaviour (Corcoran et al., 2011). Research regarding social comparison processes is grounded in Leon Festinger's (1919-1989) original social comparison theory. Festinger (1954) argued that individuals have an innate drive to gain accurate and stable self-assessments, and in the absence of objective criteria, they often look to others to help evaluate their relative standing. Although Festinger's (1954) original theory emphasised self-evaluations, research has since suggested that there are other common motives for comparing the self to others, including self-improvement - to gain information on how to advance (Taylor & Lobel, 1989) - and self-enhancement - to maintain a positive self-image (Wills, 1981). Furthermore, research has also evidenced that whilst social comparisons can be strategically exercised to fulfil these fundamental needs, not all comparisons are a deliberative process, and they often occur spontaneously, unconsciously, or implicitly (Suls & Bruchmann, 2013).

Although social comparison is often operationalised as a stable process in which some individuals habitually engage (Luong, Knobloch-Westerwick & Frampton, 2019), it has been suggested that social comparisons are most commonplace amongst individuals who experience uncertainty regarding the self, who have an interest in reducing this self-uncertainty, and who are sensitive to the behaviour of others (Gibbons & Buunk, 1999). Considerable empirical evidence supports this assumption, with comparison behaviour being more frequent during adolescence and emerging adulthood (Callan, Kim & Matthews, 2015; Suls & Mullen, 1982), and amongst young people with low self-concept clarity (Saadat, Shahyad, Pakdaman & Shokri, 2017) and high intolerance of uncertainty (Butzer & Kuiper, 2006). Studies have found similar results regarding online behaviour, with emerging adults scoring high in self-uncertainty reporting the highest scores in comparison behaviour

on Facebook (Lee, 2014). These results therefore suggest that young people often seek external sources to help make self-definitions and to guide future behaviour.

Given that Instagram provides individuals with unprecedented opportunities to engage with self-related content shared by others, it is perhaps unsurprising that social comparison behaviour is commonplace amongst young Instagram users (Noon & Meier, 2019). Indeed, a recent study of Canadian undergraduate students found that for every 20 Instagram posts that participants viewed, they made an average of around eight social comparisons, and these comparisons were often in key identity-related domains, including education, career, romantic and peer relationships, and physical appearance (Midgley, 2019). Comparisons were also frequently reported in several other self-related domains, namely lifestyle, health and physical fitness, and financial wealth.

Notably, Festinger (1954) suggested that social comparisons come in two primary forms - comparisons of ability and comparisons of opinion, and it is possible that when conducted on Instagram, such behaviours may have differing implications for adolescent identity development. In the following sections, the extant literature regarding SNS social comparisons of ability and opinion is discussed, and drawing upon the available scholarship, suggestions are made regarding how such behaviour on Instagram *may* inform adolescent identity. The literature reviewed in these sections will help to guide question design for this investigation.

3.3.2 Social Comparisons of Ability on SNSs

Social comparisons of ability entail comparisons of achievement and performance (Yang, Holden & Carter, 2018). In Western cultures, a 'unidirectional drive upward' operates for performance-related comparisons (Festinger, 1954), where individuals not only wish to evaluate their abilities, but also seek to continually improve them and/or confirm that they are 'better' than those of others (Wood, 1989). Such comparisons are therefore highly judgemental and competitive (Park & Baek, 2018). Much of the ability comparison literature

focuses on the direction of comparison, and such processes are often framed in terms of upward and downward comparisons. Individuals conduct *upward comparisons* with those they deem superior on a given dimension, with the superior other typically acting as a role model to demonstrate to the comparer how to improve the self (Wheeler, 1966). In contrast, *downward comparisons* occur when individuals compare themselves with those they deem inferior on a given dimension, and such comparisons are typically utilised in an attempt to self-enhance and maintain a positive self-image (Wills, 1981). Since Instagram users tend to selectively self-present their 'ideal self' on the platform - thus appearing happy, interesting, and/or successful (Yau & Reich, 2019), when compared to offline contexts, adolescent Instagram users are less likely to encounter content wherein the comparison target appears inferior. Indeed, whilst research suggests that young people do, at times, seek out downward comparison targets on SNSs in an attempt to increase feelings of superiority, reaffirm current strengths and values, and boost self-esteem (Doster, 2018; Johnson & Knobloch-Westwick, 2014; Mao, 2017), upward comparisons with the 'picture perfect' lives of others are much more commonplace.

Consistent with social comparison theory, research is beginning to emerge which suggests that upward comparisons of ability on SNSs can indeed engender positive motivational outcomes for young people. For example, Cramer et al. (2016) found that Facebook social comparisons motivated by self-improvement were positively associated with positive affect; Divine et al. (2019) reported that undergraduate students at a British university experienced motivation through comparisons with fitness-related content on Facebook; whilst Mao (2017) found that although Chinese international students at an American university reported feelings of jealousy, inferiority, and stress following social comparisons on Instagram, such comparisons motivated them to work harder and seek advice from more successful peers. This process has since been captured in quantitative enquiry by Meier and Schafer (2018), who in their study of German-speaking Instagram users, found that such comparisons were positively related with inspiration via benign envy - envy which whilst unpleasant and frustrating, motivates individuals to gain the coveted quality, achievement, or possession (van de Ven, Zeelenberg & Pieters, 2009). With this in mind, it is possible that through assimilative processes, comparisons with those who appear more accomplished or

more popular on Instagram may inspire adolescents to better themselves in identity relevant domains - such as education, work, or peer relationships, thus solidifying their identity commitments, prompting further in-depth exploration, and reducing reconsideration of commitment.

Whilst the studies discussed in the previous paragraph paint a rather positive picture of ability comparisons on SNSs, the social comparison literature also suggests that comparisons with superior others can engender feelings of failure, inadequacy, and dissatisfaction (Buunk, Collins, Taylor, Van Yperen & Dakof, 1990). For instance, research in offline contexts has found that when individuals encounter those who appear more attractive (Cash, Cash, & Butters, 1983), successful (Tesser & Cornell, 1991), and/or socially desirable (Morse & Gergen, 1970) than themselves, their own accomplishments can appear inferior by contrast (Lockwood, Dolderman, Sadler & Gerchak, 2004). Significantly, then, much of the scholarship regarding comparisons of ability on Instagram has concerned how such behaviour can *negatively* affect individuals' self-evaluation and psycho-emotional well-being. Research with emerging adult samples has consistently found ability comparisons on SNSs to be associated with a range of negative outcomes, including low self-esteem (Vogel, Rose, Roberts & Eckles, 2014) and self-worth (Burnell, George, Vollet, Ehrenreich & Underwood, 2019), feelings of jealousy, envy, and anxiety (Fox & Moreland, 2015; Lim & Yang, 2015), increased depressive symptoms (Feinstein et al., 2013), high negative affect (Vogel, Rose, Okdie, Eckles & Franz, 2015), and low positive affect (de Vries et al., 2018). Whilst much of the research in this area has been conducted with emerging adults, initial evidence suggests that performance-related comparisons on SNSs can also have negative psycho-emotional consequences for adolescents. For instance, Frison and Eggermont (2016) found that negative feelings following comparisons on Facebook negatively associated with life satisfaction, whilst Nesi and Prinstein (2015) reported that technology-based¹⁰ social comparison and feedback-seeking behaviour positively associated with depressive symptoms. These effects on depressive symptoms were particularly strong amongst adolescent females, and similar gender differences were also found in a study of 1,000

¹⁰ 'Technology-based' here referred to behaviours relating to "texting, Facebook, and other social media" (Nesi & Prinstein, 2015, p. 7).

Dutch teens, where females were more likely to report feelings of annoyance (female: 39%; male: 27%), jealousy (female: 27%; male: 17%), insecurity (female: 28%; male: 14%), and gloominess (female: 23%; male: 15%) following social comparisons on social media (van Driel et al., 2019). These greater negative effects may be because female adolescents are more likely to conduct social comparisons on SNSs that are in self-relevant domains (Nesi & Prinstein, 2015). For example, it has been suggested that females have an increased tendency to compare their physical attractiveness to others based on photographs shared on SNSs (Haferkamp & Kramer, 2011). It is therefore possible that given the image-focused, self-related, and highly idealised nature of Instagram content, these gender differences are further compounded by experiences on the platform.

An explicit example of this ‘compare and despair’ phenomenon was highlighted by Chou and Edge (2012), who in their study of American undergraduate students, found that those who spent more time on Facebook were more likely to report that their online ‘friends’ were happier and had better lives than them, and were less likely to agree that life was fair. In terms of identity-specific domains, in their study regarding romantic relationship social comparisons on Facebook, Morry, Sucharyna and Petty (2018) reported that negative emotions following upward comparisons predicted lower life satisfaction, lower relationship satisfaction, and lower relationship commitment amongst Canadian undergraduate students. Negative self-evaluations in identity relevant domains not only have a detrimental effect upon one’s emotions, often leading to maladaptive behaviour, but can also disturb identity exploration (Harter, 1999; Tsang, Hui & Law, 2012). Therefore, by focusing upon the superior achievements of others on Instagram, some adolescents may be discouraged when they reflect back upon their own individual progression, thus inhibiting in-depth exploration, reducing identity commitment, and evoking reconsideration of commitment.

3.3.2.1 Social Comparisons of Ability on SNSs and Identity Development

To date, there are only two published papers that have focused specifically on the relationship between social comparisons of ability on SNSs and identity development. Both investigations utilised emerging adult samples and considered ability comparisons on SNSs

in 'general', rather than Instagram-specific behaviour. In the first, Yang, Holden and Carter (2018) found that social comparisons of ability were positively associated with the diffuse-avoidant identity style, which in turn predicted lower identity clarity. Young people adopting the diffuse-avoidant style (Berzonsky, 1990, 2011) actively avoid processing identity-related information, and empirical research has found this style to negatively associate with commitment and in-depth exploration, and positively associate with reconsideration of commitment (e.g., Crocetti, Rubini, Berzonsky & Meeus, 2009; Crocetti et al., 2013; Zimmermann, Mahaim, Mantzouranis, Genoud & Crocetti, 2012). This identity style therefore reflects a condition of identity uncertainty and avoidance, and Yang, Holden and Carter (2018) hypothesised that the emerging adults in their study may have adopted this approach to their identity as a coping mechanism to help them escape from the self-threatening SNS content to which they were comparing their abilities. Similarly, in a later study, Yang, Holden, Carter and Webb (2018, p. 98) found that SNS social comparisons of ability were positively associated with rumination - which later predicted identity distress, and suggested that participants may have "adopt[ed] rumination as a strategy to regulate unpleasant emotions derived from online social comparison[s]". The findings of these initial studies therefore evidence that performance-related comparisons on SNSs not only tend to have negative implications for psycho-emotional well-being, but that they can also inhibit identity development during emerging adulthood by reducing commitment, repressing in-depth exploration, and increasing reconsideration of commitment.

However, it is currently unclear as to whether such results would replicate with a sample of adolescent Instagram users. Although previous studies have identified that ability comparisons on SNSs can have negative psycho-emotional effects for adolescents (e.g., Frison & Eggermont, 2016; Nesi & Prinstein, 2015), compared to emerging adults, adolescents identify less with their identity commitments and experience considerably less societal pressure to make decisions and start performing in many identity-related domains (Luyckx et al., 2013; Raiu et al., 2014). Thus, since the importance of performing well in the domain of comparison (i.e., the self-relevance of the domain) magnifies the consequences of competitive ability comparisons (Garcia, Tor & Schiff, 2013), it is possible that relative to emerging adults, adolescents are less susceptible to the maladaptive identity implications of

performance-related comparisons on SNSs. Indeed, although limited, initial evidence suggests that only around one in five adolescents experience considerable feelings of jealousy (22%) and insecurity (21%) following social comparisons on social media (van Driel et al., 2019). On the other hand, given that Instagram content tends to be highly idealised and self-related, ability comparisons on the platform may be particularly 'risky' for young people, in that there is an increased likelihood of such behaviour magnifying adolescents' current inadequacies, thus potentiating greater feelings of inferiority, self-deflation, and uncertainty (this line of reasoning is revisited below in section 3.3.2.2). In this sense, it is possible that developmental and/or platform-specific factors may lead ability comparisons on Instagram to have different identity implications for adolescents than those identified in previous studies with emerging adults.

This investigation's first research question aims to shed light on this gap in the literature:

RQ1a: How do social comparisons of ability on Instagram inform identity development during adolescence?

3.3.2.2 Possible Moderators of the Identity Implications of Social Comparisons of Ability on Instagram

Significantly, the social comparison literature has evidenced that the effects of social comparisons of ability are informed by who the comparison target is. As such, this investigation also sought to learn more about who adolescents are comparing their abilities to on Instagram, and the extent to which network composition may influence the identity implications of such behaviour. Considering the idealised nature of content that is typically shared on the platform and the fact that Instagram users tend to extend their networks beyond their immediate peer groups, the moderating effects of network homophily and tie strength were examined. The following two sub-sections explore why these two aspects of network composition may have a significant impact upon how ability-based comparisons on Instagram inform the process of identity development during adolescence.

Network Homophily as a Moderator of the Identity Implications of Social Comparisons of Ability on Instagram

According to the social comparison literature, the perceived similarity between the comparer and the comparison target plays a significant role in determining the implications of ability-based comparison behaviour (Buunk & Ybema, 1997; Wheeler, 1966). In effect, when the comparer considers the upward comparison target to be similar in related attributes, they are informed that they can, or have the potential to, perform similarly, thus generating upward assimilative emotions such as admiration, optimism, and benign envy (Smith, 2000). However, non-social constraints can make it challenging or even impossible for individuals to change their abilities, no matter how motivated they are to do so (Festinger, 1954). As such, in cases where the comparer believes that they are unable to close the gap between themselves and the advantaged other, upward contrastive emotions - such as shame, resentment, and malicious envy - are likely to follow (Lockwood & Kunda, 1997). Such reasoning is typically used to help explain why ability comparisons on SNSs tend to have more negative outcomes for young people, in that because users often present themselves in a socially desirable and idealised manner, others are more likely to appear significantly superior in the domain of comparison.

Importantly, then, as Instagram content tends to be highly idealised in nature, the chances of young people encountering others who appear far superior to their actual self is relatively high. The implications of this actual vs ideal dynamic are therefore conceptually similar to those present in the self-discrepancy literature (Higgins, 1987), yet in the context of social comparisons, negative outcomes are potentiated when individuals fall markedly short of the achievements of *others*, rather than falling short of the standards set for *themselves*.

Therefore, the prominence of positively biased visual content on Instagram may subsequently trigger assumptions that such images are indicative of the lives of others, thus making adolescents increasingly vulnerable to feelings of inferiority (Hwnag, 2019). Indeed, a UK-wide study of nearly 1,500 14-24 year olds found that when compared to YouTube, Twitter, Facebook, and Snapchat, Instagram was ranked worst for youth mental health and overall well-being (Royal Society for Public Health, 2017a), and the researchers working on the study suggested that the image-focused, highly-curated nature of Instagram content

drove feelings of inadequacy and anxiety in young people (Royal Society for Public Health, 2017b). Thus, it is possible that the inhibitory effects of ability comparisons found in previous studies are not only replicated on Instagram, but in fact exacerbated by experiences on the platform.

Having said that, ability comparisons on Instagram (or indeed any SNS) are not inherently 'bad' for young people, and recent Facebook-based experimental studies have evidenced that the more similar the comparison target is to the comparer, the more positive (and less negative) implications that such behaviour tends to have for emerging adults' sense of self. In their study of American university students, Kang and Liu (2019) identified that in instances where participants perceived moderate or high similarity with other Facebook users, engaging with their content led participants to rate themselves more positively in the domain of comparison. Conversely, Midgley (2019) found that amongst Canadian university students, the more extreme the upward comparison on Facebook was (i.e., the more superior the target was), the greater the negative effects that the comparison had on participants' self-evaluation. Although less research has been conducted with adolescent samples, a correlational study with British adolescents found that Instagram network homophily (i.e., the extent to which adolescents surround themselves with similar others on Instagram) positively moderated the relationship between social comparisons of ability and benign envy, and negatively moderated the relationship between social comparisons of ability and malicious envy (Noon & Meier, 2019).

Cumulatively, the findings of these three studies suggest that should young people mindfully compose their Instagram networks to avoid unachievable false role models, comparisons of ability may have more adaptive (and less maladaptive) implications for identity development. More specifically, given that self-evaluation positively associates with commitment (Hirschi, 2011) and benign envy is likely to motivate adolescents to engage in further identity work to optimise their potentials, it appears that the more similar others that adolescents follow on Instagram, the more likely that ability comparisons on the platform are to strengthen commitments and prompt further in-depth exploration.

Guided by this reasoning, it appears important to consider the perceived similarity between the comparer and the comparison target when considering the identity implications of performance-related comparisons on Instagram, and thus, this investigation seeks to explore:

RQ1b: To what extent does network homophily inform the identity implications of social comparisons of ability on Instagram?

Tie Strength as a Moderator of the Identity Implications of Social Comparisons of Ability on Instagram

Another factor which may moderate the implications of social comparisons of ability on Instagram is the relational closeness - or tie strength (Granovetter, 1973) - between the comparer and the comparison target. When considering the moderator effects of relational closeness, researchers typically draw upon Tesser's (1988) Self-Evaluation Maintenance (SEM) model. The SEM differentiates between 'reflection' and 'comparison' processes, and holds that relational closeness intensifies the effects of each process. In instances where the domain of comparison is not central to one's self-definition, the SEM suggests that individuals can share the successes of others (i.e., reflection), thus enhancing self-evaluation; the closer the relationship with the superior other, the more the comparer can gain in self-evaluation. However, should the domain of comparison hold personal significance, the successes of others can cause one's own abilities to appear inadequate (i.e., comparison), thus having a negative effect on self-evaluation; here, the closer the relationship with the superior other, the greater the loss in self-evaluation.

Importantly, by affording non-reciprocal connections, Instagram provides its users with increased freedom to follow individuals not in their immediate peer networks, thus presenting adolescents with greater access to content shared by those that they do not know (or do not know as well) in offline contexts. Initial evidence suggests that young people are indeed utilising these opportunities to engage with content posted by 'weak' or

'absent' ties (e.g., their favourite sports stars, celebrities, and/or Instagram 'influencers'), with recent research with young people in the US finding that 40.3% of adolescents follow mainly non-friends on Instagram, whilst 66.4% of adolescents predominantly see content shared by non-friends on their Feeds (Lockhart, 2019). Thus, as the consequences of ability comparisons are influenced by the relationship between the comparer and the comparison target, the extent to which adolescents extend their Instagram networks to contain proportionally fewer close ties is likely to have an effect on the identity implications of performance-related comparisons on the platform.

Whilst it is currently unclear as to whether content shared by close ties on Instagram tends to trigger reflection or comparison processes, quantitative Facebook-based studies with emerging adults and adults have found that comparisons with close ties typically have more positive (i.e., feelings of happiness and benign envy) than negative (i.e., feelings of malicious envy) psycho-emotional implications (e.g., Lin & Utz, 2015; Liu, Li, Carcioppolo & North, 2016). Guided by Tesser's (1988) SEM, these results have been interpreted as evidence to suggest that much of the content shared by close ties on Facebook is not self-threatening, and thus, it appears reasonable to assume that the more close ties in one's Facebook network, the more likely that ability comparisons on the platform are to enhance self-evaluation. Since self-evaluation positively predicts identity commitment (Hirschi, 2011), should results be consistent across platforms, engaging with content shared by close ties on Instagram may help to support adolescents to strengthen their identity commitments. Alternatively, should the idealised self-related content shared by close ties on Instagram tend to trigger comparison processes, it is possible that for adolescents with more close ties in their Instagram networks, performance-related comparisons may have more maladaptive identity implications in terms of reduced commitment.

Thus, to help determine whether following more close ties on Instagram tends to have more positive or negative implications for adolescent identity development, this investigation sought to learn more about how adolescents interpret content shared by close ties on the platform. This study therefore explores:

RQ1c: *To what extent does tie strength inform the identity implications of social comparisons of ability on Instagram?*

3.3.2.3 Summary of the Research Questions regarding Social Comparisons of Ability on Instagram and Adolescent Identity Development

Given the volume of self-related visual content shared on Instagram, the platform provides its users with abundant opportunities for social comparisons of ability. As individuals tend to present their ideal self on the platform, comparisons of ability are typically upward in nature, and a significant amount of research has found that such behaviour can have negative implications in terms of self-esteem, jealousy, and anxiety. Importantly, research is beginning to emerge regarding the identity-related consequences of ability comparisons on SNSs, and initial evidence suggests that such behaviour tends to have maladaptive implications for identity development during emerging adulthood. There is, however, no existing literature regarding how ability comparisons on SNSs inform the process of identity development during adolescence, a period where identity-related issues are likely to be prominent, though perhaps less 'serious' (Arnett, 2000, 2015). With this in mind, the first aim of this investigation is to examine the identity implications of social comparisons of ability on Instagram during adolescence. Furthermore, this study will also extend current knowledge regarding ability comparisons on SNSs and adolescent identity by considering *who* young people compare themselves to on Instagram. Empirical research in both online and offline contexts has evidenced that the perceived similarity and relational closeness between the comparer and the comparison target can influence the consequences of ability-based comparisons. Given that individuals tend to present idealised versions of the self (i.e., far superior) and follow those beyond their immediate peer networks (i.e., weaker ties) on Instagram, these two aspects of network composition are likely to have a significant effect on how ability comparisons on the platform relate to identity development. As such, this investigation also examines the moderating effects of network homophily and tie strength on the identity implications of Instagram-based social comparisons of ability.

Whilst social comparisons of ability are commonplace on Instagram and may have significant consequences for identity development, not all comparisons are performance related (Festinger, 1954). Thus, the following section discusses how social comparisons of opinion on Instagram may also inform adolescent identity.

3.3.3 Social Comparisons of Opinion on SNSs

Unlike comparisons of ability - which are often used to self-improve and/or self-enhance, comparisons of opinion are typically utilised for self-evaluative purposes (Park & Baek, 2018). Social comparisons of opinion involve comparing one's preferences (value judgements) and beliefs (verifiable assertions) to those of others (Suls, Martin & Wheeler, 2000), and stem from the desire to learn about social norms, to validate or challenge one's value system, and to regulate one's behaviour. For comparisons of opinion, then, targets are viewed not as competitors, but as consultants and informants (Park & Baek, 2018). In contrast to the rich literature on SNS social comparisons of ability, there are only a handful of published studies which have considered social comparisons of opinion on SNSs, all of which drew upon quantitative methods with emerging adult and/or adult samples. Amongst those studies, Brandenburg, Ozimek, Bierhoff and Janker (2018) found that opinion comparisons on Facebook and Xing were not related to self-esteem or depressive symptoms; Park and Baek (2018) reported that opinion comparisons on Facebook positively associated with upward assimilative emotions (optimism and inspiration) and negatively associated with upward contrastive emotions (envy and depression); whilst Yang and Robinson (2018) found that SNS opinion comparisons supported better social adjustment amongst American university students. These findings provide initial evidence to suggest that when conducted on Instagram, such comparisons may be less likely to evoke the negative psycho-emotional and identity-related outcomes associated with competitive ability-based comparisons on the platform.

3.3.3.1 Social Comparisons of Opinion on SNSs and Identity Development

Though limited, there is some scholarly research which supports such a hypothesis: in their studies with American emerging adults, Yang, Holden, Carter and Webb (2018) found that

SNS social comparisons of opinion were positively associated with reflection, whilst Yang, Holden and Carter (2018) identified that such behaviour positively associated with the informational identity style. This identity style is characterised by active exploration, and is positively related with commitment, in-depth exploration, and reconsideration of commitment (e.g., Crocetti, Rubini, et al., 2009; Crocetti et al., 2013; Zimmermann et al., 2012). These findings therefore suggest that social comparisons of opinion on SNSs often prompt emerging adults to reflect upon their identity-related beliefs and values, and in the process, support commitment solidification.

Given the less competitive and judgemental nature of opinion comparisons, it is possible that relative to ability comparisons on Instagram, there are fewer developmental differences in terms of how such behaviour informs the process of identity development during adolescence and emerging adulthood. However, as adolescents are typically less committed to their identity-related choices (Crocetti et al., 2008), their tendency to reconsider aspects of their identity having engaged with the opinions of others on Instagram may be elevated compared to that of emerging adults. In this sense, whilst opinion comparisons on Instagram may prompt further exploration during adolescence, their effects on commitment may be more inconsistent.

Thus, to learn more about the identity implications of social comparisons of opinion on Instagram during adolescence, this investigation explored:

RQ2a: How do social comparisons of opinion on Instagram inform identity development during adolescence?

3.3.3.2 Possible Moderator of the Identity Implications of Social Comparisons of Opinion on Instagram

Whilst the aforementioned research suggests that social comparisons of opinion on Instagram may support adolescent identity development, the social comparison literature suggests that the direction that such comparisons take one's identity is likely to be

determined by who the comparison target is. Thus, this investigation also sought to examine the extent to which Instagram network composition moderates the identity implications of opinion comparisons on the platform. Across the social comparison literature, comparisons of opinion are typically framed in terms of similar (or agreeing) versus dissimilar (or disagreeing) others (Wagner, 1984), and the perceived similarity between the opinion of the comparer and the comparison target has been shown to have a significant effect on the implications of such behaviour. The following sub-section therefore introduces how comparisons of opinion with similar and dissimilar others on Instagram may have differing consequences for adolescent identity.

Network Homophily as a Moderator of the Identity Implications of Social Comparisons of Opinion on Instagram

In his original social comparison theory, Festinger (1954) posited his 'similarity hypothesis', wherein individuals display a preference for comparing themselves to similar others. In terms of opinion comparisons, he held that comparisons with similarly minded others allow for the most precise evaluations and elicit the greatest sense of subjective validity. Whilst later writers have been critical of Festinger's (1954) similarity hypothesis - noting that dissimilar others can also provide valuable information (e.g., Goethals & Darley, 1977), his ideas regarding the outcomes of opinion comparisons with similar others have received significant empirical support. Indeed, because similar viewpoints are often interpreted as evidence of one's opinions being correct/socially acceptable, comparisons with similar opinions tend to provide the comparer with a sense of validation, closure, and stability (Kruglanski, 1989). In contrast, comparisons of opinion with dissimilar others are more likely to provide the comparer with novelty and difference. Therefore, although dissimilar others can serve to validate one's opinions through both agreement (by triggering a 'triangulation effect' [Goethals & Darley, 1977]) and disagreement (by showing individuals who they are not [Kruglanski & Mayseless, 1987]), comparisons with incongruent opinions potentiate disconfirmation and commitment suspension (Kruglanski, 1989), and thus attitudinal change (Wang & Song, 2020).

Although very little is known about whether young people use SNSs to seek out alternative perspectives or whether they tend to follow similar others (Manago, 2015), by enabling adolescents to extend their networks beyond their immediate peer groups, Instagram provides its users with the opportunity to engage with a diverse range of opinions. Furthermore, Instagram also enables young people to strategically unfollow or 'mute'¹¹ other accounts, thus providing users with a great deal of freedom to curate the types of beliefs and values that are shared onto their Feed. However, whilst Instagram is conducive to amassing diverse networks, initial evidence suggests that young people tend to follow similar others on the platform, presumably to enable them to validate and learn more about their current beliefs and values. For instance, a study of predominantly American emerging adults found that on Instagram, selective exposure (to agreeing others) and selective avoidance (of disagreeing others) often occurs in the political domain, with 79.9% of participants reporting to follow political leaders who they usually agree with, and only 15.3% of respondents reporting to follow those that they usually disagree with (Parmelee & Roman, 2020). Furthermore, research with emerging adult and adult Instagram users has evidenced that individuals often seek out social relationships with others who hold similar interests on the platform (Lee et al., 2015), whilst they are also more likely to follow those with similar personalities (Jin & Muqaddam, 2018).

Given the freedom that Instagram provides its users to curate their networks, the extent to which adolescents follow similar/dissimilar others on the platform is likely to have a significant effect on how opinion comparisons inform the process of identity development. Indeed, both correlational and experimental research has evidenced the relationship between attitudinal and self-certainty (e.g., Dummel, 2018). For example, an experimental study with American undergraduate students found that in instances where the opinion under comparison is relevant to one's core values, individuals feel greater self-certainty under conditions of high attitudinal certainty (i.e., when attitudinal consensus is high) (Clarkson, Tormala, DeSensi & Wheeler, 2009). In this sense, similar (dissimilar) opinions not

¹¹ When users 'mute' others on Instagram, the posts of the 'muted' account do not appear on their Feed. Whilst the 'muted' account is not unfollowed (and thus, their profile page is still accessible), 'muting' helps users to control what posts they see on Instagram (Instagram, 2018).

only provide support (opposition) for one's beliefs and values, but they can also play a role in validating (challenging) one's identity. As such, for adolescents who follow more similar others on Instagram, comparisons of opinion appear likely to support identity maintenance. That is, similar opinions may help to strengthen adolescents' current commitments, and may even evoke an increased desire amongst young people to learn more about their identity-related choices, thus prompting in-depth exploration. In contrast, for adolescents with more dissimilar others in their Instagram networks, opinion comparisons may be more likely to elicit self-doubt and identity (re)formation, in that comparisons with dissimilar opinions could reduce identity commitment and increase reconsideration of commitment.

Thus, to get a more complete understanding of how Instagram-based social comparisons of opinion inform adolescent identity, it is important to get a clearer picture of who adolescents are comparing their beliefs and values to on the platform. With this in mind, this investigation also examined:

RQ2b: To what extent does network homophily inform the identity implications of social comparisons of opinion on Instagram?

3.3.3.3 Summary of the Research Questions regarding Social Comparisons of Opinion on Instagram and Adolescent Identity Development

In contrast with the emerging literature regarding ability-based comparisons in online contexts, we know relatively little about the consequences of social comparisons of opinion on SNSs. Initial evidence does, however, suggest that such behaviour can have positive implications for both psycho-emotional well-being and identity development. To extend our knowledge of this under-researched area, the investigation reported on in this thesis explores the extent to which opinion comparisons on Instagram inform adolescent identity. Furthermore, according to social comparison theory, the implications of such comparisons should be moderated by the perceived similarity between the comparer and the comparison target. As such, to better understand how opinion comparisons on Instagram inform adolescent identity, this study also examines who young people compare their

opinions to on the platform and the extent to which perceived similarity moderates the identity implications of such behaviour.

3.4 Conclusion

This chapter first reviewed the extant literature regarding SNS self-presentation and adolescent identity. It began by outlining how SNSs have provided young people with new opportunities for selective self-presentation, and subsequently discussed how presenting an idealised version of the self is common practice on Instagram. Indeed, Instagram content tends to be self-related and positively biased, and young people often seek to portray themselves as interesting, likeable, and attractive on the platform. Having explored how young people tend to self-present on Instagram, this chapter then considered how carefully curating and sharing Instagram content may inform identity development during adolescence through demanding self-reflection and eliciting peer feedback.

Whilst the studies reviewed in the first half of this chapter evidence how adolescents' experiences on Instagram may inform their identity, by focusing exclusively on self-presentational behaviour, the existing literature provides limited insight into how Instagram content shared by other users may also influence the process of identity development during adolescence. Having identified this significant gap in the current knowledge base, the second half of this chapter drew upon the social comparison literature to suggest how social comparisons of ability and opinion on Instagram *may* inform the three identity processes captured in the three-factor model introduced in the previous chapter (see 2.4). To help generate a more comprehensive understanding of how social comparisons on Instagram may support and/or impede identity development during adolescence, discussion also concerned how network homophily and tie strength may moderate the identity implications of such behaviour. Thus, guided by the literature discussed in both this and the preceding chapter, this investigation not only sought to examine the direct relationship between social comparisons on Instagram and adolescent identity, but also considered the moderating effect of Instagram network composition.

Although the specific research questions of this investigation were embedded within this chapter to demonstrate connections to the literature, to provide readers with a clear overview of the overarching goals of the research reported on in this thesis, the five core research questions are again presented below:

RQ1a: How do social comparisons of ability on Instagram inform identity development during adolescence?

RQ1b: To what extent does network homophily inform the identity implications of social comparisons of ability on Instagram?

RQ1c: To what extent does tie strength inform the identity implications of social comparisons of ability on Instagram?

RQ2a: How do social comparisons of opinion on Instagram inform identity development during adolescence?

RQ2b: To what extent does network homophily inform the identity implications of social comparisons of opinion on Instagram?

The following chapter will provide a critical analysis of the methodological approach, the sample, and the methods of data collection and analysis used to answer these questions.

Chapter 4. Methodology

4.1 Introduction

This chapter introduces the methodological framework of this thesis. It begins with an explanation of the pragmatic approach adopted, and a discussion regarding the reflective process through which the mixed method design for this investigation was determined. The sequential explanatory design utilised in this study - wherein quantitative and qualitative data were collected, analysed, and interpreted sequentially - is then outlined. An initial survey was used to determine the linear relationship between social comparisons on Instagram and the three identity processes captured in the three-factor model (Crocetti et al., 2008). The results were subsequently explored through semi-structured interviews. Importantly, both phases of this investigation collected data from young people attending the same educational setting in central England. Thus, having explained the methodological approach of the research, the population from which participants were drawn is introduced. The quantitative and qualitative phases of this investigation are then outlined: the overarching aims of each phase are discussed, the sampling strategies and final samples are described, and the procedures for data collection and analysis are explained. The chapter ends with an outline of the steps taken to ensure that this research was conducted in an ethical manner.

4.2 Pragmatism

4.2.1 Pragmatic Approach

This study is guided by the pragmatic approach to research. Philosophical pragmatism is grounded in the writings of Charles Sanders Peirce (1839-1914), William James (1842-1910), and John Dewey (1859-1952), and whilst each of these scholars differed in how they conceived of pragmatism, they all set themselves apart from longstanding debates in metaphysics. Broadly speaking, at the core of pragmatism is its rejection of seemingly unresolvable questions regarding the nature of reality and the possibility of truth (Morgan, 2007). Instead, pragmatism prioritises action and experience over doctrine and fixed principles (Rosenthal & Thayer, 2017), and holds that knowledge is the result of taking action and learning from its outcomes (Morgan, 2014a). In this sense, philosophical

pragmatism maintains that the meaning of actions and beliefs are found in their consequences (Morgan, 2014b), and thus, that ideas and practices ought to be judged in terms of their usefulness, workability, and practicality (Reason, 2003).

Although pragmatism constitutes a broad philosophical system, it is the Deweyan concept of *inquiry* that provides a direct link to issues relating to research design. Pragmatic philosophy dictates that human action cannot be separated from past experiences and the beliefs that have arisen from those experiences (Morgan, 2014a). Dewey built upon these ideas and proposed that many of our experiences occur in a relatively undisputed way, in that the beliefs that we have acquired from previous experiences can adequately handle the demands for current action (Morgan, 2014b). As such, much of what we do does not require careful decision making, and Dewey (2008) referred to this as *habit*. However, on occasions where it is unclear as to how we should behave, thoughtful self-reflection is required to resolve uncertainty (Morgan, 2014b). Dewey referred to this decision-making process as inquiry, and in such situations, pragmatism asks: what difference would it make to act one way rather than another? Significantly, the only way one can answer this question is by evaluating the likely consequences of different lines of action, before determining the way of acting that appears best suited to addressing the original cause of uncertainty. This reflective process is captured below in Dewey's five-step framework of problem solving (Figure 2).

As individuals repeatedly take similar action in similar situations, and experience the consequences of this action, they learn the likely outcomes of behaving in such a fashion (Morgan, 2014b). These repeated experiences of predictable outcomes produce 'warranted assertions' - a term Dewey substituted for knowledge, and a resource for future inquiries (Levi, 2012); that is, knowledge is the result of taking action and experiencing its outcome. Importantly, however, since experiences occur within a specific context, using them to predict the outcome of future action is fallible and probabilistic (Morgan, 2014b). As such, pragmatism is not only self-reflective, but also self-critical: it recognises the tentative nature of concepts and theories, and is not about finding anything "absolutely permanent, true, and complete" (Dewey, 1998, p. 378), but about providing a provisional solution to the

practical and intellectual issue that provoked inquiry (Fensterstein, 2014). Nevertheless, consistent with pragmatic thought, Dewey's theorising implies that we should give up on the assumption that there is an external system that will explain our beliefs for us (Morgan, 2007), and instead, what measures the value, correctness, and 'truth' of knowledge is the degree "of its availability for conducting to a successful issue the activities of living beings" (Dewey, 2008, p. 180).

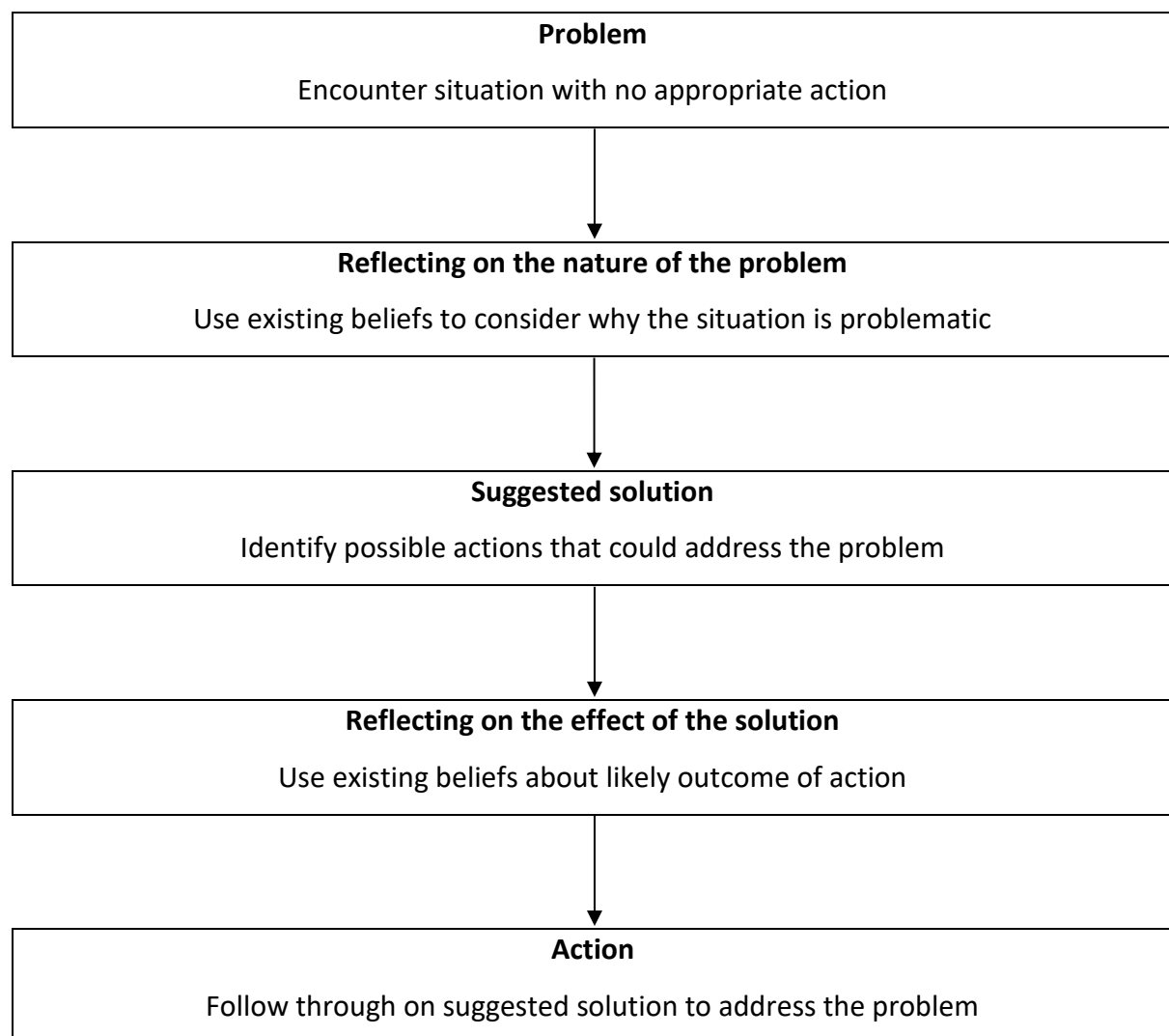


Figure 2. *Dewey's Five-Stage Model of Inquiry (Morgan, 2014a)*

Within this tradition, social science research is no different to any other form of human endeavour which involves uncertainty: deciding where to go on holiday, which new car to

buy, or selecting a method for a research project are all forms of inquiry which we must undertake to determine the workability of any potential line of action (Morgan, 2007). Importantly, since pragmatic researchers hold that both observable phenomena and subjective meanings are able to produce legitimate knowledge (Kaushik, 2016), questions of 'truth' and 'reality' are replaced with questions regarding what difference it would make to acquire and produce knowledge one way rather than another (Morgan, 2014b). Investigators are, therefore, able to choose a particular explanation of the world based upon its ability to produce the anticipated or desired outcome (Cherryholmes, 1992), and thus, pragmatic researchers are not prisoners to a particular method or technique (Creswell & Plano Clark, 2007; Robson, 1993). Instead, they remain open to reformulating the tools of their thinking, recognise the value of different approaches, and accept that "quantitative, qualitative, and mixed research are all superior under different circumstances" (Johnson & Onwuegbuzie, 2004, pp. 22-23). Pragmatism could therefore be considered a flexible and reflective approach to research, whereby scholars should spend considerable time deliberating over which design is most useful and workable for fulfilling the specific aims of their investigation.

Given the relative novelty of Instagram and the dearth of existing research regarding the identity implications of social comparisons on the platform, a review of the designs that scholars had previously utilised when exploring the extent to which SNS behaviour can inform identity development was conducted. It was hoped that by examining the methodological approaches used by others, it would be possible to construct more informed judgments about the workability of different lines of action. In the following sub-section, the results of the review are outlined.

4.2.2 Reflection on the Existing Literature

To help identify literature which could inform the methodological design of this research, three approaches to literature searching were utilised. First, key sources regarding SNSs and identity development that were identified whilst writing the draft literature review of this dissertation were compiled. Second, a literature search was conducted on the Sheffield

Hallam University Library Gateway to identify whether there were any relevant sources that were not, at that time, discussed in the draft literature review. To optimise specificity and relevance, a focused inclusion/exclusion criteria was applied to this search, and only peer-reviewed articles or dissertations which drew upon neo-Eriksonian reasoning to investigate how SNSs may inform the process of identity development during adolescence and/or emerging adulthood were considered. Furthermore, to ensure historical relevance, only studies from 2010 onward were included in the search. Nevertheless, to ensure sensitivity, synonyms were used regarding the researched platform (e.g., SNSs, social media, Instagram), the age of the sample (e.g., adolescent, teenager, emerging adult), and the terminology used to describe identity (e.g., development, formation, exploration). Finally, the backward snowballing approach was applied to the literature identified during the first two stages of the search, whereby the reference lists of the compiled sources were scanned to identify whether any articles of interest may have been missed.

The review of the existing literature revealed that scholars investigating how SNSs inform the process of identity development during adolescence and/or emerging adulthood have often drawn upon quantitative self-report surveys with large samples ($N > 150$) of young people (e.g., Drogos, 2015; Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018). This tendency to utilise self-report surveys may be resultant of the widely held belief amongst neo-Eriksonian researchers that such methods are the most reliable, or in some cases the *only* reliable source of data, as the construct itself (i.e., identity) represents individuals' *own* sense of commitment and exploration (Bogaerts et al., 2018; Klimstra, Luyckx, Goossens, Teppers & De Fruyt, 2013). Nevertheless, these researchers have tended to adopt 'global' or domain-independent approaches to identity development, and by statistically examining the relationship between self-report scores for SNS behaviours (e.g., social comparison, self-presentation) and identity-related variables (e.g., identity status, identity style, identity clarity, identity distress), scholars have been able to make inferences regarding the extent to which the behaviour under investigation informs identity development. Given its successes in similar studies, a quantitative survey-based approach containing self-report scores for Instagram social comparison behaviour, Instagram network composition, and the three identity processes (commitment, in-depth exploration, and

reconsideration of commitment) was determined to be an appropriate and useful means of providing initial insight into the relationship between Instagram-based social comparisons and identity development during adolescence.

Although self-report surveys have clear utility for this investigation, a solely quantitative approach would have had several significant limitations. First, whilst such an approach could identify general relationships between social comparison behaviour on Instagram and identity processes, it would not necessarily be able to explain how and why these relationships exist. Second, as surveys rely on measuring pre-determined constructs, they would provide limited insight into the specific identity domains informed through social comparisons on Instagram. Third, quantitative surveys give participants limited voice, and thus, they would fail to capture the extent to which young people themselves believe that social comparisons on the platform inform their search for identity. It was therefore determined that qualitative methods would be useful for providing additional richness and depth to our understanding of the identity implications of Instagram-based social comparisons. Incorporating a qualitative element into this investigation was considered particularly important, as during the time that the methodological framework of this research was being developed, all previous published scholarship regarding social comparisons on SNSs and the process of identity development had been quantitative in nature. Thus, whilst previous research had helped to generate a general understanding of how social comparisons on SNSs tend to inform identity during emerging adulthood, there remained significant gaps in the literature regarding the qualitative aspects of this phenomenon.

Importantly, the review of the existing literature evidenced that researchers who sought to explore the phenomenological intricacies of identity construction in online contexts (e.g., Salimkhan, Manago & Greenfield, 2010; Ward, 2017), and those interested in studying domain-specific exploration on SNSs (e.g., Pluretti, 2018), have typically used qualitative semi-structured interviews. Interviews tend to be with small samples of young people ($N < 20$) - thus enabling the micro-analysis of individual experience, typically last from 45 to 60

minutes, and are often conducted alongside visual methods/prompts such as participants giving researchers 'guided tours' of their SNS profiles. In a field seemingly dominated by quantitative approaches, these studies have enabled young people to discuss their experiences in online contexts, and have provided researchers with rich insights into how adolescents and emerging adults believe that their behaviour on SNSs may support their identity development. Guided by this evidence, it was determined that qualitative interviews would provide useful depth to this investigation as they would enable a deeper understanding of how young people experience social comparisons on Instagram, and they would allow for the exploration of how adolescents themselves believe that social comparisons on the platform inform their identity development.

With all this in mind, it was evident that both quantitative and qualitative approaches could provide important insights: surveys could provide a general understanding of how social comparison behaviour on Instagram relates to identity development during adolescence, whilst interviews could provide additional depth by building upon the quantitative results and exploring the qualitative aspects of this phenomenon. A mixed-method design drawing on quantitative and qualitative approaches was therefore utilised to ensure that this investigation could generate the most well-rounded and comprehensive understanding of the identity implications of Instagram-based social comparison behaviour. Indeed, neither approach appeared sufficient alone, and it has been argued that by enabling researchers to capitalise upon the strengths and offset the weaknesses of each individual approach, methodological flexibility and integration can allow for the most complete understanding of complex human phenomena (Doyle, Brady & Byrne, 2016).

By adopting a mixed-method design, this investigation not only extends the academic literature by determining the statistical relationship between Instagram-based social comparison behaviour and adolescent identity, but it also provides significant depth and richness to our understanding of the phenomena by exploring how and why such behaviour informs adolescents' sense of self. In the following section, the specific mixed-method approach adopted in this investigation is introduced and justified.

4.3 Research Design

Mixed-method designs have become increasingly popular in recent years, and although scholars have identified up to 44 possible mixed-method approaches (Tashakkori & Teddlie, 2003), strategies tend to fall into one of the following two broad categories: concurrent and sequential. Concurrent designs involve collecting and analysing quantitative and qualitative data during the same stage of research and are typically utilised for the purpose of convergence, confirmation, and corroboration (Dewasiri, Weerakoon & Azeez, 2018). Sequential designs, on the other hand, have two distinct phases, with the collection and analysis of one type of data occurring after the collection and analysis of the other (Creswell, 2009). There are two primary forms of sequential designs: exploratory and explanatory. Sequential exploratory designs are often used in cases where very little is known about the phenomena under investigation (Creswell & Plano Clark, 2018); the initial qualitative phase is exploratory in nature, and results help researchers to design aspects of the subsequent quantitative stage which seeks to test the generalisability of qualitative findings (Iskander, 2013). In contrast, the sequential explanatory design leads with a quantitative phase which provides researchers with a general understanding of the phenomenon under investigation, whilst the subsequent qualitative phase seeks to refine, explain, and elaborate on the initial quantitative results (Ivankova, Creswell & Stick, 2006).

4.3.1 Sequential Explanatory Design

It was therefore decided that the sequential explanatory design was the most appropriate mixed-method approach for this investigation. Although sufficient inferences could be drawn from the theoretical literature and previous empirical studies with emerging adults to help design an initial quantitative survey, an understanding of the general relationship between social comparisons on Instagram and adolescent identity was required before an in-depth exploration regarding how or why such behaviour informs identity could take place. Therefore, this investigation consisted of two distinct stages, the first of which involved collecting and analysing quantitative survey data. Given the lack of previous scholarship regarding the specific topic under investigation, a cross-sectional design - where survey data is collected at one time point - appeared fitting for the initial quantitative phase

of this research (Abdelhak & Hanken, 2016). Although the results of such a design could not be used to infer causality (since a temporal sequence would not be established), it could provide initial insight into the linear relationship between Instagram-based social comparisons and adolescent identity. This could then be explored in greater detail during the subsequent qualitative phase. Indeed, the secondary stage of sequential explanatory designs is qualitative and typically seeks to illuminate quantitative results by exploring participants' views in greater depth. In doing so, sequential explanatory designs allow researchers to learn more about the quantitative results from participants themselves, rather than speculating on their meaning without supportive data (Morgan, 2014a). Morse (1991) wrote that this approach can be particularly useful when unexpected results arise from the quantitative phase of data collection, and given that the 'expected' findings of this investigation were largely guided by research with emerging adult (rather than adolescent) SNS users (rather than Instagram users), it was quite possible that some results from the quantitative stage would require further exploration. Thus, in this investigation, the secondary phase not only sought to explore the qualitative aspects of Instagram-based social comparison behaviour, but also intended to provide possible explanations for the quantitative findings. A visual model of the structure of the investigation reported on in this thesis can be found below in Figure 3.

Importantly, to ensure the secondary qualitative phase is best placed to explain initial quantitative results, researchers typically draw participants from the same population for both phases in sequential explanatory designs (Creswell & Plano Clark, 2011). Following this recommendation, the population under investigation is introduced in the next section. Having outlined the overall population, the quantitative and qualitative phases of the research reported on in this thesis are then discussed. Here, the overarching aims of each phase are stated, the sampling strategies and final samples are described, and the procedures used for data collection and analysis are explained. The chapter then ends with a discussion regarding how ethical issues were addressed to ensure that this study was conducted in a manner which ensured research integrity and protected the dignity, rights, and welfare of participants.

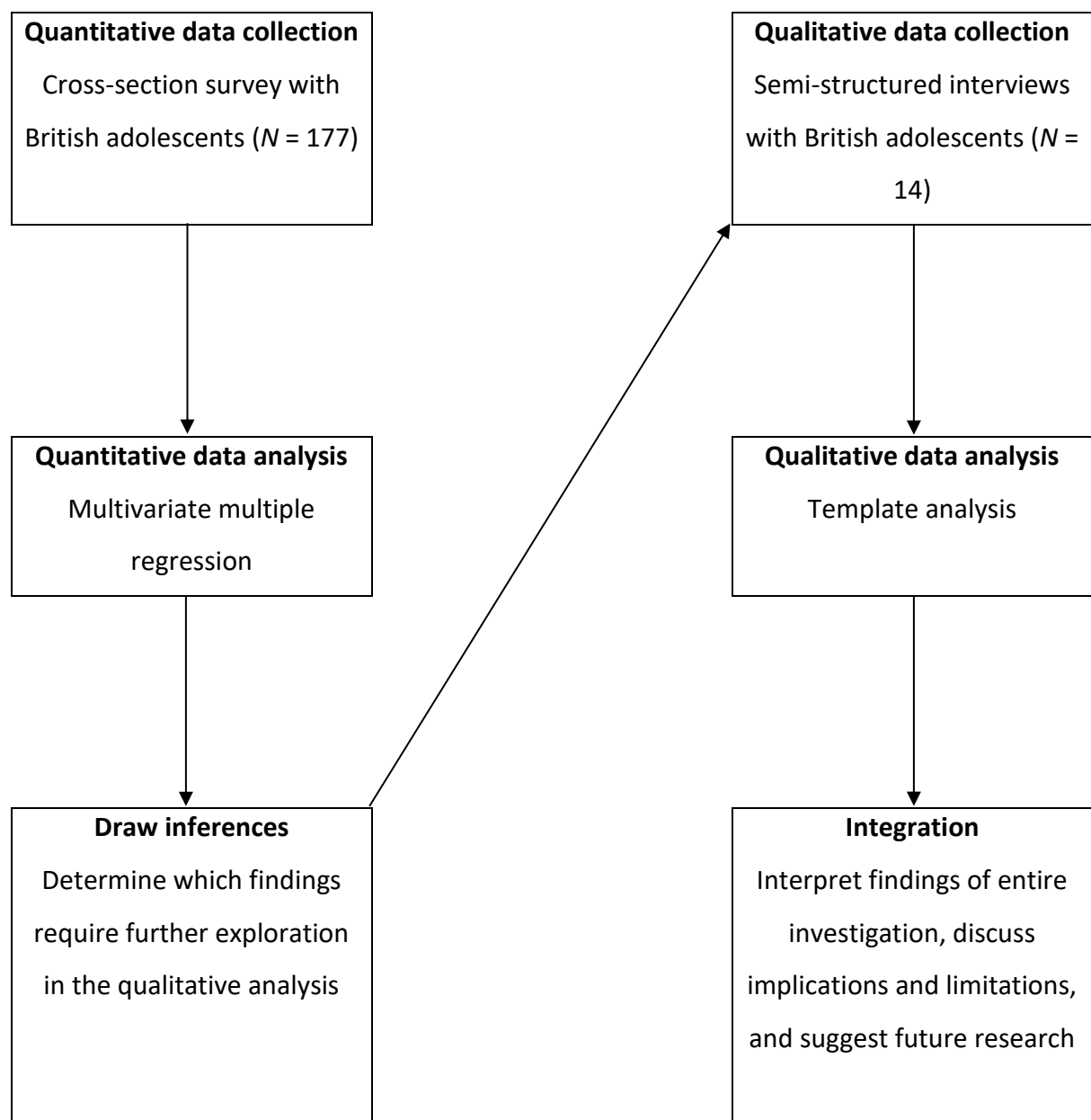


Figure 3. *Visual Structure of Investigation*

4.4 Research Population

Although adolescents can be a challenging population to recruit for scholarly research, collecting data from schools can be one of the most time- and cost-effective strategies for recruiting adolescent participants (Morena et al., 2017; Testa & Coleman, 2016), with such settings providing researchers with convenient access to large samples of young people

(Bartlett et al., 2017). In this study, data were collected from adolescents attending a mixed-ability secondary school and sixth form college in central England. This specific school was selected as the site for data collection for three primary reasons:

- Access and support: The researcher had a pre-existing relationship with senior staff at the school and was therefore aware that the setting would not only be able to support the research, but they would also be willing to provide additional help regarding participant recruitment.
- Locality: The school was nearby, thus enhancing time- and cost-effectiveness.
- Size: The school was large in terms of student enrolment, and as data were required to be collected from the same setting on two occasions, it was determined that working with one large school - rather than several smaller settings - was likely to make data collection significantly less problematic.

Both phases of data collection took place during the 2018/19 academic year, and at this time, the school had 1,279 students between the ages of 11-18 years. 150 adolescents attended the sixth form college (16-18 years), whilst the remaining students were divided into five mixed-ability year groups, with each year group containing around 200 young people. The school had an even gender split (50.4% Male), whilst 10.5% of young people required SEN support, 12.6% had English as an additional language, and 15.9% were eligible for free school meals. These demographics are largely consistent with mainstream secondary schools across England (national average: 50.2% Male; 10.8% SEN support; 16.9% English as additional language), other than those regarding free school meals (27.7% nationally). Indeed, the school had a considerably lower proportion of students eligible for free school meals compared to the national average, thus indicating that proportionally less students attended the school who experienced socio-economic disadvantage. Since there is some evidence to suggest that SNSs may have more negative implications for the least privileged adolescents in society (Odgers, 2018), as the school had a relatively affluent student body, it is important to recognise that the results of this study may not be generalisable to the wider population. The school reported similar scores to the national

average in terms of student results, scoring within ± 0.10 standard deviations (*SDs*) of the national average regarding Progress 8 scores at age 16, and within ± 0.25 *SDs* of the national average regarding A Level results at age 18¹².

Having explained the methodological approach of this research and introduced the population from which participants were drawn, in the following sections, the quantitative and qualitative phases of this investigation are introduced. Their respective aims and data collection procedures are outlined, participant recruitment and final samples are discussed, and the techniques used for data analysis are reported.

4.5 The Quantitative Phase

4.5.1 Aims

The first phase of this investigation was quantitative in nature and consisted of a cross-sectional survey with adolescents attending the school. This phase sought to provide a general understanding of the linear relationship between Instagram-based social comparison behaviour and adolescent identity, and guided by the overarching aims of this investigation (see 3.4), the survey sought to provide answers for the five following questions:

Q1a: How do social comparisons of ability on Instagram associate with the three identity processes (commitment, in-depth exploration, and reconsideration of commitment)?

Q1b: Does Instagram network homophily moderate the relationship between social comparisons of ability on Instagram and the three identity processes?

Q1c: Does Instagram tie strength moderate the relationship between social comparisons of ability on Instagram and the three identity processes?

¹² All data were sourced from the Gov.uk website in 2019, though a direct citation is not provided to protect the anonymity of the school.

Q2a: How do social comparisons of opinion on Instagram associate with the three identity processes?

Q2b: Does Instagram network homophily moderate the relationship between social comparisons of opinion on Instagram and the three identity processes?

4.5.2 Sample

All young people above the age of 13 who attended the school were invited to participate in the survey; this equated to approximately 850 adolescents. This age was determined to be an appropriate 'cut-off' as Instagram requires individuals to be at least the age of 13 years to create an account (Instagram, 2020). Having identified the sample, paper surveys were distributed to all form tutors in years 9, 10, 11, 12, and 13 during a morning briefing in December 2018. Alongside the survey, tutors were also provided with an information sheet which contained further information regarding the study and the rights of prospective participants (see A.1). Tutors were invited to read the information sheet aloud to their class during morning registration, and upon doing so, they were asked to share the surveys with their students. As most students are present during morning registration (which lasts around 30 minutes), this period represented a useful opportunity to ensure a high response rate.

In the December 2018 phase of data collection, 193 responses were received. During a morning briefing late January 2019, form tutors were reminded that the survey was still ongoing, and they were asked to invite their students to participate. During this second phase, an additional 73 responses were received. A final call for responses was made in February 2019, however, no additional surveys were returned. At this stage, the survey was closed. Of the 266 responses received, 173 (M age = 15.5; 44.5% Male; 79.8% White British) were retained for the final analyses following listwise deletion¹³. 93 (34.9%) responses were

¹³ Since the sampling strategy was to use all the data that was available within the research population, an *a priori* power analysis was not conducted (Lakens, 2021). However, the results of a post-hoc power analysis using G*Power (Faul, Erdfelder, Lang & Buchner, 2007) indicated that for the most complex univariate regression models tested in Chapter 5, the sample was large enough to detect regression coefficients with relatively small effect sizes ($f^2 = .05$, $\alpha = .05$, sample size = 173, predictors = 14, power = .08).

removed due to excessive missing data, and a more thorough discussion regarding missing data and sample characteristics is reported in Chapter 5.

4.5.3 Survey Measures

The design of the survey instrument was informed by a pilot study with a small sample of young people attending the school in April 2018 ($N = 68$; M age = 14.9; 55.9% Male; 89.7% White British). A more detailed discussion regarding the pilot, its results, and the researcher's reflections on the process can be found in A.2. Feedback regarding the survey instrument was largely positive, yet the measure assessing network homophily caused some confusion; this was therefore modified ahead of the main study. Thus, in addition to questions regarding gender, age, and ethnicity, the final survey instrument contained measures for the following three core constructs:

- Instagram network composition (network homophily and tie strength)
- Instagram social comparison behaviour (ability and opinion comparisons)
- The three identity processes (commitment, in-depth exploration, and reconsideration of commitment)

Alongside these measures, a modified version of the Social Media Use Integration Scale (SMUIS; Jenkins-Guarnieri, Wright & Johnson, 2013) was included in the survey to control for the effect that the centrality of Instagram in adolescents' social routines may have on the three identity processes. However, having conducted the analyses reported in Chapter 5 with and without the modified SMUIS, controlling for this variable did not have a significant effect on results. As such, to increase the parsimony of the models tested and the power of the analyses, scores regarding Instagram integration were removed from the study.

All reverse-worded items¹⁴ from the scales measuring the key constructs in this study were removed. The value of reverse-worded items has been debated, and although some scholars have suggested that reverse-worded items can reduce response style bias, others have argued that their use can lead to confusion and increased difficulty in interpreting items (Suarez-Alvarez et al., 2018; Zhang, Noor & Savalei, 2016), which can in turn cause measurement error (van Sonderen, Sanderman & Coyne, 2013). Thus, to mitigate against participant confusion and fatigue, reverse-worded items were removed from all scales. Doing so shortened the survey significantly; this was considered advantageous as shorter surveys would be less time consuming for adolescents and may help to achieve greater response rates (Rolstad, Adler & Ryden, 2011). However, since removing items from instruments may threaten their measurement properties (Wieland, Durach, Kembro & Treiblmaier, 2017), modified scales were first trialled during the pilot study¹⁵. Furthermore, during the main study, reliability and validity tests were run on the new scales prior to the main analyses.

In total, the final survey contained 56 items, and can be found in the appendix (A.3). The measures for the three core constructs are introduced below.

4.5.3.1 Instagram Network Composition

Two measures were utilised to help determine *who* adolescents follow on Instagram.

¹⁴ Whilst self-report items tend to be positively worded - higher scores reflect a higher degree of the measured phenomena (e.g., more network homophily, more social comparison behaviour), some measures also include reverse-worded items, where higher scores reflect a lesser degree of the measured phenomena (e.g., less network homophily, less social comparison behaviour).

¹⁵ In the pilot study, the scales that had reverse-coded items removed reported good Cronbach's Alpha scores (network homophily = .84; social comparison behaviour: ability comparisons = .89; opinion comparisons = .76), thus indicating good internal consistency. Validity tests (i.e., confirmatory factor analysis) were not run on the pilot study data due to insufficient sample size (Muthen & Muthen, 2002).

Network Homophily

To determine how similar participants believed they were to those they follow on Instagram, a modified version of the *Homophily Scale* (McCroskey, McCroskey & Richmond, 2006) was utilised. The Homophily Scale consists of 25 seven-point Likert scale questions (1 = strongly disagree, 7 = strongly agree) and has previously reported an alpha reliability estimate of above $\alpha = .90$ (McCroskey et al., 2006). Since participants were unlikely to know the background of many individuals they follow on Instagram - such as their childhood experiences and geographic region, items relating to 'background homophily' were removed from the measure. Seven reverse-coded items were also removed, and the phrase "The people I 'follow' on Instagram..." was added to each of the remaining eight items to ensure that it was clear that the measure was related to the homophily in participants' Instagram networks. Example items include: "The people I 'follow' on Instagram are similar to me" and "The people I 'follow' on Instagram have a lot in common with me". Higher mean scores reflected a higher degree of homogeneity within participants' Instagram networks, and in this study, the eight-item Instagram Network Homophily Scale reported good internal consistency ($\alpha = .92$).

Tie Strength

To determine tie strength/relational closeness with those who adolescents follow on Instagram, a modified version of the two items used by Lin and Utz (2015) was employed. Although it has been argued that two-item scales are problematic and that more items can help to improve construct validity (Eisinga, Grotenhuis & Pelzer, 2012), a modified version of this scale was used to help enhance consistency with previous research. The original items were on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree), and scored $\alpha = .96$ in terms of reliability (Lin & Utz, 2015). The two items were revised to "I have a close relationship with the people I 'follow' on Instagram" and "I consider the people I 'follow' on Instagram to be strong ties". Here, higher mean scores signified stronger relationships between participants and those they follow on Instagram, and the two-item Instagram Tie Strength Scale reported good internal consistency ($\alpha = .82$).

4.5.3.2 Instagram Social Comparison Behaviour

To measure Instagram-based social comparison behaviour, a modified version of the *Social Media Social Comparison Scale* (SMSCS; Yang, Holden & Carter, 2018) was used. The SMSCS is itself an adapted version of the Iowa-Netherlands Comparison Orientation Measure (INCOM; Gibbons & Buunk, 1999). Whilst the INCOM was initially designed to measure social comparison as an 'orientation', as significant correlations have been found between social comparison orientation and actual social comparison behaviour in online contexts (Lee, 2014), several researchers have modified INCOM to measure online social comparison activities (e.g., Cramer et al., 2016).

When modifying the SMSCS, one reverse-worded item was removed, whilst in the remaining eight items, the phrase 'social media' was replaced by 'Instagram'. Furthermore, in one item, the term 'mutual' was replaced with the phrase 'similar' to ensure wording remained age appropriate. Thus, adolescents were invited to consider how often they compare their abilities and opinions to others on Instagram, and to indicate how well each item applied to them on a five-point Likert Scale (1 = not at all, 5 = very well). Four items concerned social comparison of ability (e.g., "On Instagram, I compare what I have done with others as a way to find out how well I have done something"), whilst four assessed social comparison of opinion (e.g., "When using Instagram, I try to find out what others think about something that I want to learn more about"). Notably, the four items measuring opinion comparisons do not contain the words 'compare' or 'comparison', and it has been suggested that this is because such terms prompt respondents to reflect on ability, rather than opinion, comparisons (Yang, Holden & Carter, 2018). Instead, verbs such as 'find out' and 'know' are favoured. Higher mean scores signified more engagement in the given social comparison behaviour, and the original SMSCS has reported internal consistency scores of above $\alpha = .80$ for both the ability and opinion comparison subscales (Yang, Holden & Carter, 2018). Similarly, in this study, the subscales measuring Instagram-based comparisons of ability ($\alpha = .80$) and opinion ($\alpha = .81$) both reported good internal consistency.

4.5.3.3 Adolescent Identity Development

To assess participants' identity processes, the *Utrecht-Management of Identity Commitments Scale* (U-MICS; Crocetti et al., 2008) was utilised. U-MICS can be employed to investigate identity in terms of a specific ideological or relational domain, or to discern global identity through combining at least one ideological and one relational domain (Crocetti & Meeus, 2014). Marcia (2001) noted that the domains researchers measure are not in themselves significant, providing they are *important*; that is, they must be in a life area meaningful to respondents. As with previous studies which used U-MICS to determine adolescent identity (e.g., Crocetti et al., 2008; Morsunbul, Crocetti, Cok & Meeus, 2014; Pop, 2015), sub-scales concerning participants' opinions regarding their education (ideological) and friendships (relational) were used. U-MICS consists of 13 five-point Likert scale questions (1 = completely untrue, 5 = completely true) - five concerning commitment (e.g., "My education gives me security in life"), five assessing in-depth exploration (e.g., "I try to find out a lot about my education"), and three measuring reconsideration of commitment (e.g., "I often think that it would be better to try to find a different education") - and has previously scored around $\alpha = .80$ in each identity dimension (e.g., Crocetti et al., 2010; Morsunbul, Crocetti, Cok & Meeus, 2016). Since measures for two identity domains were utilised (education and friendships), there was a total of 26 items. In this study, commitment ($\alpha = .88$), in-depth exploration ($\alpha = .83$), and reconsideration of commitment ($\alpha = .74$) all reported acceptable internal consistency.

4.5.4 Data Analysis

To address the aims outlined in section 4.5.1, survey data were manually inputted into SPSS, and following data preparation and model construction, four statistical models were analysed using multivariate multiple regression (MMR). MMR is an extension of multiple regression and enables researchers to examine the linear relationship between more than one predictor or independent variable (IV) and more than one outcome or dependent variable (DV) (Stevens, 2009). As the DVs in this study (the three identity processes) were both theoretically and empirically related, MMR was an appropriate technique to control for the intercorrelations between the DVs and to protect against type 1 errors (Dattalo, 2013). Visual models of the analyses conducted can be found in the appendices (A.4; A.5; A.6; A.7),

and further detail regarding model construction and MMR as an analytic technique is reported in Chapter 5.

4.6 The Qualitative Phase

4.6.1 Aims

The qualitative phase of this investigation consisted of semi-structured interviews with adolescents attending the school. In line with the sequential explanatory design, this phase primarily sought to explain and elaborate on the quantitative results; therefore, its initial aims were largely open-ended. Nevertheless, from the outset of the research, it was hoped that interviews would help to illuminate the lived experiences of adolescents in terms of the domains of comparison, preferred comparison targets, and the extent to which they themselves believed that Instagram-based social comparison behaviour informed their search for identity. Guided by the results of quantitative analysis (Chapter 5), a complete list of the aims of the qualitative phase of this investigation are presented at the beginning of Chapter 6.

4.6.2 Sample

Several possible sampling strategies for qualitative phases of sequential explanatory studies have been discussed in the literature, but the most frequently advised approach is to systematically invite participants from the quantitative study who appear most suited to explaining phenomena of interest (Creswell & Plano Clark, 2011). Whilst this strategy can be a useful tool for strengthening the connection between the quantitative and qualitative phases, in studies where identifying information cannot be collected during the quantitative phase, alternative approaches are required. Importantly, then, to protect the anonymity of adolescent participants, no identifying information was collected during the initial survey. Thus, as with the quantitative phase of this investigation, all students attending the school and over the age of 13 were invited to participate in interviews. An advertising flyer (A.8) was sent out to every form group in years 9, 10, 11, 12, and 13, and form tutors were asked to read it aloud to their groups. The flyer contained information regarding the study and how data would be collected, and invited students to take part in an interview during the

school day. Form tutors were then asked to share the names of any prospective participants with the researcher so they could be provided with further information about the study. As interviews were due to take place towards the end of the academic year, adolescents were provided with a two-week window to signal their interest. In this sense, participant recruitment ceased due to pragmatic concerns regarding time, rather than at the point of data saturation.

This approach to sampling was both time and cost effective, though it is necessary to recognise the effect that self-selection bias may have on the results of the qualitative phase of this investigation. Indeed, whilst it can be assumed that self-selecting participants are committed to engaging in the research process, their decision to volunteer may reflect an inherent bias in their characteristics or traits (Olsen, 2008). Furthermore, there can also be bias amongst those who do *not* volunteer, and this can result in valuable voices going unheard. Therefore, self-selected samples are often unrepresentative of the wider population, and thus, it is important to interpret the qualitative findings as *possible* explanations for the quantitative results.

In total, 15 students responded to the flyer and were interested in participating, though one withdrew from the study due to revision commitments. Indeed, data collection occurred during 'exam season' (May-June 2019), which may have contributed to the low response rate. Of the remaining adolescents ($N = 14$), all reported to be daily Instagram users, and were thus considered suitable participants for the qualitative phase. Adolescents in the final sample ranged from 13-18 years of age, with a mean age of 15.8 years. Four participants were male (28.6%), whilst 11 identified as White British (78.6%) and three identified as Asian British (21.4%). In terms of demographics, this sample was relatively similar to that in the quantitative phase in terms of age (M age = 15.5) and ethnicity (White British = 79.8%), though males were underrepresented (Male = 44.5%). These gender differences may well reflect the relevance of the topic under investigation, with previous research having found that Instagram is particularly popular with - and deemed important by - young females (Sheldon & Bryant, 2016; van Driel et al., 2019). However, as young females often report

more negative outcomes following social comparisons on SNSs (see 3.3.2), it was possible that a negative skew would be present in participants' testimonies. Furthermore, Student Council members were also overrepresented in the sample for the qualitative phase of this investigation, with six (42.9%) participants reporting to be involved in school governance. Adolescents involved in Student Councils are more likely to be high academic achievers (Eccles & Barber, 1999), and initial evidence suggests that school performance positively associates with using SNSs for learning (Badri, Al Nuaimi, Guang & Al Rashedi, 2017). It was therefore possible that the Student Council members who participated in this study would be more engaged in learning about themselves and others on Instagram than the wider student body.

4.6.3 Interview Procedure

Guided by its successes in previous qualitative studies regarding identity and SNSs, visual prompts were utilised during the interviews to support the collection of rich data. Whilst researchers have typically drawn upon 'scroll-back' methods¹⁶ to aid data collection (e.g., Salimkhan et al., 2010), given that this investigation concerned the identity implications of what *others* share on Instagram, such an approach would not be appropriate. A novel strategy for supporting data collection was therefore formulated: as pragmatic approaches grow out of the research 'problem' itself, rather than scrolling through their own Profiles, respondents were invited to navigate and discuss content they engaged with on their Instagram Feeds. This task therefore reflected a more flexible take on traditional think-aloud methods, in that participants were not only invited to verbalise their thoughts and feelings whilst performing the task, but they were also encouraged to provide explanations of their thoughts¹⁷. This method was not only more fitting for this investigation, but since scrolling through the Feed better reflects 'typical' Instagram behaviour (Carroll, 2017), it was hoped that using such a prompt would also lead respondents to feel more comfortable during the

¹⁶ Scroll-back methods involve inviting participants to reflect on, and discuss, their previous online posts (Robards & Lincoln, 2019). Whilst this approach has clear reflective utility for studies concerning SNS self-presentation, it has limited value for studies exploring the implications of other-focused behaviours.

¹⁷ Researchers adopting a traditional think-aloud approach advise participants not to provide an explanation of their thoughts, as to do so, respondents must reflect on content that is not related to the task at hand (Hevey, 2010). Researcher 'interruptions' are also not encouraged as they interrupt the natural flow of 'inner speech' (Charters, 2003), yet during this task, prompts were considered an important tool for eliciting richer data.

interviews, thus generating richer data. This method was trialled during a small-scale pilot study with two female adolescents (aged 13 and 18; both White British) attending the school in May 2018. More detailed reflections on the pilot can be found in A.2. In short, having designed and trialled the prompt, it was decided that it should be used at the beginning of interviews to evoke participant reflection, and then intermittently throughout discussions to ensure respondents remained engaged.

For the qualitative phase of the research, individual interviews took place during the school lunch hour in a room where only the participant and the researcher were present. Doing so helped to ensure confidentiality, prevent interruptions, and eliminate the possibility that the presence of others may contaminate data. At the beginning of the interviews, respondents were invited to sign into their Instagram account on an iPad provided, and encouraged to discuss what they saw and how it made them feel and think. The depth of data collected from this initial task varied significantly between participants: some gave a superficial commentary (e.g., simply naming their relationship to content creators before moving on), whilst others spent considerable time reflecting on the content and discussing the impression that it had on them. On occasions where participants provided limited detail, pre-determined prompts were utilised - such as '...and how does that make you feel?' or '...and what do you think about that?' - to elicit further depth.

Following the initial think-aloud exercise - which lasted between 1-14 minutes, questions were asked in line with the interview schedule (A.9). The schedule was designed to be flexible regarding question wording and, perhaps more significantly, question order: should the think-aloud task lead participants to touch upon a topic covered on the interview schedule before 'it's time', such a topic was pursued when first discussed, rather than later in the interview. The questions on the interview schedule were designed to be open-ended, and potential 'follow-up' questions were also included. Nevertheless, these 'follow-up' questions were not something the researcher was tied to asking, and should more appropriate, significant, or interesting 'follow-up' questions come to mind during the interviews, the schedule provided the freedom to ask those instead.

Participants were invited to remain logged into their Instagram account for the duration of our conversations and were free to scroll through their Feeds at any point during the interviews. In instances where participants appeared disengaged or when responses lacked sufficient depth, respondents were encouraged to return to their Instagram Feeds and discuss what they saw. Providing respondents with access to their accounts supported them in expounding their points, and when discussing past experiences on the platform, participants often returned to the content of interest to help them to recount their interpretation of it. Therefore, using the iPad during the interviews not only allowed participants to discuss current social comparisons, but also enabled them to interpret those they had made in the past, and supported them to reflect on the extent to which engaging with such content had made a lasting impression on them.

Interviews were audio recorded and lasted between 19-57 minutes, with the mean length being 40.3 minutes. Whilst most interviews were above 40 minutes in length, three interviews lasted 26 minutes or less. On each of the three occasions, participants had other commitments during lunch time, and interviews were therefore shortened. Nevertheless, during each interview, every question on the schedule was addressed and useful data was generated. To allow for this during the three shorter interviews, the think-aloud exercise was only used at the beginning of the interview and fewer 'follow-up' questions were used.

4.6.4 Data Analysis

Interview data were transcribed verbatim and analysed using template analysis (Brooks & King, 2014). Template analysis is a form of thematic analysis which accommodates the use of *a priori* themes (Brooks, McCluskey, Turley & King, 2015), and is therefore a useful approach for mixed-method researchers seeking to ensure their analyses are shaped by, and can be integrated with, prior quantitative results (King & Brooks, 2017). A more thorough discussion of the process of data analysis and quality checks can be found at the beginning of Chapter 6.

4.7 Research Integrity and Ethical Considerations

Research integrity involves producing research that is honest, rigorous, and transparent, and embodies the active adherence to ethical principles that are essential for responsible research. Evidencing such practice is important for enabling others to have trust and confidence in the research process. Ethical considerations were informed by the research ethics policies of Sheffield Hallam University (SHU) (2020), and before each phase of this investigation, ethical approval was sought and received from the SHU Research Ethics Committee. A key consideration for those conducting research with adolescents relates to issues surrounding consent. Adolescents are, by definition, no longer children but not yet adults, and there is often confusion regarding who has the right to provide consent for adolescents to participate in research (Santelli, Haerizadeh & McGovern, 2017). Researchers are typically advised to seek and receive consent from both parents/guardians and adolescents prior to collecting data, though this is not always possible, especially when studies are conducted in schools. Indeed, in this instance, staff at the school were reluctant to send letters home to parents for several reasons (including time/financial costs, expected low response-rate, the belief students were competent enough to make own decisions, and a wish not to 'bother' parents). Thus, following SHU guidance (2016), the Head Teacher was required to read and sign an information sheet/consent form in *loco parentis* to signal that they had been fully briefed on the study and the procedures being used, and that they were happy for the researcher to invite adolescents attending the school to participate in this investigation. Consent was sought in *loco parentis* from the Head Teacher before both phases of this investigation (A.10; A.11), and the Head Teacher was provided with a copy of the survey instrument and the interview schedule prior to data collection to ensure they were fully aware of what the researcher was inviting adolescents at the school to participate in. Once a signed information sheet/consent form was returned by the Head Teacher, consent was sought from prospective participants.

As the nature of ethical dilemmas tend to differ across quantitative and qualitative studies (Orb, Eisenhauer & Wynaden, 2000), the steps taken to receive participant consent and ensure anonymity, confidentiality, and non-maleficence differed across both phases of this

investigation. Nevertheless, across both phases of this investigation, only adolescents above the age of 13 were invited to participate, and due to the school's concerns regarding confidentiality and anonymity, data were not shared open access. In the following two sub-sections, the procedures that were followed to ensure that both phases of this research held integrity and credibility are outlined. In the final sub-section, the process through which results were reported back to the school following data analysis is discussed.

4.7.1 Quantitative Phase

As the researcher was not physically present for data collection during the quantitative phase of this research, it was ensured that the information shared by tutors contained sufficient detail regarding the purpose of the study and adolescents' rights regarding anonymity, confidentiality, and withdrawal. This information was also summarised in written form at the top of the survey instrument itself, and the researcher's email address was provided in case adolescents had any questions regarding the study. To address the possibility that adolescents may have felt coerced into participation due to the student-teacher power dynamic, during the morning briefing that the researcher had with teachers at the school, the importance of ensuring that adolescents were aware that they were under no obligation to take part in the survey was emphasised. Furthermore, it was made explicitly clear in the teacher-read information form and on the survey itself that participation was entirely voluntary. Since only around a third ($N = 266$) of all eligible adolescents at the school took part in the survey, a significant number of young people appeared to exercise their right not to participate.

The items used in the survey were unlikely to cause emotional distress and were age appropriate, and this was corroborated by feedback from the pilot study. Nevertheless, adolescents were informed that should they not wish to answer any items for whatever reason, they were under no obligation to provide responses. In addition, signposting for Childline and local NHS support services were included at the end of the survey in case any participants wanted professional support having taken part in the study. No identifiable information was collected during the survey, thus ensuring that data were anonymised.

However, as data were anonymous, once a survey had been returned, withdrawal was not possible. This was made clear in both the information shared by the tutor, and the information on the survey itself.

After the raw data was returned to the researcher by a member of staff at the end of form time, it was immediately inputted into SPSS. The data file was saved onto a password protected laptop, and the original survey instruments were shredded. Whilst survey data were not shared open access, to ensure integrity, data and the analytic code were shared with a member of the researcher's supervisory team who was able to replicate the analysis.

4.7.2 Qualitative Phase

As the researcher was present during data collection for the qualitative phase of this investigation, a full DBS check¹⁸ was required, as is standard procedure for conducting research in schools. Prior to individual interviews, the researcher met with prospective participants to discuss the study in further detail and provide information regarding the interview process and their rights concerning anonymity, confidentiality, and withdrawal. At this stage, adolescents were presented with an information sheet/consent form (A.12) and were given the opportunity to ask any questions they had about the study. Once the signed consent form was returned, an interview date was set.

Although interviews took place in a room where only the participant and researcher were present, the door was always left ajar. This ensured that the interview felt private enough for respondents to share their personal stories, whilst reminding participants that they had the right to leave the interview if they so wished. Furthermore, for safeguarding purposes, interviews took place in a room with a window. At the beginning of each interview, participants were provided with a form which instructed them how to access their Instagram account on the iPad provided without their details being saved onto the device

¹⁸ A DBS check enables employers (or in this instance, the school where data were collected) to check individuals' criminal record.

(A.13). Participant anonymity was also protected by replacing their name with a pseudonym, and only reporting demographic data regarding their age, gender, and ethnicity. To protect the anonymity of the individuals who shared the Instagram content that participants engaged with during the think-aloud task, the researcher requested that respondents sit on the opposite side of the table from them during the interviews. Although the researcher was not particularly interested in viewing the content shared by those on participants' Feed (they were more concerned with respondents' interpretation of it), this ensured they were not able to observe the content they were engaging with. Furthermore, respondents were asked not to name others during the interviews. Whilst most participants adhered to this suggestion, in instances where respondents did name those they followed on Instagram, their name was replaced in the transcripts with a phrase which captured the relationship between the participant and the individual discussed. In cases where a celebrity or an individual in the public eye was discussed during the interviews, their names remained in the transcript to provide further context during the analysis.

Though the content discussed during the interviews was of a personal and sensitive nature, it was ensured that the interview schedule was age appropriate and non-judgemental. Furthermore, questions were asked in a non-intrusive fashion, and should participants not wish to discuss a topic, it was made clear that they were under no obligation to provide answers, and that they could leave the interview at any point. Signposting for Childline and local NHS support services were again provided at the end of the interviews.

Upon completion of the interviews, all respondents were compensated with a £5 high street voucher. Some scholars have suggested that paying participants can be coercive (Grady, 2005). However, as interviews were conducted during the schools' lunch hour - a valued time in the social lives of many adolescents (Baines & Blatchford, 2019), it was determined that respondents ought to be compensated for their time and effort. £5 was considered an appropriate sum: it was above the hourly minimum wage for under 18s (£4.35) at the time of data collection (Gov.uk, 2021), though it was not so high as to potentiate undue inducement.

Following this, participants were informed that they held the right to withdraw from the study within seven days of the interview date. Once this date had passed, the audio recordings of the interviews were transcribed verbatim and saved onto a password protected laptop. The original audio files were then deleted. Data were not shared open access, though to ensure the integrity of the analysis, three 'quality checks' were utilised. These checks are discussed in more detail in Chapter 6. However, in short, an independent coder analysed a sub-set of verbatim transcripts; an audit trail was left to illustrate template development, the note-making process, and hierarchical coding; and illustrative quotes were presented throughout the analysis to support the researcher's interpretation of the raw data.

4.7.3 Feedback

Following each phase of this investigation, results were reported back to the school. On each occasion, an initial email containing the key findings was sent to a member of the senior leadership team, which was subsequently circulated to all members of staff at the school. Following each phase, the researcher also returned to the school and shared the results during a Student Council meeting. Representatives from each school year were present at these meetings, and they were then able to disseminate these findings with members of their respective year groups, thus ensuring that the 'researched' were able to learn of the results.

Adults present at the Student Council meetings (two members of staff and two parents) showed particular interest in the results as they challenged their pre-existing ideas regarding adolescent Instagram use, in that they typically associated the platform with negative outcomes for young people. Students appeared less surprised by the results, though given that they represented the population under investigation, this is perhaps unsurprising. Having said that, those present at the Student Council meetings (approximately 10-15 individuals) represented a very small sub-section of all those who

learned of the results, and it is unclear how the wider student and staff body responded to hearing of the findings.

Whilst additional feedback could have been provided to members of staff (e.g., guidance on supporting students) and adolescents (e.g., assembly on SNS use), data were collected and analysed during busy periods of the school year (i.e., during 'exam season' shortly before the Christmas and summer holidays). As such, staff emails and Student Council meetings were determined to be the most time effective and least disruptive means of disseminating the results of this research.

4.8 Conclusion

During this chapter, the methodological framework underpinning this investigation was introduced: this project adopted a pragmatic approach to research and drew on a sequential explanatory design. Following such a design, the first phase of the research reported on in this thesis utilised a cross-sectional survey with adolescents to determine the linear relationship between Instagram-based social comparison behaviour and adolescent identity development. The subsequent qualitative phase drew on semi-structured interviews and sought to explore the qualitative aspects of the phenomena under investigation and elaborate on the quantitative results. Both phases of this investigation were introduced during this chapter, and their respective aims, sampling strategy and final sample, data collection procedure, and analytic technique were outlined. Furthermore, the steps taken to ensure that data collection and analysis were conducted in an ethical manner were also discussed.

The findings of this investigation are reported over the next three chapters. To reflect the sequential nature of this research, the analysis of data collected during the initial quantitative phase is reported in Chapter 5, whilst the results of the subsequent qualitative phase are presented in Chapter 6. The findings of both phases of this investigation are then

integrated in the final chapter of this thesis (Chapter 7), and results are discussed in relation to the relevant academic literature.

Chapter 5. Quantitative Results

5.1 Introduction

This chapter reports on the results of the quantitative phase of this mixed-method investigation which explores the extent to which Instagram-based social comparison behaviour can inform the process of identity development during adolescence. Four multivariate multiple regression models (outlined in section 5.5) were run using the cross-sectional survey data to determine the linear relationship between social comparisons of ability and opinion on Instagram, and the three identity processes captured in the three-factor model of identity development (Crocetti et al., 2008). The moderating effects of age, gender, and Instagram network composition (network homophily and tie strength) were also examined.

Results suggest that both forms of social comparison on Instagram tend to have adaptive identity implications during adolescence. Furthermore, adolescent males may be less susceptible to experiencing the negative consequences of performance-related comparisons on the platform. In terms of the moderating effect of Instagram network composition, ability comparisons with strong ties appeared to support the strengthening of commitments. In addition, comparisons of both ability and opinion in more heterogeneous Instagram networks appeared to prompt identity exploration amongst those with less mature identity profiles (i.e., young adolescents and males), whilst comparisons in more homogeneous networks may elicit more exploration amongst those with greater self-certainty (i.e., older adolescents and females).

In the following section of this chapter, the process through which the researcher determined the final sample ahead of analysis is explained. Here, the extent of missing data is discussed and a justification for handling it through listwise deletion is provided; the final sample for this study is then defined. Having determined the sample, the validity and reliability of survey measures were then examined using Cronbach's alpha and confirmatory factor analysis. Guided by the results of these tests, some survey measures were modified ahead of the main analyses. An exploratory analysis was then conducted, and descriptive

statistics and bivariate correlations for each variable are reported. Furthermore, age and gender differences across the measured constructs were also examined. Following this exploratory analysis, the final statistical models which address the aims of this phase of the research were constructed. The findings of the main analyses are then reported and discussed in relation to the relevant academic literature.

5.2 Defining the Final Sample

This section outlines how missing data were managed. Although missing data is commonplace in quantitative research (Dong & Peng, 2013), it can have a significant impact on parameter estimates. Moreover, if there is a pattern to missing data, results can be misleading, increasing the possibility of erroneous conclusions being drawn from the findings (Harrington, 2009). It was therefore important to examine the patterns of missing values in the dataset, and to provide a description of how missing data were handled (Masconi, Matsha, Echouffo-Tcheugui, Erasmus & Kengne, 2015).

Having collected 266 paper questionnaires from adolescents attending the school, data were manually inputted into SPSS. Considerable missing data was found at this stage. Following the four-step procedure suggested by Hair, Black, Babin and Anderson (2014), the researcher first determined the type of missing data (for visual overview of this process, see A.14). An inspection of the data found that missing data were non-ignorable and often appeared monotone, in that once participants had failed to respond to one item, they did not respond to any subsequent items (for visual representation of initial missing data patterns, see A.15). In this sense, it appeared that many participants left the survey early, and thus returned incomplete responses. Moreover, the extent of missing data was significant: 100% of items had missing data from at least one respondent, and given that many participants appeared to leave the survey early, missing data was particularly commonplace for questions placed towards the end of the survey. For example, the final three questions collected demographic data, and nearly a quarter of the surveys returned contained missing data regarding age (22.2%), gender (24.4%), and/or ethnicity (22.9%). In total, 35% of participants reported incomplete data.

Although there is no 'hard and fast' rule as to the necessary level for exclusion, Hair et al. (2014) suggested that it is important to remove cases with missing data for dependent variables (DVs), as doing so helps to minimise bias in results. Items regarding the identity processes were positioned towards the end of the survey instrument, and since missing data were largely monotone, these items reported large amounts of missing data (commitment = 15.8-16.5% missing; in-depth exploration = 17.7-18.0% missing; reconsideration of commitment = 19.2-19.9% missing). Thus, the first stage of data exclusion involved deleting cases which did not report complete data for the identity process variables. This removed 59 (22.2%) participants from the study and reduced the amount of missing data significantly.

I then inspected the remaining missing data (for visual representation of the remaining missing data patterns, see A.16), and there was significant missing data in the measure examining Instagram-based social comparison behaviour, whereby 19 (9.2%) participants did not report a score for each item. Once these cases had been removed, missing data was low: 27.7% of items and 8.0% of participants had missing data, and only 0.6% of all data was incomplete. To determine how to handle the remaining missing data, Little's missing completely at random (MCAR) test was used. This test determines whether cases that share the same missing data present mean differences in the other variables measured (Tagliabue & Donato, 2015), and the degree of randomness determines the appropriate remedy for dealing with missing data (Hair et al., 2014). Little's MCAR test reported non-significant findings ($\chi^2 (208) = 200.96, p = .62$), indicating that data was MCAR; that is, missing data was not distinguishable from complete data. In the final stage of the four-step process, the researcher then had to determine how to deal with the remaining missing data. Although there is very little guidance regarding sample size requirements for multivariate multiple regression (Dattalo, 2013), in instances where data is MCAR and loss of statistical power is likely to be small, it is common for researchers to utilise listwise deletion - rather than imputation techniques - to ensure unbiased estimates; this is typically when less than 10% of cases report missing data (Leppink, 2019; Sarstedt & Mooi, 2019). Given the negligible

differences in sample size between retaining and discarding the remaining responses, the 15 (8%) incomplete cases were removed listwise. The final sample therefore contained 173 complete responses (M age = 15.5; 44.5% Male; 79.8% White British). Full demographic characteristics of the final sample can be found below in Table 3.

Table 3. *Demographic Characteristics of the Final Sample for the Quantitative Phase*

	<i>N</i>	%
Gender		
Male	77	44.5
Female	96	55.5
Total	173	100.0
Age		
13	26	15.0
14	39	22.5
15	12	6.9
16	36	20.8
17	40	23.1
18	20	11.6
Total	173	100.0
Ethnicity		
White British	138	79.8
Mixed/Multiple Ethnic Groups	3	1.7
Asian/Asian British	21	12.1
Black/African/Caribbean/Black British	7	4.0
Other	4	2.3
Total	173	100.0

5.3 Reliability and Validity of Scale Measures

Having determined the final sample, the reliability and validity of the scale measures used in the survey were examined. To measure internal consistency within each scale (i.e., how closely related the set of items were as a group), Cronbach's alpha (α) tests were conducted. Scores range from 0-1 and higher scores indicate greater reliability, with scores above $\alpha = .70$ generally considered acceptable (Cortina, 1993). In instances where scales reported acceptable reliability, a confirmatory factor analysis (CFA) was then conducted. CFA is a form of structural equation modelling which enables researchers to assess the fit between observed data and an *a priori* conceptualisation, thus determining construct validity (i.e., whether each item accurately and meaningfully reflects the theoretical construct it sought to measure) (DiStefano & Hess, 2005). The chi-square (χ^2) test statistic is the traditional measure for evaluating overall model fit and determines the discrepancy between observed and expected data. χ^2 scores closer to 0 suggest better fit, and $p > .05$ indicates that the predicted model is congruent with observed data. However, there are several shortcomings of the χ^2 test statistic¹⁹, and thus, researchers often overlook the significance of the χ^2 value, and instead, rely more heavily on other indices to evaluate model fit (Brown, 2006). During this analysis, then, the following four fit indices were relied upon: chi-square/ degrees of freedom ratio (χ^2/df), root mean square error of approximation (RMSEA), comparative fit index (CFI), and Tucker-Lewis index (TLI). Below in Table 4, each fit statistic is briefly introduced, and the cut-off scores used in this research to indicate acceptable model fit are presented. Following CFA, researchers often refine their scales by removing items which do not fit well with the underlying construct (Carpenter & Arthur, 2013). Thus, in instances where scale measures were modified following CFA, α tests were conducted again on the remaining items to ensure that they retained internal consistency. In the following three sections, the results of the α tests and the CFAs for the Instagram network composition variables, the Instagram social comparison variables, and the three identity process variables are discussed.

¹⁹ For instance, the χ^2 test statistic is highly sensitive to sample size, model complexity, and violations of assumptions. It is also based on a very stringent hypothesis (i.e., that the predicted model and observed data are equal), and thus, plausible models may be rejected based on a significant χ^2 statistic (for further discussion of the limitations of the χ^2 test statistic, see Brown, 2006; Schermelleh-Engel, Moosbrugger & Muller, 2003).

Table 4. *CFA Model Fit Statistics*

Measure	Name	Description	Cut-off score
χ^2/df	Chi-square/ degrees of freedom ratio	To overcome some of the drawbacks of the χ^2 test statistic, researchers often examine the χ^2/df ratio to determine model fit (Hooper, Coughlan & Mullen, 2008). Degrees of freedom are the difference between the number of associations that could be included in a model and the number of associations that are specified. Importantly, the expected value of χ^2 is its df, and thus, χ^2/df determines how many times larger the χ^2 estimate is than its expected value (Bollen, 1989). Lower scores imply better fit.	χ^2/df of less than 2 is indicative of good fit, whilst scores of less than 3 are an acceptable fit (Schermelele-Engel et al., 2003).
RMSEA	Root mean square error of approximation	In contrast to χ^2 - which tests <i>exact</i> fit between observed and expected data, RMSEA considers <i>approximate</i> fit (Schermelele-Engel et al., 2003). RMSEA measures lack of fit between the data and model estimates (DiStefano, 2016), and therefore, lower scores signify better fit.	RMSEA scores range from 0 to 1, and scores of around .06 are typically indicative of good fit (Hu & Bentler, 1999). However, as RMSEA can be inflated in models with modest sample size (Kenny, Kanishkan & McCoach, 2014), in this instance, a less conservative cut-off of .10 was adopted (Browne & Cudeck, 1993).
CFI	Comparative fit index	Whilst χ^2 and RMSEA consider how well an <i>a priori</i> model fits the data, CFI and TLI examine how well the hypothesised model fits relative to a null model in which all latent variables are unrelated. CFI measures the relative improvement of a model over a null model (DiStefano, 2016), and higher scores signal better fit.	CFI scores range from 0 to 1, and scores of .95 or above indicate good fit (Hu & Bentler, 1999).
TLI	Tucker-Lewis index	TLI measures the relative improvement of fit per df of the current model over the null model (DiStefano, 2016), and higher scores imply better fit.	TLI scores typically range from 0 to 1, and scores of .95 or above indicate good fit (Hu & Bentler, 1999).

5.3.1 Instagram Network Composition

The first reliability and validity tests were conducted on the Instagram network composition variables, and the initial α tests found that both the eight-item Instagram Network Homophily Scale ($\alpha = .92$) and the two-item Instagram Tie Strength Scale ($\alpha = .82$)²⁰ reported good reliability. Though these 10 items originated from two separate scales, both scales measured aspects of Instagram network composition, and significant correlations between items on differing scales were found (r ranged from .34 to .57; for a table of all associations, see A.17). Since adolescent friendships are typically categorised by perceived similarity (Brown & Larson, 2009), these correlations were unsurprising. To ensure that each construct represented a distinct aspect of Instagram network composition, all 10 items were entered into the same model for the CFA to confirm the factor structure of the observed Instagram network composition variables. One-factor (i.e., all items loaded onto the same network composition variable) and two-factor (i.e., differentiating between network homophily and tie strength) solutions were tested: neither model reported good fit, though the two-factor model ($\chi^2/df = 3.52$; RMSEA = .12; CFI = .92; TLI = .90) reported better fit than the one-factor model ($\chi^2/df = 5.00$; RMSEA = .15; CFI = .87; TLI = .84).

The modification indices for the two-factor model were therefore inspected; modification indices identify discrepancies between the proposed and estimated model and suggest possible remedies. Modification indices should be used with caution, and it is generally held that in cases where a structural equation model is modified, the model is no longer confirmatory, but rather exploratory (Whittaker, 2012). Nevertheless, given that the model tested here reflects a composite scale containing two individual measures which have never been used together, an exploratory analysis is most fitting. On AMOS, two statistics are provided in the modification indices: the modification index (MI) and the estimated parameter change (EPC). The MI estimates how much the χ^2 statistic would decrease if the

²⁰ There is disagreement regarding the most appropriate method for testing the reliability of two-item scales. Researchers have argued that Cronbach's α , Spearman-Brown's formula, and Pearson's correlation are all the best indicator of scale reliability when a measure has two items (Eisinga et al., 2012). Thus, to increase confidence in the reliability of the Instagram Tie Strength Scale, the results of all three tests were examined. Scores for each test indicated acceptable reliability (Cronbach's $\alpha = .82$; Spearman-Brown = .82; Pearson's correlation = .70). To ensure consistency with the results of the reliability tests for the other scales used in the survey, α scores are reported in the main body of text.

suggested new path (i.e., a new association) is added, whilst the EPC score represents the predicted value of this parameter estimate if it is free to vary (Chan, Lee, Lee, Kubota & Allen, 2007). An MI of four or above is considered statistically significant at the $p < .05$ level (Gunzler & Morris, 2015), whilst Joreskog and Sorbom (1996) posit that MIs should be above five before researchers consider modifying their hypothesised model.

Significant covariances were found between the error term for item eight on the network homophily subscale (The people I 'follow' on Instagram have a lot in common with me) and the latent tie strength variable (MI = 9.40, EPC = .21). The error term for this item also had large covariances with the error terms for items two (The people I 'follow' on Instagram share my values; MI = 6.38, EPC = -.16), three (The people I 'follow' on Instagram are like me; MI = 7.28, EPC = -.18), and seven (The people I 'follow' on Instagram have thoughts and ideas that are similar to mine; MI = 14.99, EPC = .23) on the network homophily subscale. Error covariances often reflect overlapping content between two items, whereby they ask essentially the same questions (Byrne, 2005). Given the similarity between these items, item eight on the network homophily subscale was deemed both problematic and redundant, and it was therefore removed. The CFA was re-run on the remaining nine-item two-factor model, and whilst model fit had improved, it was still not acceptable ($\chi^2/df = 3.20$; RMSEA = .11; CFI = .94; TLI = .92).

The modification indices were inspected once more, and the error term for item five on the network homophily subscale (The people I 'follow' on Instagram are similar to me) had significant covariance with the error terms for items one (The people I 'follow' on Instagram think like me; MI = 8.47, EPC = -.24), three (The people I 'follow' on Instagram are like me; MI = 4.80, EPC = .15), and six (The people I 'follow' on Instagram behave like me; MI = 10.47, EPC = .22) on the network homophily subscale, and item one on the tie strength subscale (I have a close relationship with the people I 'follow' on Instagram; MI = 4.06, EPC = -.15). Item five was therefore removed from the network homophily subscale, and the remaining eight-item two-factor model reported acceptable fit ($\chi^2/df = 2.28$; RMSEA = .09; CFI = .97; TLI = .95).

Given that the Instagram Network Homophily Scale had been modified during the CFA, a Cronbach's α test on the remaining six items was conducted to determine internal consistency. The six-item scale reported good reliability ($\alpha = .89$), and thus, the eight-item two-factor Instagram network composition variables were retained. Full factor loadings for the final scale can be found below in Table 5.

Table 5. *Factor Loadings and Cronbach's Alpha for Instagram Network Composition Variables*

Subscale	Item	Factor Loading	α
Homophily	The people I 'follow' on Instagram think like me	.71	.89
	The people I 'follow' on Instagram share my values	.83	
	The people I 'follow' on Instagram are like me	.78	
	The people I 'follow' on Instagram treat people like I do	.73	
	The people I 'follow' on Instagram behave like me	.76	
	The people I 'follow' on Instagram have thoughts and ideas that are similar to mine	.76	
Tie Strength	I have a close relationship with the people I 'follow' on Instagram	.79	.82
	I consider the people I 'follow' on Instagram as my strong ties	.89	

Note: Based on $N = 173$ participants following listwise deletion.

5.3.2 Instagram Social Comparison Behaviour

The second reliability and validity tests were conducted on the Instagram Social Comparison Scale, and the subscales measuring Instagram-based comparisons of ability ($\alpha = .80$) and opinion ($\alpha = .81$) reported good internal consistency. One- and two-factor solutions were subsequently tested using CFA, wherein the two-factor solution differentiated between

ability- and opinion-based comparisons, and the one-factor solution considered global social comparison behaviour. Model fit for the one-factor solution was poor ($\chi^2/df = 5.22$; RMSEA = .16; CFI = .84; TLI = .77), whilst the two-factor model was a good fit ($\chi^2/df = 1.54$; RMSEA = .06; CFI = .98; TLI = .97). The two-factor solution was therefore retained, and full factor loadings can be found below in Table 6.

Table 6. *Factor Loadings and Cronbach's Alpha for Instagram Social Comparison Scale*

Subscale	Item	Factor Loading	α
SC Ability	When using Instagram, I compare how my loved ones (romantic partner, family members, etc.) are doing with how others are doing	.54	.80
	When using Instagram, I compare how I do things with how others do things	.78	
	On Instagram, I compare what I have done with others as a way to find out how well I have done something	.83	
	On Instagram, I compare how I am doing socially with other people	.69	
SC Opinion	On Instagram, I talk with others about similar opinions and experiences	.55	.81
	On Instagram, I try to find out what others think who face similar problems as I face	.80	
	On Instagram, I try to know what others in a similar situation would do	.79	
	When using Instagram, I try to find out about what others think about something I want to learn more about	.73	

Note: Based on $N = 173$ participants following listwise deletion. SC = Social Comparison.

5.3.3 Adolescent Identity Development

The final reliability and validity tests were conducted on U-MICS, and commitment ($\alpha = .88$), in-depth exploration ($\alpha = .83$), and reconsideration of commitment ($\alpha = .74$) all reported acceptable internal consistency. Although U-MICS has evidenced factorial and construct validity in several previous studies investigating identity development during adolescence and emerging adulthood (e.g., Crocetti et al., 2008; Crocetti et al., 2010), this is the first study to have utilised the scale in the UK context, and thus, CFA was deemed necessary. Consistent with previous studies which used U-MICS to measure the three identity processes, a parcelling approach was adopted during the CFA. Here, rather than looking at the relationship between individual items and latent variables, 'parcels' were created - by taking the mean of a set of items within a factor (Little, Rhemtulla, Gibson & Schoemann, 2013) - and used as indicators of latent variables (Orcan, 2013). A parcelling approach is recommended when there are more than five items for each construct (Bagozzi & Heatherton, 1994) as using a large number of indicators in CFA tends to increase the number of correlated residuals, thus decreasing model fit (Wang & Wang, 2020). Therefore, given that commitment and in-depth exploration were measured using 10 items each (i.e., five items per domain), and reconsideration of commitment was measured using six items (i.e., three items per domain), parcelling was seen as an appropriate approach. Three parcels were made for each latent variable (commitment, in-depth exploration, and reconsideration of commitment). Specifically, one parcel for each of commitment and in-depth exploration contained four items, whilst two contained three items each. All three parcels for reconsideration of commitment contained two items.

There are several approaches researchers can utilise to generate parcels, and studies comparing these strategies have found that the choice of approach can have a significant effect on model fit (Marsh, Ludtke, Nagengast, Morin & von Davier, 2013). To help overcome these concerns, some scholars draw upon more than one strategy before considering the difference in results to help increase confidence in findings (e.g., Cooper, Perkins & Corr, 2007). Guided by such reasoning, homogeneous and random parcelling approaches were tested. Parcels were first created using a homogenous strategy, whereby items which share similar characteristics across each identity domain (i.e., education and

peer relationships) were clustered together; for example, parcel one on the commitment scale contained items one (My education/best friend gives me security in life) and two (My education/best friend gives me self-confidence) on each domain. Models were then tested for a one-factor (i.e., items loaded on a single identity dimension), two-factor (i.e., differentiating between commitment and global exploration), and three-factor (i.e., differentiating between commitment, in-depth exploration, and reconsideration of commitment) solution. The one-factor ($\chi^2/df = 15.70$; RMSEA = .29; CFI = .56; TLI = .42) and two-factor solutions reported very poor model fit ($\chi^2/df = 11.19$; RMSEA = .24; CFI = .71; TLI = .60), whilst the three-factor model reported an acceptable fit ($\chi^2/df = 2.11$; RMSEA = .08; CFI = .97; TLI = .96).

Model fit was then tested using random parcelling. This approach is more consistent with previous research which has sought to test the structure of U-MICS (e.g., Crocetti et al., 2008; Crocetti et al., 2010), and involves randomly selecting items to parcel from each subscale; for example, in this analysis, the first parcel for commitment included item one (My education gives me security in life) and item five (My education allows me to face the future with optimism) from the education domain, and item three (My best friend makes me feel sure of myself) and item four (My best friend gives me security for the future) from the peer relationships domain. As with the tests using the homogeneous parcelling, the one-factor ($\chi^2/df = 19.30$; RMSEA = .33; CFI = .53; TLI = .48) and two-factor solutions reported very poor model fit ($\chi^2/df = 13.31$; RMSEA = .27; CFI = .70; TLI = .58), whilst the three-factor model reported an acceptable fit ($\chi^2/df = 1.99$; RMSEA = .08; CFI = .98; TLI = .97). Thus, whilst model fit for random parcelling was marginally better, both approaches reported acceptable fit for the three-factor model. Consistent with previous research, then, these results evidence that U-MICS is indeed a valid tool for measuring the three identity dimensions captured in the process model developed by Crocetti et al. (2008). They also further emphasise the importance of differentiating between the two exploratory processes (i.e., in-depth exploration and reconsideration of commitment) - which often lead identity in opposing directions - when researching the process of identity development. To ensure consistency with previous research which has tested the validity of U-MICS, the results of the random parcelling approach are shown in Table 7.

Table 7. *Factor Loadings and Cronbach's Alpha for U-MICS*

Subscale	Item	Factor Loading	α
Commitment	Parcel 1 (Ed1, Ed5, PRF3, PR4)	.92	.88
	Parcel 2 (Ed3, Ed4, PR2)	.87	
	Parcel 3 (Ed2, PR1, PR5)	.87	
Exploration	Parcel 1 (Ed8, Ed10, PR6, PR7)	.92	.83
	Parcel 2 (Ed6, Ed9, PR8)	.91	
	Parcel 3 (Ed7, PR9, PR10)	.69	
Reconsideration	Parcel 1 (Ed11, PR12)	.91	.74
	Parcel 2 (Ed13, PR11)	.78	
	Parcel 3 (Ed12, PR13)	.76	

Note: Based on $N = 173$ participants following listwise deletion. Ed = Education Domain, PR = Peer Relationship Domain. Number following domain refers to the item number in the overall measure.

This section reported on the results of α and CFA tests which determined the internal consistency and model fit of the scale measures used during the quantitative phase of this investigation. Following modification to the Instagram Network Homophily Scale, each measure reported acceptable reliability and validity. As such, it was possible to progress to an exploratory analysis of the data collected. The results of this stage of data analysis are reported in the following section. First, descriptive statistics for, and bivariate correlations between, each key variable are presented. The age and gender differences across the measured constructs are then examined. Key findings are discussed in relation to the relevant academic literature.

5.4 Exploratory Analysis and Model Construction

5.4.1 Exploratory Analysis

5.4.1.1 Descriptive Statistics

The first stage of the exploratory analysis involved an inspection of descriptive statistics. Mean scores for each scale variable were found, and composite outliers - here deemed to be scores more than 3.29 *SDs* from the mean (Tabachnick & Fidell, 2014) - were replaced with the next acceptable value. Outliers disproportionately affect statistical analyses and can have a substantial influence on estimates, thus potentiating misleading results (Osborne & Overbay, 2004). Outliers were handled using this technique because it preserves the fact that cases report the highest/lowest value in the dataset, whilst protecting against some of the harmful effects of outliers (Reifman & Keyton, 2010). Three outliers were found: two respondents scored very low in commitment (1.30), whilst one reported very high in reconsideration of commitment (4.50). Having replaced these three scores with the next acceptable value, descriptive statistics for each of the major variables measured in the study were produced (Table 8).

Adolescent Instagram users scored similarly in terms of ability ($M = 2.21$, $SD = 0.88$) and opinion comparisons ($M = 2.20$, $SD = 0.92$) on the platform. As the Instagram Social Comparison Scale was developed during this investigation, no direct comparisons are available. Nevertheless, relative to studies which employed the Social Media Social Comparison Scale²¹ with emerging adults (i.e., Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018), adolescent participants reported significantly less social comparison behaviour (emerging adult: M ability = 2.91, $SD = 1.05$; M opinion = 2.89, $SD = 1.11$). Given that Instagram lends itself particularly well to social comparisons, it is unlikely that platform-specific factors explain these results. Rather, research indicates that social comparisons are particularly commonplace in times of transition to unfamiliar environments (Lockwood, Shaughnessy, Fortune & Tong, 2012), and whilst adolescence is a time of considerable

²¹ The Social Media Social Comparison Scale was considered a useful point of comparison as the items used were largely the same as those on the Instagram Social Comparison Scale, but captured social comparisons across platforms, rather than Instagram-specific behaviour. See discussion in section 4.5 of this thesis for further detail regarding how the Social Media Social Comparison Scale was adapted for this study.

change, the emerging adults who took part in previous studies were freshman who had recently started their university studies. As progression to university presents young people with significant opportunities to negotiate and reconstruct their identity, it is likely that the adolescents in this sample compared themselves to other Instagram users less frequently because they were less likely to be actively seeking self-relevant information.

In terms of identity processes, participants scored higher in commitment ($M = 3.58$, $SD = 0.68$) and in-depth exploration ($M = 3.29$, $SD = 0.72$) than reconsideration of commitment ($M = 2.10$, $SD = 0.71$). Overall, these scores are congruous with those reported in previous studies which used U-MICS to determine adolescent identity with similarly balanced samples. For example, in a study of 1,007 adolescents (M age = 15.96, Male 44.7%) across seven European nations (Bulgaria, Czech Republic, Italy, Kosovo, Romania, Slovenia, and the Netherlands), similar scores were reported for commitment ($M = 3.65$, $SD = 0.60$), in-depth exploration ($M = 3.30$, $SD = 0.60$), and reconsideration of commitment ($M = 2.23$, $SD = 0.78$) (Dimitrova et al., 2016). It can therefore be inferred that generally speaking, the identity profiles of the adolescents who participated in the survey were relatively similar to those of adolescents who have taken part in previous studies in other European contexts.

Table 8. *Descriptive Statistics of Major Variables*

	N	Min	Max	Mean	SD
Homophily ^a	173	1.00	7.00	3.87	1.18
Tie Strength ^a	173	1.00	7.00	3.63	1.40
SC Ability ^b	173	1.00	4.00	2.21	0.88
SC Opinion ^b	173	1.00	5.00	2.20	0.92
Commitment ^b	173	1.33	5.00	3.58	0.68
Exploration ^b	173	1.00	5.00	3.29	0.72
Reconsideration ^b	173	1.00	4.43	2.10	0.71

Note: Based on $N = 173$ participants following listwise deletion. SC = Social Comparison. a = seven-point scale (1-7), b = five-point scale (1-5). In each case, high values represent high levels of the respective construct.

5.4.1.2 Bivariate Correlation

A Pearson's correlation was conducted to determine the linear relationship between each measured construct. Scores (Pearson's r) range from -1 to 1, and negative values indicate a negative relationship, whilst positive values represent a positive relationship. As r gets closer to ± 1 , the stronger the relationship is, and results are deemed statistically significant in cases where $p < .05$. Full results of the correlation analysis are reported in Table 9.

Comparisons of ability on Instagram were positively related with commitment ($r = .19, p = .01$) and in-depth exploration ($r = .37, p < .001$). These results provide initial evidence to suggest that comparisons of ability may have different identity implications for adolescents than they do for emerging adults, with such behaviour positively associating with adaptive rather than maladaptive identity processes. Instagram comparisons of opinion, on the other hand, were positively related with in-depth exploration ($r = .34, p < .001$) and reconsideration of commitment ($r = .28, p < .001$). Thus, consistent with previous research with emerging adults, opinion comparisons were associated with active identity exploration. In terms of network composition and the frequency of comparison behaviour, consistent with Festinger's (1954) similarity hypothesis, adolescents with a higher degree of Instagram network homophily compared their abilities ($r = .23, p = .003$) and opinions ($r = .30, p < .001$) more frequently on the platform. Furthermore, aligning with notions of 'routine standards'²², participants whose Instagram networks consisted of more strong ties reported to compare themselves more frequently to others on the platform (ability: $r = .25, p < .001$; opinion: $r = .21, p = .005$).

Regarding the relationships between the identity processes, consistent with the three-factor model (Crocetti et al., 2008), commitment positively associated with in-depth exploration (r

²² It has been argued that since strategically identifying appropriate comparison targets can be challenging, individuals often favour routinely comparing themselves against the same standards to save cognitive resources. Amongst young people, this often involves frequent comparisons with their best friend or close ties (Mussweiler & Ruter, 2003).

= .57, $p < .001$) and negatively associated with reconsideration of commitment ($r = -.23$, $p = .002$). These results indicate that the more committed adolescents were to their identity, the more likely they were to explore their commitments in greater depth, and the less likely they were to search for identity alternatives. Notably, however, the relationship between in-depth exploration and reconsideration of commitment was *not* statistically significant ($r = .01$, $p = .95$). Although a considerable body of empirical literature supports the assumption that in-depth exploration can result in feelings of uncertainty and distress, a few studies have reported similar results regarding the lack of association between the two exploratory processes (e.g., Crocetti, Jahromi & Meeus, 2012; Mercer, Crocetti, Branje, van Lier & Meeus, 2017; Schubach, Zimmermann, Noack & Neyer, 2017). These results therefore suggest that on this occasion, adolescents who were exploring their existing commitments were unlikely to also be gathering information about possible alternatives.

Table 9. *Bivariate Correlation Coefficients for Major Variables*

	1	2	3	4	5	6	7
1. Homophily	1						
2. Tie Strength	.59***	1					
3. SC Ability	.23**	.25***	1				
4. SC Opinion	.30***	.21**	.56***	1			
5. Commitment	.30***	.13	.19*	.07	1		
6. Exploration	.27***	.20**	.37***	.34***	.57***	1	
7. Reconsideration	-.08	.02	.13	.28***	-.23**	.01	1

Note: Based on $N = 173$ participants following listwise deletion. SC = Social Comparison. * $p < .05$, ** $p < .01$, *** $p < .001$, two-tailed.

5.4.2 Control Variables

As outlined in the first two chapters of this thesis, previous research has identified significant age and gender differences in terms of both identity progression (e.g., Hatano et al., 2016) and the implications of social comparisons on SNSs (e.g., Nesi & Prinstein, 2015). Thus, during this stage of the exploratory analysis, age and gender differences regarding

Instagram network composition, Instagram-based social comparison behaviour, and identity development were examined.

5.4.2.1 Age

Age differences were determined using a Pearson's correlation, and full results can be found below in Table 10. Age was significantly correlated with commitment ($r = .17, p = .03$) and in-depth exploration ($r = .18, p = .02$). Thus, consistent with previous theoretical and empirical work regarding identity development (e.g., Crocetti, Klimstra, et al., 2009; Klimstra et al., 2010), older adolescents in this sample were more committed to their identity and explored it more often. Furthermore, with regards to network composition on Instagram, a negative relationship between age and tie strength ($r = -.13, p = .09$) was approaching significance at the $p < .05$ level. As with peer networks in offline contexts, older adolescents tend to have larger Instagram networks in terms of both the number of individuals that they follow, and the number of followers they have themselves (Longobardi, Settanni, Fabris & Marengo, 2020). Therefore, as larger networks tend to contain a greater proportion of weaker ties (Kirkcaldy, Potter & Athanasou, 2007), this result is perhaps unsurprising. Given that significant differences were found, it was determined that age would be included as a covariate²³ and moderator²⁴ in the main analyses.

5.4.2.2 Gender

Gender differences were determined using an independent samples t-test which compares mean scores on specific variables across two groups (i.e., male and female) (Derrick, Russ, Toher & White, 2017). Positive t scores indicate that the first group (in this instance, males) scored higher in the given variable, whilst negative scores signify that the second group (in this instance, females) scored higher. The further the t score is from zero, the greater the

²³ Covariates or 'control variables' are secondary variables which, given their relationship with the DV, may obscure the true relationship between the IVs and DVs (Fan, 2012). Thus, to 'control' for the effects of the covariate on the DV, researchers often include covariates into each model tested.

²⁴ Moderation analysis enables researchers to examine whether the relationship between the IV and DV differs at different levels of a third variable (M). Moderator variables or 'interaction terms' are generated by multiplying scores of the IV by scores of the M, and in this instance, their use allowed the analyses to determine whether the relationship tested differed depending on participants' age and gender.

difference across groups, and the mean difference is considered statistically significant when the p value is $< .05$. Tests were run for each of the seven key variables measured in the survey, and full results can be found below in Table 10.

Females scored significantly higher than males in terms of Instagram-based social comparisons of ability ($t(169.43) = -2.96, p = .004$), commitment ($t(171) = -2.49, p = .01$), and in-depth exploration ($t(148.85) = -3.80, p < .001$). Such results are consistent with previous studies which have found that females report more social comparison behaviour in online contexts (e.g., Bergana & Tartaglia, 2018; Haferkamp et al., 2012) and report more mature identity profiles (i.e., increased commitment and in-depth exploration) during early-mid adolescence (e.g., Klimstra et al., 2010). Furthermore, females also scored higher than males in Instagram tie strength ($t(171) = -2.36, p = .02$). These findings are in line with research in offline contexts which reports that adolescent females tend to be more emotionally involved with their peer relationships (Galambos, 2004). In contrast, adolescent males are more likely to avoid feelings of intimacy and 'closeness' during this period, and instead, tend to categorise their friendships in terms of companionship and competition (de Goede, 2009). Guided by these results, gender was also included as a covariate and moderator in the main analyses.

Table 10. *Age and Gender Differences in Major Variables*

	Age		Gender		
	<i>r</i>	Mean	Male <i>SD</i>	Female Mean	<i>SD</i>
Homophily ^a	.11	3.70	1.16	4.01	1.19
Tie Strength ^a	-.13	3.35*	1.30	3.85*	1.44
SC Ability ^b	-.06	2.00**	0.80	2.38**	0.91
SC Opinion ^b	.06	2.10	0.86	2.28	0.96
Commitment ^b	.17*	3.44*	0.72	3.69*	0.63
Exploration ^b	.18*	3.06***	0.76	3.47***	0.64
Reconsideration ^b	-.10	2.12	0.66	2.07	0.75

Note: Based on *N* = 173 participants following listwise deletion. SC = Social Comparison. ^a = seven-point scale (1-7), ^b = five-point scale (1-5). In each case, higher mean values represent higher levels of the respective construct. **p* < .05, ***p* < .01, ****p* < .001, two-tailed.

Having conducted the exploratory analysis and determined the control variables and moderator effects of interest, the final statistical models were constructed. In the following section, the four statistical models that were analysed are outlined, and a rationale for using multivariate multiple regression to conduct the analysis is provided. The results of the four models tested are then presented, and findings are discussed in relation to the relevant academic literature.

5.5 Main Analysis

To remind the reader, the main analysis sought to provide answers to the following five questions:

Q1a: How do social comparisons of ability on Instagram associate with the three identity processes (commitment, in-depth exploration, and reconsideration of commitment)?

Q1b: Does Instagram network homophily moderate the relationship between social comparisons of ability on Instagram and the three identity processes?

Q1c: Does Instagram tie strength moderate the relationship between social comparisons of ability on Instagram and the three identity processes?

Q2a: How do social comparisons of opinion on Instagram associate with the three identity processes?

Q2b: Does Instagram network homophily moderate the relationship between social comparisons of opinion on Instagram and the three identity processes?

Four statistical models were constructed to address these questions, and since ability and opinion comparisons on Instagram were strongly correlated ($r = .56, p < .001$), they were both included in each model to control for the covariance. The first model represented a 'baseline' model which examined the linear relationship between Instagram-based social comparisons of ability and opinion, and the three identity processes (Q1a; Q2a). The three subsequent models built upon the initial model, with each testing the extent to which an aspect of network composition moderated the association between Instagram-based social comparison behaviour and adolescent identity. More specifically, model two determined whether Instagram network homophily moderated the relationship between Instagram comparisons of ability and the three identity processes (Q1b); model three examined whether Instagram tie strength moderated the relationship between Instagram comparisons of ability and the three identity processes (Q1c); whilst model four determined whether Instagram network homophily moderated the relationship between Instagram comparisons of opinion and the three identity processes (Q2b). A more thorough description of the models tested can be found below in Table 11.

Table 11. *Main Quantitative Analysis Plan*

Model Number	Research Question	Main Effects	Covariates	Interaction Effects of Interest
One	Q1a: How do social comparisons of ability on Instagram associate with the three identity dimensions? Q2a: How do social comparisons of opinion on Instagram associate with the three identity dimensions?	SC Ability SC Opinion	Age Gender	SC Ability*Age SC Ability*Gender SC Opinion*Age SC Opinion*Gender
Two	Q1b: Does Instagram network homophily moderate the relationship between social comparisons of ability on Instagram and the three identity dimensions?	SC Ability	SC Opinion SC Opinion*Age SC Opinion*Gender Age Gender Homophily Homophily*Age Homophily*Gender	SC Ability*Age SC Ability*Gender Homophily*SC Ability Homophily*SC Ability*Age Homophily*SC Ability*Gender
Three	Q1c: Does Instagram tie strength moderate the relationship between social comparisons of ability on Instagram and the three identity dimensions?	SC Ability	SC Opinion SC Opinion*Age SC Opinion*Gender Age Gender Tie Strength Tie Strength*Age Tie Strength*Gender	SC Ability*Age SC Ability*Gender Tie Strength*SC Ability Tie Strength*SC Ability*Age Tie Strength*SC Ability*Gender
Four	Q2b: Does Instagram network homophily moderate the relationship between social comparisons of opinion on Instagram and the three identity dimensions?	SC Opinion	SC Ability SC Ability*Age SC Ability*Gender Age Gender Homophily Homophily*Age Homophily*Gender	SC Opinion*Age SC Opinion*Gender Homophily*SC Opinion Homophily*SC Opinion*Age Homophily*SC Opinion*Gender

Note: SC = Social Comparison. For each model, the dependent variables are Commitment, In-Depth Exploration, and Reconsideration of Commitment.

The four models were analysed using multivariate multiple regression (MMR). MMR is an extension of multiple regression and tests the linear relationship between multiple IVs and multiple DVs (Stevens, 2009). Importantly, should individual regressions be conducted for each DV separately, significant information is lost regarding the relationship between the DVs. As such, by including all DVs in the same analysis, MMR accounts for the covariance between DVs and protects against type 1 errors (Dattalo, 2013). Multivariate analyses such as MMR are favoured in instances where there are moderate relationships between the DVs ($\pm .20 < r < \pm .50$) (Dattalo, 2013), and given that the DVs (i.e., the identity processes) in this investigation were both theoretically and statistically related, accounting for their intercorrelations was necessary.

In analogy to univariate regression, the first stage of MMR involves an omnibus test which determines the significance of the entire regression (Hartung & Knapp, 2014). Thus, in the case of MMR, the omnibus analysis tests the null hypothesis that all regression coefficients equal zero across all DVs (Dattalo, 2013); that is, the omnibus test determines whether one or more IVs are associated with the set of DVs (Stevens, 2009). Wilk's Lambda (λ) was used as the multivariate test statistic and is an inverse criterion which indicates the percentage of variance in the set of DVs that is *not* accounted for by IVs; scores range from 0 to 1, and the lower the score, the more evidence there is of a relationship (Meyers, Gamst & Guarino, 2006). λ is also transformed into an approximate multivariate *F*-value²⁵ (Crichton, 2000), and the null hypothesis of no association was rejected when $p < .05$. Significant multivariate omnibus results suggest that one or more IVs in the model are related to one or more DVs, and when significant results were found, the relationship between individual IVs in a model and the set of DVs were examined (Ganesh, 2010). Here, λ captures the percentage of variance in the set of DVs that is not explained by the individual IV, and the relationship was considered statistically significant when $p < .05$. Significant results indicate that when

²⁵ In the context of regression analyses, two df scores are used to calculate the significance of the *F*-value. df1 or the regression df reflects the number of predictors in the model. df2 or the residual df is calculated by subtracting df1 from the sample size, then subtracting one (Royston & Sauerbrei, 2008). Results are reported: $F(df1, df2) = F\text{-value}$.

controlling for the effects of the other IVs in the model, the significant IV is associated with one or more DVs.

Importantly, whilst MMR indicates whether individual IVs are associated with one or more DVs, it does not report which DV(s) the significant IVs are related to. Thus, when significant multivariate results were found, to further explore the association between the IVs and individual DVs, the univariate regression equations were examined. For each significant multivariate model in this investigation, then, three univariate regressions were conducted to test the linear relationship between the IVs and each identity process separately.

The initial stage of univariate analysis consists of three omnibus tests. Each omnibus analysis uses an F -test to determine whether one or more IVs were associated with the DV of that model, and the null hypothesis of no relationships was rejected when $p < .05$. The R^2 , which captures the percentage of variance in a DV that is accounted for by the IVs, was also reported for each regression equation. In instances where regression equations were significant, the significance of individual IVs were inspected. Individual relationships were considered significant when $p < .05$, and the direction and strength of relationship were indicated through β coefficients. β values represent the number of SD s that the DV will change following one SD change in the IV. Therefore, positive β values signify a positive association between an IV and DV, whilst negative β values indicate a negative association between an IV and DV.

The results of the main statistical analyses are reported in the four subsequent sections²⁶. After each analysis, findings are discussed in relation to the relevant academic literature.

²⁶ Prior to testing each model, assumptions of linearity, homoscedasticity, normality of residuals, outliers, and multicollinearity were examined (Field, 2017). Linearity and homoscedasticity were determined using scatter plots of the relationship between the errors in the model and what the model predicts. Normality of residuals were assessed using a P-P plot. Cook's D scores were used to identify multivariate outliers, and variance inflation factor (VIF) scores were considered to protect against multicollinearity. Having satisfied these assumptions, the results of each model were considered.

Following the sequential explanatory design adopted in this research, quantitative results reported in the below analyses informed the aims of the subsequent qualitative phase of this study. Thus, in instances where results were determined to warrant further exploration during the qualitative phase, this is signposted to the reader.

5.5.1 Model One: The Relationship between Instagram Comparisons of Ability and Opinion and the Three Identity Processes (Q1a; Q2a)

5.5.1.1 Model One: Analysis

Model one determined the linear relationship between Instagram comparisons of ability and opinion and the three identity processes. Instagram comparisons of ability and opinion were therefore IVs in the model, whilst interaction terms were included to examine the moderating effects of age and gender on these relationships. Furthermore, age and gender were also included as covariates to control for their association with the three identity processes.

For model one, the multivariate omnibus test was significant ($F(24, 470.45) = 3.72, p < .001, \lambda = .60$), indicating that one or more IVs in the model were associated with the set of DVs. Specifically, when controlling for the effects of the other IVs in the model, Instagram comparisons of ability ($F(3, 162) = 2.91, p = .04, \lambda = .95$) and opinion ($F(3, 162) = 5.24, p = .002, \lambda = .91$) were significant multivariate predictors. These results therefore suggest that both forms of Instagram-based social comparison behaviour were associated with one or more of the identity processes. Furthermore, the interaction between Instagram comparisons of ability and gender was approaching significance at the $p < .05$ level ($F(3, 162) = 2.23, p = .09, \lambda = .96$), thus suggesting that there may be gender differences in terms of the relationship between Instagram comparisons of ability and one or more of the identity process variables.

Given the significant multivariate results, the univariate equations were inspected. Significant univariate regression equations predicting commitment ($R^2 = .10, F(8, 164) =$

2.19, $p = .03$), in-depth exploration ($R^2 = .25$, $F(8, 164) = 6.65$, $p < .001$) and reconsideration of commitment ($R^2 = .18$, $F(8, 164) = 4.42$, $p < .001$) were found, indicating that at least one IV in each model was significantly associated with the DV. Importantly, when controlling for the effects of the other IVs in the models, Instagram comparisons of ability were positively associated with commitment ($\beta = .20$, $p = .03$) and in-depth exploration ($\beta = .25$, $p = .004$), thus evidencing that such behaviour positively relates with adaptive identity processes during adolescence. Furthermore, the association between Instagram comparisons of ability and reconsideration of commitment was moderated by gender ($\beta = .22$, $p = .02$).

Significant moderation results indicate that the relationship between Instagram comparisons of ability and reconsideration of commitment was not the same for males and females, and to probe these statistically significant moderator effects, a simple slopes analysis using the PROCESS (Hayes, 2018) macro in SPSS was conducted. A simple slopes analysis reveals the relationship between an IV and a DV at different levels of the moderator variable. Thus, on this occasion, the analysis tested the relationship between Instagram comparisons of ability and reconsideration of commitment for both male and female adolescents. Interestingly, the analysis reported that Instagram comparisons of ability were negatively associated with reconsideration of commitment for males ($\beta = -.29$, $p = .04$), and positively - though not significantly - related with reconsideration of commitment for females ($\beta = .16$, $p = .17$). These results therefore suggest that comparisons of ability on Instagram were not only associated with increased commitment and in-depth exploration, but for adolescent males, they were also associated with reduced reconsideration of commitment. The results of the simple slopes analysis are presented visually below in Figure 4.

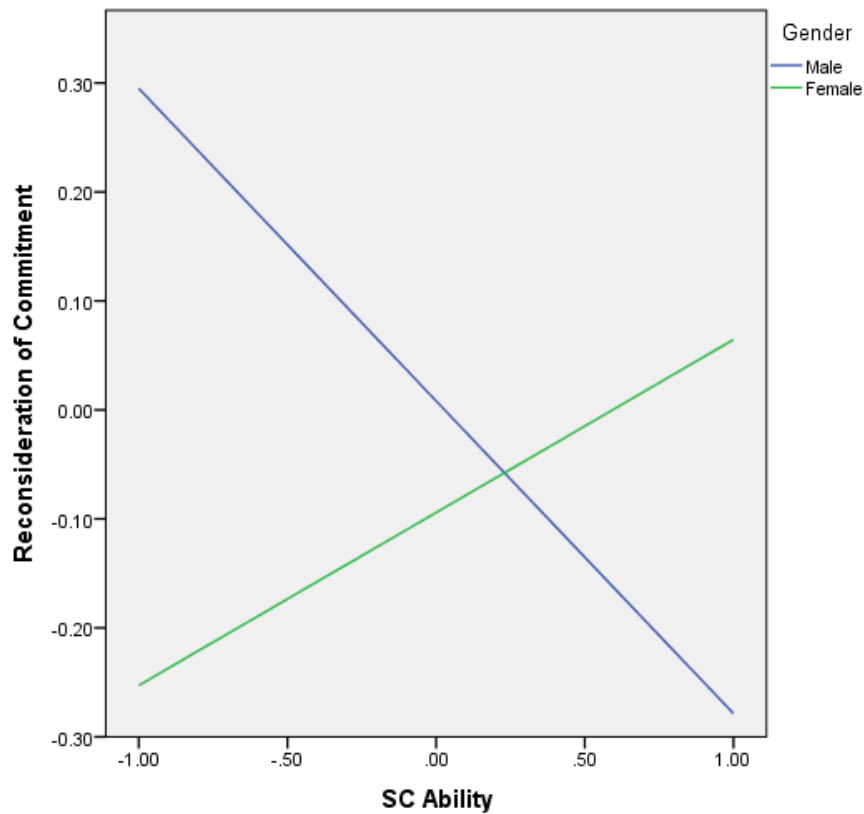


Figure 4. *Simple Slopes Analysis of Association between Instagram Comparisons of Ability and Reconsideration of Commitment for Male and Female Adolescents*

Instagram comparisons of opinion, on the other hand, were positively associated with reconsideration of commitment ($\beta = .27, p = .002$) and were approaching significance at the $p < .05$ level in terms of in-depth exploration ($\beta = .16, p = .06$). Whilst such findings evidence that opinion comparisons on Instagram positively relate with active identity exploration during adolescence, the relationship between Instagram comparisons of opinion and commitment was not nearing significance ($\beta = -.06, p = .49$). Furthermore, neither age nor gender significantly moderated the relationships between Instagram comparisons of opinion and the three identity processes. Full results of the multivariate analyses and the three univariate regressions can be found below in Table 12.

Table 12. *Multivariate Lambda and Standardised Betas for the Three Univariate Regression Equations testing the Relationship between Instagram Comparisons of Ability and Opinion and the Three Identity Processes*

	Multivariate	Univariate		
	λ	Commitment	Exploration	Reconsideration
<i>Main Effects</i>				
SC Ability	.95*	.20* (.09)	.25** (.09)	-.04 (.09)
SC Opinion	.91**	-.06 (.09)	.16 (.08)	.27** (.09)
<i>Covariates</i>				
Age	.94*	.18* (.08)	.19** (.07)	-.12 (.08)
Gender	.94*	.15* (.08)	.21** (.07)	-.05 (.07)
<i>Interaction Effects of Interest</i>				
SC Ability*Age	.99	.05 (.10)	-.004 (.09)	-.13 (.10)
SC Ability*Gender	.96	.03 (.10)	.03 (.09)	.22* (.09)
SC Opinion*Age	.99	-.01 (.10)	-.03 (.09)	-.12 (.09)
SC Opinion*Gender	.99	-.08 (.10)	.02 (.09)	-.03 (.09)
<i>Omnibus Tests</i>				
λ	.60			
R^2		.10	.25	.18
F (df)	3.72 (24, 470.45)	2.19 (8, 164)	6.65 (8, 164)	4.42 (8, 164)
P	<.001	.03	<.001	<.001

Note: Based on $N = 173$ participants following listwise deletion. SC = Social Comparison. Male = 0, Female = 1. Standard error in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$.

5.5.1.2 Model One: Discussion

Model one tested the linear relationship between Instagram-based social comparison behaviour and the three identity processes. Instagram comparisons of ability were positively associated with commitment and in-depth exploration, whilst for adolescent males, they were also negatively associated with reconsideration of commitment. These results suggest that rather than reducing self-certainty and inhibiting exploration, such comparisons may compel adolescents to reflect upon their abilities in identity-relevant domains, thus evoking further in-depth exploration, and supporting young people in solidifying their commitments.

Whilst these findings suggest that social comparisons of ability on Instagram may support *adolescents* to explore their identity, the results of previous studies had implied that such comparisons may have detrimental implications for identity development during *emerging adulthood* (Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018). Although issues relating to identity tend to emerge during the teenage years, many of the enduring decisions made in identity-related domains - such as romantic relationships, career choices, and worldviews - are made during emerging adulthood (Arnett, 2000). Adolescents are therefore less likely to strongly identify with their commitments (Luyckx et al., 2013), and they also experience considerably less societal pressure to make decisions and start performing in many identity-related domains (Raiu et al., 2014). Thus, given that exploratory behaviour during adolescence is typically more transient and tentative (Arnett, 2015), it is possible that adolescents are less likely to interpret the content shared by superior others on Instagram as self-threatening. As such, some of the potentially detrimental implications of ability comparisons - such as self-doubt and rumination - may be somewhat attenuated for adolescents and experienced more so by individuals during emerging adulthood.

Such reasoning is also supported by the gender differences that were found regarding the relationship between social comparisons of ability on Instagram and reconsideration of commitment. Consistent with previous research (e.g., Klimstra, et al., 2010), adolescent males reported less mature identity profiles, scoring lower in commitment and in-depth exploration. Importantly, then, for male participants, social comparisons of ability were

associated with reduced reconsideration of commitment, thus suggesting that such behaviour may help to alleviate uncertainty regarding their abilities in identity-relevant domains. In contrast, whilst the results were not significant at the $p < .05$ level for adolescent females ($p = .17$), the direction of the relationship between comparisons of ability on Instagram and maladaptive identity outcomes (i.e., increased reconsideration of commitment) was consistent with that found in research with emerging adults (Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018). Thus, it appears that the less committed young people are to their identity, the less at-risk they are of experiencing negative psycho-emotional outcomes following comparisons with superior others. Indeed, it may be that the idealised self-presentations of others on Instagram are considered future possibilities for those with less firm commitments, whilst for those with a stronger sense of who they are, what they deem valuable or important, and what society expects of them, they may be more likely to elucidate current inadequacies. *To assess the validity of such conclusions, it was decided that the qualitative phase of this investigation would explore the temporality of adolescent ability comparisons on Instagram, and consider whether participants themselves could propose any alternative explanations for the significant gender differences that were identified during this analysis.*

In terms of opinion-based comparisons, model one found that Instagram comparisons of opinion were positively associated with in-depth exploration and reconsideration of commitment. Such findings are largely consistent with the results of previous research with emerging adults which found that SNS social comparisons of opinion predict identity styles characterised by active identity exploration (Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018). It appears, then, that opinion-based comparisons on Instagram may prompt young people to reflect upon their beliefs and values, thus eliciting identity exploration in the form of in-depth exploration and/or reconsideration of commitment. Notably, however, opinion comparisons on Instagram were not significantly related with identity commitment. This may be because adolescents tend to be less certain about their identity-related choices (Crocetti et al., 2008), and thus, relative to emerging adults, engaging with the opinions of others on Instagram may be more likely to prompt

adolescents to consider and/or reconsider aspects of their identity, rather than strengthen their pre-existing commitments.

Whilst model one provided initial insight into the linear relationship between Instagram social comparison behaviour and the three identity processes, the social comparison literature indicates that *who* the comparison target is can influence the implications of such behaviour (e.g., Smith, 2000). As such, models two, three, and four built upon model one to examine the extent to which Instagram network composition moderates the association between Instagram social comparison behaviour and commitment, in-depth exploration, and reconsideration of commitment.

5.5.2 Model Two: The Moderating Effect of Instagram Network Homophily on the Relationship between Instagram Comparisons of Ability and the Three Identity Processes (Q1b)

5.5.2.1 Model Two: Analysis

Model two determined whether Instagram network homophily moderated the association between Instagram comparisons of ability and the three identity processes. Building upon model one, six new variables were inserted into the equation for this analysis. An interaction term between Instagram network homophily and Instagram comparisons of ability was included to test the moderating effect, whilst two three-way interaction terms²⁷ were also included to determine whether the moderating effect of Instagram network homophily differed according to adolescents' age or gender. Finally, three covariates (i.e., Homophily, Homophily*Age, and Homophily*Gender) were included to control for their possible effects on the three identity processes.

²⁷ Three-way interactions determine whether the interaction effects of two IVs differ across a third IV. In this research, three-way interaction terms are used in models two, three, and four to determine whether Instagram network composition moderates the relationship between Instagram-based social comparison behaviour and the identity processes differently depending on the age or gender of adolescents.

For model two, the multivariate omnibus test was significant ($F(42, 463.54) = 3.26, p < .001, \lambda = .46$), indicating that at least one IV was associated with at least one identity process variable. When controlling for the effects of the other IVs in the model, the three-way interaction between Instagram network homophily, Instagram comparisons of ability, and gender ($F(3, 156) = 2.95, p = .04, \lambda = .95$) was a significant multivariate predictor. Furthermore, the two-way interaction between Instagram comparisons of ability and gender ($F(3, 156) = 2.15, p = .10, \lambda = .96$) and the three-way interaction between Instagram network homophily, Instagram comparisons of ability, and age ($F(3, 156) = 2.05, p = .11, \lambda = .96$) were both approaching significance at the $p < .05$ level. Interestingly, although Instagram comparisons of ability were a significant multivariate predictor in model one, when the Instagram network homophily variables were factored into the multivariate equation in model two, Instagram comparisons of ability were no longer a significant predictor ($F(3, 156) = 1.74, p = .16, \lambda = .97$). This suggests that it is the perceived similarity with the ability comparison target, rather than the ability comparison in isolation, that has the greater effect on adolescent identity.

Following significant multivariate results, the univariate equations were examined, and significant regression equations predicting commitment ($R^2 = .17, F(14, 158) = 2.35, p = .03$), in-depth exploration ($R^2 = .34, F(14, 158) = 5.77, p < .001$) and reconsideration of commitment ($R^2 = .22, F(14, 158) = 3.18, p < .001$) were found. As with model one, Instagram comparisons of ability were positively associated with in-depth exploration ($\beta = .18, p = .04$), whilst their association with commitment was approaching significance at the $p < .05$ level ($\beta = .18, p = .06$). Furthermore, the relationship between Instagram comparisons and ability and reconsideration of commitment was again significantly moderated by gender ($\beta = .23, p = .01$)²⁸. Importantly, although Instagram network homophily did not significantly moderate how Instagram comparisons of ability associated with commitment ($\beta = .08, p = .30$) or reconsideration of commitment ($\beta = .08, p = .26$), the three-way interaction between Instagram network homophily, Instagram comparisons of ability, and gender was a

²⁸ Consistent with model one, the relationship between Instagram comparisons of ability and reconsideration of commitment was negative for males ($\beta = -.29, p = .04$) and positive - though not significant - for females ($\beta = .16, p = .15$).

significant predictor of in-depth exploration ($\beta = .17, p = .02$). Furthermore, the three-way interaction between Instagram network homophily, Instagram comparisons of ability, and age was also approaching significance at the $p < .05$ level in relation to in-depth exploration ($\beta = .13, p = .07$). Results of model two therefore suggest that whilst Instagram network homophily moderated the relationship between Instagram comparison of ability and in-depth exploration, the moderation effect was different according to participants' gender and age.

To probe the significant interaction effects, two simple slopes analyses were conducted. The first analysis concerned the three-way interaction between Instagram network homophily, Instagram comparisons of ability, and gender. During simple slopes analyses concerning three-way interactions, the relationship between the IV and the DV is examined at different levels of both moderator variables. The relationship between Instagram comparisons of ability and in-depth exploration was therefore examined at low ($-1 SD$) average (Mean) and high ($+1 SD$) levels of Instagram network homophily, for both genders. For female adolescents, the relationship between comparisons of ability and in-depth exploration was significant only for those in high homophily Instagram networks ($\beta = .34, p = .01$). In contrast, for male adolescents, the association between comparisons of ability and in-depth exploration was significant only for those in low homophily Instagram networks ($\beta = .36, p = .04$). These results are presented visually in Figure 5, whilst full results can be found in A.18.

The second simple slopes analysis concerned the three-way interaction between Instagram network homophily, Instagram comparisons of ability, and age. Given the relatively equal distribution of age across this sample, $-1 SD$ from the mean was labelled early adolescence, the mean was labelled mid-adolescence, and $+1 SD$ from the mean was labelled late adolescence. The analysis found that for participants in early adolescence, the relationship between Instagram comparisons of ability and in-depth exploration was approaching significance only for those in low homophily Instagram networks ($\beta = .30, p = .06$). For participants in mid-adolescence, there was a positive association between Instagram comparisons of ability and in-depth exploration for those in average homophily Instagram

networks ($\beta = .18, p = .04$), whilst the relationship for those in high homophily Instagram networks was also approaching significance ($\beta = .20, p = .06$). Finally, for participants in late adolescence, the association between Instagram comparisons of ability and in-depth exploration was significant only for those in high homophily Instagram networks ($\beta = .30, p = .02$). These results are presented visually in Figure 6, whilst full results can be found in A.19.

The results of model two (Table 13) therefore indicate that the moderating effect of Instagram network homophily on the relationship between Instagram comparisons of ability and in-depth exploration differs according to gender and age. More specifically, for males and those in early adolescence, ability comparisons in more diverse Instagram networks were positively related with in-depth exploration. In contrast, for females and those in mid- and late adolescence, comparisons of ability in more homogeneous Instagram networks were positively associated with in-depth exploration.

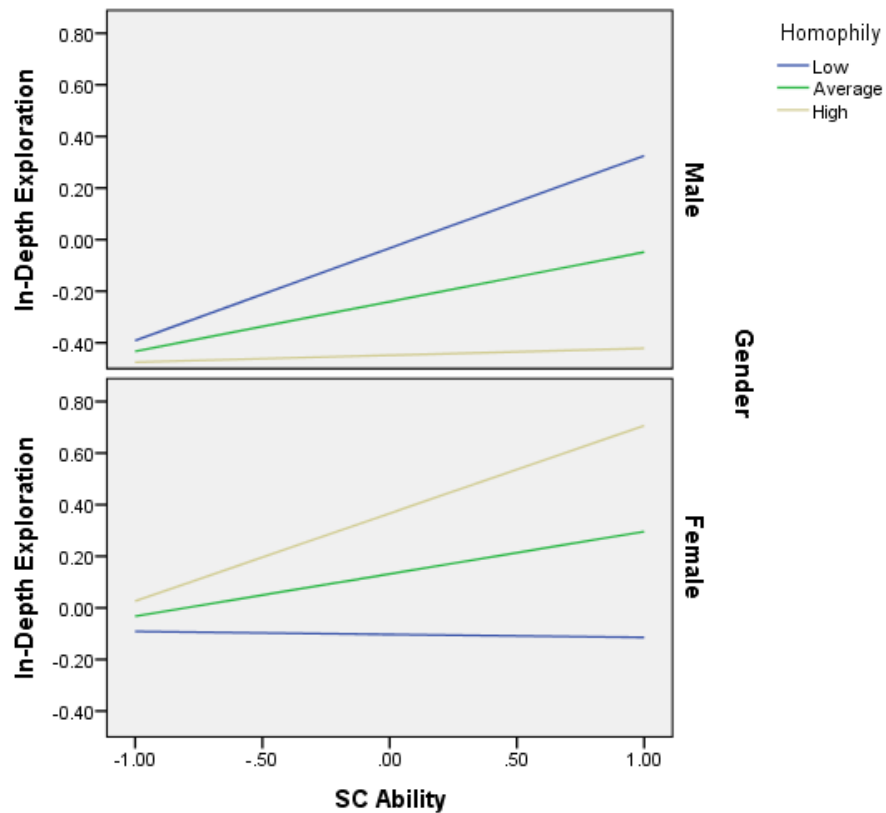


Figure 5. *Simple Slopes Analysis of Association between Instagram Comparisons of Ability and In-Depth Exploration for Male and Female Adolescents at Different Levels of Instagram Network Homophily*

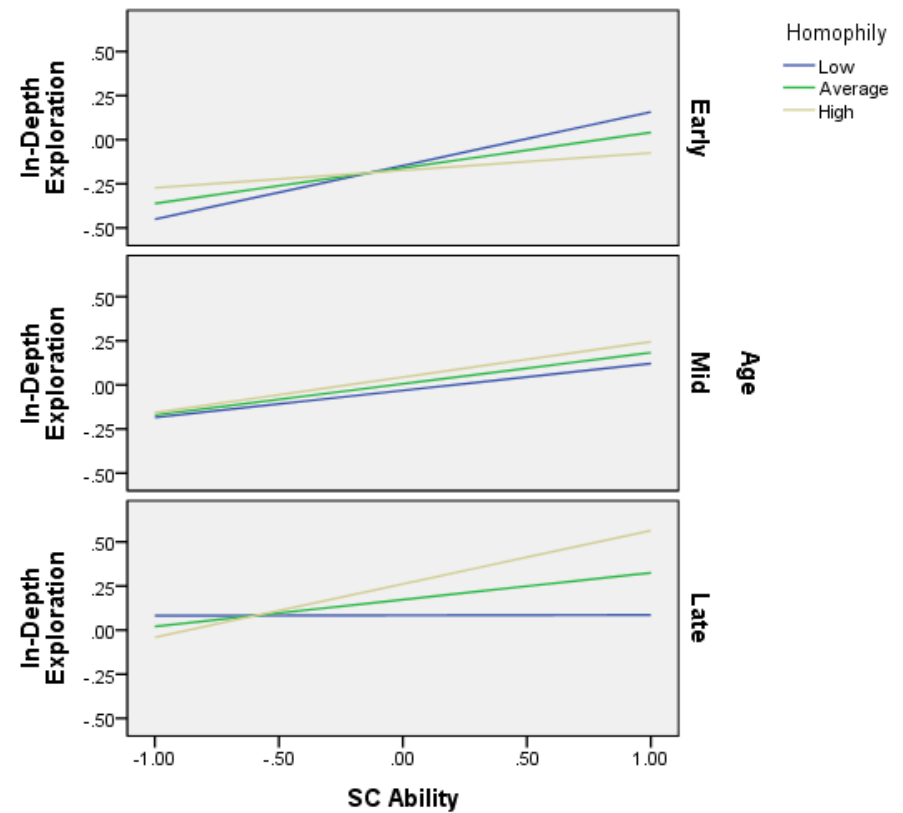


Figure 6. *Simple Slopes Analysis of Association between Instagram Comparisons of Ability and In-Depth Exploration for Early, Mid, and Late Adolescents at Different Levels of Instagram Network Homophily*

Table 13. *Multivariate Lambda and Standardised Betas for the Three Univariate Regression Equations testing the Moderating Effects of Instagram Network Homophily on the Relationship between Instagram Comparisons of Ability and the Three Identity Processes*

	Multivariate	Univariate		
	λ	Commitment	Exploration	Reconsideration
<i>Main Effects</i>				
SC Ability	.97	.18 (.09)	.18* (.08)	-.04 (.09)
<i>Covariates</i>				
SC Opinion	.87***	-.14 (.09)	.18* (.08)	.31** (.09)
SC Opinion*Age	.99	-.02 (.10)	-.03 (.09)	-.10 (.09)
SC Opinion*Gender	.997	-.05 (.10)	-.04 (.09)	-.03 (.10)
Age	.95	.17* (.08)	.17* (.07)	-.10 (.07)
Gender	.95	.14 (.08)	.19** (.07)	-.04 (.07)
Homophily	.92**	.26** (.09)	.04 (.08)	-.19* (.08)
Homophily*Age	.995	.06 (.08)	.05 (.07)	-.05 (.08)
Homophily*Gender	.92*	.02 (.09)	.22** (.08)	-.04 (.09)
<i>Interaction Effects of Interest</i>				
SC Ability*Age	.98	.07 (.10)	-.03 (.09)	-.18 (.10)
SC Ability*Gender	.96	-.01 (.10)	-.01 (.09)	.23* (.09)
Homophily*SC Ability	.98	.08 (.08)	.02 (.07)	.08 (.07)
Homophily*SC Ability*Age	.96	-.03 (.08)	.13 (.07)	.06 (.08)
Homophily*SC Ability*Gender	.95*	-.01 (.08)	.17* (.07)	-.04 (.08)
<i>Omnibus Tests</i>				
λ	.46			
R^2		.17	.34	.22
F	3.26 (42, 463.54)	2.35 (14, 158)	5.77 (14, 158)	3.18 (14, 158)
p	< .001	.03	< .001	< .001

Note: Based on $N = 173$ participants following listwise deletion. SC = Social Comparison. Male = 0, Female = 1. Standard error in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$.

5.5.2.2 Model Two: Discussion

Model two determined whether Instagram network homophily moderated the relationship between Instagram comparisons of ability and the three identity processes. Although the moderation effects were not significant in relation to either commitment or reconsideration of commitment, Instagram network homophily did moderate the association between Instagram comparisons of ability and in-depth exploration, and these moderation effects differed according to adolescents' gender and age.

In terms of gender differences, comparisons of ability in highly homogeneous Instagram networks were positively associated with in-depth exploration for adolescent females. In contrast, for adolescent males, comparisons of ability in highly heterogeneous Instagram communities were positively related with in-depth exploration. It is possible that these gender differences may be a result of the different identity 'needs' of male and female adolescents within this sample. Females - with their more mature identity profiles - would likely have a clearer sense of which abilities are most valuable in helping them to achieve their personal and/or social goals. Thus, under the safeguard of perceived similarity, highly homogeneous Instagram networks may provide adolescent females with the ideal platform to evoke motivation to better themselves in identity-related domains of interest. This may, in turn, further their desire to learn more about these facets of their identity, thus prompting in-depth exploration. In contrast, male adolescents reported to be less certain about their identity, and in instances where individuals identify less with their commitments, comparisons of ability with dissimilar others *may* be more useful. Indeed, whilst the impact of ability comparisons is typically magnified by the perceived self-relevance of the domain (Tsai, Yang & Cheng, 2014), when individuals are unsure about who they are, they may have difficulty in determining which abilities are particularly important to their self-definition. As such, comparing their abilities with a broader range of individuals (i.e., heterogeneous Instagram networks) may not only be less 'risky' for male adolescents, but they may also support them in determining which abilities appear desirable and worth pursuing. In instances where attractive abilities in identity-related domains are identified,

adolescent males may then go on to seek further information about how to enhance their current set of skills and knowledge.

Developmental explanations for such gender differences are further supported by the fact that age also moderated the effect of Instagram network homophily on the relationship between Instagram comparisons of ability and in-depth exploration. Indeed, although the three-way interaction was only approaching significance at both multivariate ($p = .11$) and univariate ($p = .07$) levels, the simple slopes analysis found that Instagram comparisons of ability were positively associated with in-depth exploration for younger adolescents in more diverse Instagram networks. In contrast, for participants in mid- and late adolescence, Instagram comparisons of ability were positively associated with in-depth exploration for those in more homogeneous networks. When considered alongside the results regarding gender differences, these findings provide further weight to the idea that ability-based comparisons with a broader range of individuals may have more adaptive identity implications for those with less mature identity profiles, whilst comparisons of ability with similar others may be most likely to elicit in-depth exploration from those with a stronger sense of self. *To help learn more about these possible developmental differences, it was decided that the qualitative phase of this investigation would explore how adolescents interpret ability-based content shared by similar/dissimilar others on Instagram, thus allowing for a more in-depth examination of whether the responses to engaging with such content do indeed differ according to developmental progression.*

Whilst these results suggest that the perceived similarity between the comparer and the comparison target may play a significant role in determining the identity implications of Instagram-based ability comparisons, previous research has identified that the relational closeness between the comparer and the comparison target may also inform the outcomes of such behaviour (e.g., Lin & Utz, 2015; Liu et al., 2016). As such, model three examined the moderating effect of Instagram tie strength on the relationship between comparisons of ability on Instagram and the three identity processes.

5.5.3 Model Three: The Moderating Effect of Instagram Tie Strength on the Relationship between Instagram Comparisons of Ability and the Three Identity Processes (Q1c)

5.5.3.1 Model Three: Analysis

Model three tested whether Instagram tie strength moderated the relationship between Instagram comparisons of ability and the three identity processes. Again, building upon model one, an interaction term between Instagram tie strength and Instagram comparisons of ability was included to test this moderating effect, whilst two three-way interaction terms were included to determine whether the moderating effect differed according to adolescents' age or gender. Furthermore, three covariates (i.e., Instagram tie strength, Instagram tie strength*Age, and Instagram tie strength*Gender) were included in the model to control for their possible effects on the three identity process variables.

Interestingly, although the multivariate omnibus test was significant for model three ($F(42, 463.54) = 2.73, p < .001, \lambda = .52$), the lambda statistic was higher than that of model two ($\lambda = .46$). Given the inverse nature of the lambda statistic, this suggests that adolescents' perceived similarity with ability comparison targets may have a greater impact on the identity implications of such behaviour than their relational closeness. In terms of the significance of individual IVs, none of the variables of interest were significant multivariate predictors. However, the interactions between Instagram tie strength and Instagram comparisons of ability ($F(3, 156) = 2.30, p = .08, \lambda = .96$) and Instagram comparisons of ability and gender ($F(3, 156) = 2.03, p = .11, \lambda = .96$) were both approaching significance at the $p < .05$ level.

Given the lack of significant multivariate results, the univariate equations were examined tentatively. Equations predicting commitment ($R^2 = .14, F(14, 158) = 1.82, p = .03$), in-depth exploration ($R^2 = .30, F(14, 158) = 4.86, p < .001$) and reconsideration of commitment ($R^2 = .19, F(14, 158) = 2.57, p = .002$) were all statistically significant. Consistent with the results of models one and two, Instagram comparisons of ability were positively associated with in-depth exploration ($\beta = .19, p = .03$) and approaching significance at the $p < .05$ level in

relation with commitment ($\beta = .16, p = .10$). Furthermore, the relationship between Instagram comparisons of ability and reconsideration of commitment was again moderated by gender ($\beta = .23, p = .02$)²⁹. Importantly, although tie strength did not significantly moderate the relationship between Instagram comparisons of ability and either exploratory process (in-depth exploration: $\beta = .04, p = .59$; reconsideration of commitment: $\beta = -.002, p = .98$), the interaction between Instagram tie strength and Instagram comparisons of ability was a significant predictor of commitment ($\beta = .18, p = .02$). This therefore suggests that the degree of relational closeness between the comparer and those in their Instagram network may influence the extent to which ability comparisons inform their sense of commitment.

A simple slopes analysis was therefore conducted to probe the significant moderator effects, and the relationship between Instagram comparisons of ability and commitment was examined at low ($-1 SD$), average (Mean), and high ($+1 SD$) levels of Instagram tie strength. Importantly, the relationship between Instagram comparisons of ability and commitment was positive for those in high tie strength Instagram networks ($\beta = .34, p = .004$). This positive association was also approaching significance at the $p < .05$ level for adolescents in average tie strength networks ($\beta = .16, p = .10$), whilst the relationship was negative - though not nearing significance - for adolescents in low tie strength Instagram networks ($\beta = -.03, p = .83$). The results of the simple slopes analysis (presented visually in Figure 7) therefore suggest that the more close ties that adolescents have in their Instagram networks, the more likely that comparisons of ability are to positively associate with commitment. The full results for the multivariate analyses and the three univariate regressions can be found below in Table 14.

²⁹ In line with models one and two, the relationship between Instagram comparisons of ability and reconsideration of commitment was negative for males ($\beta = -.29, p = .047$) and positive - though not significant - for females ($\beta = .17, p = .17$).

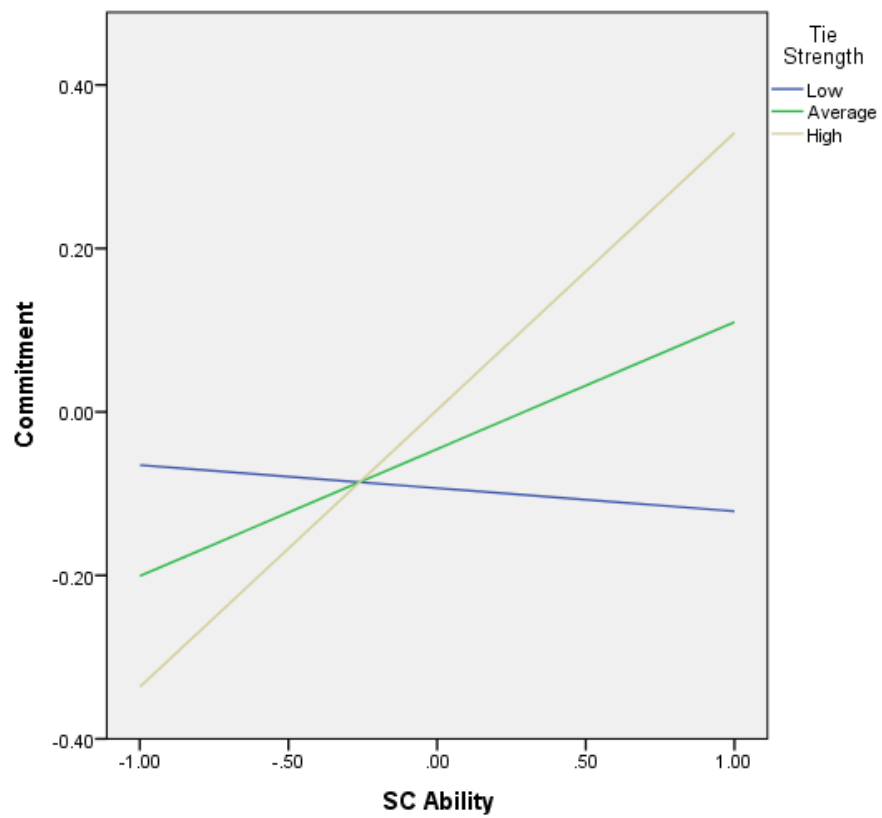


Figure 7. *Simple Slopes Analysis of Association between Instagram Comparisons of Ability and Commitment at Different Levels of Instagram Tie Strength*

Table 14. *Multivariate Lambda and Standardised Betas for the Three Univariate Regression Equations testing the Moderating Effects of Instagram Tie Strength on the Relationship between Instagram Comparisons of Ability and the Three Identity Processes*

	Multivariate	Univariate		
	λ	Commitment	Exploration	Reconsideration
<i>Main Effects</i>				
SC Ability	.97	.16 (.10)	19* (.09)	-.03 (.09)
<i>Covariates</i>				
SC Opinion	.89***	-.10 (.09)	19* (.09)	.28** (.09)
SC Opinion*Age	.99	.02 (.10)	-.01 (.09)	-.12 (.09)
SC Opinion*Gender	.996	-.04 (.10)	-.09 (.09)	-.05 (.10)
Age	.94*	.20* (.08)	.18* (.07)	-.12 (.08)
Gender	.95	.14 (.08)	.19** (.07)	-.04 (.08)
Tie Strength	.99	.05 (.09)	.05 (.08)	-.07 (.08)
Tie Strength*Age	.99	-.01 (.08)	.06 (.07)	.04 (.08)
Tie Strength*Gender	.94*	-.06 (.09)	.17* (.08)	.05 (.08)
<i>Interaction Effects of Interest</i>				
SC Ability*Age	.99	.06 (.11)	-.02 (.10)	-.12 (.10)
SC Ability*Gender	.96	-.01 (.10)	-.04 (.09)	.23* (.10)
Tie Strength*SC Ability	.96	.18* (.08)	.04 (.07)	-.002 (.07)
Tie Strength*SC Ability*Age	.998	-.03 (.08)	-.01 (.07)	-.03 (.07)
Tie Strength*SC Ability*Gender	.99	.02 (.08)	.09 (.07)	-.01 (.08)
<i>Omnibus Tests</i>				
λ	.52			
R^2		.14	.30	.19
F	2.73 (42, 463.54)	1.82 (14, 158)	4.86 (14, 158)	2.57 (14,158)
p	< .001	.04	<.001	.002

Note: Note: Based on $N = 173$ participants following listwise deletion. SC = Social Comparison. Male = 0, Female = 1. Standard error in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$.

5.5.3.2 Model Three: Discussion

Model three determined whether Instagram tie strength moderated the relationship between Instagram comparisons of ability and the three identity processes. The moderator effects of Instagram tie strength were only approaching significance at the multivariate level ($p = .08$), whilst at the univariate level, they were significantly associated with neither in-depth exploration nor reconsideration of commitment. Importantly, however, the interaction between Instagram tie strength and Instagram comparisons of ability did predict commitment, and the results of a simple slopes analysis indicated that Instagram comparisons of ability were associated with increased commitment for adolescents whose Instagram networks contained a greater number of closer ties. Guided by Tesser's (1988) SEM, these results suggest that adolescents may 'bask in the glories' of close friends on Instagram, and through this reflective process, experience a greater sense of self-satisfaction and a strengthening of commitments. Such reasoning would therefore imply that the idealised self-presentations of close ties on Instagram are largely in domains that are not central to adolescents' self-definition, thus allowing the ability-comparisons to enhance, rather than threaten, their self-evaluation. *To examine if this is indeed the case or whether alternative explanations are more useful for explaining these results, it was decided that the qualitative phase of this investigation would explore how adolescents evaluate content shared by close ties on Instagram.*

Notably, although models two and three both found that Instagram network composition moderated the relationship between Instagram comparisons of ability and the three identity processes, findings suggest that perceived similarity and relational closeness with ability comparison targets on Instagram may have differing implications for adolescent identity. That is, perceived similarity with comparison targets appeared to have implications for eliciting further exploration, presumably through the mechanism of increased motivation to learn more about identity-related domains of interest. In contrast, although comparisons with those adolescents deem 'close' may enhance one's self-certainty, they were not significantly associated with identity exploration. Due to increased familiarity, stronger ties are less likely to represent channels for innovation which offer new ideas, options, or

creative suggestions (Krackhardt, 1992; Rowan-Kenyon, Aleman & Savitz-Romer, 2018). Thus, it is possible that whilst strong ties on Instagram may enable adolescents to benefit from reflection processes, the impact of comparisons with close friends on exploration may be more negligible.

Whilst models two and three determined the extent to which network composition may inform the identity implications of comparisons of ability on Instagram, *who* adolescents follow on the platform may also influence the consequences of opinion-based comparisons (Kruglanski, 1989; Kruglanski & Mayseless, 1987). As such, the final statistical analysis reported in this chapter examined the moderating effect of Instagram network homophily on the relationship between Instagram comparisons of opinion and the three identity processes.

5.5.4 Model Four: The Moderating Effect of Instagram Network Homophily on the Relationship between Instagram Comparisons of Opinion and the Three Identity Processes (Q2b)

5.5.4.1 Model Four: Analysis

Model four determined the moderating effect of Instagram network homophily on the relationship between Instagram comparisons of opinion and the three identity processes. Thus, in addition to the variables used in model one, an interaction term between Instagram network homophily and Instagram comparisons of opinion was included to test the moderating effect, whilst two three-way interaction terms were also included to determine whether the moderating effect differed according to participants' age or gender. Finally, three covariates (i.e., Instagram network homophily, Instagram network homophily*Age, and Instagram network homophily*Gender) were included to control for their effects.

For model four, the multivariate omnibus test was significant ($F(42, 463.54) = 3.95, p < .001, \lambda = .40$), indicating that at least one IV was a predictor of at least one DV. When controlling for the effects of the other IVs in the model, Instagram comparisons of opinion ($F(3, 156) =$

5.24, $p = .002$, $\lambda = .90$) and the interaction between Instagram network homophily, Instagram comparisons of opinion, and gender ($F(3, 156) = 8.47$, $p < .001$, $\lambda = .86$) were significant multivariate predictors. The follow-up univariate analysis identified significant equations predicting commitment ($R^2 = .19$, $F(14, 158) = 2.70$, $p = .001$), in-depth exploration ($R^2 = .35$, $F(14, 158) = 6.09$, $p < .001$) and reconsideration of commitment ($R^2 = .30$, $F(14, 158) = 4.83$, $p < .001$). Consistent with the results of model one, Instagram comparisons of opinion were associated with reconsideration of commitment ($\beta = .24$, $p = .01$), whilst their relationship with in-depth exploration was approaching significance at the $p < .05$ level ($\beta = .13$, $p = .12$), thus indicating that such behaviour may evoke further identity exploration during adolescence. Furthermore, the relationship between social comparisons of opinion on Instagram and commitment was also approaching significance ($\beta = -.16$, $p = .10$). In terms of the moderating effect of Instagram network homophily, the three-way interaction between Instagram network homophily, Instagram comparisons of opinion, and gender was a significant predictor of in-depth exploration ($\beta = .27$, $p < .001$) and reconsideration of commitment ($\beta = .24$, $p = .002$), whilst it was also approaching significance at the $p < .05$ level in relation to commitment ($\beta = .15$, $p = .08$). These results suggest that whilst Instagram network homophily moderated the relationship between Instagram comparisons of opinion and the three identity processes, the moderation effects differed between males and females.

To inspect the significant moderator effects, three simple slopes analyses were conducted. The relationships between Instagram social comparisons of opinion and the three identity processes were therefore examined at each level of Instagram network homophily (Low = -1 SD , Average = Mean, High = +1 SD), for both males and females. The first simple slopes analysis concerned the association between Instagram comparisons of opinion and commitment. A significant negative relationship was reported by females in low homophily Instagram networks ($\beta = -.44$, $p = .01$), whilst a negative association was also approaching significance for females in average homophily networks ($\beta = -.22$, $p = .08$). In contrast, the relationship between Instagram comparisons of opinion and commitment was not significant at any level of Instagram network homophily for males (Low: $\beta = -.01$, $p = .96$; Average: $\beta = -.08$, $p = .59$; High: $\beta = -.15$, $p = .48$). This therefore indicates that whilst

Instagram network homophily significantly moderated the association between Instagram comparisons of opinion and commitment for adolescent females, it did not for adolescent males. These results are presented visually in Figure 8, whilst full results can be found in A.20.

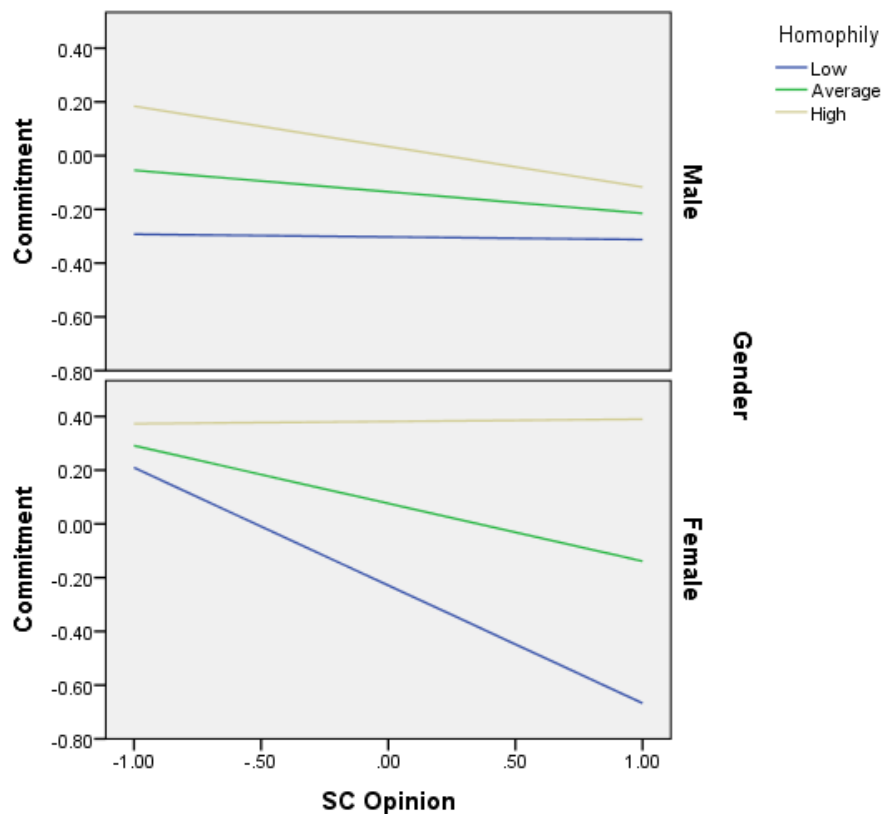


Figure 8. *Simple Slopes Analysis of Association between Instagram Comparisons of Opinion and Commitment for Male and Female Adolescents at Different Levels of Instagram Network Homophily*

The second simple slopes analysis concerned the association between Instagram comparisons of opinion and in-depth exploration (presented visually in Figure 9; for full results, see A.21). For males, a significant positive relationship was found only for those in low homophily Instagram networks ($\beta = .42, p = .01$). For females, a significant positive association was found only for those in high homophily networks ($\beta = .38, p = .01$). Similar results were reported in the final simple slopes analysis which concerned the relationship

between Instagram comparisons of opinion and reconsideration of commitment (presented visually in Figure 10; for full results, see A.22). That is, for males, significant positive results were found for those in low and average homophily Instagram networks (Low: $\beta = .54$, $p = .002$; Average: $\beta = .33$, $p = .02$), whilst for females, significant positive associations were found only for those in high homophily networks ($\beta = .43$, $p = .003$). These results indicate that comparisons of opinion in more diverse Instagram networks were positively related with exploration for adolescent males, whilst for adolescent females, comparisons of opinion in high homophily Instagram networks were positively associated with both exploratory processes. Full results of the multivariate analyses and the three univariate regressions can be found in Table 15.

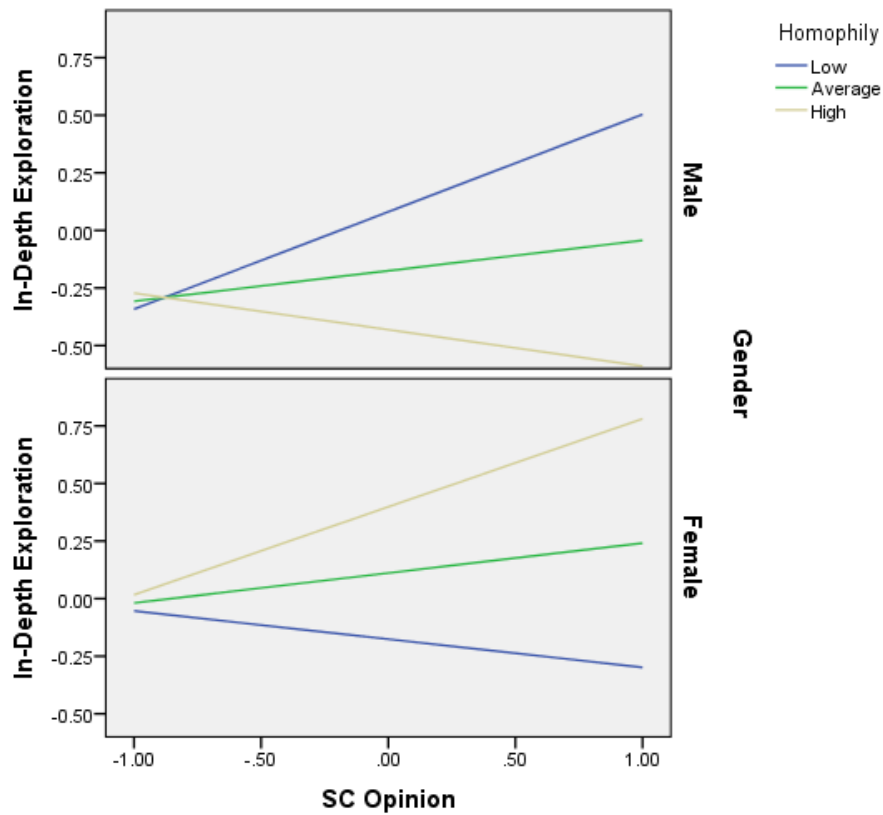


Figure 9. *Simple Slopes Analysis of Association between Instagram Comparisons of Opinion and In-Depth Exploration for Male and Female Adolescents at Different Levels of Instagram Network Homophily*

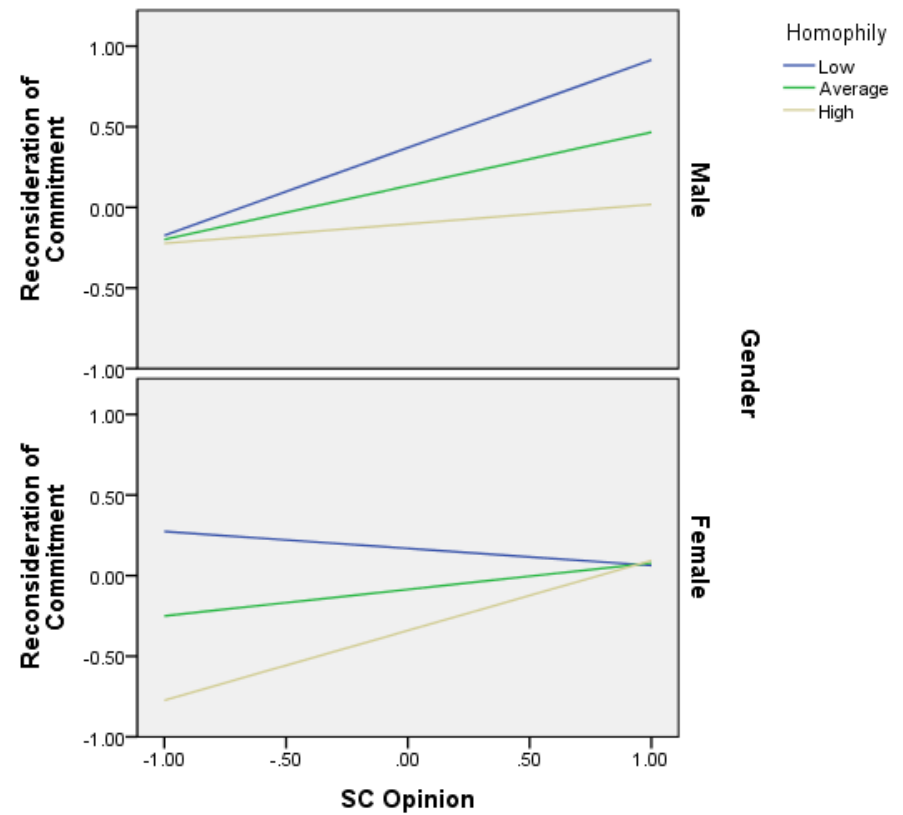


Figure 10. *Simple Slopes Analysis of Association between Instagram Comparisons of Opinion and Reconsideration of Commitment for Male and Female Adolescents at Different Levels of Instagram Network Homophily*

Table 15. *Multivariate Lambda and Standardised Betas for the Three Univariate Regression Equations testing the Moderating Effects of Instagram Network Homophily on the Relationship between Instagram Comparisons of Opinion and the Three Identity Processes*

	Multivariate	Univariate		
	λ	Commitment	Exploration	Reconsideration
<i>Main Effects</i>				
SC Opinion	.91**	-.16 (.09)	.13 (.08)	.24** (.09)
<i>Covariates</i>				
SC Ability	.95*	.18 (.09)	.24** (.09)	.02 (.09)
SC Ability*Age	.97	.05 (.10)	-.05 (.09)	-.19* (.09)
SC Ability*Gender	.97	-.03 (.10)	-.08 (.09)	.17 (.09)
Age	.96	.16* (.08)	.18* (.07)	-.04 (.07)
Gender	.97	.11 (.08)	.14* (.07)	-.11 (.07)
Homophily	.91***	.24** (.08)	.05 (.07)	-.25** (.08)
Homophily*Age	.99	.07 (.08)	.10 (.07)	-.02 (.08)
Homophily*Gender	.92***	.07 (.08)	.27*** (.08)	-.01 (.08)
<i>Interaction Effects of Interest</i>				
SC Opinion*Age	.999	.02 (.10)	.02 (.09)	.03 (.09)
SC Opinion*Gender	.99	-.07 (.10)	-.001 (.09)	-.08 (.09)
Homophily*SC Opinion	.98	.09 (.08)	.01 (.08)	.06 (.08)
Homophily*SC Opinion*Age	.97	.03 (.08)	.12 (.07)	-.09 (.07)
Homophily*SC Opinion*Gender	.86***	.15 (.08)	.27*** (.08)	.24** (.08)
<i>Omnibus Tests</i>				
λ	.40			
R^2		.19	.35	.30
F	3.95 (42, 463.54)	2.70 (14, 158)	6.09 (14, 158)	4.83 (14, 158)
p	<.001	.001	<.001	<.001

Note: Based on $N = 173$ participants following listwise deletion. SC = Social Comparison. Male = 0, Female = 1. Standard error in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$.

5.5.4.2 Model Four: Discussion

Model four determined the moderating effect of Instagram network homophily on the association between Instagram comparisons of opinion and the three identity processes. Significantly, Instagram network homophily moderated the relationship between Instagram comparisons of opinion and each identity process, and the moderation effects differed according to gender. In terms of commitment, opinion comparisons in low and average homophily Instagram networks were negatively associated with commitment for adolescent females. Opinion comparisons with dissimilar others typically provide novelty and difference (Suls, 2000), and a broad range of conflicting 'self-guides' can lead to confusion and vacillation regarding behaviour (Harter, 2012). As such, whilst adolescent females reported greater levels of commitment in this study, these results suggest that when confronted with diverse viewpoints - some of which may challenge their current beliefs and values, they may experience a reduction in confidence regarding their opinions in identity-relevant domains. This relationship was *not* significant for adolescent males. Perhaps because their 'starting point' was already one of low commitment, differing viewpoints did not elicit additional self-uncertainty. Interestingly, at no level of Instagram network homophily were opinion comparisons positively associated with commitment for either gender, and when the Instagram network homophily variables were included in the model, a negative relationship between social comparisons of opinion on Instagram and commitment was approaching significance at the $p < .05$ level. This result may therefore serve to emphasise that adolescence is more so a time for considering and reconsidering identity alternatives, rather than making enduring decisions in identity-related domains (Crocetti et al., 2008).

Gender differences were also found in terms of the moderating effect of Instagram network homophily on the relationships between Instagram comparisons of opinion and the two exploratory processes. For adolescent females, comparisons of opinion in high homophily Instagram networks were positively associated with both in-depth exploration and reconsideration of commitment. Comparisons of opinion with similar others typically result in a sense of stability and validation (Kruglanski, 1989), and having affirmed their opinions through such behaviour, adolescent females may feel compelled to further reflect on their

choices and actively seek more information about their beliefs and values in identity-relevant domains. Although it appears counterintuitive that engaging with similar others would also result in increased levels of reconsideration of commitment, even within more homogeneous Instagram networks, it is highly unlikely that all opinions are consistent across all members. Importantly, then, similar others are often viewed as more trusted standards for assessing the correctness of one's opinion (Holtz, 1997), and as agreement is more expected (Levine, 1967), disagreement may have more profound consequences. Indeed, in instances where similar others disagree, uncertainty increases as it evidences that one's beliefs and values may be incorrect (Grow & Flache, 2011), and/or suggests that the similar other is aware of information which the comparer lacks (Fazio, 1979). These effects may be particularly pronounced for adolescents with more mature identity profiles, in that because some (perhaps tentative) identity-related choices have been made, similar others are likely to represent increasingly important reference points for supporting adolescents to evaluate whether their identity-related beliefs and values are indeed 'right' for them. Such reasoning may therefore help to explain why opinion comparisons with similar others on Instagram were associated with both in-depth exploration *and* reconsideration of commitment for adolescent females, in that the viewpoints of like-minded others have the potential to take identity in both directions, depending upon whether they are agreeing or disagreeing.

In contrast, for adolescent males, comparisons of opinion in low homophily networks were positively associated with in-depth exploration and reconsideration of commitment. Comparisons of opinion with dissimilar others are often used to enrich individuals' options before making judgments (Kruglanski & Mayseless, 1987), and thus, comparisons of opinion in Instagram networks characterised by diversity, options, and choice may help adolescent males (with their less mature identity profiles) to learn more about a broader range of alternatives. In instances where opinions which resonate are identified, adolescent males may then go on to seek further information about these options to help determine whether these beliefs correspond with their true interests and values.

The results of model four are therefore consistent with the notion that male and female adolescents within this sample were at different stages of their identity development, and thus, comparisons with different targets served their different identity 'needs'. That is, whilst a diverse range of beliefs and values may be best suited for helping adolescents to overcome their identity confusion, more similar comparison targets may be more appropriate for evaluating the identity-related choices of those with more mature identity profiles. *Nevertheless, it was decided that the qualitative phase of this investigation would explore whether developmental explanations were indeed the cause of these gender differences, or whether adolescents held that alternative explanations could account for such results.*

5.6 Conclusion

Overall, the findings reported in this chapter suggest that *both* ability and opinion comparisons on Instagram tend to have adaptive identity implications during adolescence. In terms of comparisons of ability, results suggest that in contrast to previous research with emerging adults (Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018), such behaviour may enhance self-certainty and prompt young people to actively explore their commitments in greater detail. The analysis also provided evidence to suggest that male adolescents may be less susceptible to experiencing the maladaptive implications of performance-related comparisons (i.e., increased reconsideration of commitment) on the platform. *Whilst developmental explanations were used throughout this chapter to discuss these age and gender differences, it was decided that the subsequent qualitative phase of this investigation would explore whether these differences were indeed due to developmental maturity, or whether alternative explanations were more appropriate.*

The results reported in this chapter also indicate that *who* adolescents compare their performance to on Instagram may have implications for how such behaviour informs their sense of identity. In terms of the moderating effect of Instagram network homophily, significant developmental differences were identified: comparisons of ability in diverse Instagram networks were positively associated with in-depth exploration amongst those

with less mature identity profiles (i.e., younger adolescents and males), whilst comparisons of ability in homogenous Instagram networks were positively associated with in-depth exploration amongst those with a stronger sense of self (i.e., mid- and late adolescents and females). *To learn more about why the degree of similarity most likely to elicit further in-depth exploration appeared to align with developmental progression, these results were explored in further detail in the qualitative phase of this study by examining how young people negotiate 'superiority' on Instagram.*

Furthermore, Instagram tie strength was also found to moderate the implications of performance-related comparisons on the platform, with ability comparisons within high tie strength Instagram networks positively associating with identity commitment. Guided by Tesser's (1988) SEM, it is assumed that these results indicate that content shared by close ties on Instagram tends to evoke reflective processes, thus leading to enhanced self-evaluation and self-certainty. *To assess the appropriateness of such conclusions, the qualitative phase of this investigation sought to illuminate how adolescents tend to interpret Instagram content shared by close ties.*

In contrast to the results concerning ability comparisons, the findings regarding the implications of social comparisons of opinion on Instagram were more consistent with previous studies conducted with emerging adults (Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018). Such behaviour positively associated with both exploratory processes (i.e., in-depth exploration and reconsideration of commitment), suggesting that opinion comparisons on Instagram may prompt young people to reflect upon their identity-related viewpoints. Furthermore, Instagram network homophily was found to moderate the identity implications of such behaviour, and as with model two³⁰, results suggest that diversity may elicit more exploration for those experiencing self-uncertainty, whilst the opportunity to learn about current commitments from similar others may be more useful

³⁰ Model two examined the moderation effects of Instagram network homophily on the identity implications of Instagram social comparisons of *ability*.

for those with greater identity clarity. *Thus, to examine these results further, the qualitative phase of this investigation explored whether there are indeed developmental differences in terms of how adolescents engage with similar and dissimilar opinions on Instagram.*

Overall, findings suggest that both forms of social comparison behaviour are often (though not exclusively) supportive of identity development during adolescence. Yet, the results reported in this chapter also suggest that Instagram network composition - both in terms of network homophily and tie strength - can play an important role in determining the extent to which adolescents may benefit from social comparisons on the platform. It is therefore reasonable to assume that young people who actively tailor their Instagram networks to support their identity 'needs' are likely to gain the most from comparing themselves to others on Instagram.

Following the sequential explanatory design adopted in this research, these quantitative results shaped the objectives of the subsequent qualitative phase of data collection and analysis. In the following chapter, the specific research questions addressed in the qualitative phase of this investigation are introduced. The participatory sample is then outlined, and an explanation of how interview data were analysed using a template analysis is provided. Having done so, the results of the qualitative phase of this investigation are presented, and in the final chapter of this thesis, the quantitative and qualitative findings are integrated to provide an overview of the overall results of this research.

Chapter 6. Qualitative Results

6.1 Introduction

This chapter reports on the results of the qualitative phase of this investigation. Following the sequential explanatory design, the objective of this phase was to build on the quantitative findings and explore the nuances and mechanisms which may help to explain them. Thus, guided by the results reported in the previous chapter, this phase of the investigation sought to shed light on the following questions:

Q1a. Which 'self' (i.e., past, current, or possible future) do adolescents tend to compare to others on Instagram?

Q1b. Why did Instagram comparisons of ability negatively associate with reconsideration of commitment for males, but not for females?

Q1c. Are there developmental differences in terms of how adolescents interpret ability-based content shared by similar/dissimilar others on Instagram?

Q1d. How do adolescents interpret ability-based content shared by close ties on Instagram?

Q2a. Are there developmental differences in terms of how adolescents interpret opinion-based content shared by similar/dissimilar others on Instagram?

A template analysis was conducted on interview transcripts to address the core aims of this secondary phase. Results suggest that ability comparisons on Instagram can support identity development during adolescence by prompting young people to reflect on *future* possibilities and guiding *future* behaviour. However, female adolescents were more prone to conducting comparisons in domains which were central to their *current* self-definition, and this often resulted in feelings of self-doubt and inadequacy. Irrespective of the immediate self-relevance of the domain under comparison, positively biased content shared by close ties on Instagram helped to boost adolescents' self-evaluation (through reflection) and prompted motivation to achieve their own identity-related goals (through comparison). In terms of social comparisons of opinion, respondents often engaged with Instagram

content shared by individuals who held similar beliefs and values, and such viewpoints typically enhanced adolescents' confidence in their opinions and often prompted further exploration. Developmental differences were found regarding how adolescents negotiated dissimilar opinions, however: those with greater identity clarity often found dissimilarity self-threatening, whilst for those experiencing less identity clarity, divergent opinions evoked further exploration and self-reflection, which in turn helped adolescents to overcome self-uncertainty. Overall, the results discussed in this chapter build upon those of the quantitative analysis and shed further light on who adolescents compare themselves to on Instagram, how and why Instagram-based social comparisons shape adolescent identity, and the specific identity domains informed by such behaviour.

In the following section of this chapter, the participatory sample is outlined, and the reader is briefly reminded of the data collection procedures. Analytic procedures are then discussed. Here, the processes of initial template design, note-making, and template modification are explained; the steps taken to ensure that the template analysis was rigorous and transparent are also outlined. Having done so, the results of the template analysis are presented, and particular attention is drawn to instances where results further develop the findings of the quantitative analysis.

6.2 Final Sample and Data Collection

To address the aims of the qualitative phase of this investigation, data were collected through semi-structured interviews with 14 adolescents (*M* age = 15.8 years; Female = 71.4%; White British = 78.6%) who took part in the previous quantitative phase. The final sample is outlined in more detail in Table 16 below. Interviews lasted an average of 40 minutes (range = 19-57 minutes) and drew on a pre-planned interview schedule (see A.9) and think-aloud task. During the interviews, adolescents were invited to navigate their Instagram Feeds, and this provided respondents with an opportunity to discuss what they saw on Instagram and how it made them think/feel about themselves and others. An example extract of interview transcript which illustrates this think-aloud exercise can be

found in A.23. Interviews were audio recorded and transcribed verbatim, and transcripts were analysed using a template analysis (Brooks et al., 2015).

Table 16. *Demographic Characteristics of the Final Sample for the Qualitative Phase*

	<i>N</i>	%	Quantitative Comparison (%)
Gender			
Male	4	28.6	44.5
Female	10	71.4	55.5
Total	14	100.0	100.0
Age			
13	2	14.2	15.0
14	1	7.1	22.5
15	3	21.4	6.9
16	2	14.2	20.8
17	4	28.6	23.1
18	2	14.2	11.6
Total	14	100.0	100.0
Ethnicity			
White British	11	78.6	79.8
Asian/Asian British	3	21.4	12.1
Total	14	100.0	91.9*

Note: *8.1% of participants in the quantitative phase were neither White British nor Asian/Asian British.

6.3 Template Analysis

Having transcribed the interviews, transcripts were analysed using template analysis.

Template analysis typically begins with the development of an *a priori* 'coding' template containing some preliminary themes. *A priori* themes are often guided by theory, existing literature, or previous findings, and they can be a useful means of focusing one's analysis on

a specific set of pre-defined issues (Brooks et al., 2015). This approach is therefore appropriate for mixed method researchers drawing upon the sequential explanatory design, in that the use of *a priori* themes can facilitate a qualitative analysis that is shaped by, and can be easily integrated with, the previous quantitative element (King & Brooks, 2017). Whilst the number of *a priori* themes were limited to lessen the possibility of a 'blinking effect'³¹ (King, 2014), it was ensured that in the initial template, each aim of the qualitative study had its own respective theme and/or sub-theme. These initial themes were, however, made tentatively, and were open to being redefined - or even removed - if they did not prove useful during the analysis (Brooks et al., 2015).

Having developed the initial template (see A.24), the researcher familiarised themselves with the data by reading and re-reading full transcripts of the interview texts (Willig, 2013). The initial template was then applied to a subset of five transcripts. As advised by Brooks et al. (2015), this subset included accounts that differed in a variety of ways. One participant from each school year was selected (Years 9-13); two were male and three were female; and two had participated in interviews less than 26 minutes long, whilst the remaining three took part in interviews lasting over 40 minutes. Following the same process as a traditional thematic analysis (Braun & Clarke, 2006), notes were made in the margin of the five selected transcripts regarding material which held potential relevance to the research topic. Having made comments on each of the five transcripts, groups of similar codes were clustered together to produce more general higher-order codes (King, 2004); an example of hierarchical coding with the first subset of transcripts can be found in A.25. In instances where a common, significant topic was discussed by multiple participants, the researcher referred to the initial template to consider whether any of the original themes could be used to represent it. When existing themes did not 'fit' the new data, the template was modified.

³¹ Should there be too many *a priori* themes, the template may blinker the analysis and prevent the exploration of data which conflicts with pre-defined codes. By developing a tentative *a priori* template with limited themes, this approach provided clear direction whilst also enabling the examination of content which fell outside of the pre-defined codes, thus allowing for a more complete analysis (Roberts, Dowell & Nie, 2019).

The template was then applied to a further five transcripts. Again, notes were made in the margins regarding any content which appeared significant, and in cases where coding related to a pre-existing theme, this was noted. Having left comments on the five transcripts, the process of note clustering and template adaption was repeated once more. The modified template was then applied to the remaining four transcripts, and again, notes were made and clustered, and the template was amended accordingly. After each transcript had been coded, the final template (for final template, see A.26) was run on the entire dataset. On this occasion, in addition to making a note of direct quotations which may be of use during the 'write up', quantitative data was also collected in terms of the frequency each theme and/or sub-theme was discussed.

Following guidance by King and Brooks (2017), three key quality checks were conducted on the analysis to ensure rigour and transparency:

- Independent coding: Following the analysis, a postgraduate research assistant was invited to analyse two transcripts to assess intercoder reliability. The research assistant received research training during their BA in Childhood Studies and MSc in Developmental Psychology, and they had previous experience of analysing transcripts of interviews with young people. The research assistant was first encouraged to engage with the template analysis literature (e.g., Brooks et al., 2015; King & Brooks, 2017) to familiarise themselves with the approach. The researcher and research assistant subsequently met to address any questions they had regarding the process of template analysis. The assistant was then provided with the final template, informed of the goals of the research, and was asked to code the work as if it were their own. Notes were compared upon completion, and comparisons enabled the researcher to check whether the themes emerging from the analysis were plausible, and whether there were any important themes that had originally been missed. There was a high level of agreement across analyses, and the research assistant did not identify any new themes or sub-themes.

- **Audit trail:** As template analysis represents a structured approach to analysis, it lends itself well to providing an audit trail which clearly demonstrates how themes were developed (King & Brooks, 2017). Each version of the template was retained (for initial template, see A.24; for final template, see A.26), whilst an example of hierarchical coding (see A.25) and one page of analysed transcript (see A.27) is provided in the appendices to help illustrate the analytic process.
- **Direct quotes and ‘critical friends’:** The account presented is structured around the main themes identified across the sample, and illustrative quotes are drawn upon throughout this chapter to support the researcher’s interpretation of the raw data, and to allow readers to assess the credibility of the account presented. Furthermore, King and Brooks (2017) advise researchers to draw upon a ‘critical friend’ during the draft write-up stage to help ensure the main themes in the analysis have been described thoroughly and clearly, and that they are justified through indicative quotes. For this study, all three of the researcher’s supervisors read multiple drafts of the results chapter, providing feedback on each occasion.

King and Brooks (2017) also outlined ‘respondent feedback’ as a possible quality check during template analysis. Member checking is often used as a means of reducing researcher bias in qualitative studies, and involves providing respondents with coded transcripts, and inviting them to offer feedback on the analysis (Birt, Scott, Cavers, Campbell & Walter, 2016). Respondent feedback was not sought during this study as the analysis was conducted during the summer holidays, and thus, it was not possible to contact participants. Nevertheless, the use of an independent coder was considered an alternative means of limiting researcher bias (Church, Dunn & Prokopy, 2019).

6.4 Results

In the following two sections, the results of the template analysis are reported. Aligning with Festinger’s (1954) original social comparison theory and the overarching aims of this investigation, *Instagram Comparisons of Ability* and *Instagram Comparisons of Opinion* were

the two superordinate themes of the analysis. Each superordinate theme contains several subsidiary themes, and within each subsidiary theme, direct quotes are presented to help capture their essence. Consistent with the results of the quantitative phase of this investigation, age and gender differences were identified throughout the analysis. Thus, alongside each direct quote, a pseudonym is provided alongside markers for the participants' age and gender. Furthermore, in instances where results relate to, or shed light on, the findings of the quantitative analysis, signposting is provided to represent an initial integration of results³². The first theme discussed below concerns Instagram Comparisons of Ability.

6.4.1 Instagram Comparisons of Ability

Although participants reported varying levels of Instagram-based social comparison behaviour, when invited to discuss previous comparisons on the platform, each respondent initially described ability-based comparisons. Whilst it has been argued that the term 'comparison' can itself prompt individuals to consider the judgemental form of comparison³³ (Yang, Holden & Carter, 2018), the ubiquitous recall of such behaviour may also have emphasised how commonplace ability comparisons on the platform were for participants. Throughout the interviews, respondents discussed performance-related comparisons in a range of identity-relevant domains, including education, work, romantic relationships, and physical appearance. However, developmental and gender differences were identified in terms of the tentativeness and temporality of the performance comparisons reported by participants, and these key findings are discussed in the first two sub-themes: *Role Models* and *Current Self*. Furthermore, participants also explained how the *Relational Closeness* between themselves and the comparison target may influence the identity implications of the comparison behaviour, and these results are outlined in the final sub-theme of this section.

³² As per the sequential explanatory design, a more comprehensive integration of quantitative and qualitative findings will be presented in Chapter 7, after the results of both respective phases have been reported.

³³ Hence why the Instagram Social Comparison Scale, the Social Media Social Comparison Scale (Yang, Holden & Carter, 2018), and indeed the original INCOM (Gibbons & Buunk, 1999), did not use the term 'compare' to in the opinion comparison subscale.

6.4.1.1 Role Models

As in Festinger's (1954) original social comparison theory, social comparisons of ability are largely viewed as a means of assessing one's *current* performance or achievement (e.g., 'how well am I doing at school relative to others?'). Although such comparisons were discussed during the interviews, 'future-focused' comparisons were often reported by participants (e.g., 'could I succeed at university in the future?'). Indeed, whilst comparisons were typically upward in nature, many respondents were seemingly more focused on exploring future targets, rather than assessing their current performance in identity-related domains. That is, rather than determining 'can I do x?' or 'how good am I at x?', adolescents' ability comparisons were often more concerned with assessing 'could I do x in the future?' or 'how do I become good at x?'. Such comparisons were typically made with older/more experienced individuals, and in domains where participants were not yet expected to have made commitments and/or be performing. Since their performance in these domains of comparison were not central to their current self-definition, comparison targets were viewed not as competitors, but as aspirational guides or role models. Moreover, respondents often believed that given the idealised nature of the self-related content shared on the platform, Instagram was the ideal place for ideas, advice, and inspiration. Broadly speaking, participants discussed two forms of future-focused ability comparison: *Distal Self* and *Proximal Self*.

Distal Self

Distal self comparisons concerned performance in domains that will be important in the *distant* future (such as future careers and parenthood). These comparisons were exclusively made with individuals who were currently *far* superior in the domain of comparison, and thus, participants interpreted the abilities of such individuals to be future possibilities which they may - or may not - work towards achieving later in life. Distal self comparisons were most commonplace in the future careers domain and amongst those in early-mid adolescence, and they seemingly had three primary purposes: to help identify new possibilities, to learn more about future possibilities, and to help determine whether future possibilities were achievable and thus worth pursuing. Perhaps the most explicit example of

distal self comparisons which served all three of these purposes was presented by Charlie, who discussed how viewing Instagram content shared by professional photographers had influenced his career aspirations:

Photography, maybe [is a career option]...that's all cus of Insta though. Like you see all these amazing places and I am just like, 'I would like to go there', or 'that looks nice', 'I want to go there'. If I hadn't seen all of this on Instagram, I think I would be looking at different careers. Without it, I wouldn't have known what is out there to see, or what I need to do as part of it, or what is or is not good. So, I definitely see like a lot of new places or activities on the app, and like equipment and tips. Whether it's a long-term option I dunno, but I think I could...

Charlie (15, Male)

Whilst Charlie still expressed uncertainty regarding his future career options (“maybe”, “I dunno”), such comparisons appeared to have not only introduced him to new possibilities, but also to have provoked him into reflecting on what would be required to be a success in this field. Following the comparisons, Charlie was then able to consider whether, based on current assessments of his own strengths and talents, such a possible self was appealing and attainable. As Charlie believed that this future option aligned well with his current interests and abilities, it was added to a growing list of possibilities for him to tentatively explore. Similar processes were also reported by Jade (15, Female) and Evie (14, Female), whose comparisons concerned their ability to become a ‘YouTuber’³⁴ and hair/make-up artist, respectively. In each instance, whilst participants remained non-committal regarding what career they wanted to pursue in the future (thus evidencing the tentative nature of such behaviour), they all reported to have followed more individuals working in the career under comparison on Instagram to learn more about the profession.

Yet, not all distal self comparisons were so speculative, spontaneous, and/or tentative in nature, and particularly amongst older adolescents, distal self comparisons were also reported in domains where some decisions regarding the future had already been made. In

³⁴ A ‘YouTuber’ is someone who produces videos and distributes them on the video-sharing platform YouTube.

such instances, participants reported actively seeking out role models in domains of interest to enable them to learn more about what would be required for them to succeed in the future. Specifically, Michael (17, Male) followed several marketing entrepreneurs to learn more about how to successfully run a business, whilst Emma discussed that as she hoped to become a mother in the future, she had recently begun following new parents on Instagram:

I also follow a lot of cute babies...but I couldn't have one at the minute because I'm 17, and have my life ahead of me. ...I very much know I do not want one now, so that is fine. But I think seeing them makes me want one more...I do not get broody...I want one more, but not in that moment. But when I get older it is more definite, it is what I want my life to be.

Emma (17, Female)

Whilst Emma candidly suggested that she would currently “be [a] useless” mother, as she did not intend to become one in the near future, her current ability to be ‘good’ was not an immediate concern. Rather, she explained that she engaged with content shared by new parents on Instagram to help her to learn more about what would be required in the future. She admitted that doing so not only enhanced her knowledge regarding what parenthood consists of, but as being ‘good’ appeared both achievable and appealing, engaging with such content also strengthened her commitment to becoming a mother in the future.

Importantly, then, comparisons between current and possible future selves underlie self-development and self-improvement (Lockwood & Kunda, 1997), and the outcomes of such reflection can inform behaviour and have significant affective consequences (Oyserman & James, 2011). Yet, given the distal nature of these comparisons and the absence of societal pressure to make enduring decisions, participants appeared very relaxed about these reflections: there was a real sense of distance between the current and distal self, and no participants reported experiencing any pressure to perform at the superior level of the distal comparison targets. Nevertheless, participants typically viewed the abilities of distal comparison targets to be largely attainable over time, and having engaged with such

content, young people appeared to have a clearer sense of what may be achievable, and thus worth pursuing, in the future.

Proximal Self

Other future-focused comparisons were more proximal, and these comparisons concerned performance in domains that will be important in the *near* future. Proximal self comparisons therefore concerned identity-related tasks which adolescents will be required to confront within the next 12 months. This form of comparison was most commonplace in the education domain and amongst those in mid-late adolescence. Whilst education is widely believed to be amongst the most important domains for young people to explore during adolescence (Albarello, Crocetti & Rubini, 2018), interviews were conducted during ‘exam season’ at the end of the academic year. Therefore, the significance of the domain was likely to have been magnified, and it was possible that educational performance was a particularly prominent concern for many participants. In contrast to distal self comparisons, then, proximal self comparisons were considerably less tentative and speculative. Rather, proximal comparison targets were viewed as self-guides whose role it was to support participants in achieving their already established self-chosen goals. There was therefore a greater link between adolescents’ current self and the proximal comparison target, and thus, proximal self comparisons were significantly more likely to incentivise immediate action and have affective consequences.

Rather than engaging with those deemed *far* superior (as per distal self comparisons), adolescents’ proximal self comparisons tended to be with *slightly* older/experienced others who had recently experienced, or who were currently experiencing, a valued identity-related task. For example, George was hoping to progress to university to study medicine following this academic year, and during his interview, he discussed how he had recently starting following individuals on similar university courses to the one that he was planning to study:

A couple of my friends have siblings at medical school, and I have followed them. They don't post a lot though. When they do post, it's good because it shows me what it's going to be like, and that can help me decide...whether it would be a challenge for me. That's just like another avenue for learning more about it.

George (18, Male)

Engaging with the Instagram content shared by more experienced others therefore supported George in identifying what to expect, and indeed what would be required for him to succeed, during his studies next year. Although George recognised that achieving a good grade at university would “probably be hard”, he believed that he could perform at the level of the proximal comparison targets, and thus, he experienced an increased sense of self-confidence in his ability to succeed at university, and a greater desire to begin his course and learn more about the profession. In a similar vein, Jake (14, Male), Kimi (17, Female), and Lauren (16, Female) all reported to have recently engaged with education-related content shared by those in older year groups at school, and on each occasion, whilst participants believed that the next stage of their education would be a challenge, they also held that the comparison evoked motivation to self-improve to help realise their potential.

In contrast to distal self comparisons, not all proximal self comparisons discussed during the interviews were upward. Whilst they were reported less frequently, three participants reflected on recent downward proximal self comparisons, and interestingly, these comparisons were made exclusively with content shared on others’ Stories. Indeed, relative to content shared on the Feed, participants believed that Instagram Stories were more “everyday” (George, 18, Male) and “down to earth” (Evie, 14, Female). The less idealised nature of this content was therefore seen to potentiate greater scope for downward comparisons. Nevertheless, downward proximal self comparisons were still with older/more experienced others, but in these instances, the comparison target had not succeeded - or was not currently succeeding - in a self-related task. For example, during her interview, Beth explained that she was due to take her driving test next month, and that she considered driving to be an important step towards independence and autonomy. However, a male in her year group had recently failed his test multiple times, and Beth discussed how he had

been sharing this news on his Instagram Story. Although she was confident in her ability to pass her test, Beth explained that as she did not wish to experience the same fate as the comparison target (i.e., fail her driving test), viewing this content motivated her to practice more on the weaker areas of her driving:

...he's done it before [failed his test], a few times, like two or three. He keeps failing on manoeuvres - like, parking and stuff. I am OK with most, but I can't parallel park, so I do need to practice that. ...He's joking and laughing at it, but I think I would be annoyed and like embarrassed.

Beth (17, Female)

Downward proximal self comparisons in the education domain also had similar implications, in that seeing that older peers were performing poorly in exams (Kimi, 17, Female) or had failed to progress to university (Sophie, 18, Female) motivated participants to avoid similar disappointment for themselves. Upward and downward proximal targets therefore appeared to play different - though perhaps equally important - roles, with upward targets serving to evidence what adolescents should do to achieve their goals, and downward targets serving to evidence what they should avoid doing. Following such comparisons, in instances where adolescents' current behaviour was consistent with the 'advice' of the self-guide, participants reported a boost in commitment and motivation. Yet, where inconsistencies, weaknesses, or possible challenges were identified, there was a greater sense of urgency to take action to avoid disappointment. These results are therefore consistent with the literature regarding 'possible identities/selves' (e.g., Marcus & Nurius, 1986; Oyserman & James, 2011), in that the future selves individuals hope to become, and the future selves they hope to avoid becoming, can indeed motivate current behaviour.

When considered alongside the results regarding distal self comparisons, it appears that adolescents often used comparisons of ability on Instagram to aid self-improvement, with such comparisons informing their possible future selves (i.e., what things *could* be like in the future) and guiding future behaviour. Whilst these comparisons were in domains where adolescents were experiencing uncertainty, they concerned areas of performance which

were not central to their current self-definition. As such, the superior abilities of others were not considered to be self-threatening. Rather, their superiority made them attractive comparison targets in the first instance, and such behaviour appeared to support them in identifying attractive options and recognising what was required to be successful in self-related areas. Overall, these findings align well with those of the quantitative analysis (which found that ability comparisons positively associated with commitment and in-depth exploration; see 5.5.1), in that identifying appealing future possibilities is likely to support adolescents in making commitments, whilst recognising what is required to progress and perform in domains of interest is likely to prompt further exploration and action.

6.4.1.2 Current Self

Whilst the previous sub-theme discussed future-orientated ability comparisons, from the interview data, participants also spoke about comparing their current self to others on Instagram. Although such comparisons were typically upward in nature, they tended to be less deliberative and more spontaneous than future-focused comparisons, and they were more likely to be in domains which were important to adolescents' current self-definition. In such instances, then, the idealised content shared by others on Instagram was no longer interpreted as representing what *could* be possible in the future (as with future-focused comparisons), but rather what *should* be attained already. Females compared their current performance to others on Instagram significantly more frequently than males, with two females even suggesting that given Instagram's design, such comparison behaviour was "inevitable" on the platform (Jade, 15, Female; Kimi, 17, Female). Importantly, there were also considerable gender differences in terms of how current-focused performance-related comparisons informed participants' self-evaluation, and these *Gender Differences* and their *Possible Explanations* will be discussed within this sub-theme.

Gender Differences

Female participants were very open about current-focused performance-related comparisons on Instagram, and they often reflected on times that such behaviour had evoked feelings of increased pressure, jealousy, and self-doubt. Whilst these experiences

were increasingly commonplace during late adolescence - thus suggesting developmental progression, each female respondent acknowledged that much of the content shared on the platform was highly idealised in nature, and often portrayed unrealistic and unattainable standards in self-relevant areas such as femininity, lifestyle, relationships, and overall success and happiness. Reflecting on the idealisation of romantic relationships, for example, Sophie suggested that although Instagram content may well be a carefully curated performance, as she did not currently have a partner, comparing herself to those that did still evoked a strong emotional response due to the actual vs ideal discrepancy:

Seeing people in couples is upsetting. I'm surrounded by people in couples and I do not want to see it every day. My friends are all in couples and people on Instagram are, so I want to be in one. ...I have never been in a semi-serious relationship...I see a lot of it, and it looks so good, so I feel a bit down. But then you have got to move away from that and realise that it is probably great but there are bad moments that also come with it and they're not showing that online.

Sophie (18, Female)

As captured in this extract from Sophie's interview, female respondents appeared well-aware of the 'highlight reel' nature of Instagram, though because idealisation was so normalised and part of the fabric of the platform, they often found it challenging *not* to feel inferior to others in valued self-relevant domains. These feelings were often exacerbated by the positive feedback (i.e., large amount of Likes and Comments) that highly idealised content tended to receive on Instagram, as this validation was frequently interpreted as emphasising the importance of achieving these ideals. This was particularly the case when female participants engaged with the idealised content shared by Reality TV stars (particularly former Love Island contestants) and Instagram influencers, whose standards of beauty, relationships, and financial success was often considered "the target" (Lauren, 16, Female). In turn, this process of ideal internalisation not only resulted in a discrepancy between the self and the standards set by others, but also a discrepancy between the self and the standards that adolescent females had set for themselves (Higgins, 1987).

Although Amy also reported experiencing similar deleterious effects, she went on to explain her strategy for preventing such comparisons from having negative implications for her self-evaluation:

It's odd because I know it's not 'real' but...you see how good they look and their hair and clothes and their holidays, and I am just here at school. I am laughing but it kinda makes you feel boring. ...If it gets a bit too much, like...if it makes me feel bad about myself, I just unfollow cus I don't need that.

Amy (17, Female)

Several other females interviewed also stated that they shaped their Instagram networks to help protect themselves from experiencing psycho-emotional harm: four talked about how they would actively unfollow individuals whose content led them to experience feelings of inadequacy (Amy, 17, Female; Beth, 17, Female; Evie, 14, Female; Jade, 15, Female), whilst three mentioned that they would not follow individuals who had previously shared self-threatening content in the first place (Aimee, 16, Female; Humaira, 13, Female; Lauren, 16, Female). Although self-threatening content still appeared on their Feeds, it occurred significantly less frequently within these 'safer' networks, and female respondents discussed how they felt considerably more comfortable and self-confident having unfollowed those who they perceived to be far superior. Indeed, Amy (17, Female) discussed how she felt "less boring...and kinda less on edge" after she had unfollowed unattainable accounts, whilst other female participants reflected on how surrounding themselves with similar others not only reduced self-doubt, but also helped to fulfil their desire to learn more about valued identity-related domains:

In lots of ways [Instagram is] a bit horrible with all the pressure and stuff. ...If you keep away from it all though, its fine and you just see [content about] what you like.

Beth (17, Female)

Like sometimes I see stuff and you just know it's too much, so am I really going to let that influence me? I think it's important to follow people...just those that will have a positive influence on what you like.

Humaira (13, Female)

Therefore, it appears that whilst female respondents were susceptible to comparing their current abilities/performance to unattainable content shared on Instagram, some were agentic in actively distancing themselves from unachievable false role models. In turn, doing so helped to ensure that engaging with Instagram content was less likely to increase self-uncertainty, and more likely to support them in learning more about identity-related domains of interest. These findings therefore provide important insight into the results of the quantitative analysis (which found that for females, performance-related comparisons were positively associated with in-depth exploration for those within high homophily networks; see 5.5.2), in that similar others appeared most likely to elicit motivation and further exploration following self-evaluative comparisons.

In contrast, male participants reported that they compared their current abilities to others on Instagram much less frequently, and although self-evaluative comparisons appeared to increase for males during late adolescence - again suggesting developmental progression, comparisons were predominantly future-focused. This tendency for future-focused comparisons may therefore help to explain why the quantitative analysis found that for male participants, comparisons in diverse Instagram networks were positively associated with in-depth exploration (see 5.5.2). Indeed, during the interviews (see 6.4.1.1), respondents reported that future-focused comparisons elicited further exploration, and the role models used as targets for such comparisons were, by design, dissimilar (i.e., more experienced and successful in domain x). Interestingly, males also discussed that even in instances where they did compare their current self to others on the platform, such behaviour rarely had negative outcomes, and no male participant reported to have ever

unfollowed an account due to feelings of inadequacy³⁵. These findings are again supportive of those of the quantitative analysis, in that males appeared less susceptible to experiencing the maladaptive identity implications (i.e., increased reconsideration of commitment) of performance-related comparisons on Instagram (see 5.5.1).

Possible Explanations

Whilst these initial findings were largely consistent with the quantitative results, questions were included in the interview schedule to help explore possible *explanations* for why females were more prone to comparing their current performance to others on Instagram, and why they appeared more susceptible to experiencing the maladaptive identity implications of such behaviour. Two seemingly interrelated explanations were provided for these gender differences, and both male and female respondents tended to present similar accounts. First, participants held that Instagram content was more likely to be relevant to females' current self-definition (Aimee, 16, Female; Beth, 17, Female; Humaira, 13, Female; Jake, 13, Male; Lauren, 16, Female; Michael, 17, Male), with several respondents believing that the image-based, self-related content that is typically shared on the platform lends itself particularly well to performance-related comparisons in domains which align more so with the stereotypical feminine gender role (e.g., physical appearance and relationships)³⁶.

Second, participants proposed that females were considerably more likely to share highly idealised content on Instagram to evidence their performance in these valued identity-

³⁵ Although male participants may have been reticent to reveal uncertainties or vulnerabilities during the interview in an attempt to protect their 'masculine self' in front of a male interviewer (Affleck, Glass & Macdonald, 2012), since they spoke at length about their experiences throughout the rest of their interviews, and given that the reasons they provided for these gender differences aligned well with those reported by both female participants and previous research, this seemed unlikely.

³⁶ Notwithstanding the long-standing critique by feminist activists, campaigners, and researchers (e.g., Butler, 1990), the belief that such domains were more valued by females was largely supported by the frequency of the social comparison behaviour reported by participants. For example, during the interviews, seven females discussed how they frequently compared their appearance to others on Instagram (Aimee, 16, Female; Beth, 17, Female; Evie, 14, Female; Humaira, 13, Female; Jade, 15, Female; Kimi, 17, Female; Lauren, 16, Female), whilst three females reflected on their romantic relationship comparisons (Beth, 17, Female; Kimi, 17, Female; Sophie, 18, Female). In the aforementioned domains, no male participants reported any social comparison behaviour.

related domains (Aimee, 16, Female; Charlie, 15, Male; George, 18, Male; Humaira, 13, Female; Jade, 15, Female; Lauren, 16, Female; Michael, 17, Male). Indeed, whilst content shared by males on the platform was typically considered to be less “edited” (George, 18, Male) and “serious” (Michael, 17, Male), Lauren (16, Female) explained that for female users, Instagram is “not just a platform to share what you are up to or share a nice photo, it is a platform that has these expectations” which creates pressure to perform. It was generally believed, then, that female adolescents were more likely to engage with idealised Instagram content which led them to feel inferior in domains that were central to their current self-definition.

Perhaps the most explicit example of these gender differences was provided by Aimee (16, Female). During her interview, Aimee suggested that given the image-based nature of Instagram, it was “kinda impossible” not to compare your appearance to others on the platform. Aimee also held that the importance of physical attractiveness remains particularly marked for young females, and she believed that female Instagram users were more prone to sharing highly idealised appearance-related content. As such, she proposed that whilst appearance-related comparisons may lead some “boys who don't have...a six pack” to “feel bad”, such behaviour was likely to have considerably more detrimental implications for females’ sense of self:

...[Instagram comparisons can make females feel] like, ‘oh, my hair is not that colour’, ‘I don't look like that’, ‘what do I need to do to make me be like you?’. That's quite negative. So that's more like appearance and body stuff - I think that has a big effect on young people. Not in a sexist way, but I think it is really bad for young girls more than boys. Like celebrities that come off Love Island [a reality television show], they share a lot of pictures in their like bikini, and I think it makes a lot of people feel bad about themselves and who they are. It makes people think that they need to change, to be the same and to be accepted by society, but then we aren't going to look like that, so...

Aimee (16, Female)

Such reasoning therefore captures the prevailing opinion shared by respondents in this study, in that participants generally believed that Instagram content not only tends to be more *relevant* to adolescent females' current self-definition, but that this self-relevant content also tends to be more idealised, and thus, it is more likely to appear *unattainable*. These results may therefore help to explain why the quantitative analysis found that performance-related comparisons on Instagram positively associated with reconsideration of commitment for females (see 5.5.1), in that female adolescents appear more likely to engage with highly idealised Instagram content in valued identity-relevant domains, thus potentiating greater levels of self-doubt. In contrast, such behaviour negatively associated with reconsideration of commitment for adolescent males (see 5.5.1), and males' preference for future-focused comparisons (which tended to provide direction for the future; see 6.4.1.1) and their tendency to engage with less idealised content in self-relevant domains may account for these results.

6.4.1.3 Relational Closeness

During the interviews, participants discussed how they compared their performance to a broad range of individuals on Instagram, from close friends and siblings, to celebrities and professional athletes. To illuminate the results of the quantitative analysis - which suggested that ability comparisons with close ties may enhance identity commitment (see 5.5.3), respondents were encouraged to reflect on their comparisons with close ties on the platform, and to consider the extent to which such behaviour may inform their identity. The results of this reflection were largely consistent with Tesser's (1988) SEM, and thus, the findings of this sub-theme are discussed in relation to *Reflection* and *Comparison* processes.

Reflection

According to Tesser's SEM (1988), in instances where others who are psychologically close perform well in a domain that is *not* central to one's self-definition, one can share in the success of the other, thus enhancing self-evaluation. Tesser (1988) referred to this process as reflection, and during the interviews, five participants discussed how they had experienced reflection when engaging with content shared by close ties on Instagram. For instance, Lauren's cousin had recently begun his first full-time job having graduated from

university, and during her interview, Lauren engaged with Instagram content that her cousin had posted regarding his new company car (a Mercedes-Benz). She went on to explain how seeing that her cousin had achieved his work-related goals made her feel happy and proud:

I am not entirely sure [what to do as a career], but when you see them [my cousin] graduate and you see that they have a good job, it doesn't even matter if it isn't really relevant to you. If they are happy with it, it is nice to see that they have got what they wanted and they worked to get there. ...I want to do something with, erm, I think children with special needs or something, but I am not entirely sure though. It's one or the other - children or the elderly, so like a carer of some sort. But I don't think I have any friends really who have done that. So maybe that is why I am not inspired from Instagram for stuff about that.

Lauren (16, Female)

As evidenced in the above quote, Lauren was quite explicit when explaining that the career-related achievements of her cousin - and indeed those of the other individuals that she followed on Instagram - were not aligned with her own interests/goals. Therefore, since self-relevant information was unlikely to be gained from comparison processes, it is perhaps unsurprising that reflection processes resulting in positive emotional outcomes materialised. Similar processes were also reported by participants engaging with content regarding the sporting achievements of peers (Lucy, 15, Female) and siblings (Sophie, 18, Female), peers passing music exams (Humaira, 13, Female), and peers sharing their artwork (George, 18, Male) and weight-loss journey (Lauren, 16, Female). In each instance, then, although the achievement was not particularly self-relevant for the respondent, participants were aware that it did hold importance for their close tie, and this led engaging with such content to elicit positive emotional consequences and enhanced self-evaluation.

Comparison

On the other hand, in instances where close ties perform well in domains that *are* central to one's self-definition, comparison processes - which can negatively affect self-evaluation - are more likely to occur (Tesser, 1988). Interestingly, then, relative to reflection processes, comparisons with close ties were discussed more frequently and more in-depth during the

interviews³⁷, and such performance-related comparisons were predominantly in the domains of education and romantic relationships. Education-related upward comparisons tended to concern the amount of revision that adolescents had been conducting ahead of their end of year exams (Beth, 17, Female; George, 18, Male; Jake, 14, Male; Kimi, 17, Female; Lauren, 16, Female; Michael, 17, Male), whilst in the romantic relationship domain, upward comparisons concerned their current romantic relationship status relative to that of their peers (Beth, 17, Female; Kimi, 17, Female; Sophie, 18, Female). Across both domains, the superior performance of close ties (i.e., conducting more exam revision/appearing to be in a happy, successful relationship) initially had negative implications for participants' self-evaluation, resulting in feelings of inferiority. This was particularly the case for comparisons in the romantic relationship domain, which was seemingly resultant of how idealised relationship-related content was, and how much more appealing/enjoyable participants felt that a romantic relationship would be compared to additional revision. Nevertheless, as evidenced in the two quotes below, rather than evoking a sense of diffusion amongst respondents, seeing the superior performance of peers appeared to compel adolescents to better themselves in the domain of comparison:

I feel like I should be revising more because they [peers on Instagram] have their notes out. Like these are doing English stuff and I am not doing that...if I know I am not doing any revision and I see everyone else is, it makes me want to get my books out. If others are doing it then I need to.

George (18, Male)

...[seeing friends in happy couples on Instagram] makes you feel a bit lonely and like you are missing out. ...You don't need a boyfriend to have fun, but if your close friends are doing all this amazing stuff with one, it just makes you want to have someone to do stuff with. ...When it's all over your timeline, it's harder not to look and see it, so I guess you want it a bit more.

Kimi (17, Female)

³⁷ Since individuals often recall self-related information at an improved rate relative to content that is not self-relevant (Rogers, Kuiper & Kirker, 1977), this result was not interpreted to mean that comparison processes were more commonplace on Instagram. Rather, based on the frequency and depth that such behaviour was discussed, these results may indicate that such comparisons have greater implications for adolescent identity.

Indeed, on every occasion where upward comparisons with close ties were discussed during the interviews, there was a prevailing sense of ‘if my friends can do/have x, then so should/can I’. Kimi (17, Female), for instance, was quite explicit in explaining that whilst she felt “happy” for her friends, their successes motivated her to “do something good” to prevent her from feeling that she was “not doing as well them”. As such, in the education domain, all comparisons prompted participants to revise more ahead of their important end of year exams, whilst in the romantic relationship domain, comparisons led respondents to feel more motivated to find a partner themselves.

The results discussed in this sub-theme provide valuable insights into the findings of the quantitative analysis (see 5.5.3), in that it appears that *both* reflection and comparison behaviours may support the strengthening of identity commitments. Given that individuals display a tendency to associate with winners (Cialdini et al., 1976; Tesser, 1988), it is likely that reflection processes not only help to enhance adolescents’ self-evaluation, but also their commitment to their peer relationships. Furthermore, whilst comparisons with superior peers initially elicited feelings of inferiority, they also evidenced what participants could/should be able to achieve themselves. Such feelings therefore motivated respondents to achieve likewise. Thus, despite initially having negative implications for self-evaluation and evoking a desire to change aspects of the current self, comparisons with more successful peers may help to strengthen adolescents’ commitment to achieving their own identity-related goals.

6.4.2 Instagram Comparisons of Opinion

Although the previous theme addressed the interview data concerning performance-related comparison on Instagram, participants also spoke at length about the implications of opinion-related comparisons on the platform. This section therefore captures the key topics discussed during the interviews regarding how opinion comparisons on Instagram may inform adolescent identity development. During these interviews, respondents discussed how they engaged with a broad range of viewpoints on Instagram regarding several identity-related domains, including those relating to their religion, career aspirations, and

overarching worldviews. Comparisons tended to be made with individuals holding *Similar Opinions*, and the outcomes of such behaviour are explored in the first sub-theme reported below. In instances where respondents did engage with *Dissimilar Opinions* on the platform, important developmental differences were identified in terms of how participants negotiated dissimilar viewpoints, and these results are outlined in the second sub-theme.

6.4.2.1 *Similar Opinions*

Consistent with Festinger's (1954) similarity hypothesis - which holds that individuals prefer to compare themselves with similar others, participants explained how most of their opinion comparisons on Instagram tended to be with those holding similar viewpoints. Aligning with the Triadic Model (Suls et al., 2000), participants compared their opinions with similar others on Instagram for three primary reasons, and within this sub-theme, the identity implications of Instagram-based *Preference Assessments*, *Belief Assessments*, and *Preference Predictions* are discussed.

Preference Assessments

Individuals utilise preference assessments to evaluate the appropriateness of their opinions, and they are typically used to reflect on questions such as 'should I think x?', 'am I comfortable about thinking x?', and 'what does thinking x mean for me?' (Suls et al., 2000). Whilst only two participants discussed preference assessments with similar others during the interviews, the opportunity to engage in such behaviour was considered extremely valuable, as they would otherwise have been forced to explore specific facets of their identity in isolation. For instance, Jade explained that although she is a "self-confessed Marvel nerd", none of her friends at school shared her interest in films. Thus, Jade actively sought out and followed fellow Marvel fans on Instagram, and she suggested that by engaging with their similar viewpoints, she experienced an increased sense of acceptance and affiliation:

I like these [Marvel fans on Instagram], because not everyone at school is a massive fan of Marvel and everything...it is nice to find people who think the same thing. It makes me think, 'I am not weird for liking this, it's fine'. It might be nerdy, but it is

fine. Like, I look at what others say and post, and I am like, 'yes...what they say relates with me', if that makes sense, and you almost feel like a little community.

Jade (15, Female)

Similarly, Humaira was a Muslim from what she described as a “quite homophobic” background, and she explained that in offline contexts, she did not feel comfortable exploring her sexuality due to her religious upbringing. Indeed, this was not a facet of her identity that she openly discussed with her family and friends, and thus, engaging with the views of LGBT individuals (and their allies) on Instagram increased her confidence regarding the social acceptability of her sexuality:

...I have to be like cautious around my family, and make sure that they cannot see that I am following people like that [LGBT individuals]...or else they will start questioning me. ...To be honest though, following them [LGBT individuals] does make me feel a bit better sometimes. Like, they have really strong friendships with each other - the trans and gay people, and when I saw [that], I thought that is something I want. I appreciate I'm not going to get that right now...with people thinking what they do, [but] it shows I can be that, and be happy, and have great friends, and be accepted. Like I know in the end, it's going to be alright.

Humaira (13, Female)

Thus, in both instances, participants had aspects of self which they felt unable to express, explore, and evaluate in offline contexts, and the opposition to such an identity in offline contexts often led respondents to develop low self-esteem. However, Instagram provided participants with the opportunity to engage with, and learn from, similar others, and doing so not only appeared to enhance their confidence regarding who they are, but it also engendered an increased sense of belonging. It is therefore reasonable to assume that such processes can support adolescents in strengthening their commitments.

Belief Assessments

Belief assessments concern the validity of a proposition, and are typically used to help individuals to evaluate ‘is x correct?’ (Suls et al., 2000). Here, similar ‘experts’ (individuals

who whilst more knowledgeable regarding x, share one's basic values) are often viewed to be the most valuable targets (Suls, Martin & Wheeler, 2002), and during the interviews, participants in mid-late adolescence discussed how they often sought out and engaged with the views of more knowledgeable others on Instagram, particularly in the domains of politics and overarching worldviews (Aimee, 16, Female; Emma, 17, Female; George, 18, Male; Michael, 17, Male; Sophie, 18, Female). For instance, Sophie reflected on comparisons that she made during the 2016 US Presidential Election, and she discussed how the opinions of similar experts helped to validate her belief that Hillary Clinton was the best candidate:

Some of the people I followed during the American election kept saying 'we stand with her [Hillary Clinton]'. Whilst I already had in my mind that Hillary was the right person, I think the people who I followed made me feel like, 'yeah, if other people think that, people who know a lot more about it than me'...it was really reassuring - they boosted my confidence in what I was thinking was right. ...There was no one that I saw online who did [support Trump], and that was probably one of the reasons why I felt so confident. Nobody said that they agreed with him, and it made me think that he must have been bad because no one I saw supported him.

Sophie (18, Female)

Similarly, Aimee discussed how the 'consistent' messages that she saw from experts on Instagram not only increased her confidence regarding her current political beliefs/worldviews, but they also helped her to learn more about them, which in turn evoked further exploration:

[On Instagram, I see] things like 'Trump is bad', 'Brexit is bad', so I think it's a good place to get information cus its nice and consistent. ...Jameela Jamil [an actress and activist] posts a lot of feminist stuff and it just helps me understand things about feminism for women of colour, so I have tried to learn more about that. ...Stuff like that, it changes, or confirms rather, my viewpoint.

Aimee (16, Female)

As evidenced in the above cases, then, participants not only tended to compare their opinions to similar others, but to 'similar experts' who they deemed to be more

knowledgeable regarding the domain of comparison. By recognising that the views of similar experts were indeed consistent with their own, respondents concluded that their viewpoints must indeed be correct. This resulted not only in an increased sense of attitudinal- and self-certainty (i.e., commitment), but also in an increased desire to learn more about these ‘correct’ opinions in identity-related domains (i.e., in-depth exploration).

Preference Predictions

Analogous to the future-focused performance-related comparisons discussed earlier in this chapter (see 6.4.1.1), four participants also discussed future-orientated opinion comparisons in the domain of future careers (George, 17, Male; Jade, 15, Female; Lucy, 15, Female; Michael, 17, Male). Thus, rather than assessing ‘could I do x?’ or ‘how do I become good at x?’ (as with future-focused ability comparisons), preference predictions supported respondents in determining ‘would I like to do x?’ (Suls et al., 2000). Although inherently interlinked, at no stage of these comparisons was adolescents’ ability to perform considered; rather, the comparison target was used as a proxy to help participants determine the desirability and likely affective consequences of pursuing the career captured in the content shared by the target. These comparisons were conducted by adolescents who had a clearer sense about the field in which they hoped to work, and they therefore served to learn more about and validate one’s current tentative decisions, rather than to determine whether an option is worth pursuing in the first instance. An explicit example of this was provided by Michael, who discussed how engaging with marketing entrepreneurs on Instagram enhanced his desire to pursue such a career:

I want to own my own marketing company, and I follow these two guys who do that. It is quite inspiring to see what they get up to, like what they do at work and how passionate they are about it. They also do like ‘lifestyle’ posts where you can see what they spend their money on and stuff, and it just kind of makes me sure that that is what I want to do. So maybe I am influenced by them, I guess. Like, I am now really sure that’s what I am wanting to do.

Michael (17, Male)

Based on the positively biased content shared by the comparison target, Michael inferred that because they appeared to enjoy working within this field (and the perks associated with doing so), so would he, thus reaffirming his interest in doing so. In fact, on each occasion participants reported to have conducted career-related opinion comparisons, a sense of validation regarding one's tentative choices was experienced, even in instances where the comparison itself was less deliberative. Lucy, for example, discussed that although she aspired to become a primary school teacher, she did not follow any individuals who worked within this profession on Instagram. Nevertheless, she was a big fan of football, and she explained that the professional footballers that she followed often shared content regarding their charitable activities with children and young people. Engaging with this content led her to reflect on her ambitions to work with children in the future, and since she determined that the footballers were doing a 'good' thing, such a comparison validated her belief that supporting young people was indeed a worthy vocation:

...that influences me because they [footballers] are always doing different things to help people out. So, they...they don't just do football things, they do other things to help other people out, and they go to hospitals and help children out and surprise them and that. The children are always so happy and it's nice to see. So, it puts something more in my head to say, 'yeah, that is something that you'd want to pursue when you get older'.

Lucy (15, Female)

Importantly, preference predictions regarding career-related choices not only appeared to enhance participants' commitment to their goals, but they also tended to elicit further in-depth exploration. Indeed, three respondents discussed how the validation experienced following such comparisons led them to actively seek more information. Specifically, Michael (17, Male) followed more entrepreneurs on Instagram to learn more about running one's own business; Lucy (15, Female) asked her form tutor at school about the process of teacher training; whilst having engaged with content shared by those in the medical profession, George (18, Male) 'Googled' prospective university courses which he believed would help him to fulfil his career goals. Thus, in contrast to future-focused ability comparisons in this domain (which often served to tentatively identify careers which *may* be

worth exploring), opinion comparisons were typically conducted by those with more firm career aspirations, and such behaviour tended to provide validation and provoke more immediate, active exploration regarding these careers of interest.

6.4.2.2 Dissimilar Opinions

Whilst adolescents reported that comparisons of opinion on Instagram were predominantly with those holding similar beliefs and values, developmental differences were identified in terms of how participants responded to dissimilar opinions on the platform, and such differences will be outlined within this sub-theme. For respondents who were more committed to their identity-related choices, discrepant opinions often led them to feel 'challenged', which in turn elicited a sense of self-doubt (Aimee, 16, Female; Beth, 17, Female; Emma, 17, Female; George, 18, Male; Sophie, 18, Female). For instance, whilst Sophie was hoping to progress to higher education next year, she discussed how engaging with individuals who believed that it was not necessary to attend university led her to question her goals:

They [people she follows] are saying people don't need to go [to university], which is fine because it's their view. But that then makes me feel like, 'OK they are questioning me, so maybe I should look at it further'. But I know what I want to do...so I block them out, as I do not want them to influence me. But then their comments do make me doubt a little, even though I thought I was 100%.

Sophie (18, Female)

Confidence in one's choices is the defining element of identity commitment, and thus, by implying that their current beliefs may be incorrect, the views of dissimilar others often appeared to have negative implications for adolescents' sense of commitment. These findings therefore align well with the results of quantitative analysis, in that because divergent viewpoints often provoked increased self-doubt amongst adolescents with more mature identity profiles, comparisons of opinion in more diverse Instagram networks would potentiate reduced identity commitment (see 5.5.4).

In a similar vein to distancing oneself from superior others to avoid discomforting ability comparisons, adolescents with a greater sense of identity clarity often reported ignoring or unfollowing those with incongruous opinions (Aimee, 16, Female; Beth, 17, Female; Emma, 17, Female; George, 18, Male; Sophie, 18, Female). An explicit example of unfollowing an individual due to their dissimilar beliefs was provided by George. George explained that he used to follow an account which typically shared pictures of baby animals, though around the time of the 2016 US Presidential Election, he noticed that the account stopped sharing such content, and started sharing content relating to political conservatism (e.g., views on abortion and same-sex marriage) and conspiracy theories (e.g., anti-vaccine). As George did not want to engage with beliefs which he disagreed with on Instagram, he decided to unfollow the account:

I like animals and used to follow this animal farm account, but they started posting a lot of stuff about their political views. Like it stopped being about the animals or the farm and it was against vaccines, abortion, homosexuality, and that sort of stuff. And I was just like, no this is going a bit too far. ...There was too much, like every day. I thought, 'I'm here for the cows, not this', so I got rid [unfollowed].

George (18, Male)

Similarly, Aimee (16, Female) discussed how she also unfollowed those with dissimilar opinions because she felt as if having diverse voices “all over” her Feed would be “a lot more confusing”, whilst Emma (17, Female) explained how she had become increasingly “annoyed with them [dissimilar others] posting arguments or things” that she was “not a fan of”. Adolescents with a greater sense of identity clarity therefore had quite well-defined markers regarding the extent of dissimilarity that was welcome within their Instagram networks. *Some* dissimilarity was permitted, in that four participants discussed how they were open to engaging with those who were ‘generally’ similar but held some opposing viewpoints (Beth, 17, Female; Georgie, 18, Male; Michael, 17, Male; Sophie, 18, Female), and George (18, Male) explained that doing so had led him to “read more and learn more” about things that were “a little bit different to what [he had] originally thought”. Nevertheless, it appeared that for adolescents with stronger identity commitments, the primary aim of engaging with the opinions of others on Instagram was to support identity

maintenance. Dissimilar opinions were seen more as a hindrance and something to be avoided, and by distancing themselves from dissimilar individuals, adolescents with more mature identity profiles felt better positioned to learn more about their current commitments. Indeed, such participants were considerably more likely to reflect on aspects of their identity having engaged with similar others (who tended to have similar opinions). This therefore provides important insight into why the quantitative analysis found that for those with more mature identity profiles, comparisons of opinion were associated with identity exploration only amongst those in high homophily Instagram networks (see 5.4.4).

In contrast, dissimilar opinions were typically not perceived to be self-threatening for respondents without strong identity commitments in the domain under comparison. In fact, rather than reducing self-certainty, such participants reported that dissimilar views often elicited further exploration. An explicit example of such behaviour was provided by Charlie (15, Male), who was a big fan of rugby. Charlie followed Australian international rugby player and fundamentalist Christian Israel Folau on Instagram, and shortly before the date of the interview, Folau shared his strong beliefs regarding homosexuality on the platform. Although Charlie disagreed with Folau's opinion, he explained how engaging with such a worldview led him to discuss these ideas with his peers:

Well recently you had Izzy Folau, if you have heard about that? So, he made these controversial posts, and I was like, 'I don't support any of that'. ...It probably changed my opinion a bit on him, but I don't think it's all bad to be honest. Like, it sparks conversation with other people. You can say to your mate, 'have you seen that?', and then you go on to have a discussion about it and think about it a little more. Most people do disagree with him, but yeah, when you see controversial stuff, I don't mind. It's his opinion and we can now discuss it.

Charlie (15, Male)

Diversity of opinion was also considered useful for adolescents who were actively reconsidering aspects of their identity. Indeed, for such individuals, Instagram was recognised as a "good platform to spread around ideas" (Lauren, 16, Female), and a medium

on which “you can learn new stuff and change your ideas” (Jade, 15, Female). Humaira, for instance, discussed how the opportunity to engage with a broad range of viewpoints on Instagram played an important role in helping her to initially come to terms with her sexuality. Indeed, Humaira explained that when she first began to doubt whether she was heterosexual, she followed more pro-LGBT accounts on Instagram (alongside the religion-based accounts that she already followed). Doing so not only helped her to better understand, and in turn accept, her sexuality, but it also prompted her to reflect upon where she stands on certain religious (Islamic) teachings:

...as I've grown up, I've learnt like the previous generation is quite homophobic in my family. They said stuff like, 'oh no, it wasn't like Adam and Steve, it was Adam and Eve'. I had all of that stuff, but then we [Muslims] don't disrespect people like...I won't tell you to do something because you're not going to listen - it's your life to live, it's not for me to judge, it's for God. It is difficult for anyone brought into a strong religious family, I guess...who feels as if they may not necessarily be the 'norm' or at least what is expected of them. Like, I used to think that being gay was like more 'in the closet', but then like on Instagram you see like parades and stuff, I see it on Instagram...it gives me a sense that being gay isn't always something to hide - it's just who I am and that's changed my mind on that.

Humaira (13, Female)

Thus, it appears that for adolescents with less mature identity profiles (be that in terms of low commitment or high reconsideration of commitment), comparisons with diverse opinions on Instagram can play an important role in supporting them in understanding who they are and where they stand on key identity-related issues. This therefore aligns well with the results of the quantitative analysis, in that opinion comparisons in more diverse networks appeared most likely to prompt further exploration amongst adolescents experiencing greater uncertainty (see 5.5.4). Across both phases of this study, then, for those with less identity clarity, dissimilarity was viewed not as something to distance oneself from, but rather something which prompted adolescents to reflect on aspects of their identity to help overcome self-uncertainty.

6.5 Conclusion

This chapter sought to illuminate the results of the quantitative analysis by exploring the extent to which adolescents themselves believe that Instagram-based social comparison behaviour affects the process of identity development. A template analysis of verbatim transcripts revealed that participants believed that social comparisons on Instagram informed several important identity-related domains, including education, future careers, romantic relationships, and politics. In terms of social comparisons of ability on Instagram, the temporality of comparisons varied across and within domains, with distal self, proximal self, and current self comparisons tending to have considerably different implications for adolescents' behaviour and identity. For future-focused (i.e., distal self and proximal self) comparisons, adolescents often engaged with performance-related content shared by role models, and doing so helped young people to identify future possibilities and prompted them to learn more about how to achieve their self-related goals. Consistent with the results of the quantitative analysis, such behaviour therefore appeared to support the strengthening of commitments and provoked young people to explore these possibilities in greater depth (i.e., in-depth exploration).

In contrast, current self comparisons served as a means of evaluating current performance, and it was this form of comparison which tended to have more negative implications, particularly amongst adolescent females. Participants proposed that female adolescents were more at risk of experiencing the negative consequences of upward comparisons on Instagram because content shared on the platform was more relevant to their current self and more likely to be highly idealised, thus potentiating greater feelings of inferiority. Such reasoning may therefore help to explain why the quantitative analysis found that the relationship between performance-related comparisons on Instagram and reconsideration of commitment was positive for female adolescents, but not for males. With this in mind, some female adolescents reported actively distancing themselves from unachievable false models on Instagram, and they discussed how being surrounded by more similar others led them to feel more self-confident and more comfortable in exploring their identity on the platform. This was again consistent with the quantitative results, which reported that

amongst female participants, ability comparisons on Instagram positively associated with in-depth exploration only for those in high homophily Instagram networks.

Respondents also reflected on the extent to which the relational closeness between themselves and the comparison target may inform the identity implications of performance-related comparisons on Instagram. Aligning with the results of the quantitative analysis, such behaviour appeared to support adolescents in strengthening their commitments, irrespective of whether engaging with the content of close ties triggered reflection or comparison processes. In terms of reflection processes, engaging with content which captured the success of peers/siblings tended to elicit a sense of pride and happiness, thus boosting self-evaluation. In contrast, whilst comparison processes evoked an initial sense of inferiority, they also appeared to motivate adolescents to perform at a similar level to that of their close ties, thus strengthening their commitment to achieving their own identity-related goals.

During the interviews, participants also discussed how they frequently conducted social comparisons of opinion on Instagram. Comparisons of opinion were self-evaluative and typically with similar others. Such comparisons allowed participants to assess the social acceptability and validity of their beliefs and values, and they often prompted respondents to learn more about their opinions in identity-related domains. Although most comparisons were with similar others, important developmental differences were identified in terms of how participants negotiated dissimilar viewpoints on the platform. Those with stronger commitments often saw dissimilarity as self-threatening, and they typically distanced themselves from dissimilar opinions to protect themselves from feelings of self-doubt. In contrast, those with less mature identity profiles did not feel 'challenged' by dissimilarity; in fact, for such individuals, diverse viewpoints often evoked further exploration which supported adolescents in reconciling their identity confusion. Such results therefore shed light on why the quantitative analysis found that opinion comparisons in homogenous Instagram networks were associated with exploration amongst those with more mature

identity profiles, whilst for those with less identity clarity, comparisons within more heterogeneous networks were associated with further exploration.

Overall, the results discussed in this chapter highlight the mechanisms and nuances which help to explain the findings of the quantitative analysis. Results indicate that whilst comparisons of both ability and opinion on Instagram can prompt young people to reflect upon their identity, the implications of such behaviour are informed by the self-relevance of the domain under comparison and *who* the comparison target is.

Consistent with the sequential explanatory design adopted in this study, a more comprehensive integration of the results from both phases of this research is presented in the following chapter to provide an overview of the overall findings of this investigation. Results are discussed in relation to the existing academic literature, and the practical implications of these findings are examined. Limitations of this study and possible future lines of research are also suggested, and finally, some concluding thoughts regarding this investigation and its findings are shared.

Chapter 7. Integration and Conclusion

7.1 Introduction

In this final chapter, the results of the quantitative and qualitative phases of this investigation are integrated to answer the overarching research questions outlined at the end of Chapter 3. The results of this investigation indicate that social comparisons of ability and opinion on Instagram can support adolescents in strengthening their identity commitments and often prompt further exploration. Findings therefore suggest that ability comparisons on SNSs may have more adaptive identity implications during adolescence than during emerging adulthood, and developmental maturity is likely to account for these differences. The research also revealed developmental differences in terms of the degree of similarity between the comparer and the comparison target which is most supportive of identity exploration. Furthermore, the relational closeness between the comparer and the comparison target was found to inform the extent to which performance-related comparisons facilitated the strengthening of identity commitments. Overall, findings evidence that social comparisons on Instagram are not inherently 'bad' for young people, and providing they are with comparison targets which meet their identity 'needs', such behaviour can enhance self-focus and support adolescents to form a synthesised and coherent sense of identity.

Having examined the results and discussed them in relation to the existing academic literature, the theoretical, empirical, and methodological contributions to knowledge made by this thesis are outlined, as are the implications of this study. Whilst this investigation focused specifically on adolescent Instagram use, the findings may have wider relevance across all SNSs. As such, recommendations are made regarding what SNS platforms and those supporting young people (e.g., parents, peers, and educators) can do to assist adolescents to learn more about their identity through social comparisons on SNSs, whilst safeguarding them against the maladaptive processes that such behaviour can evoke. The limitations of this investigation are then presented, and suggestions are made regarding how future research could help to shed further light on the identity implications of SNS social comparison behaviour. Finally, this chapter ends with some concluding thoughts

regarding this investigation and its results. Before discussing the findings of this research, however, the rationale for this investigation is first reiterated.

7.2 Rationale for Investigation

Identity development is widely believed to be the primary psychosocial task of adolescence (Crocetti et al., 2008; Erikson, 1950; Marcia, 1966), and during this period, young people are expected to begin reflecting on who they are and who they wish to become in the future (Crocetti, 2017). Social and historical context plays a profound role in shaping the process of identity development, and over the past few decades, young people have increasingly been using SNSs as platforms for exploration and experimentation (Nesi et al., 2018). Although research is beginning to emerge regarding the identity implications of SNSs during adolescence and emerging adulthood, much of the existing literature has concerned the self-presentational behaviour of young people, and how creating and sharing one's own content may reflect/inform one's sense of identity (e.g., Fullwood et al., 2016; Michikyan et al., 2015; Strimbu & O'Connell, 2019). However, little is currently known about the extent to which content shared by other users informs the process of identity development. Since young people spend considerably more time engaging with SNS content shared by other users than they do creating and sharing content themselves (Drogos, 2015; Pempek et al., 2009; van Driel et al., 2019), this significant gap in the literature warranted further study and forms the basis of the research reported in this thesis.

One other-focused behaviour that is common practice amongst young SNS users is social comparison (e.g., Doster, 2018; Divine et al., 2019; Noon & Meier, 2019), and comparisons between the self and others can be a major source of self-knowledge and can guide future action (Corcoran et al., 2011). Importantly, previous research has identified that social comparisons on SNSs can have significant consequences for identity development during emerging adulthood (i.e., Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018). These studies found that social comparisons of ability with highly idealised SNS content can inhibit the process of identity exploration and reduce identity clarity. In contrast, self-evaluative comparisons of opinion were found to prompt further reflection and identity

exploration. Whilst these studies provide valuable insight into how social comparisons on SNSs can inform identity development, it is unclear as to whether developmental (i.e., adolescence vs. emerging adulthood) or platform specific (i.e., Instagram vs. SNSs 'in general') factors would result in such behaviour having different identity implications for adolescent Instagram users. Instagram is one of the most popular SNSs amongst British adolescents (OFCOM, 2018, 2019a), and the visual self-related content that is typically shared on the platform lends itself particularly well to social comparison behaviour. Thus, since identity is the key psychosocial task of this developmental period, this investigation explored how social comparisons on Instagram may inform the process of identity development during adolescence.

Previous studies have found that the consequences of social comparison behaviour in both online (e.g., Lin & Utz, 2015; Liu et al., 2016; Noon & Meier, 2019) and offline contexts (e.g., Buunk & Ybema, 1997; Lockwood & Kunda, 1997; Wheeler, 1966) are largely informed by *who* the comparison target is. However, to date, no research has examined the extent to which network composition moderates the effect that social comparisons on SNSs have on the process of identity development. Therefore, to shed further light on this gap in the literature, the current study not only explored the direct relationship between social comparisons on Instagram and adolescent identity, but also sought to learn more about who young people surround themselves with, and thus compare themselves to, on the platform. In doing so, it was hoped that this investigation would generate a greater understanding of the type of comparison targets who are most (and least) supportive of identity development during adolescence. Guided by the social comparison literature, the positively biased content that is typically shared on Instagram, and the fact that Instagram users tend to extend their online networks beyond their immediate peer groups, the moderating effects of network homophily and tie strength on the identity implications of Instagram-based social comparison behaviour were examined.

Drawing upon the neo-Eriksonian three-factor model of identity development (Crocetti et al., 2008) and guided by social comparison theory (Festinger, 1954), this investigation sought to address the following five overarching research questions:

RQ1a: How do social comparisons of ability on Instagram inform identity development during adolescence?

RQ1b: To what extent does network homophily inform the identity implications of social comparisons of ability on Instagram?

RQ1c: To what extent does tie strength inform the identity implications of social comparisons of ability on Instagram?

RQ2a: How do social comparisons of opinion on Instagram inform identity development during adolescence?

RQ2b: To what extent does network homophily inform the identity implications of social comparisons of opinion on Instagram?

To address these questions, the research reported in this thesis adopted the sequential explanatory design (Ivankova et al., 2006). Cross-sectional survey (quantitative) and semi-structured interview (qualitative) data were collected sequentially from adolescents attending a secondary school and sixth form college in central England, and the qualitative phase sought to illuminate and expand upon the results of the initial quantitative analysis. In the following section, the quantitative and qualitative results are integrated to provide answers to the above questions, and the results are presented alongside the relevant academic literature.

7.3 Overall Results

7.3.1 RQ1a: How do social comparisons of ability on Instagram inform identity development during adolescence?

Social comparisons of ability concern comparisons of one's performance and achievements relative to others. Since Instagram users tend to selectively self-present highly idealised and polished content on the platform, these comparisons are typically upward; that is, with

those who appear superior in self-related domains. Previous research with emerging adults has found that comparisons with superior others on SNSs often result in feelings of inferiority and inadequacy, which can, in turn, have a range of negative implications for psycho-emotional well-being (e.g., de Vries et al., 2018; Vogel et al., 2015; Vogel et al., 2014) and identity development (Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018).

In contrast, the findings of this investigation paint a more positive picture of the consequences of performance-related comparisons on Instagram during adolescence. Indeed, rather than inhibiting identity development, such behaviour was often shown to elicit self-reflection, thus supporting adolescents in strengthening identity commitments and prompting young people to learn more about how to achieve their identity-related goals (see 5.5.1; see 6.4.1.1). One possible explanation for these results is that a considerable proportion of the ability comparisons conducted by adolescents were geared towards self-improvement, rather than self-evaluation (see 6.4.1.1). That is, superior others (i.e., older/more experienced individuals) on Instagram predominantly served to emphasise future possibilities (e.g., careers options) and/or room for improvement (e.g., indicating what is required to succeed at university). This is significant, as since these comparison targets were advanced in time sequence, any sense of actual competition was removed (Wheeler & Suls, 2007), and superior others often supported adolescents to develop their goals and motivated them to achieve. These results are consistent with the findings of previous studies which have also identified that ‘novices’ often compare themselves with ‘experts’ to help set goals for the future (Latane, 1966; Lockwood & Kunda, 1997), and overall, adolescents largely recognised Instagram as an important source of ideas and inspiration, rather than a context for assessing one’s current performance.

Despite this, data evidenced that female adolescents were more susceptible to experiencing the maladaptive identity implications of performance-related comparisons on Instagram. Female adolescents were more likely to contrast their current self to others on the platform, and such behaviour often elicited feelings of self-doubt and inferiority (see 6.4.1.2), and

positively associated with reconsideration of commitment (see 5.5.1). These findings are consistent with previous research which also identified that social comparison behaviours on social media tend to have more negative psycho-emotional consequences for female adolescents (Nesi & Prinstein, 2015). Interestingly, participants proposed that females' tendency to experience greater negative effects was not necessarily because they held stronger commitments, but because of *what* they tended to be committed to, and how these domains are typically portrayed on Instagram (see 6.4.1.2). Indeed, both male and female adolescents suggested that content that is typically shared on Instagram lends itself particularly well to performance-related comparisons in domains which are often more valued by females. The domains of physical appearance and romantic relationships were suggested to be especially 'gendered' (i.e., were more significant to females than males), and this belief was reinforced by the comparison behaviour reported by respondents. Furthermore, consistent with considerable research regarding Instagram self-presentational behaviour (e.g., Adorjan & Ricciardelli, 2019; Lee & Borah, 2020), adolescents also believed that female Instagram users were more likely to share highly idealised content regarding self-relevant domains. In this sense, it appeared that adolescent females were more at risk of experiencing the negative implications of performance-related comparisons on Instagram because the content they engaged with on the platform was more likely to be relevant to their current self, and more likely to appear unattainable. Such reasoning is therefore consistent with the notion that the influence of social comparisons are magnified when the domain of comparison is self-relevant, and that the unattainable achievements of superior others in such domains are often considered to be self-threatening (Major, Testa & Bylsma, 1991).

Immediate self-relevance is significant not only because it provides important insight into the gender differences identified during this study, but also because it may shed light on why ability comparisons appear to inform identity development differently during adolescence and emerging adulthood. Exploration is more tentative and transient during adolescence (Arnett, 2015), and since emerging adults are more likely to strongly identify with their commitments (Luyckx et al., 2013) and face greater societal pressure to make decisions and start performing in identity-relevant domains (Raiu et al., 2014), performance-

related Instagram content is more likely to be relevant to their current self-definition. As such, emerging adults may be more prone to interpreting the idealised content shared on Instagram as direct competition, thus reflecting how they *should* be performing now, rather than how they *could* perform in the future. This line of reasoning regarding possible developmental differences aligns well with the work of Lockwood and Kunda (1997), who found that self-deflation occurred when participants felt that they had missed the chance to perform at the level of the superior other. However, in instances where the comparer had not yet tackled the task of comparison, they could entertain the belief that their own future could be as bright as the upward comparison target.

7.3.2 RQ1b: To what extent does network homophily inform the identity implications of social comparisons of ability on Instagram?

Decades of research in both online (e.g., Kang & Liu, 2019; Noon & Meier, 2019) and offline contexts (e.g., Buunk & Ybema, 1997; Wheeler, 1966) has found that the perceived similarity between the comparer and the comparison target can have a profound effect on the consequences of performance-related comparisons. Experimental and correlational research has demonstrated that in instances where the comparer determines the upward comparison target to be similar in related attributes, they are more likely to believe that they can, or have the potential to, perform similarly. This typically generates upward assimilative emotions such as admiration, optimism, and motivation (Smith, 2000). In contrast, when individuals determine the performance of superior others to be unattainable, negative psycho-emotional outcomes are likely (Lockwood & Kunda, 1997); such reasoning is typically used to help explain why upward comparisons with highly idealised Instagram content often have negative consequences for young people. It was therefore assumed that performance-related comparisons would have more adaptive identity implications for adolescents who mindfully construct their Instagram networks to distance themselves from unachievable false role models.

The results of this investigation suggest that this is indeed the case amongst adolescents who conduct ability comparisons on Instagram regarding identity-related domains which are

central to their current self-definition. The social comparison literature indicates that in competitive conditions regarding self-relevant domains, individuals tend to avoid comparisons with superior others (Wood, 1989) and display a preference for comparisons with those more similar to the self (Corcoran et al., 2011). Consistent with this, adolescents who frequently engaged with highly idealised content in valued identity-related domains on Instagram (e.g., physical appearance or romantic relationships) often distanced themselves from far superior others to avoid feelings of self-doubt and inadequacy. Instead, they displayed a preference for engaging with content shared by similar others. The performance of similar others were interpreted to be less self-threatening, and comparisons with their content were more likely to enhance self-confidence and elicit a desire to learn more about the domain of interest (see 6.4.1.2), thus prompting further in-depth exploration (see 5.5.2).

In contrast, amongst those with less identity clarity, ability comparisons in Instagram networks containing more diversity were most likely to elicit further exploration (see 5.5.2). This may be because when adolescents experienced considerable uncertainty regarding a specific domain that was not central to their current self-definition, they tended to adopt a more future-orientated mindset, where ability comparisons were geared more towards evaluating the appropriateness of future possibilities and guiding future behaviour, rather than assessing current performance relative to others (see 6.4.1.1; see 6.4.1.2). Since these comparisons were seemingly motivated by a desire to identify identity-related goals and/or learn more about how to achieve them, the targets for such comparisons were selected primarily because they *were* dissimilar (i.e., older/superior/more advanced) in the domain of comparison. Indeed, rather than being recognised as direct competition and thus self-threatening, it was the superior abilities of these ‘self-guides’ which made them attractive comparison targets in the first instance.

Having said that, the degree of dissimilarity most useful for adolescents experiencing uncertainty differed according to how prominent the domain of comparison was. In instances where comparisons concerned domains which were unlikely to be central to adolescents’ self-definition until the *distant future* (e.g., careers or parenthood), highly

dissimilar others were favoured as comparison targets (see 6.4.1.1). By exemplifying the characteristics of the domain under comparison (Wood, 1989), such targets supported adolescents to tentatively learn more about a range of distal possibilities, and this often prompted adolescents to reflect upon whether these possibilities could be 'right' for them. On occasions where uncertainty was experienced regarding performance in domains that will be relevant in the *near future* (e.g., education), slightly dissimilar others were favoured as comparison targets (see 6.4.1.1). Slightly superior others are typically considered the most useful source for guiding future behaviour (Festinger, 1954; Wheeler, 1966), and by evidencing what adolescents should do to ensure they achieve their proximal goals, comparisons with such individuals often motivated adolescents to seek out further information about the domain of comparison to help improve their future prospects. Negative role models were also used to evidence a 'to-be-avoided' proximal self (Lockwood, Jordan & Kunda, 2002), and such comparisons motivated adolescents by highlighting what they must avoid doing to prevent future disappointment.

Overall, these findings align well with the those discussed in section 7.3.1, in that the more central the domain captured by Instagram content is to adolescents' *current* self-definition, the more likely that comparisons with highly idealised Instagram content will result in feelings of inadequacy and self-doubt. Thus, for adolescents with a greater sense of identity clarity, Instagram networks containing more similar others appear most supportive of identity development. On the other hand, on occasions where uncertainty is experienced and performance in a specific domain is not central to adolescents' current self-definition, young people have greater scope for engaging with role models to help guide future behaviour. In these instances, superior others are recognised as more of a self-guide than a competitor, and their superior performance is more likely to evoke a desire to self-improve and learn more, rather than elicit feelings of inferiority. This therefore indicates that for young people experiencing more identity uncertainty, networks containing a wider range of ability-based content may have the most adaptive implications for identity development.

7.3.3 RQ1c: To what extent does tie strength inform the identity implications of social comparisons of ability on Instagram?

Another factor which has been found to inform the implications of social comparisons of ability in both online (e.g., Lin & Utz, 2015; Liu et al., 2016) and offline contexts (e.g., Lockwood et al., 2004; Tsai et al., 2014) is the degree of relational closeness between the comparer and the comparison target. According to Tesser's SEM (1988), when close ties experience success in a domain that is not central to one's self-definition, individuals can share in the success of the close tie, thus enhancing self-evaluation. The closer the relationship with the other, the more the individual gains in self-evaluation through reflection processes. In contrast, when close ties achieve in a domain that is central to one's self-definition, their performance can evoke feelings of inferiority, thus negatively informing self-evaluation. Again, relational closeness should intensify the implications of such behaviour, and the closer the relationship with the superior other, the more negative consequences that these comparison processes tend to have on self-evaluation. Although it was unclear as to whether content shared by close ties on Instagram tended to trigger reflection or comparison processes, guided by Tesser's SEM (1988), it was assumed that reflection processes would have more adaptive implications, whilst comparison processes would have more maladaptive consequences, for identity development during adolescence.

Interestingly, engaging with the content shared by close ties on Instagram appeared to engender stronger identity commitments (see 5.5.3), irrespective of whether reflection or comparison processes were triggered (see 6.4.1.3). Indeed, whilst adolescents benefitted from enhanced self-evaluation following reflection processes, the successes of peers in self-relevant domains also elicited increased commitment to, and motivation for, achieving likewise. Although these results do not necessarily contradict the SEM as comparisons with close ties did trigger an initial drop in self-evaluation (see 6.4.1.3), they are perhaps more aligned with the notion that assimilation is more likely when the comparison target is psychologically close (Mussweiler, Ruter & Epstude, 2004). These findings also emphasise the significance of peer pressure during adolescence, as young people often experience considerable pressure to match the standards of their peers to maintain their own status and self-image (Nesi et al., 2018; Tesser & Smith, 1980). It is possible, then, that seeing that

their peers had achieved their own self-defined goals emphasised the importance of doing likewise, and thus elicited additional motivation for adolescents to improve their performance in valued identity-related domains.

7.3.4 RQ2a: How do social comparisons of opinion on Instagram inform identity development during adolescence?

Social comparisons of opinion occur when individuals engage with the beliefs and values of others to help evaluate the social acceptability and validity of their opinions (Suls et al., 2000). Opinion comparisons are therefore not competitive in nature (as per ability comparisons), and comparison targets are viewed more so as informants or consultants (Park & Baek, 2018). Relative to the emerging literature regarding performance-related comparisons on SNSs, less is known about the implications of opinion comparisons in online contexts. Nevertheless, initial evidence indicates that such behaviour tends to support the process of identity development during emerging adulthood by prompting young people to actively reflect upon and explore their identity (e.g., Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018).

Consistent with these findings, the results of this investigation evidence that social comparisons of opinion on Instagram can also evoke identity exploration amongst adolescents. Indeed, engaging with the opinions of others on the platform was found to elicit increased levels of both in-depth exploration and reconsideration of commitment (see 5.5.1; see 6.4.2), suggesting that such behaviour can take identity in both directions. That is, whilst the views of other Instagram users may support identity maintenance and encourage adolescents to seek further information about their beliefs and values, they may also lead young people to doubt their current opinions, thus prompting them to search for more ‘fitting’ alternatives. This may therefore help to explain why the quantitative analysis did not find a significant linear relationship between Instagram comparisons of opinion and identity commitment (see 5.5.1), in that such behaviour was found to both strengthen and lessen one’s commitments during adolescence. Having said that, the opinions most likely to elicit

such exploration did differ in accordance with the developmental maturity of the comparer, and these results will be discussed in the following section.

7.3.5 RQ2b: To what extent does network homophily inform the identity implications of social comparisons of opinion on Instagram?

A long tradition of research has evidenced that the perceived similarity between the opinion of the comparer and the comparison target can have a significant effect on the implications of opinion comparisons: studies have found that similar opinions typically evoke a sense of stability and confidence in one's beliefs and values, whilst dissimilar opinions can lead to feelings of self-doubt and commitment suspension (Kruglanski, 1989). It was therefore assumed that comparisons of opinion with those holding similar beliefs and values on Instagram would support identity maintenance, whilst comparisons with dissimilar opinions on the platform would potentiate identity (re)formation.

Interestingly, developmental maturity was found to play a significant role in determining the degree of perceived similarity most likely to support the process of identity development during adolescence. Amongst adolescents with stronger beliefs and values in identity-related domains, dissimilar opinions reduced commitment (see 5.5.4) and often led them to feel 'challenged' (see 6.4.2.2). To protect against these feelings of self-doubt, they often unfollowed those with divergent viewpoints (see 6.4.2.2). Notably, disassociating from dissimilar opinions on Instagram was considerably easier for adolescents than distancing themselves from far superior others. This may help to explain why the developmental differences between adolescents and emerging adults played less of a role in determining the identity processes that opinion comparisons on Instagram tend to evoke (as outlined in 7.3.4), in that young people experienced greater freedom to curate their networks to contain the opinions which best met their identity 'needs'.

In the case of adolescents with more clearly defined beliefs and values, this tended to lead their Instagram networks to become increasingly homogenous (particularly in terms of political orientation and overall worldviews), and opinion comparisons with the similar

others that they followed often supported identity maintenance and prompted further in-depth exploration (see 5.5.4; see 6.4.2.1). Whilst it is perhaps unsurprising that such behaviour would evoke a desire to learn more about one's commitments, it appears counterintuitive that opinion comparisons with similar others also associated with reconsideration of commitment amongst those seeking validation (see 5.5.4). However, even within highly homogeneous networks, not all opinions are supportive of one another all of the time, and the qualitative analysis found initial evidence to suggest that some adolescents with stronger identity commitments may be more willing to engage with dissimilar viewpoints if the comparison target held similar opinions in others domains (see 6.4.2.2). This may be because the opinions of similar others tend to be more trusted and agreement is to be expected (Holtz, 1997; Levine, 1967), and thus, a disagreeing similar other may heighten the subjective belief that reconsideration is required.

In contrast, amongst those with less identity clarity, comparisons with a more diverse range of opinions appeared to have more adaptive implications for identity development. Whilst comparisons with similar opinions remained useful for those experiencing uncertainty - providing some sense of stability (see 6.4.2.1), dissimilar opinions were not seen as self-threatening or something to avoid. Rather, dissimilar viewpoints played an important role in supporting uncertain adolescents to determine who they are and where they stand on key identity-related issues, and engaging with a diverse range of opinions often resulted in further exploration in terms of both in-depth exploration and reconsideration of commitment (see 5.5.4; see 6.4.2.2).

When considered alongside the results discussed earlier in this chapter regarding perceived similarity and ability comparisons (see 7.3.2), these findings evidence important developmental differences in terms of the motivations for, targets of, and risks associated with, social comparison behaviour on Instagram. That is, amongst adolescents who had a clearly defined sense of identity and strongly identified with the domain under comparison, the goal of comparison behaviour appeared to be to confirm and learn more about their choices. Consistent with the results of previous experimental studies (e.g., Kruglanski &

Mayseless, 1987), more similar others were considered most suitable for this task, whilst dissimilar others were often avoided as they led adolescents to doubt their performance and/or opinions in valued identity-related domains. These results therefore align well with Festinger's (1954) original social comparison theory, where he predicted that in instances where the domain of comparison holds importance for the comparer, their self-evaluative drive will be particularly strong, and they will favour comparisons with a narrower range of similar others. In contrast, for those experiencing greater uncertainty, comparisons were geared less so at validating or confirming pre-existing and clearly defined aspects of self, and more towards forming commitments in the first instance. To support these uncertainty reduction processes, such individuals tended to seek information from others, irrespective of their similarity (Michinov & Michinov, 2001). In fact, highly dissimilar others seemed particularly useful comparison targets, and were able to evidence a broad range of possibilities for adolescents, some of which they explored further before determining whether to adopt them for themselves.

7.3.6 Summary of Results

The results of this investigation indicate that ability and opinion comparisons on Instagram can support identity development during adolescence by increasing self-focus, strengthening commitments, and prompting further exploration. However, they also evidence that the outcomes of social comparisons on the platform are largely informed by how committed young people are to the domain of comparison, and who the comparison target is.

In terms of ability comparisons on Instagram, results suggest that such behaviour is often more supportive of identity development during adolescence than during emerging adulthood. It appears that because adolescents are less likely to identify strongly with their commitments and face less societal pressure to perform in many identity-related domains, they are less prone to viewing superior others on Instagram as self-threatening. Indeed, as a considerable proportion of the performance-related content that adolescents engaged with on Instagram concerned domains which were not central to their current self-definition,

they often adopted a more future-orientated mindset when comparing themselves to others on the platform. In such instances, superior others were viewed more as role models than competitors, and engaging with their content often supported adolescents in evaluating the appropriateness of future possibilities and guiding future behaviour. In turn, this often supported commitment solidification and evoked an increased desire to learn more about the domain of comparison (i.e., in-depth exploration). However, in instances when Instagram content did capture domains which were central to adolescents' current self-definition, engaging with superior others tended to have maladaptive implications (i.e., feelings of self-doubt and reconsideration of commitment), and more similar others were favoured as comparison targets. Consistent with previous studies, female adolescents were found to be considerably more susceptible to these negative outcomes, and adolescents suggested that this was due to the highly idealised and self-relevant content relating to the feminine gender role (e.g., physical appearance and relationships) which is often shared on Instagram. Irrespective of the self-relevance of the domain under comparison, this investigation found that the relational closeness between the comparer and the comparison target can also inform the identity implications of ability comparisons on Instagram. Further emphasising the significance of peer relationships during adolescence, findings suggest that engaging with Instagram content shared by superior close ties can support adolescents in strengthening their commitments through enhancing self-evaluation and/or motivating them to achieve their own identity-related goals.

In terms of the identity implications of social comparisons of opinion on Instagram, results were largely consistent with previous research conducted with emerging adults, in that engaging with the beliefs and values of others on the platform often prompted further exploration. However, the opinions most supportive of identity development appeared to be largely determined by how committed adolescents were to their identity-related opinions. Indeed, amongst those with clearly defined opinions in identity-related domains, divergent viewpoints often led them to feel challenged, thus eliciting self-doubt and a drop in commitment. Instead, those with similar opinions were favoured targets, and engaging with content shared by such individuals often evoked a sense of validation and a desire to learn more. In contrast, engaging with a diverse range of opinions appeared to be most

supportive of identity development for those with less mature identity profiles, with opposing viewpoints often prompting such adolescents to reflect on where they stand on important identity-related issues.

Overall, whilst both forms of social comparison on Instagram often had adaptive implications for identity development during adolescence, findings also evidence some of the challenges that young people may face when looking to explore their identity on the platform. Indeed, not all comparison targets are 'good', and particularly amongst young people with greater identity clarity, such behaviour potentiates feelings of inferiority, self-doubt, and confusion, all of which can have negative consequences for adolescents' sense of identity. Thus, by evidencing which comparison targets are most (and least) supportive of identity development, results emphasise the importance of Feed curation for ensuring that such behaviour facilitates, rather than inhibits, adolescents' search for identity. Further discussion regarding these results and selective exposure can be found in the recommendations section in 7.4.3.

7.4 Contributions, Implications, and Recommendations

Having outlined the results of this investigation, this section highlights the theoretical, empirical, and methodological contributions made by this thesis. The implications of this research are also discussed, and recommendations are made regarding how best to support adolescents to benefit from the exploratory potentials provided by Instagram, whilst minimising the risks associated with social comparison behaviours on the platform.

7.4.1 Theoretical and Empirical Contributions

The results of this investigation provide further evidence to suggest that SNSs such as Instagram have become increasingly important contexts for young people to explore their identity, and findings are therefore consistent with Eriksonian reasoning which emphasises the centrality of social interaction and historical context to identity development (Erikson, 1950). Since much of the existing literature regarding SNS use and identity concerns self-

presentation (e.g., Fullwood et al., 2016; Michikyan et al., 2015; Strimbu & O'Connell, 2019), this investigation sheds initial light on how social comparisons on SNSs can inform the process of identity development during adolescence. It therefore extends existing knowledge regarding the identity implications of other-focused behaviour on SNSs, and results reveal that by enabling its users to engage with content shared by others, Instagram presents new opportunities and new challenges for young people looking to form a synthesised and coherent sense of identity.

In contrast to previous research conducted with emerging adults (i.e., Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018), the results of this investigation indicate that both forms of social comparison behaviour are often (though not exclusively) supportive of identity development during adolescence. These findings therefore further emphasise the importance of studying adolescence and emerging adulthood as distinct developmental stages when considering the implications of SNS use. Indeed, whilst identity is a major concern across both adolescence and emerging adulthood, the 'seriousness' of exploration (Arnett, 2015), the degree to which young people identify with their commitments (Luyckx et al., 2013), and the amount of societal pressure to make important choices (Raiu et al., 2014) differs considerably during these two developmental periods, and each of these factors is likely to have a profound influence on the antecedents and implications of social comparison behaviour.

This investigation is also original in its exploration of the moderating effect of network composition on the identity implications of social comparisons on SNSs. By considering who adolescents surround themselves with, and compare themselves to, on Instagram, it was possible to learn more about which comparison targets were most (and least) supportive of identity development during adolescence. Thus, since much of the existing literature regarding performance-related comparisons on SNSs concerns their negative implications, this investigation provides important insight into the instances where such behaviour may have more adaptive consequences for young people.

In terms of the perceived similarity between the comparer and the ability comparison target, although considerable research has evidenced that superior others often elicit feelings of inferiority and self-doubt (e.g., Buunk et al., 1990; Fox & Moreland, 2015), less is known about the circumstances under which individuals display a preference for future-focused upward comparison targets. The results of this investigation therefore provide support for the notion that superior others may hold more utility in instances where individuals face uncertain situations (Lockwood et al., 2012) and when they believe that improvement in the domain of comparison is possible over time (Lockwood & Kunda, 1997). Indeed, these targets can provide important information regarding how to reduce uncertainty, take charge of one's trajectory, and achieve future success, and therefore appear particularly useful for adolescents experiencing a lack of identity clarity. Such reasoning also supports the notion that developmental differences explain why ability comparisons on Instagram may be more supportive of identity development during adolescence than during emerging adulthood, in that because adolescents typically experience higher uncertainty and have more time to self-improve, they are more likely to view superior others on Instagram as role models rather than competitors.

Furthermore, this investigation provides additional insight into the implications of future-focused upward comparisons by differentiating between distal self and proximal self ability comparisons. Whilst upward comparisons are typically considered useful for improving future circumstances and obtaining one's goals (e.g., Lockwood & Kunda, 1997), there is limited social comparison literature regarding the extent to which the temporal proximity of the domain under comparison informs the implications of such behaviour. However, consistent with the literature regarding 'possible identities/selves' (e.g., Marcus & Nurius, 1986; Oyserman & James, 2011) - which are in effect what future-focused comparison targets represent, this study evidences that the nearer adolescents feel that their current self is to the future-orientated upward comparison target, the more likely that comparisons are to evoke action. In this sense, whilst very useful for tentatively identifying and reflecting upon future possibilities, distal self comparison targets were considerably less likely to inform immediate behaviour and have significant affective consequences. Given the differences in the implications of, and motivations for, distal self and proximal self

comparisons, it may be wise for researchers to differentiate between the two future-focused comparison behaviours moving forward.

The research also provided important insight into why comparisons in online networks with more strong ties tend to have more positive than negative consequences for young people. Drawing on Tesser's (1988) SEM, previous quantitative studies have assumed that comparisons with close ties on Facebook have more positive (i.e., happiness and benign envy) than negative (e.g., malicious envy) psycho-emotional implications because content shared by close ties on the platform tends not to concern domains which are central to the comparers self-definition (Lin & Utz, 2015). Whilst this may well be the case, the results of this investigation suggest that even in instances where the domain of comparison *is* relevant to one's current self-definition, the performance of superior close ties can act as a particularly strong motivator, thus increasing one's desire to achieve one's identity-related goals. It is currently unclear as to whether such results are particularly marked amongst adolescents due to the nature of peer pressure during this period. Nevertheless, they are consistent with the idea that assimilation is more likely when the comparison target is psychologically close (Mussweiler et al., 2004), and they therefore provide further insight into why ability comparisons with close ties on SNSs have been found to positively associate with feelings of benign (rather than malicious) envy (Lin & Utz, 2015).

In addition to extending our understanding of the identity implications of ability comparisons on Instagram, this investigation also made an important contribution to knowledge by adding to the limited literature regarding the consequences of opinion comparisons on SNSs. Indeed, relative to the ever-increasing literature regarding performance-related comparisons in online contexts, there is considerably less published research regarding the implications of opinion comparisons on SNSs. The results of both this and previous research with emerging adults (i.e., Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018) have evidenced that engaging with the beliefs and values of others on SNSs can have profound implications for young peoples' sense of identity. These

findings therefore emphasise the need for researchers to consider the consequences of both forms of social comparison behaviour going forward.

Furthermore, whilst limited research has been conducted regarding the nature of opinions that adolescents tend to engage with on SNSs (Manago, 2015), this investigation provides important insight into the degree of opinion similarity most supportive of identity development. Results indicate that the value of similarity differs in accordance with the extent to which adolescents experience opinion-related clarity in the domain of comparison. These findings are consistent with decades of social comparison research in offline contexts (Kruglanski, 1989; Kruglanski & Mayseless, 1987), and are thus unsurprising. However, when considered alongside the results regarding perceived similarity and ability comparisons on Instagram, they make an interesting contribution to knowledge by highlighting important similarities between the two comparison processes. Indeed, whilst ability and opinion comparisons are distinct processes, across both forms of comparison, a diverse range of comparison targets appeared to elicit further reflection amongst adolescents seeking to form commitments, whilst comparisons with similar others held more utility for those seeking to validate and learn more about their current commitments.

Finally, this investigation has also added to the limited cross-disciplinary literature regarding adolescent Instagram use. Although research is increasingly emerging about how young people navigate Instagram and how their experiences on the platform inform their development and sense of well-being, its recent rise to prominence means that relative to more established SNSs such as Facebook, scholarship regarding Instagram remains in its infancy (Alhabash & Ma, 2017; Trifiro, 2018). Whilst there are growing societal concerns regarding how idealised Instagram content influences young people, the results of this investigation paint a more promising picture of Instagram use during adolescence, and add to the increasing evidence-base (e.g., Meier et al., 2020; Noon & Meier, 2019) which supports the notion that social comparisons on the platform are not inherently 'bad' for young people. Having said that, findings indicate that female adolescents are at an increased risk of Instagram comparisons triggering maladaptive processes due to the highly

idealised content shared on the platform regarding the feminine gender role. This study therefore highlights significant gender differences in terms of the challenges associated with social comparisons on Instagram, and thus emphasises the importance of considering the role of gender when investigating the implications of Instagram use during adolescence.

7.4.2 Methodological Contributions

This investigation also makes two important methodological contributions. First, whilst U-MICS has been validated in several European, Middle Eastern and East Asian cultural contexts (e.g., Crocetti, Cieciuch, et al., 2015), this was the first investigation where the scale was used to collect data regarding the three identity processes from British adolescents. Cronbach's α scores indicated very good internal consistency, a CFA confirmed that the three-factor model was structurally valid (see 5.3.3), whilst the age and gender differences regarding identity process scores were consistent with those found in previous studies (see 5.4.2). This therefore provides initial evidence to suggest that U-MICS is indeed a valid instrument for measuring the three identity processes amongst British adolescents. Future research with British adolescents is now required to assess the relationships between the three identity processes and relevant correlates (e.g., self-concept clarity, personality dimensions, and peer/family relationships) to help confirm U-MICS' convergent validity.

A second important methodological contribution was made through the use of the novel think-aloud task during the qualitative phase of this investigation. This was the first qualitative study seeking to learn more about the extent to which social comparison behaviours on Instagram inform the process of identity development, and the think-aloud task (alongside the iPad provided) proved to be a promising tool for collecting rich contextual data regarding adolescents' experiences and interpretations of them. Indeed, whilst this approach to data collection was initially utilised to provide adolescents with the opportunity to draw upon their experiences of social comparison behaviour in 'real-time', when discussing past experiences on the platform, adolescents often returned to the content of interest, and this aided recall and prompted further reflection. Thus, it not only

supported adolescents to discuss current social comparisons, but also to consider the lasting impression that previous comparisons may have had on them. Although this approach came with ethical challenges (e.g., how to protect the anonymity of other individuals discussed during the interview), it possessed many of the strengths associated with the scroll-back method used for studying self-focused behaviours (Robards & Lincoln, 2017), and can provide researchers with the opportunity to learn more about how SNS users interpret content shared by others.

7.4.3 Recommendations

Cumulatively, the results of this investigation emphasise that social comparisons on Instagram are not inherently 'bad' for young people; in fact, they can be a major mechanism of self-knowledge and often have adaptive implications for identity development. This begs the question: what can be done to support young people to benefit most from social comparisons on Instagram, whilst safeguarding them against the maladaptive processes that such behaviour can evoke? The results of this investigation emphasise the importance of selective exposure, and in the following two sub-sections, recommendations are made regarding how to support adolescents to tailor their Instagram networks to meet their identity 'needs'. However, Feed curation does not guarantee positive outcomes. Thus, some of the challenges associated with attempts at selective exposure are outlined, and suggestions are made regarding how interventions, SNSs themselves, and those supporting young people (e.g., family members, peers, educators) could help to minimise the risks associated with social comparison behaviour on SNSs.

7.4.3.1 Ability Comparison Targets

In instances where the domain of comparison was central to adolescents' current self-definition, content shared by far superior others tended to elicit feelings of self-doubt, inferiority, and reconsideration of commitment, whilst comparisons with more similar others on the platform often evoked in-depth exploration. Although it was promising to hear how adolescents often exercised their agency to distance themselves from the unattainable ideals presented on Instagram, their ability to control what appeared on their

Feed was constrained by algorithmic prioritisation and the fact that idealisation is, for many, the default approach to sharing self-related content on the platform. In this sense, despite their efforts, it seemed extremely challenging to completely avoid idealised Instagram content concerning valued identity-related domains. Since it is this content which potentiates negative outcomes, SNSs themselves could play an important role in safeguarding young people. Notably, since collecting data for this research, Instagram has trialled reducing the salience of Likes on its platform (Fitzgerald, 2019). This is an important first step, as consistent with the results of other studies (e.g., Kim, 2020), participants explained that the positive feedback that other Instagram users received on their idealised content often reinforced the importance of performing at a similar, yet unattainable, level. However, to truly support young people to distance themselves from self-threatening content, it would be advantageous for Instagram to provide its users with greater control over the type of content they encounter on the platform (Meier et al., 2020).

Although results indicate that engaging with idealised Instagram content may have more adaptive implications for adolescents experiencing uncertainty regarding domains that are not central to their current self-definition, it remains important to emphasise caution and critical thinking when encouraging young people to engage with this content. Indeed, whilst superior others are well-placed to act as role models for young people (Lockwood & Kunda, 1997), Instagram use during adolescence can result in the internalisation of professional, social, sexual, and romantic ideals (de Lenne, Vandenbosch, Eggermont, Karsay, & Trekels, 2020). Should adolescents' identity-related ambitions be predominantly informed by the highly idealised content shared on Instagram, young people may be setting themselves unattainable targets for the future, and failure to meet these unrealistic ideals can lead to negative affective states further down the line (Jones, Papadakis, Orr & Strauman, 2013). Thus, whilst Instagram may be a particularly useful place to reduce uncertainty, spark initial interest, and/or provide ongoing motivation to succeed in identity-related domains, it seems important for those supporting young people (e.g., family members, peers, educators) to encourage them to seek further information about their choices from other sources, thus assisting adolescents to form more realistic self-related targets.

The fact that individuals are rarely 'good' comparison targets in every domain (e.g., an Instagram user may provide adolescents with considerable career-related inspiration, whilst also prompting feelings of inferiority regarding their physical appearance) further complicates the process of selective exposure, as does the reality that to learn more from a wider range of individuals, adolescents must extend their Instagram networks far beyond their immediate peer group, thus potentially missing out on some of the adaptive implications of ability comparisons with close ties. Given these challenges and those discussed in the previous two paragraphs, whilst attempts at selective exposure may help to mitigate some of the maladaptive implications associated with upward comparisons on Instagram, it is no guarantee of positive (short- and/or long-term) outcomes.

Interventions aimed at increasing awareness of the unrealistic and artificial nature of Instagram content could therefore help to further minimise the risks associated with performance-related comparisons on the platform. Indeed, although such behaviour may have more maladaptive consequences during emerging adulthood, increased awareness may lead adolescents to evaluate their current self against the idealised content shared on the platform less frequently, as well as reduce the likelihood of them adopting unrealistic targets for the future. Of course, it is also important for interventions to emphasise that performance-related comparisons on Instagram are not necessarily something to be avoided, and that should they be conducted with suitable comparison targets relative to their identity 'needs', they can support commitment solidification, reduce uncertainty, and elicit a desire to learn more about their identity-related choices. Thus, interventions should not serve to reduce the number of ability comparisons that adolescents make on SNSs, but rather encourage adolescents to take a more critical, analytic, and reflective approach when engaging with Instagram content shared by others, thus prompting them to consider whether alternative comparison targets may be more supportive of their search for identity.

7.4.3.2 Opinion Comparison Targets

As with the recommendations made regarding ability comparison targets, the results of this investigation indicate that the advice/support provided for adolescents regarding opinion comparison targets should also differ in accordance with their identity 'needs'. Results evidence that individuals with similar beliefs and values can play an important role in validating adolescents' current opinions and motivating them to learn more about their identity-related views. Whilst it therefore seems logical to encourage adolescents seeking validation to follow those with similar opinions (particularly similar experts) on Instagram, one must be wary of advising young people to form online echo chambers. As evidenced in the qualitative phase of this study, individuals often selectively expose themselves to ideologically supportive others who can help to reinforce their belief system. However, this also results in less exposure to alternatives, and since adolescence is an important period for experimentation and exploration (Erikson, 1950), developing 'tunnel vision' regarding a specific belief or value may prevent young people from engaging with opinions which are a better 'fit'. Therefore, whilst using Instagram to learn more about their opinions from similar others may play a significant role in supporting identity maintenance, young people must be encouraged to remain open to alternatives to prevent a foreclosed identity (Marcia, 1966). Indeed, it is important for adolescents to recognise that having engaged with alternative viewpoints, reconsideration of commitment is not necessarily maladaptive, and can in fact exert positive long-term effects by facilitating a revision of choices that do not align with adolescents' interests, wishes, or long-term goals (Crocetti et al., 2010; Klimstra et al., 2010).

On the other hand, more heterogeneous networks appeared to have more adaptive identity implications for those with less identity clarity, as the opportunity to engage with a more diverse range of alternative opinions supported them in overcoming their identity confusion. However, overcoming uncertainty regarding the self is a challenging task for many adolescents, and thus, it is important for those supporting young people to be mindful of the fact that engaging with a diverse range of beliefs and values on Instagram may overwhelm some adolescents. Indeed, conflicting viewpoints can elicit confusion and vacillation regarding behaviour (Harter, 2012), whilst information overload may lead to

increased stress which interferes with concentration and self-reflection (Manago, 2015; Misra & Stokols, 2012). Thus, to help prevent opinion comparisons with a diverse range of beliefs and values from eliciting a state of diffusion, those supporting young people need to create a safe environment where adolescents feel comfortable to openly discuss the divergent opinions that they engage with on Instagram, thus stimulating further exploration in a supportive, accepting, and trusting context.

As discussed in both this and the previous sub-section, whilst this research evidences the developmental utility of selective exposure, Feed curation can become a challenging task and is not without risks. Nevertheless, although providing young people with the autonomy to explore their identity independently is essential, given that the implications of social comparison behaviour are largely informed by who the comparison target is, it is important that adolescents are provided with the tools to assist Feed curation, and the support from others to ensure they are able to seek guidance if and when required.

Of course, an important question is *who* should be providing young people with this guidance, and there are several possibilities. Support could be embedded within the PSHE curriculum³⁸, schools could develop their own guidelines and advice tailored to their own student body, or students themselves (perhaps through the Student Council) could organise forums or events to raise awareness regarding the importance of social media literacy. Furthermore, external experts (e.g., cyberpsychologists) could visit schools to run workshops/interventions with adolescents, whilst schools or governmental bodies (e.g., the Department for Digital, Culture, Media and Sport and/or the Department for Education) could reach out to parents and guardians with advice regarding how best to support young people to navigate Instagram and/or other popular SNS platforms.

³⁸ PSHE (Personal, Social, Health and Economic) is a “school curriculum subject through which pupils develop the knowledge, skills and attributes they need to keep themselves healthy, safe and prepared for life and work” (PSHE Association, 2019, p. 1).

7.5 Limitations, Considerations, and Future Research

Despite its strengths and original contributions to knowledge, this investigation has its limitations. In the following two sub-sections, the sampling and methodological limitations of both phases of this study are outlined, and suggestions are made regarding how future research could help to overcome them. In the final sub-section, discussion concerns how future research could adopt alternative frameworks to shed further light on how social comparisons on SNSs inform identity development during adolescence.

7.5.1 Quantitative Phase

For the initial quantitative phase of this investigation, a cross-sectional design was adopted where data was collected at one time point. Whilst the inferred directionality of the results was theoretically sound and supported by the qualitative analysis, causality could not be confirmed. Yet, results regarding the relationship between performance-related comparisons and identity development still differed to the concurrent findings of previous longitudinal studies with emerging adults (i.e., Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018), thus increasing confidence in the inferences made regarding developmental differences³⁹. Nevertheless, future studies should adopt a longitudinal design to confirm directionality, as it is possible that identity processes are not only informed by social comparisons on Instagram, but they may also guide such behaviour in the first instance. Furthermore, the sample size ($N = 173$) was relatively small given the number of paths and interaction effects tested. This was, in part, due to the large amount of missing data in the returned surveys (see 5.2). Whilst it was necessary to remove these cases to avoid bias, doing so decreased the statistical power of the quantitative analyses, and thus reduced the likelihood of finding true effects. As data was also collected from only one secondary school and sixth form college, future studies with larger, more diverse samples are required to determine the generalisability of results.

³⁹ Previous research with emerging adults (i.e., Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018) found that ability comparisons on SNSs concurrently associated with the diffuse-avoidant identity style (time one: $r = .33, p < .001$; time two: $r = .29, p < .01$), identity clarity (time one: $r = -.23, p < .001$; time two: $r = -.23, p < .01$), rumination (time one only: $r = .31, p < .001$), and identity distress (time one only: $r = .20, p < .01$), all of which suggest that such behaviour tends to have maladaptive identity implications during this period.

A further methodological limitation of the quantitative phase was that it adopted a domain independent approach to social comparison behaviour and considered this in relation to global identity. Whilst it is possible to determine a global identity score through combining one ideological and one relational domain using U-MICS (Crocetti & Meeus, 2014), such an approach provides little information about the specific domains informed by social comparison behaviour (Vosylis, Erentaite & Crocetti, 2017). It has also been argued that the relationship between global and domain-specific identity is often modest (Goossens, 2001), in that young people may have strong commitments in certain domains but experience considerable uncertainty in others. The flexibility of the qualitative phase enabled a more domain-specific examination of the identity implications of Instagram-based social comparison behaviour, and although the results evidenced that the domains measured in the quantitative analysis (i.e., education and peer relationships) were informed by Instagram content shared by others, they also suggested that several other domains were prominent on the platform (e.g., physical appearance, romantic relationships, politics/overall worldviews). Future research could therefore consider assessing the global identity implications of SNS social comparison behaviour by drawing upon different and/or additional domains. Alternatively, given that the implications of social comparison behaviour differed considerably across domain, researchers could consider examining specific identity domains independent of one another to allow for a more extensive understanding of how key identity-related domains tend to be informed by social comparison behaviour on the platform.

Finally, during the quantitative phase of this investigation, the perceived similarity between adolescents and their Instagram networks was measured using a modified homophily scale. The moderating effect of this variable was significant for both forms of social comparison behaviour, and results were largely consistent with previous theoretical and empirical works, as well as the findings of the qualitative phase of this investigation. However, moderator effects were more profound for the relationship between Instagram comparisons of opinion and the three identity processes. One potential explanation for this

is that whilst the measure contained items regarding both 'general' similarity and opinion-related similarity, after the removal of two items during the CFA (see 5.3.1), the weighting of the scale became increasingly opinion-orientated (i.e., before the CFA, 37.5% of items explicitly measured opinions; this rose to 50% following the CFA). In this sense, the final six-item scale may have been a better measure of opinion-related similarity than 'general' similarity. Since ability and opinion similarity represent different constructs, it would be wise for researchers to utilise separate scales for each form of similarity going forward.

Alternatively, researchers could overcome these issues by focusing on specific social comparison behaviours. That is, rather than measuring the frequency of non-directional ability/opinion comparisons and the extent of similarity within participants' Instagram networks, researchers could measure the frequency of upward/downward ability comparisons and similar/dissimilar opinion comparisons. This latter option appears most appropriate, as individuals are often quite selective over who they compare themselves to. Indeed, it is possible that even within diverse Instagram networks, young people may still primarily conduct comparisons with similar others. Therefore, to get a clearer understanding of the type of comparisons that adolescents are conducting on Instagram, and indeed the identity implications of such behaviour, more behaviour-specific measures should be utilised.

7.5.2 Qualitative Phase

Although the qualitative phase sought to overcome several of the limitations of the quantitative analysis (i.e., learn adolescents' perspective regarding causality and adopt a more domain-specific approach to identity), it also had its limitations. First, the sample was female dominated, and their increased willingness to participate was interpreted as a reflection of the popularity of Instagram amongst adolescent females. However, quite pronounced gender differences were identified in the quantitative phase, and whilst they were also present in the qualitative analysis, a larger male sample would have increased confidence in the explanations provided for these differences. Furthermore, the sample was not particularly diverse in terms of the ethnicity or sexuality of participants. Whilst it is possible that such a sample was reflective of the student body at the school where data were collected, results of the qualitative phase indicated that the opportunity to engage

with the opinions of those similar to the self was particularly important for adolescents who were from minority groups. As such, future research with young people from specific minority groups (e.g., BAME, LGBT, young people with disabilities) could provide important insight into how Instagram use can support them to validate and learn more about specific aspects of their identity that they may otherwise explore in isolation.

Finally, qualitative data were collected at only one timepoint, and whilst an iPad was provided to support memory recall and provide access to 'real-time' content for social comparisons, the cross-sectional design may have led participants to overstate the identity implications of Instagram-based social comparisons. That is, when discussing past comparisons, it was likely that participants only recalled those that had more profound, long-term implications, even though it is likely that most social comparisons tend not to. In future, longitudinal designs could be used to enable researchers to learn more about the consequences of the specific comparisons discussed during previous stages of data collection, thus allowing for a greater understanding of how social comparison behaviours tend to inform identity over time.

7.5.3 Alternative Approaches

Overall, this investigation drew upon the three-factor model of identity development (Crocetti et al., 2008) to examine how social comparisons on Instagram inform current commitment and exploration. However, given that many of the comparisons reported by adolescents were future-orientated, subsequent research could consider adopting the five-dimensional model devised by Luyckx et al. (2008) which focuses exclusively on identity in terms of general future plans. Future research could also adopt alternative frameworks for capturing social comparison behaviour. Indeed, whilst both this investigation and previous research with emerging adults (i.e., Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018) considered such behaviour in terms of ability and opinion comparisons, the motive for comparison (i.e., self-improvement, self-evaluation, and self-enhancement) appeared to have profound implications upon how the performance of superior others informed adolescents' sense of self. Such research would therefore help to generate a more

complete picture regarding how social comparisons on Instagram inform both current and future commitment and exploration.

In terms of alternative approaches to sampling, future research could be conducted with both adolescents and emerging adults to verify whether age does indeed moderate the identity implications of social comparisons on SNSs during these two developmental periods. Furthermore, given that all previous research regarding how social comparisons on SNSs inform the process of identity development have been conducted in either the UK or the US, it would be interesting to examine whether results replicate amongst young people residing in less individualistic cultural contexts, wherein their social norms and values are likely to differ from those exhorting by Instagram content.

Finally, whilst Instagram is one of the most popular platforms amongst British adolescents and emerging adults, young people are also frequent users of other platforms such as Facebook, Twitter, TikTok, and Snapchat (OFCOM, 2020), each of which represents its own unique context for social comparison behaviour. Thus, as the opportunities for, and consequences of, social comparison is likely to differ across platform, researchers should also consider the identity implications of social comparisons on alternative SNSs.

7.5 Concluding Thoughts

Despite widespread concern regarding the effect that idealised Instagram content may have on young people, the results of this investigation suggest that social comparisons on the platform can support identity development during adolescence. Indeed, such behaviour was found to increase self-focus and challenge young people to confront their identity issues with greater urgency, and this often supported adolescents to strengthen their commitments and prompted them to learn more about their identity-related goals and opinions. However, whilst Instagram content shared by other users provides new opportunities for adolescents to learn more about the self and those around them, it also presents new challenges for young people to overcome. Particularly amongst adolescents

with a more well-defined sense of identity, dissimilarity (i.e., far superior others or divergent opinions) often resulted in a sense of self-doubt, thus triggering maladaptive processes. Findings therefore serve to emphasise that whilst engaging with Instagram content is not inherently 'good' or 'bad', young people need to be wary of who they compare themselves to on the platform, as social comparisons on SNSs can have profound implications for psycho-emotional well-being and identity development during adolescence and emerging adulthood. To help potentiate more adaptive outcomes, it is therefore important to support young people to adopt a more reflective approach to engaging with SNS content, thus enabling adolescents and emerging adults to make more critical, analytic, and informed decisions regarding the type of content that they engage with on such platforms.

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Appendices

A.1 Quantitative Phase: Teacher Information Sheet



Dear Students,

This morning, you are invited to take part in a survey which seeks to explore the extent to which young people compare themselves to others on Instagram, and whether this process informs their identity development.

This survey is the first part of a research project about teenage Instagram use that [BLINDED] are supporting this year. The lead researcher of this project is Edward Noon who studies at Sheffield Hallam University.

The first stage of this project involves a short survey with students at [BLINDED]. The questions on the survey are about who you 'follow' on Instagram and how often you compare yourself to others on the platform. There are also questions about your education and peer relationships, as well as your age, gender, and ethnicity. The survey should take around 10 minutes to complete. If you wish to participate in the survey, you will be able to do so during form time this morning.

Before I hand out surveys to those who wish to take part, the lead researcher has asked me to share the following information with you:

- If you use Instagram, you are invited to take part in this research. However, you are under no obligation to do so, so if you do not want to take part, you do not have to
- If you do want to take part, you will not be required to share your name with the researcher. This study will therefore be anonymous, and your name, form group, and school will not be identifiable
- Because of this, once you return your survey, you will not be able to withdraw it from this study as it will not be possible to identify which survey is yours. As such, only return your survey if you are sure that you want your response to be used in this research

- When you return your survey, the results will be saved on a password protected laptop which only the researcher and his supervisory team will have access to
- Research findings will be used in future academic work, and results will be reported back to the school later this academic year

This research has received ethical approval from the Sheffield Hallam University Research Ethics Committee, and the risks associated with taking part are minimal. However, should you experience distress whilst participating, you are free to leave the survey without returning it. There are also links provided for support services at the end of the survey.

There are no direct benefits of taking part, though it is expected that the findings will help researchers to generate a better understanding of the implications of Instagram use.

Should you have any questions about this survey, the lead researcher has left his email address on the survey itself and you are welcome to contact him.

Thank you for listening, and I will now hand out the surveys.

A.2 Pilot Studies

Study	Aims	Sample	Measures and Procedures	Analysis and Findings	Reflection/Feedback on Results/Methods
Quantitative Pilot Study	To examine the relationship between SNS social comparison behaviour and adolescent identity development. Social comparisons on SNSs in 'general' was measured rather than Instagram behaviour, as at this stage of the research, it was yet to be determined that this study would be Instagram-specific	68 adolescents (<i>M</i> age = 14.9, <i>SD</i> = 1.15; 55.9% Male; 89.7% White British)	<p>A modified version of the Homophily Scale (McCroskey et al., 2006), a modified version of the Social Media Social Comparison Scale (Yang, Holden & Carter, 2018), and the Utrecht-Management of Identity Commitments Scale (Crocetti et al., 2008).</p> <p>Demographic questions (i.e., age, gender, and ethnicity) and section for feedback on the survey itself.</p> <p>Paper survey during morning registration in three randomly selected forms groups at a large secondary school and sixth-form college in central England</p>	<p>Spearman's Rho correlation</p> <p>SNS social comparisons of ability were significantly correlated with in-depth exploration ($r_s = .42, p < .001$) and approaching significance at the $p < .05$ level with commitment ($r_s = .20, p = .10$). SNS opinion comparisons were also positively correlated with in-depth exploration. ($r_s = .39, p = .001$)</p>	<p>Results: In contrast to previous studies (e.g., Yang, Holden & Carter, 2018; Yang, Holden, Carter & Webb, 2018), findings suggest that comparisons of ability on SNSs may support adolescents to explore their identity. I returned to the academic literature concerning the psycho-emotional implications of SNS use to identify additional network composition variables which may help to explain these results. Tie strength may also moderate the emotional consequences of performance-related comparisons on SNSs (Lin & Utz, 2015; Liu et al., 2016). A measure concerning this construct was therefore included in the survey for the main quantitative study</p> <p>Feedback: Feedback was largely positive, and participants felt that questions were appropriate. Some participants reported confusion regarding the homophily scale, as they were unsure whether 'friends' referred to all individuals that they followed online, or offline friends that they also followed online. The scale was therefore modified ahead of the main study to emphasise that the items referred to all those participants followed on Instagram</p> <p>Personal reflection: Where did the comparisons I measured take place? The technological affordances granted by specific SNSs lead social comparison behaviours to differ across platforms, and thus, there is a need to differentiate between SNSs in the main study. It was at this stage where the decision was made to make this study Instagram-focused</p> <p>Collecting data during registration was a success, with a 98.55% response rate. Surveys were all completed within 15 minutes - registration lasts up to 30 minutes, so time is not a concern</p>

Qualitative Pilot Study	To further elaborate on the quantitative findings: <i>why</i> do SNS ability comparisons support - rather than inhibit - identity development? Why are opinion comparisons associated with in-depth exploration, but not reconsideration of commitment?	Two adolescent females (ages 13 and 18 years) selected through convenience sampling	Interviews organised into two distinct stages: the first stage was respondent led, and following a flexible think-aloud protocol, involved participants logging into their Instagram accounts on an iPad and discussing what they saw and how it made them feel. The second stage drew upon a pre-planned interview schedule which sought to explore respondents' motivations for Instagram social comparisons and consider what said comparisons led participants to think about themselves and/or others. Individual interviews were conducted with each participant; each lasted around 40 minutes, was audio recorded, and transcribed verbatim	<p>Template analysis (Brooks et al., 2015)</p> <p>Participants reported that Instagram social comparisons can engender in-depth exploration and often led to self-validation, feelings of belonging, and inspiration. Respondents also explained that they generally followed those with similar opinions and/or interests. They also expressed that they rarely encountered Instagram content which they disagreed with, and if they did, they would either ignore it or unfollow the dissimilar others</p>	<p>Results: Findings largely reinforced those of the quantitative pilot study and provided further evidence to suggest that Instagram social comparisons can encourage in-depth exploration and support commitment solidification.</p> <p>Personal reflection: The think-aloud task appeared to be a good icebreaker and helped to provide context. However, whilst participants displayed the ability and confidence to talk at length during the think-aloud exercise, framing the interviews as two separate tasks added unnecessary structure to data collection. During the think-aloud task, respondents often discussed topics that were related to questions in the interview schedule. It may have been more useful to pursue those ideas when they were first discussed, rather than being shackled by the pre-determined structure of the interviews.</p> <p>Since the think-aloud task helped participants to reflect on the topic under investigation, for the main qualitative study, I decided to use it at the start of interviews and intermittently throughout conversations to ensure participants remained engaged. The structure the interviews in main study was therefore modified to represent a more flexible singular entity, wherein participants and I move freely between the iPad and the interview schedule.</p>
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A.3 Final Survey



Dear Students,

You have been invited to take part in a survey which seeks to explore the extent to which young people compare themselves to others on Instagram, and whether this process informs their identity development. To participate in this study, you are asked to complete this questionnaire, which should take around 10 minutes to finish. Before doing so, please be aware of the following:

- Participation is voluntary: you do not have to answer every question, or any question, if you do not want to
- Everything said and produced during this research will be anonymous: you will not be named, nor will your form group or school
- Because no identifiable data is collected in this research, once you have returned your survey, you will be unable to withdraw from the study
- Data will be saved on a password protected laptop which only the researcher and his supervisory team will have access to
- Research findings will be used in future academic work

If you understand the above and wish to take part in this study, please place a cross in the box below. If you have any questions regarding this research, do not hesitate to contact the lead researcher, Edward Noon, via his email: e.j.noon@shu.ac.uk

☐ I consent

Q1. The following questions are about how you feel about using Instagram. Please place a cross in the box that most closely matches your opinion (1 = Strongly Disagree, 6 = Strongly Agree)

	Strongly Disagree (1)					Strongly Agree (6)
I feel disconnected from friends when I have not logged into Instagram	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like it if everyone used Instagram to communicate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be disappointed if I could not use Instagram at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get upset when I can't log on to Instagram	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer to communicate with others mainly through Instagram	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instagram plays an important role in my social relationships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy checking my Instagram account	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using Instagram is part of my everyday routine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I respond to content that others share on Instagram	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q2. The following questions are about the people that you 'follow' on Instagram. Please place a cross in the box that most closely matches your opinion (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly Disagree (1)						Strongly Agree (7)
The people I 'follow' on Instagram think like me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The people I 'follow' on Instagram share my values	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The people I 'follow' on Instagram are like me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The people I 'follow' on Instagram treat people like I do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The people I 'follow' on Instagram are similar to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The people I 'follow' on Instagram behave like me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The people I 'follow' on Instagram have thoughts and ideas that are similar to mine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The people I 'follow' on Instagram have a lot in common with me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a close relationship with the people I 'follow' on Instagram	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider the people I 'follow' on Instagram as my strong ties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q3. Most people compare themselves from time to time with others. There is nothing particularly 'good' or 'bad' about this, and some people do it more than others. In this set of questions, I would like to find out the extent to which you compare yourself with others on Instagram. In each case, please place a cross in the box that most closely matches how well these statements apply to you (1 = Not at All, 5 = Very Well)

	Not at All (1)				Very Well (5)
When using Instagram, I compare how my loved ones (romantic partner, family members, etc.) are doing with how others are doing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When using Instagram, I compare how I do things with how others do things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On Instagram, I compare what I have done with others as a way to find out how well I have done something	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On Instagram, I compare how I am doing socially with other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On Instagram, I talk with others about similar opinions and experiences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On Instagram, I try to find out what others think who face similar problems as I face	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On Instagram, I try to know what others in a similar situation would do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When using Instagram, I try to find out what others think about something that I want to learn more about	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4. Below are a number of questions about you and your school education. In each case, please place a cross in the box that most closely matches your opinion (1 = Completely Untrue, 5 = Completely True)

	Completely Untrue (1)				Completely True (5)
My education gives me security in life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My education gives me self-confidence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My education makes me feel sure of myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My education gives me security for the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My education allows me to face the future with optimism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to find out a lot about my education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often reflect on my education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make a lot of effort to keep finding out new things about my education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often try to find out what other people think about my education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Completely Untrue (1)				Completely True (5)
I often talk with other people about my education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often think it would be better to try to find a different education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often think that a different education would make my life more interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In fact, I'm looking for a different education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5. Below are a number of questions about you and your best friend. In each case, please place a cross in the box that most closely matches your opinion (1 = Completely Untrue, 5 = Completely True)

	Completely Untrue (1)				Completely True (5)
My best friend gives me security in life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My best friend gives me self-confidence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My best friend makes me feel sure of myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My best friend gives me security for the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My best friend allows me to face the future with optimism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to find out a lot about my best friend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often reflect on my best friend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make a lot of effort to keep finding out new things about my best friend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often try to find out what other people think about my best friend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Completely Untrue (1)				Completely True (5)
I often talk with other people about my best friend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often think it would be better to try to find a different best friend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often think that a new best friend would make my life more interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In fact, I'm looking for a new best friend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6. Please state your age

- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17
- ☐ 18
- ☐ Other (Please State) _____

Q7. Please state your gender

- ☐ Male
- ☐ Female
- ☐ Other (Please State) _____

Q8. Please state your ethnicity

- ☐ White British
- ☐ Mixed/Multiple Ethnic Groups
- ☐ Asian/Asian British
- ☐ Black/African/Caribbean/Black British
- ☐ Other (Please State) _____

Thank you for taking part in this research. Should you feel like you need advice or support having completed this survey, the following services are available:

- NHS Leicestershire Partnership Trust: http://www.leicspart.nhs.uk/_OurServicesAZ-SchoolNursing.aspx | 0300 3000 007
- Childline: <https://www.childline.org.uk/> | 0800 1111

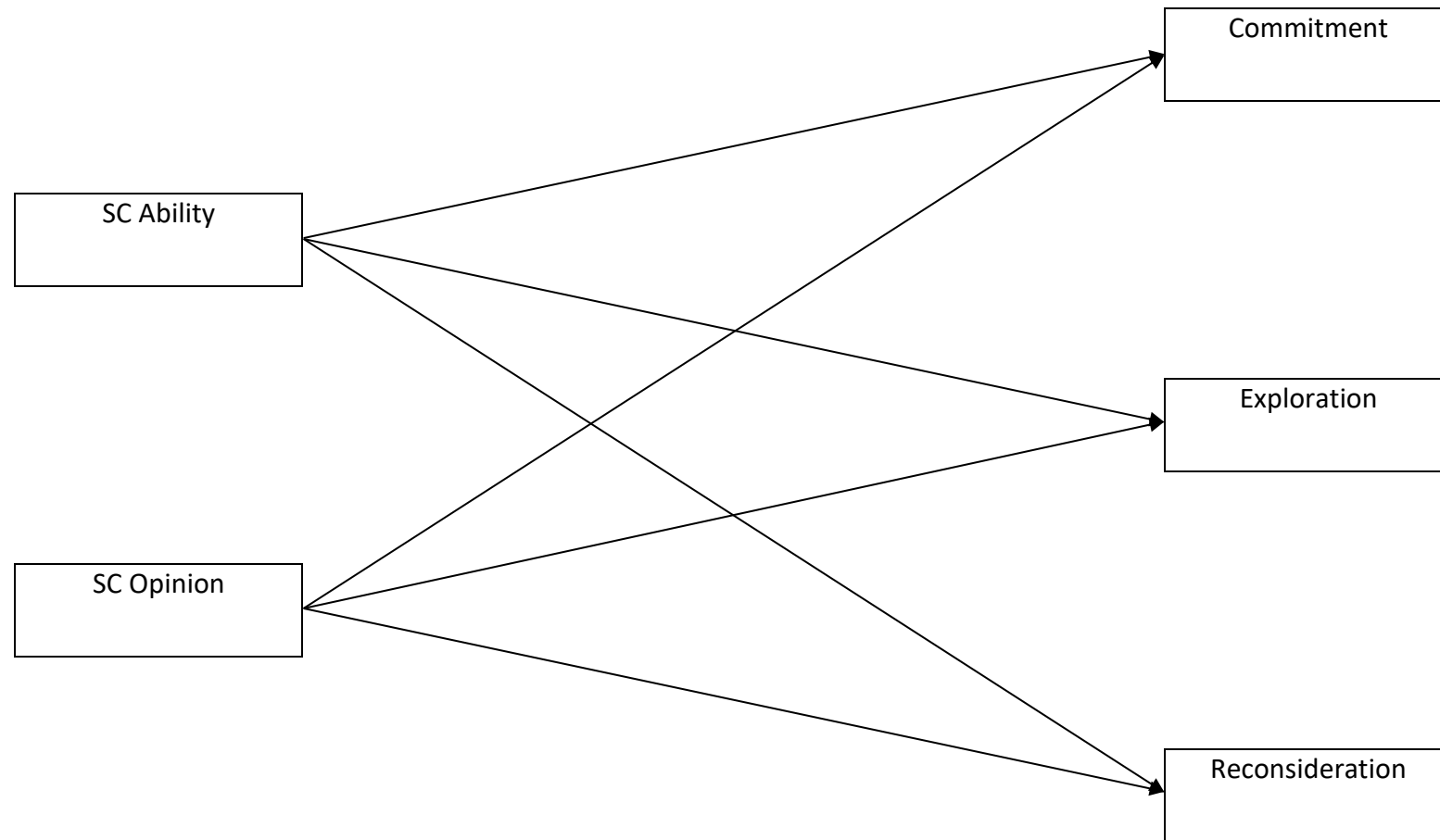
Please be aware that because this research is anonymous, should you return this completed survey, you will be unable to withdraw it from the study. You are under no obligation to return this survey if you do not wish to.

The results of this study will be reported back to your school and shared with you later in the academic year.

If you have any questions regarding this research, do not hesitate to contact the lead researcher, Edward Noon, via his email: e.j.noon@shu.ac.uk

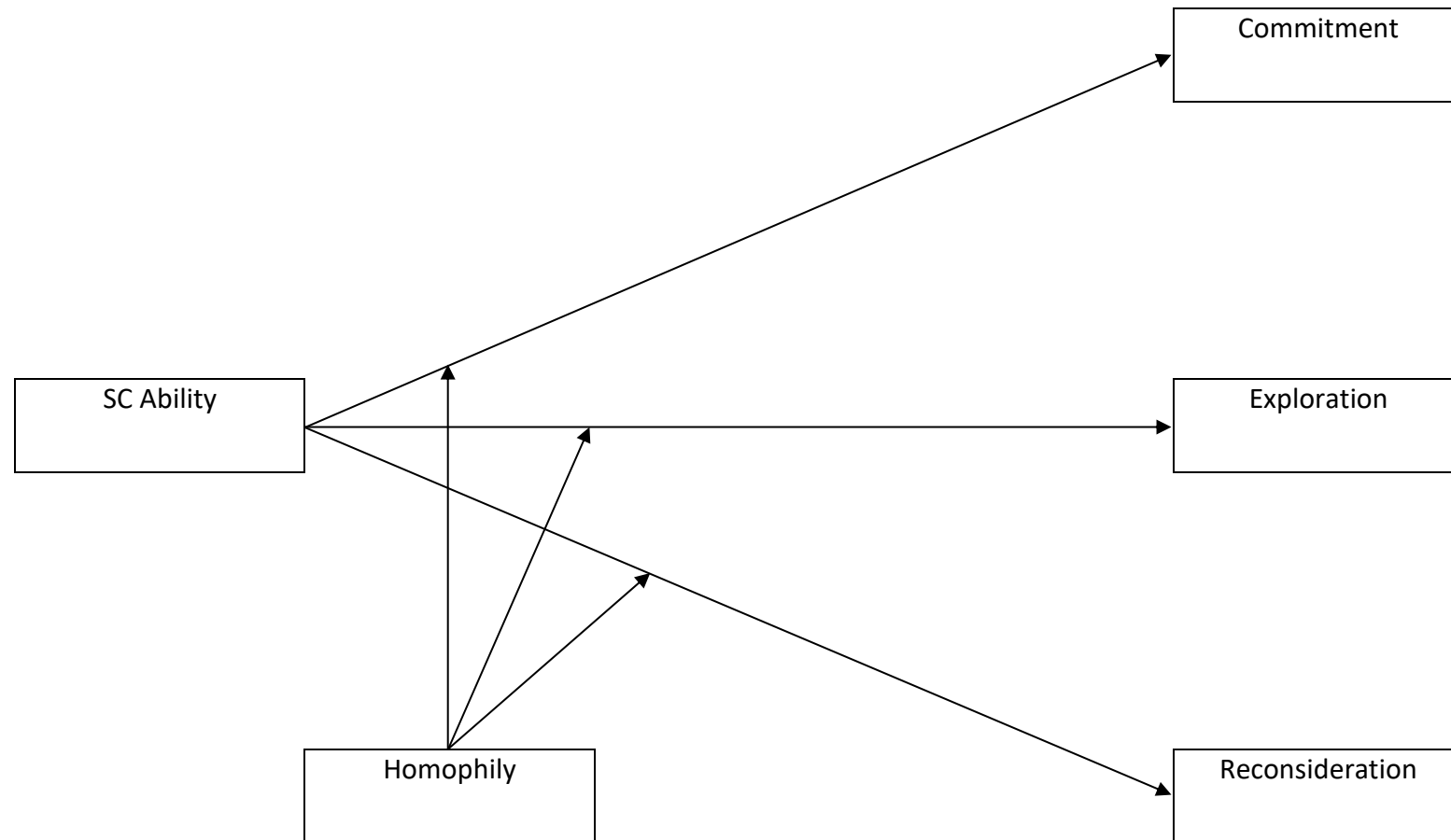
Thank you again for taking part in this survey.

A.4 Model One



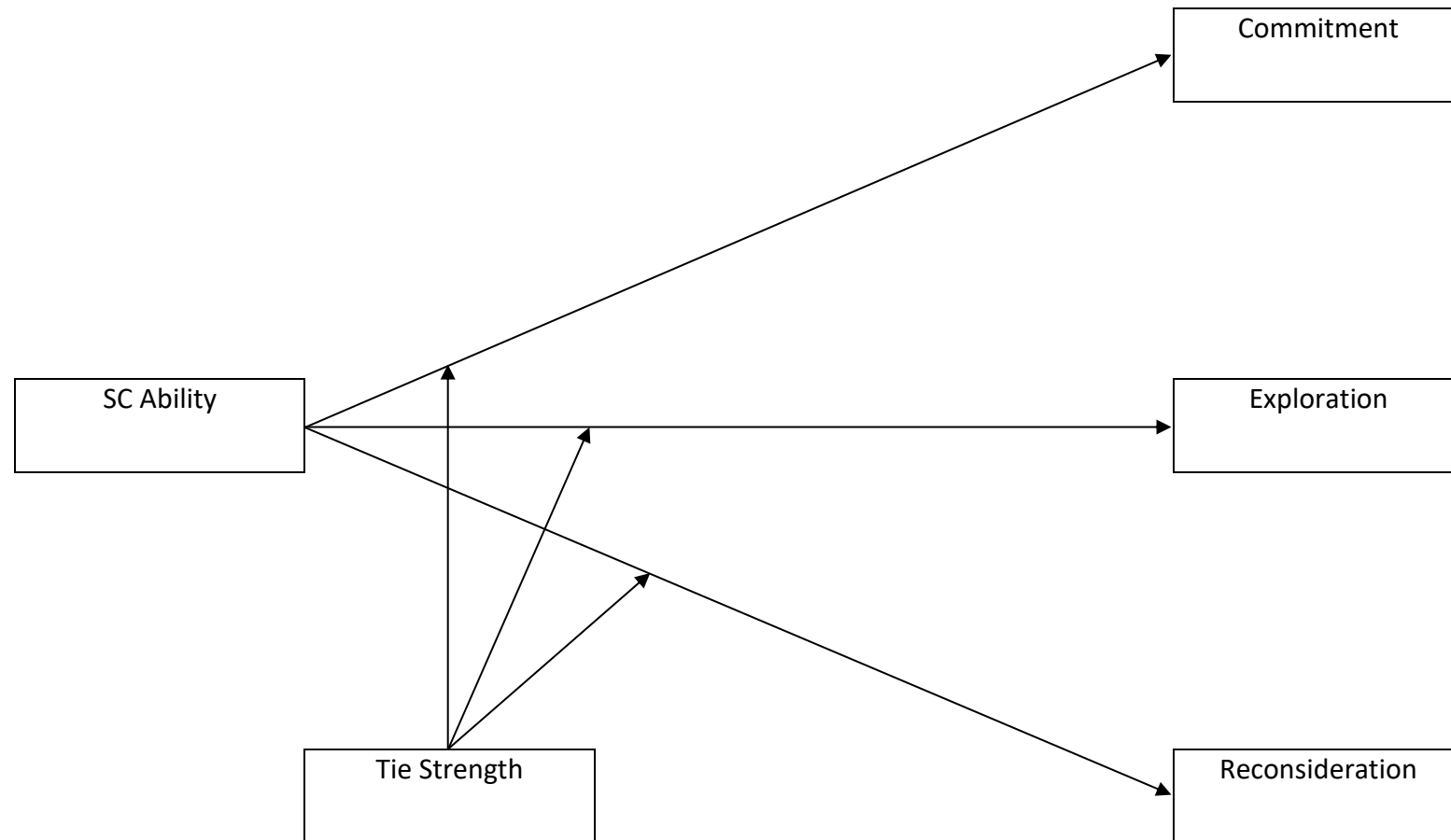
Note: For each path, the interaction effects of age (SC Ability*Age → Commitment; SC Ability*Age → Exploration...) and gender (SC Ability*Gender → Commitment; SC Ability*Gender → Exploration...) were also determined. For clarity of presentation, control paths are excluded. SC = Social Comparison.

A.5 Model Two



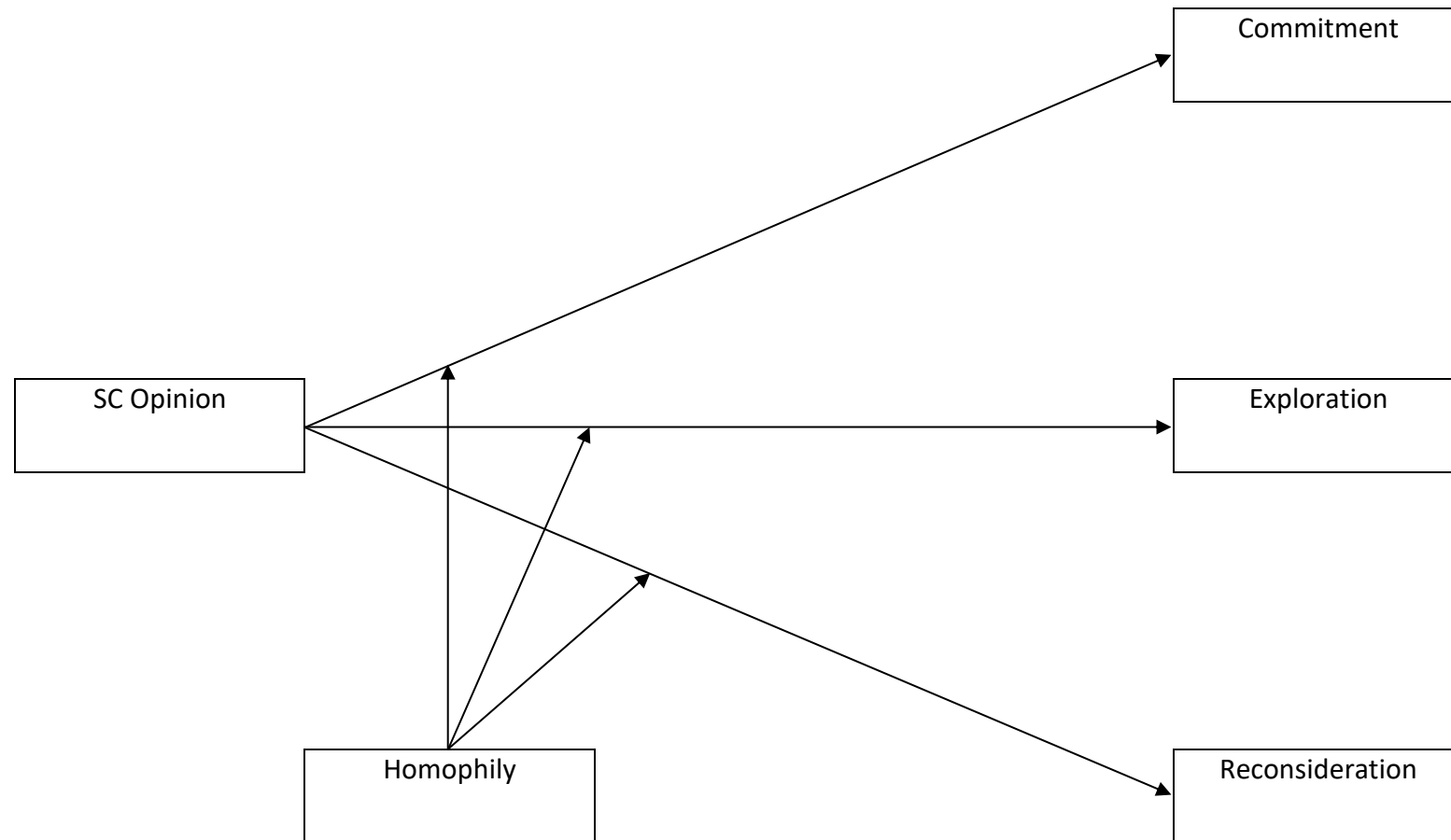
Note: For each path, the interaction effects of age (SC Ability*Age → Commitment; Homophily*SC Ability*Age → Commitment...) and gender (SC Ability*Gender → Commitment; Homophily*SC Ability*Gender → Commitment...) were also determined. For clarity of presentation, control paths are excluded. SC = Social Comparison.

A.6 Model Three



Note: For each path, the interaction effects of age (SC Ability*Age → Commitment; Tie Strength*SC Ability*Age → Commitment...) and gender (SC Ability*Gender → Commitment; Tie Strength*SC Ability*Gender → Commitment...) were also determined. For clarity of presentation, control paths are excluded. SC = Social Comparison.

A.7 Model Four



Note: For each path, the interaction effects of age (SC Opinion*Age → Commitment; Homophily*SC Opinion*Age → Commitment...) and gender (SC Opinion*Gender → Commitment; Homophily*SC Opinion*Gender → Commitment...) were also determined. For clarity of presentation, control paths are excluded. SC = Social Comparison.



Should you be interested in taking part, please let your form tutor know, and more information can be provided!

Contact: e.j.noon@shu.ac.uk

A.9 Interview Schedule

Statement ahead of think-aloud task

To start this interview, I would like to invite you to log in to your Instagram account on the iPad provided. Once you are in, you are free to scroll through your Feed, as you would normally. Without sharing any names, can you please describe the content that you see, and discuss how it makes you feel and think?

Prompts: Is (domain of content) of interest to you? Can you tell me more about that?

Interview schedule questions

Why do you use Instagram?

What do you consider when deciding who to 'follow' on Instagram?

Prompts: Who do you 'follow' on Instagram? Why do you 'follow' them?

Do you ever feel influenced by what you see on Instagram?

Prompt: How does Instagram content make you think/feel?

Offer participant opportunity to return to think-aloud task*

Do you ever compare yourself to others on Instagram?

Prompts: Who do you compare yourself to? What do you compare? How do these comparisons make you feel?

How do you think others present themselves on Instagram?

Prompt: Do you think Instagram content is 'realistic'? How does idealised content on Instagram make you feel?

Does Instagram have the same influence on males and females?

Prompts: Do you use Instagram differently to your (opposite gender) friends? Are there different pressures for (opposite gender)? Why do you think this is?

Do you ever compare yourself to close friends/family members on Instagram?

Prompts: What do your friends tend to post? How does that make you think/feel?

Offer participant opportunity to return to think-aloud task*

Have you ever changed your mind about something based on what you have seen on Instagram?

Prompt: Why did this influence your opinion?

Do you ever come across anything on Instagram that you disagree with?

Prompts: What did you disagree with? How did this make you feel?

Have you ever 'unfollowed' someone on Instagram for posting something that you disagree with?

Prompt: What did they post? Why did you unfollow them?

Offer participant opportunity to return to think-aloud task*

Finally, to conclude the interview, could you discuss the extent to which you believe that what young people see on Instagram influences who they are and who they aspire to be in the future?

Prompts: How does Instagram content tend to make young people feel about themselves? Do you think Instagram content can inform future goals?

*Remove if interview needs to be shortened due to time constraints

A.10 Quantitative Phase: Head Teacher Information Sheet



Edward Noon

Sheffield Institute of Education

Charles Street Building

Sheffield

South Yorkshire

S1 2NH

Email: e.j.noon@shu.ac.uk

Supervisors Email: g.h.merchant@shu.ac.uk

Dear [BLINDED],

As part of my doctoral research, I am conducting a study concerning the extent to which young people compare themselves to others on Instagram, and whether this process informs their identity development. I would like to invite students at your school to participate.

Having conducted both pilot studies at your setting, I am now progressing to the main studies. For the first main study, I would like to collect data through a survey instrument. The paper survey will contain a range of questions, including those which seek to learn more about who teenagers 'follow' on Instagram, how often they compare themselves to others on the platform, and their overall identity development. There will also be demographic questions concerning age, gender, and ethnicity.

As part of this study, I would like to invite all students in years 9-13 to participate. Data collection would occur during form time, as not to disturb students' lesson timetabling. Having collected the returned surveys, data will then be saved onto a password protected computer.

Upon completion of the study, I would like to return to the school to share my findings and thank the students for taking part. Completing the survey may be beneficial for those participating in the study by leading them to reflect upon their use of Instagram, to consider who they surround themselves with online, and to think about how this may influence who they are.

As Head Teacher, you will be required to give consent in *loco parentis* (in place of parents) before I can invite students to take part. Should a student wish to participate in the study, they will also be required to signal informed consent prior to taking part in the survey; once given the survey, students will be under no obligation to complete it. Survey responses will be anonymised, and the name of the school, form groups, and participants will not be mentioned throughout the entirety of my work. Although it will be ensured that questions are not worded in a manner which is likely to cause distress, should the survey have a negative impact upon participants, the survey will contain signposting for support services offered by the NHS and Childline. The survey is attached to the email containing this letter for you to view.

This study will have received ethical approval from the Sheffield Hallam Research Ethics Committee prior to data collection. However, if you have any queries or concerns regarding this study, please contact me on the email address provided at the beginning of this letter.

If you are interested in supporting my research, please sign the declaration below.

Thank you for taking the time to read this letter, and I look forward to hearing from you.

Yours sincerely,

Edward Noon

Declaration

I hereby give my consent for this research to be conducted at this setting. I understand that:

- Everything said and produced during this research will be anonymous
- Research findings will be used in future academic work
- The school can withdraw from the research without comment within seven days of the date of data collection. If done within this time frame, participants' contributions to the research will be deleted

I also give permission for the researcher to collect data from students at this setting, providing the students volunteer and provide informed consent.

Signed:

Date:

A.11 Qualitative Phase: Head Teacher Information Sheet



Edward Noon

Sheffield Institute of Education

Charles Street Building

Sheffield

South Yorkshire

S1 2NH

Email: e.j.noon@shu.ac.uk

Supervisors Email: g.h.merchant@shu.ac.uk

Dear [BLINDED],

As part of my doctoral research, I am conducting a study concerning the extent to which young people compare themselves to others on Instagram, and whether this process informs their identity development. I would like to invite students at your school to participate in the forthcoming phase of this investigation.

For this stage of the research, I would like to collect data through interviews with young people in years 9-13. During the interviews, young people will be invited to sign into their Instagram accounts, and discuss how what they see makes them feel and think. This exercise will be used as a prompt to aid discussion regarding the implications of social comparison behaviour of the platform. That is, the interviews will seek to explore why young people surround themselves with - and compare themselves to - certain others online, and the extent to which they believe that the content they compare themselves to influences who they are.

As part of this study, I would like to collect data from at least two young people from each year group. Interviews would occur during lunchtime, as not to disturb students' lesson timetabling. Interviews will be audio recorded and transcribed verbatim, and data will be saved onto a password protected computer.

Upon completion of the study, I would like to return to the school to share my findings with the participants and thank them for taking part. For taking part, participants will also be compensated with a £5 high street voucher. Participating may benefit young people by leading them to reflect upon their use of Instagram, to consider who they surround

themselves with online, and to think about how this may influence their identity development.

As Head Teacher, you will be required to give consent in *loco parentis* (in place of parents) before I can invite students to take part. Should a student wish to participate in the study, they will also be required to sign an informed consent form prior to the interviews. The interview transcripts will be anonymised, and the name of the school, form groups, and participants will not be mentioned throughout the entirety of my work. Although it will be ensured that questions are not worded in a manner which is likely to cause distress, should the interviews have a negative impact upon participants, the consent forms will contain signposting for support services offered by the NHS and Childline. The student consent form and the interview schedule is attached to the email containing this letter for you to view.

This study will have received ethical approval from the Sheffield Hallam Research Ethics Committee prior to data collection. However, if you have any queries or concerns regarding this study, please contact me on the email address provided at the beginning of this letter.

If you are interested in supporting my research, please sign the declaration below.

Thank you for taking the time to read this letter, and I look forward to hearing from you.

Yours sincerely,

Edward Noon

Declaration

I hereby give my consent for this research to be conducted at this setting. I understand that:

- Everything said and produced during this research will be anonymous
- Research findings will be used in future academic work
- The school can withdraw from the research without comment within seven days of the date of data collection. If done within this time frame, participants' contributions to the research will be deleted

I also give permission for the researcher to collect data from students at this setting, providing the students volunteer and provide informed consent.

Signed:

Date:

A.12 Qualitative Phase: Participant Information Sheet



Edward Noon

Sheffield Institute of Education
Charles Street Building
Sheffield
South Yorkshire
S1 2NH
Email: e.j.noon@shu.ac.uk

Dear Student,

You have been invited to take part in a research project concerning the extent to which young people compare themselves to others on Instagram, and whether this process informs their identity development

As part of the interview, participants will be asked to log in to their Instagram account and discuss how content they engage with on the platform makes them feel and think.

During our meeting, we discussed the interview process in more detail, and participants' rights concerning anonymity, confidentiality, and withdrawal were outlined. A reminder of these rights can be found on the following page of this letter in the 'Declaration' section.

If, following our meeting, you wish to take part in this research, you are required to give consent by signing the declaration below.

If you have any questions, please do not hesitate to contact me using the email address listed above.

Many thanks,

Edward Noon

Declaration

I hereby give my consent to take part in this study. I understand that:

- Everything said and produced during this research will be anonymous (I will not be named, nor will be form group or school)
- Data will be saved on a password protected laptop which only the researcher and his supervisory team will have access to
- Research findings will be used in future academic work. This may include short direct quotes from your interview
- Participation is voluntary (I do not have to answer every question, or any question, if I do not want to)
- I have the right to withdraw from this study within seven days of the interview date

Signed:

Date:

Should you wish to get some advice or support having completed this survey, the following services are available:

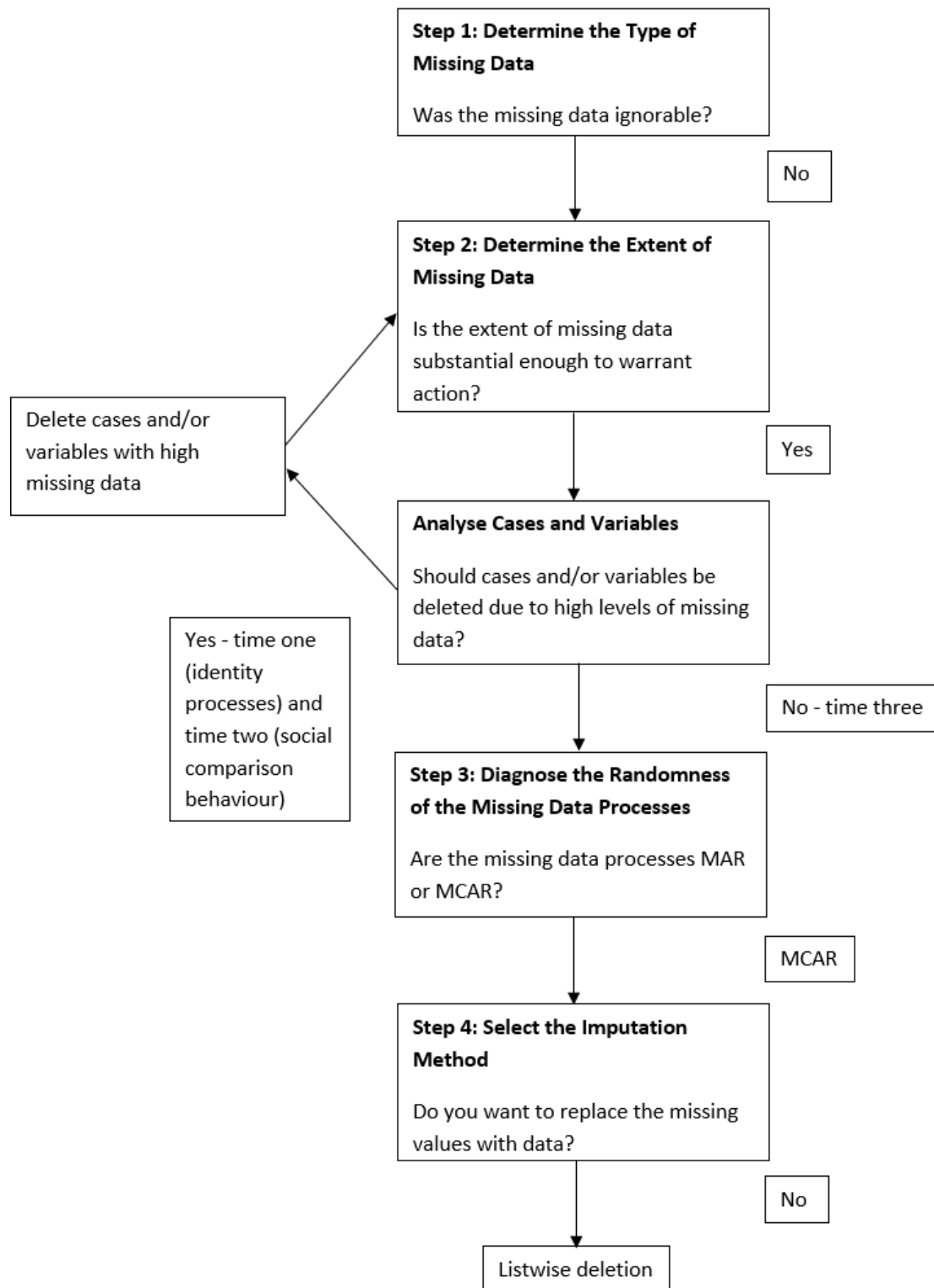
- NHS Leicestershire Partnership Trust: http://www.leicspart.nhs.uk/_OurServicesAZ-SchoolNursing.aspx | 0300 3000 007
- Childline: <https://www.childline.org.uk/> | 0800 1111

A.13 Qualitative Phase: Instagram Private Access Instructions

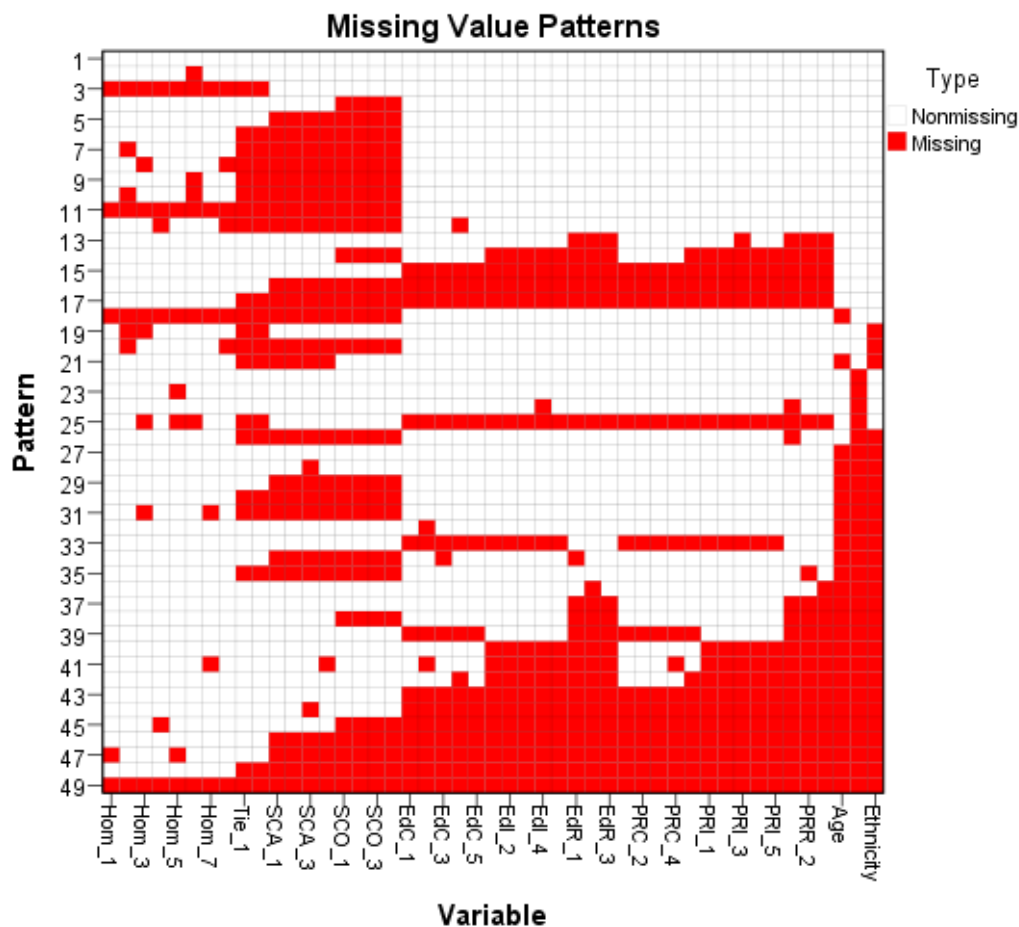
Private Browsing Protocol

- Open Safari on iPad
- In the bottom left-hand corner, press 'Private'
- Search for Instagram on Google
- Input username and password
- Do NOT tick 'remember password'
- Log in to Instagram
- Take part in the interview
- Logout of Instagram
- In the bottom right-hand corner, press the two square boxes
- Swipe the open tab to the left
- Close in private browsing

A.14 Four-Step Procedure for Handling Missing Data

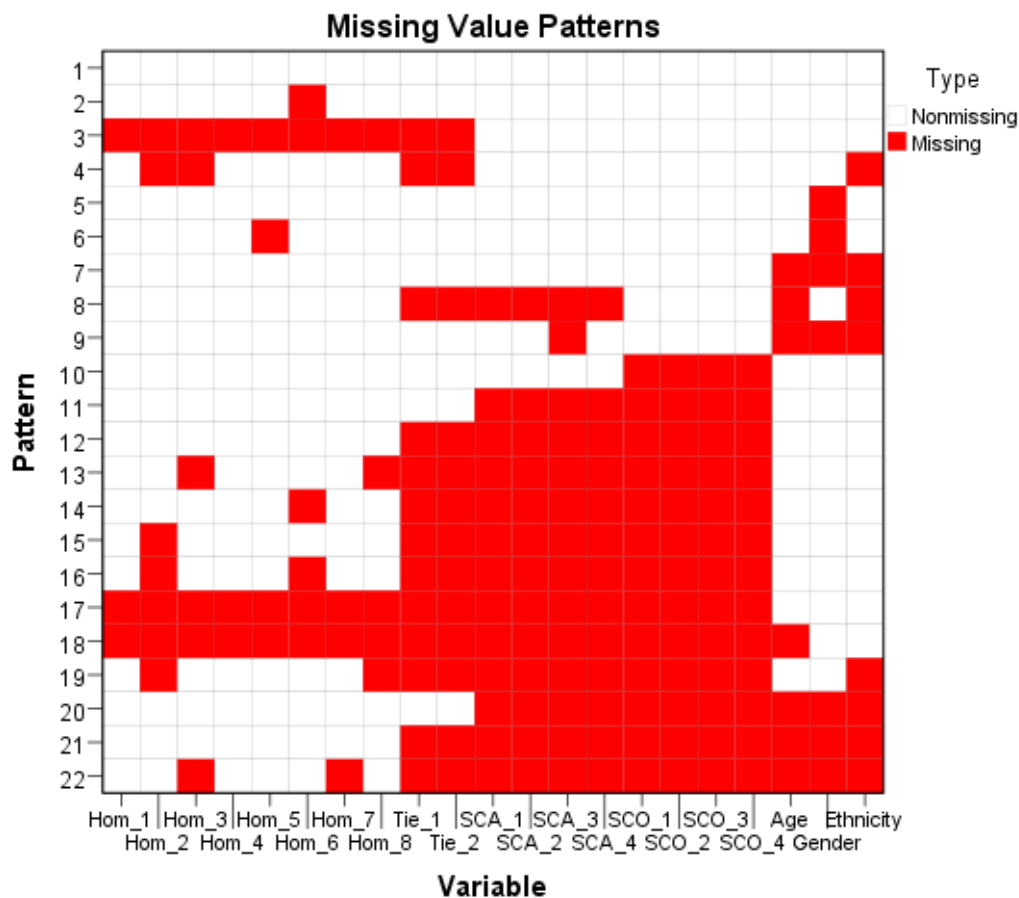


A.15 Visual Representation of Initial Missing Data Patterns



Note: The y axis outlines the amount of missing data patterns in the dataset, whilst the x axis refers to the specific items with missing data. Hom = Homophily, Tie = Tie Strength, SCA = Social Comparison of Ability, SCO = Social Comparison of Opinion, EdC = Educational Commitment, EdI = Educational In-Depth Exploration, EdR = Educational Reconsideration of Commitment, PRC = Peer Relational Commitment, PRI = Peer Relationship In-Depth Exploration, PRR = Peer Relational Reconsideration of Commitment. The number following the scale identifier refers to the item number on that scale. Given that the order of the variables on the x axis aligns with the order of the items in the survey, the large amount of red in the bottom right-hand corner indicates monotone missing data.

A.16 Visual Representation of Secondary Missing Data Patterns



Note: The y axis outlines the amount of missing data patterns in the dataset, whilst the x axis refers to the specific items with missing data. Hom = Homophily, Tie = Tie Strength, SCA = Social Comparison of Ability, SCO = Social Comparison of Opinion. The number following the scale identifier refers to the item number on that scale. The large block of red above the social comparison items indicates that several participants did not complete full (or even partial) responses for this scale.

A.17 Correlation Coefficients between Instagram Network Homophily Items and Instagram Tie Strength Items

	Tie Strength Item 1	Tie Strength Item 2
Homophily Item 1	.40***	.41***
Homophily Item 2	.40***	.45***
Homophily Item 3	.34***	.42***
Homophily Item 4	.48***	.41***
Homophily Item 5	.48***	.57***
Homophily Item 6	.40***	.53***
Homophily Item 7	.48***	.48***
Homophily Item 8	.56***	.57***

Note: Based on $N = 173$ participants following listwise deletion. * $p < .05$, ** $p < .01$, *** $p < .001$.

A.18 Standardised Betas for Relationship between Instagram Comparisons of Ability and In-Depth Exploration, at each Level of Instagram Network Homophily, for Male and Female Adolescents

Homophily	Gender	β	p
Low	Male	.36	.04*
Low	Female	-.01	.94
Average	Male	.19	.14
Average	Female	.16	.13
High	Male	.03	.88
High	Female	.34	.01**

Note: Based on $N = 173$ participants following listwise deletion. Low = -1 *SD*, Average = Mean, High = +1 *SD*. * $p < .05$, ** $p < .01$, *** $p < .001$.

A.19 Standardised Betas for Relationship between Instagram Comparisons of Ability and In-Depth Exploration, at each Level of Instagram Network Homophily, for Early, Mid, and Late Adolescents

Homophily	Age	β	p
Low	Early	.30	.06
Low	Mid	.15	.17
Low	Late	.002	.99
Average	Early	.20	.13
Average	Mid	.18	.04*
Average	Late	.15	.19
High	Early	.10	.55
High	Mid	.20	.06
High	Late	.30	.02*

Note: Based on $N = 173$ participants following listwise deletion. Early = -1 *SD*, Mid = Mean, Late = +1 *SD*. * $p < .05$, ** $p < .01$, *** $p < .001$.

A.20 Standardised Betas for Relationship between Instagram Comparisons of Opinion and Commitment at each Level of Instagram Network Homophily, for Male and Female Adolescents

Homophily	Gender	β	p
Low	Male	-.01	.96
Low	Female	-.44	.01**
Average	Male	-.08	.59
Average	Female	-.22	.08
High	Male	-.15	.48
High	Female	.01	.96

Note: Based on $N = 173$ participants following listwise deletion. Low = -1 SD, Average = Mean, High = $+1$ SD. * $p < .05$, ** $p < .01$, *** $p < .001$.

A.21 Standardised Betas for Relationship between Instagram Comparisons of Opinion and In-Depth Exploration at each Level of Instagram Network Homophily, for Male and Female Adolescents

Homophily	Gender	β	p
Low	Male	.42	.01*
Low	Female	-.12	.41
Average	Male	.13	.33
Average	Female	.13	.23
High	Male	-.16	.41
High	Female	.38	.01**

Note: Based on $N = 173$ participants following listwise deletion. Low = -1 *SD*, Average = Mean, High = +1 *SD*. * $p < .05$, ** $p < .01$, *** $p < .001$.

A.22 Standardised Betas for Relationship between Instagram Comparisons of Opinion and Reconsideration of Commitment at each Level of Instagram Network Homophily, for Male and Female Adolescents

Homophily	Gender	β	p
Low	Male	.54	.002**
Low	Female	-.10	.50
Average	Male	.33	.02*
Average	Female	.16	.16
High	Male	.12	.54
High	Female	.43	.003**

Note: Based on $N = 173$ participants following listwise deletion. Low = -1 *SD*, Average = Mean, High = +1 *SD*. * $p < .05$, ** $p < .01$, *** $p < .001$.

A.23 Example Partial Transcript from Think-Aloud Exercise (Emma, 17, Female)

To start this interview, I would like to invite you to log in to your Instagram account on the iPad provided. Once you are in, you are free to scroll through your Feed, as you would normally. Without sharing any names, can you please describe the content that you see, and discuss how it makes you feel and think?

So, I quite like makeup, and I'm seeing a little kid in Halloween costume and it is quite cute, and also very much quite cool makeup, so I enjoy that. Love Island stars, always doing ads - there are times where brands are promoting like clothes, and I see the site they are mentioning, and I get bored of the same places to buy clothes, so when I see the site they use, I go on and have a little mooch.

I always get really jealous when I see other people go on holiday. I haven't gone on holiday this year, and yeah, there's another one as well. I want to go on holiday. I would like a tan. I get quite sad that I have to pay to get a tan rather than get one because of the weather. Over the summer I got really, really bored of seeing people all the time in holiday photos, because I would just work the whole time. They were having so much fun and I was just sitting in my office looking at Instagram. It is one of those things. If we're being completely honest, before I go to a party or something, I think 'I'm going to go and have a tan'. The pictures on Instagram make me think that people look better with a tan, so if I have one, it just makes me feel a bit more confident.

So, is it the holiday in the picture or is it just them having a nice time and looking 'good'?

It could be both, you know. I always say that I want to go on holiday, but when I am on holiday, I always think I'm bored and I want to go home. I think it is just seeing people having a nice time on holiday, because a lot of people have siblings they go on holiday with, and I think it will be nice to go on holiday with a sibling that would like to spend time with me. Instead, my brother is a bit of an annoyance. I think it just would have been nice going out with my family this year, but they were just very busy. So, seeing everyone else on holiday online was just a bit of a kick in the teeth. I was lonely because everyone was on holiday.

A.24 Initial Template

Theme	Sub-Theme
1. Instagram Social Comparisons of Ability	1. Temporality of Comparisons
	2. Developmental Differences and Perceived Similarity
	3. Relational Closeness
2. Instagram Social Comparisons of Opinion	1. Developmental Differences and Perceived Similarity

A.25 Hierarchical Coding Example

Participant	Quote	Code(s)	Higher Order Code
Charlie, 15, Male	Photography, maybe [is a career option]...that's all cus of Insta though. Like you see all these amazing places and I am just like 'I would like to go there', or 'that looks nice', 'I want to go there'. If I hadn't seen all of this on Instagram, I think I would be looking at different careers. Without it, I wouldn't have known what is out there to see, or what I need to do as part of it, or what is or is not good. So, I definitely see like a lot of new places or activities on the app, and like equipment and tips. Whether it's a long-term option I dunno, but I think I could...	Reflection regarding distant future targets (career) Very tentative and upward in nature Aspirations seem largely driven by Instagram use	Distal self
Evie, 14, Female	I dunno exactly [what I want to do for a job]...but you see stuff and think that you could probably do that. Like I really like hair and make-up, so it's interesting to see tutorials put on Insta. I watch a lot of that on Insta, then I have like my favourite one's [make-up artists] that I watch on YouTube too... I follow some film studio accounts on Insta too and sometimes they put the backstage stuff up which is good...costumes and make-up, things like that... I obviously can't do that yet, but who knows?	Distant future career targets Upward in nature and tentative Follows others on alternative platforms to learn more – further in-depth exploration	Distal self
George, 18, Male	A couple of my friends have siblings at medical school, and I have followed them. They don't post a lot though. When they do post, it's good because it shows me what it's going to be like, and that can help me decide...whether it would	Proximal education-related target Upward in nature	Proximal self

	be a challenge for me. That's just like another avenue for learning more about it	Enhances confidence in ability to succeed and desire to begin course	
Kimi, 17, Female	<p>...[on Instagram, you see] like people you know getting into uni or graduating and stuff like that. Your friends doing well, I think. You feel happy for them, but then you also want to do something good, so you don't feel like you are not doing as well as them</p> <p>...this girl is from the year above and I am kind of friends. ...She has posted in her Story lots about her exams going awful and the fact she doesn't think she will get into uni now. I am defo not inspired to be like that. It stresses me out a bit cus I don't want to be like that and be worrying. All her friends comment about...they tell her not to worry and maybe she is alright, but I don't want to be worrying like that, I think. ...Better get the revision books out!</p>	<p>Upward comparisons regarding educational goals</p> <p>Motivates participant to achieve their goals and to avoid feelings of inferiority - importance of peer pressure/status during adolescence?</p> <p>Downward comparison regarding future educational goals</p> <p>Fearful of similar fate, and whilst likely joking about immediate behaviour, appears willing to take action to avoid disappointment</p>	Proximal self

Note: The fifth participant in the initial subset (Aimee, 16, female) discussed neither distal nor proximal ability comparisons.

A.26 Final Template

Theme	Sub-Theme	Higher-Order Code
1. Instagram Social Comparisons of Ability	1. Role Models	1. Distal Self 2. Proximal Self
	2. Current Self	1. Gender Differences 2. Possible Explanations
	3. Relational Closeness	1. Reflection 2. Comparison
2. Instagram Social Comparisons of Opinion	1. Similar Opinions	1. Preference Assessments 2. Belief Assessments 3. Preference Predictions
	2. Dissimilar Opinions	

A.27 Example of Note-Making Process (Kimi, 17, Female)

Do you ever compare yourself to anyone on Instagram?

I think it is almost impossible not to on some things, like it's inevitable. Like, it's all pictures isn't it, so you can easily end up comparing like your hair or makeup or clothes or whatever. You will see an outfit, compare it to what you have on or at home, and if you think that's better, you would get it for yourself.

EN

Edward Noon

Upward comparisons – hair/make-up/clothes, relating to feminine gender role?

Do you ever compare anything that isn't visual?

I don't know. Sometimes you see other people doing well and that makes you want to do well too I guess, but is that comparing?

It could be. What do you see that spurs you on?

I don't know...like people you know getting into uni or graduating and stuff like that. Your friends doing well, I think. You feel happy for them, but then you also want to do something good, so you don't feel like you are not doing as well as them.

EN

Edward Noon

Upward comparisons regarding education

Motivates participant to achieve their goals and to avoid feelings of inferiority - significance of peer pressure/status during adolescence?

So, is it inspiration?

Yeah, I guess, it like pushes you to want to do a bit more or chase your own targets a bit. But then there is people on Instagram who I wouldn't want to be like!

Tell me about them?

Ok give me a sec, let me find...this girl is from the year above and I am kind of friends. Like, if I walked past her I would say hi, but it's not like we are close. Anyway...you get it? She has posted in her Story lots about her exams going awful and the fact she doesn't think she will get into uni now. I am defo not inspired to be like that. It stresses me out a bit cus I don't want to be like that and be worrying. All her friends comment about...they tell her not to worry and maybe she is alright, but I don't want to worrying like that I think.

EN

Edward Noon

Downward comparison regarding future educational goals

How does that make you feel about yourself?

Happy that I not in that position haha! I shouldn't laugh, no, that's mean - she is a nice girl. But you know, I don't want to be like that. Better get the revision books put! But that is not until next year those exams, but it is good to see that now as I don't want that to happen to me.

EN

Edward Noon

Fearful of similar fate, and whilst perhaps joking about immediate behaviour, appears willing to take action to avoid disappointment