

What's In a Post? Adolescents' Social Media Response Motivations, Perceptions of Response
Motivations, and the Role of Individual Characteristics

by

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Examining Committee Membership

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Author's Declaration

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Statement of Contributions

Celina Bowman-Smith was the sole author for *Chapter One: General Introduction*, *Chapter Three – Study Two: Features of Social Media Posts*, and *Chapter Four: General Discussion*. These chapters were written under the supervision and guidance of Dr. Elizabeth Nilsen and were not intended for publication.

Chapter Two – Study One: Adolescents' Response Motivations and Perceptions is intended for publication and co-authored with Dr. Elizabeth Nilsen at the University of Waterloo. Celina Bowman-Smith designed the study with consultations from Dr. Nilsen and the University of Waterloo's Psychology IT department who designed the social media app utilized in the study. Celina Bowman-Smith was responsible for data analysis with consultation from Linda Sosa-Hernandez from the University of Guelph. Celina Bowman Smith drafted the manuscript chapter, to which Dr. Nilsen contributed intellectual input. Dr. Nilsen provided guidance and/or input during each step of the research process and provided feedback on draft manuscripts.

Abstract

As the questions of ‘*why*’ and ‘*how*’ adolescents use social media are more informative for understanding socio-emotional outcomes than the amount of time spent on social media, there have been recent calls for experimental studies of youths’ social media experiences. In the present studies, I examined what responses adolescents hoped to receive from others, and the degree to which other users could detect these wanted responses from their social media posts and the characteristics of youth associated with such motivations and perceptions. I further examined the themes, linguistic features, and emotional valence adolescents included in their social media content, and examined relations between the generated content and the characteristics of posters associated with motivations and perceptions. Adolescents (ages 13-16; $N=103$) participated in a simulated Instagram task where they created social media posts and indicated the degree to which they hoped to receive engagement, advice, support, or entertainment from others for each post, as well as the level of insight they felt they had into their own motivations. Adolescents reported wanting others to engage and be entertained more than they wanted to receive advice and support. Adolescents’ individual characteristics (i.e., social media use, peer relationships, empathy, mood, and emotion regulation) differentially related to what they hoped to receive from others. In a second phase, adolescents (ages 13-17; $N = 88$) viewed posts from others and rated what they felt the poster had hoped to receive. While the posters’ report and viewers’ ratings correlated, for all response options, adolescent viewers perceived that the poster wanted less of a response than the poster indicated wanting. In the content analysis (816 posts, $N = 102$), adolescents tended to create social media content that included little to no emotion words, disclosed very little/nothing to a moderate amount of personal information, was literal in its communicative intent, and tended to convey a congruent

affect between caption and picture. These features suggest adolescents tend to create social media posts that are consistent with social media norms to avoid emotional posting or disclosing sensitive information to large online audiences. Adolescents' individual characteristics (i.e., empathy, online and offline peer experiences, emotion regulation skills, mood, and social media use) were associated with their created social media content. Together findings highlight the variability in motivations for social media use based on adolescents' characteristics and suggest a mismatch between motivations from posters and perceptions from online viewers. This work adds to a growing body of literature examining how adolescents navigate their complex, and increasingly online, communicative interactions.

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Dedication

I dedicate this dissertation to my father, Steve. I am endlessly grateful for your life lessons, sacrifices, unwavering support, and words of encouragement through moments of challenge. Everything you've done, and continue to do, has made this adventure possible.

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List of Abbreviations

FOMO	Fear of Missing Out
MMSMU	Multidimensional Model of Social Media Use

Chapter One: General Introduction

Social media use is nearly ubiquitous among adolescents, with 99% of Canadian youth aged 15-24 reporting regularly using social media (Statistics Canada, 2024). As youths' interactions with peers have increasingly transitioned online in recent decades, hundreds of studies have been published on the outcomes of social media use on adolescents' well-being, ill-being, and mental health (see Valkenburg et al., 2022 for a review). Parents, educators, policymakers, and youth themselves report concerns with screen time and the potential risks of being constantly connected in a digital world (Weinstein & James, 2022). Parents are often inundated with information about the harms of screen time and how to manage their teen's online habits. However, with social media platforms constantly evolving it can be challenging for parents, educators, policymakers, and researchers to fully understand the digital dilemmas that youth are facing online. Given that youth themselves report duality online, with positive, negative, and neutral online experiences, it is essential to elucidate the nuances in experiences that exist in adolescents' social media ecosystems (Weinstein & James, 2022).

Overarching Aims of the Present Research

My dissertation broadly focuses on adolescents' online motivations and perceptions while engaging in social media activities. First, I examine adolescents' understanding of what they want to receive from others during the process of posting and viewing social media content. Second, I examine how adolescents perceive what posters hope to receive based on their social media posts. Third, I examine whether adolescents' characteristics relate to their motivations when posting on social media. Fourth, I seek to examine the themes and features (linguistic and emotional) of adolescents' generated social media content and explore whether variability in content relates to adolescents' characteristics. Within the context of my dissertation work, the

term *motivation* is used to describe what adolescents hope to receive from other users in response to their posts, and *perception* refers to users' understanding of original posters' response motivations. While extant research is foundational to our understanding of youths' online experiences, there is a need to move beyond time spent on social media (and self-reporting of online behaviour) to begin to fully understand youths' nuanced experiences online. My dissertation addresses this need by simulating social media experiences in an experimental paradigm to capture adolescents' insights, motivations, and perceptions while engaged in the activity of posting online or viewing online posts.

In Chapter One, I provide conceptual background to my research, first discussing adolescents' general use of social media currently and historically, then presenting theories and a framework of social media use (and impact on users), discussing methodological issues in this field, and then outlining adolescent motivations for using social media, and individual characteristics that influence online communicative behaviour. In Chapter Two, I present findings from my two-phase study investigating youth's motivations when posting on social media, the transparency of these motivations to other users, and individual characteristics that influence youths' motivations. Chapter Three explores themes and linguistic styles adolescents used in social media posts created on a simulated Instagram application. In Chapter Four, I provide an overview of the practical, theoretical, and clinical implications of my work in addition to limitations and future directions.

Defining Key Construct & Social Media Context

What is *social media* exactly? Social media is a term defined by the American Psychological Association as “forms of digital communication through which users create online communities to share information, ideas, personal messages, and other content” (n.d.a).

However, there has been considerable debate over the past 25 years on how social media use is defined in the literature. For instance, a recent study investigating trends in social media definitions from 1994-2019 found that prior to 2010, social media were defined as communication tools for users with common interests to connect with like-minded users. However, after 2010, the way social media was being utilized shifted dramatically and the focus became on generating, posting, and engaging with online content (Aichner, 2021). It is important to understand both current and historical definitions of social media, and the context in which interactions were occurring, to interpret and generalize results regarding outcomes for adolescents' well-being. For instance, in early literature (1990s) documenting the harmful effects of social media use on youth, online interactions primarily occurred with strangers in chat rooms or online forums and online and offline contacts were quite separate (Valkenburg & Peter, 2009). This was largely because many of one's offline networks did not yet have access to the internet (Mesch, 2001), and several empirical studies found that internet use was negatively related to social connectedness and well-being (Kraut et al., 1998; Nie, 2001). Today, adolescents use social media primarily to connect and strengthen preexisting relationships with friends and family and research has demonstrated that this shift has resulted in fostering, rather than attenuating, social connectedness and well-being (see Valkenburg & Peter, 2009 for a review). Yet, social media use has also been linked to feelings of loneliness and poor mental health in general such as depression, and anxiety for users who overuse or misuse social media (Twenge et al., 2018; Zhang et al., 2022). More specifically, negative well-being outcomes are associated with youth who engage with social media in a particular way: using social media excessively (displacing face-to-face interactions; Kross et al., 2013), engaging in negative social comparison online (Vogel et al., 2014), having a fear of missing out (FOMO; Przybylski et al. 2013),

engaging in passive and superficial exchanges online (e.g., liking a post compared to deeper interactions such as meaningful comments or private messaging; Hunt et al., 2018; Kross et al., 2013).

General Social Media Use

With respect to how much time adolescents are spending online, 46% of adolescents reported they are online ‘almost constantly’ and 96% of youth reported being daily social media users (Pew Research Centre, 2024). Yet the amount of time youth spend online was found to differ by race, ethnicity, and age. That is, Hispanic and Black youth were more likely to report that they are online almost constantly than White youth. Further, older adolescents (aged 15 to 17) were more likely than younger adolescents (aged 13 to 14) to report being online almost constantly (Pew Research Center, 2024).

Currently, platforms such as YouTube, TikTok, Instagram, and Snapchat are the most popular platforms among adolescents aged 13-to-17-years-old (Pew Research Center, 2024), yet usage of certain apps is found to differ by gender, age, and demographic characteristics of youth. For instance, girls are more likely than boys to report using TikTok, while boys report using YouTube more than girls (Pew Research Centre, 2024). Further, older adolescents are more likely than younger adolescents to use social media platforms in general (Pew Research Centre, 2024). Teens from lower-income households also self-report using platforms such as Facebook and TikTok more than those in high-income households (Pew Research Centre, 2024). While these statistics give us a general sense of what platforms are popular among youth, the reality is that media users typically use multiple social media platforms simultaneously, given that these platforms serve different functions and offer different opportunities (Zhao et al., 2016).

Historical Context & Methodology

Early communication and media effects research utilized idiosyncratic approaches and focused on individual cases and qualitative interviews to explore differences and commonalities across users' experiences (see Valkenburg et al., 2024 for history). In the early 2000s, there was increased recognition in the social media literature about the differential susceptibility to media effects, and a group-differential approach allowed exploration into which youth were more or less susceptible to the benefits and risks of social media (Valkenburg & Peter, 2013; Valkenburg et al., 2024). Hundreds of studies have been published on the impact of social media use on well-being and ill-being in recent years, with mixed findings and methodological challenges. For instance, many studies find negative, neutral, or positive effects of social media use on well-being and mental health, with relatively small effect sizes (see Valkenburg, 2022 for an umbrella review). Much of the literature includes cross-sectional studies and limited longitudinal or experimental research designs and causal conclusions cannot be drawn. Further, many studies rely on measures of time spent on social media rather than content or use-based measures which are greater predictors of well-being and ill-being for youth (Valkenburg, 2022). Lastly, much of the social media literature ignored individual or intraindividual differences as important predictors of well-being. More recent integrative theories of social media use may explain why such mixed findings have emerged within the existing literature (Coyne et al., 2020; Weinstein & James, 2022; Yang et al., 2021).

Early research focused on the effects of screen or social media time specifically, but it became apparent that this was too crude and called for more fine-grained measures of social media use. It is now clear that *how* (i.e., online activities), *why* (i.e., motives), and *with whom* (i.e., social partners) teens are engaging online is much more predictive of well-being and ill-

being than *how much* time youth spend on social media (Weinstein & James, 2022; Yang et al., 2021). To illustrate this concept, consider a teen who spends 3-5 hours per day on screens chatting on social media with friends, texting their parents, researching a topic for school, and seeking out humorous content on social media for entertainment. Now consider a teen who spends 30 minutes per day visiting Pro-Ana websites, learning about thin body ideas and maladaptive means of achieving such ideals (Mento et al., 2021), or scrolling social media comparing their body to heavily filtered and altered influencers and celebrities. While the second teen is well within popularized recommended screen time limits, the outcome of these experiences and consequences to well-being are likely greatly different for each of these youth.

In recent years, there has been a call in the literature for more fine-grained measurement of social media use into the between-person and within-person methods of analysis (Parry et al., 2022). That is, methods that rely less on retrospective self-reported online behaviour and time spent on social media such as experimental paradigms and phone-based experience sampling tools (Valkenburg et al., 2024). For example, Ecological Momentary Assessment (EMA) captures smartphone use in the moment and delivers surveys to users or records screen use (Minich & Moreno, 2024). Further, in an attempt to understand content and messages on social media, methodological approaches recently suggested in the literature include vignettes of social media posts (Meier et al., 2020) or dynamic mock-up studies where participants create their own posts (Meier et al., 2024). This latter approach is utilized in the present body of research.

Frameworks and Theories of Social Media

Several theories of social media use exist, yet there lacks a unifying integrative framework comprehensive enough to capture the multifaceted digital lives of youth that researchers can agree on. It may be the case that it is difficult to create a framework that applies

to the “average” adolescent on social media because there is no such thing as an average adolescent online experience (Janssen et al., 2024). It has been well established that while there are commonalities online there is also much variability in online exchanges, shaped by factors such as users’ characteristics, context, and social communicative partners leading to different experiences and outcomes (Yang et al., 2021) for youth.

Three Lenses Framework

Historical definitions of social media illustrate the need to consider the context in which social media use is occurring in order to interpret outcomes and implications for adolescents. An integrative framework proposed by researchers Weinstein and James (2022), useful for contextualizing the present research, discusses three lenses essential for understanding adolescents’ online environments and digital lives. A strength of this framework is that it is not specific to social media use but speaks to online communication and technology use more globally taking a macro/micro perspective. A *digital* lens allows for an understanding of how built-in design features of social media apps and online communication make it a distinct interpersonal context for adolescents. A *developmental* lens provides an understanding of why adolescents may be more vulnerable to the pull of the screen and communicate differentially from adults. Lastly, an *ecological* lens considers that online communication does not exist independently, but is interconnected with contextual factors, personal characteristics, social partners, and offline social experiences. These lenses will be discussed in turn below, but it is important to note that integrating these perspectives is crucial for elucidating the complex nature of adolescents’ digital lives to support youth in navigating online environments, digital dilemmas, and using technology skillfully.

Digital Lens. The Transformation Framework of social media communication theorizes

that several notable features of online communication interact to create a distinct interpersonal context that transforms adolescents' peer relationships and social exchanges in meaningful ways (Nesi et al., 2018). These distinct features of social media include *asynchronicity* (i.e., time-lapse between exchanges, editing self-presentation), *availability* (i.e., ease of accessing and sharing content, constant connection), *permanence* (i.e., content existing in cyberspace indefinitely even after deletion), *social cue absence* (i.e., absence of eye contact, verbal, and paralinguistic cues), *quantifiability* (i.e., social metrics such as likes, friendship streaks, number of friends), *publicness* (i.e., content posted for a large audience), and *visualness* (i.e., emphasis of photos and videos). Additional key features of online communication discussed in the literature (Weinstein & James, 2022) also include *scalability* (i.e., the reach of online content can be wide), *replicability* (i.e., content can be shared, copy/pasted, or screenshotted easily), and *social algorithms* (i.e., algorithms shape the content users are exposed to online). These features interact to transform adolescents' social experiences by increasing the frequency and immediacy of social experiences, amplifying social demands and expectations, altering the quality of interactions with peers, fostering opportunities for compensatory social behaviours, and lastly, opportunities for novel social behaviours (Nesi et al., 2018).

These features also interact to create the online disinhibition effect (Suler, 2004), the tendency to be less inhibited and concerned with the consequences of one's behaviour within an online context compared to offline. This can result in users communicating or behaving in ways online that they would not engage in offline. This effect can result in benign disinhibition (e.g., relationship-enhancing self-disclosure) but may also lead to toxic disinhibition (e.g., cyberbullying), which can be damaging to adolescents' well-being (Suler, 2004). Past research has found that lack of eye contact (i.e., cue absence) has been found to be the strongest predictor

of the toxic online disinhibition effect (Lapidot-Lefler & Barak, 2015), suggesting that social cues are an essential factor in facilitating social exchanges that are beneficial for youths' well-being. Indeed, preliminary evidence finds that following perspective-taking prompts on Snapchat; while controlling for a time-delay, adolescents chose more prosocial comments to send to other social media users (Bowman-Smith et al., 2021). However, reducing screen time is potentially a more complicated task than simply unplugging when platforms are designed to capture users' attention for extended lengths of time and keep them coming back to these platforms. Adopting a digital lens allows us to understand some of the dilemmas and pressures adolescents face on social media daily. Relevant to the present work, these features of online communication may make it challenging for viewers to interpret posters' motivations in response to their social media content.

Developmental Lens. During adolescence, youth are more sensitive to social pressure, peer opinion, and feel emotions more deeply (Weinstein & James, 2022). On a biological level, adolescents' developing brains are more susceptible to the pull of the screen and the social pressures they face online (Weinstein & James, 2022). Parents may wonder why their teens engage in risky online behaviour (e.g., sexting, disclosing sensitive information) when they have set rules or had conversations about their expectations for online behaviour. Adolescents have been found to have a neural reward bias and a behavioural bias towards immediate rewards (Hansen et al., 2019). Social media provides many opportunities for seeking and obtaining immediate rewards such as posting a picture online and getting likes or comments within seconds of posting. In addition to these reward and behavioural biases, adolescents' self-regulation skills are undergoing developmental changes and do not fully mature until young adulthood (Arain et al., 2013). An fMRI study that simulated Instagram found that viewing photos with greater likes

(including risky photos) led to greater activation of reward processing, social cognition, imitation, and attention regions for adolescents. Further, when adolescents viewed pictures of risky behaviours specifically (e.g., drinking, smoking), activation in the cognitive-control network decreased (Sherman et al., 2016). This reward bias, underdeveloped self-regulation, and the social pressures salient in adolescence interact to create opportunities for engaging in risky behaviour and reinforce this behaviour when teens' actions are rewarded (e.g., social engagement with their online content). Adolescents' developing brains and socio-cognitive skills make them more susceptible to the allure of the digital features discussed above. Given the vulnerability of this developmental stage, I investigated my research questions within an adolescent sample to elucidate adolescents' motivations when posting online, the transparency of such motivations to other viewers, and the individual characteristics of youth that influenced what they hope for in response to their online content.

Ecological Lens. Adolescents' digital lives and social media experiences exist within a larger ecological context. Bronfenbrenner's Bioecological Model of Human Development posits that development is shaped by several interconnected environmental systems and social relationships within these systems (Bronfenbrenner & Morris, 2006). Within a child's immediate environment, they have direct and bidirectional relationships and interactions with friends, family, parents, teachers, coaches, and even neighbours that shape development. However, development is also shaped by more distant or macro-level factors such as laws and policies, mass media, distant family, dominant social norms, culture, and economic standing. Within their Three Lenses framework, Weinstein and James (2022) consider this theory within the context of social media use. For instance, the strong influence peers and friends can have on adolescents engaging in risk-taking behaviour (e.g., sexting) or engaging in activism online. Individual

characteristics that shape offline lived experiences such as gender, race, and identity also shape online experiences and influence how teens navigate their online digital lives in addition to their offline lives. While it was once thought that online and offline lives exist in isolation, it is now thought that adolescents' online and offline lives heavily overlap and mirror each other (Reich & Subrahmanyam et al., 2012). In addition, adolescents' online experiences are also shaped by their economic resources and socioeconomic factors. While there is a decreasing gap in access to digital technology, there is an increasing digital literacy gap and access to economic resources and educational factors shape *how* teens are using devices which has implications for well-being and ill-being (Watkins, 2012). While social media's placement (or level) within the ecological system has been debated, one must keep in mind that adolescents' online experiences and digital lives exist in context and their experiences and consequently well-being are shaped by many factors beyond their immediate environments. In the present work, I considered how adolescents' demographic factors and individual characteristics shape their motivations for posting online and perceptions of others' online content, while simultaneously considering the intersectionality of digital features of social media and their developmental age.

The Multidimensional Model of Social Media Use

To understand the risks and benefits of social media use on each adolescent, one must consider both contextual and ecological factors. The Multidimensional Model of Social Media Use (MMSMU) is a comprehensive model for understanding the impact of social media use on adolescents' well-being (Yang et al., 2021) and is complementary to Weinstein and James' proposed Three Lenses Framework. The model includes three dimensions of social media use that shape outcomes for well-being including online activities, motives for social media use, and online social partners.

Online Activities. The activities and type of social media use adolescents participate in have been found to shape well-being and ill-being. For instance, passive/content-consuming use (e.g., scrolling continuously, viewing others' profiles) vs. active/broadcasting (e.g., posting online, directed communication) use has been an important distinction made in the social media literature in recent years. Other distinctions include public (e.g., broadcasted to a wide audience or social network) or private interactions (e.g., interactive directed communication, Yang et al., 2021). However, using social media for social comparison has been found across two meta-analyses to be associated with lower well-being and life satisfaction, and higher depression (Yang et al., 2019; Yoon et al., 2019).

The MMSMU model predicts that active social media use leads to increased well-being via positive and authentic self-presentation through mechanisms of perceived social support and opportunities to gain autonomy. However, the model predicts intimate-self presentation will have mixed effects. While this kind of self-disclosure can create opportunities for expressive writing which can lead to positive effects (e.g., self-expression), it can also lead to reduced social attraction due to oversharing and approval anxiety when posting something vulnerable online. With respect to passive browsing, the model makes a distinction between self-generated and other-generated content to understand the implications for well-being. When viewing self-generated content (e.g., own social media profile) this can lead to increased well-being and self-esteem through the mechanism of self-affirmation. When viewing other-generated social media content the type of social comparison users engage in is important. That is, engaging in social comparison in a judgemental fashion (e.g., upward comparison of one's looks or traits compared to influencers or those perceived as superior) is predicted to have a negative impact on well-being while engaging in informational social comparison (e.g., comparing opinions online with

peers to inform own opinion) is hypothesized to increase well-being. Lastly, interactive and directed communication is thought to increase well-being through perceived social support and closeness compared to more broadcasted communicative styles or posts.

Social Media Motives. In addition to understanding *what* adolescents do online, it is important to understand *why* they use social media, which in turn influences *who* they interact with online. Although not an exhaustive list, previous work has established several common motives for adolescent social media use including for dating, new friendships, academic purposes, social connectedness, following and monitoring others, entertainment, seeking social recognition, self-expression, and seeking information (Pertegal et al., 2019). The MMSMU views such motives within the umbrella of enhancement and compensation motives drawn from the Uses and Gratifications Theory (Katz et al., 1974). Enhancement motives include promoting online relationship maintenance (e.g., messaging friends from school on Snapchat) or using social media for entertainment (e.g., looking at memes online for humour) which the model predicts enhance well-being but are also dependant on pre-existing wellness states. That is, adolescents' offline experiences also have an impact on their well-being and cannot be changed solely by engaging in online experiences (e.g., lack of social skills resulting in lack of social support offline). Compensation motives include forming relationships online with unfamiliar peers, escaping/avoiding reality, and fear of missing out (FOMO) driving social media use. Motives of social enhancement are theorized to positively predict well-being, while compensation motives are frequently associated with a negative impact on psychological well-being, social, and emotional functioning (Yang et al., 2021). This is important because adolescents do meet new social partners online that they do not have pre-existing relationships with and often have large social networks online (Pertegal et al., 2019).

With respect to motives for sharing online content specifically, social media users share emotions online to fulfill the need for personal expression and/or the need to receive feedback (Choi & Toma, 2014), yet little empirical evidence has investigated how these motivations are perceived and, in turn, responded to on social media within an experimental context. Rimé (2007) proposed several motivations for sharing life events with others: reexperiencing, receiving support, comfort, validation, meaning, advice, bonding, arousing empathy, attracting attention, and entertaining others. While the social sharing of emotions online can evoke negative affect in a sharer, it can also result in positive affect when receiving responses from others such as empathy, support, attention, advice, or entertainment (i.e., a laugh; Rimé, 2009). However, research has established that sharing negative emotions on social media is viewed harshly and less favourably than sharing positive emotional experiences (Radovic et al., 2017, Waterloo et al., 2017). While research has begun to explore adolescents' motivations for sharing content on social media, gaps remain, including exploring how transparent adolescents believe their motives for sharing are to other social media users and how they, in turn, perceive the wanted responses of other users. My body of research addresses this gap by investigating specific motivations for posting on social media within an experimental social media task (i.e., what posters want in response from other users when creating content) and if these motivations are decipherable to other social media users. Further, my research explores socio-demographic and individual characteristics of youth that influence the content they create, the motivations they hold for posts, and users' perceptions of created content. Elucidating this relationship could reveal a gap in transparency and communicative motivations and perceptions between original posters and users viewing posts.

Social Media Communication Partners. The MMSMU posits that our communication partners influence our social motives and activities online. While most youth report using social media to interact with pre-established close friends (60%), some youth report intensive communication with online only friends (22%; Lyyra et al., 2022). Social partners may have strong ties to the user (e.g., friends from school), or weak social ties (e.g., friend of a friend the user has never met in person). Interacting with social partners with strong social ties is related to greater psychological well-being while interacting with strangers or those with weak social ties is generally thought to lead to poorer well-being for youth due to upward social comparison (Burke & Kraut, 2016; Yang et al., 2021). Connecting with those with strong social ties and enhancing pre-existing relationships is thought to reflect the stimulation effect due to increased self-disclosure and relationship satisfaction (Valkenburg & Peter, 2007, 2011). However, interacting with strangers or unfamiliar peers is thought to reflect a displacement effect, in that such interactions come at the expense of strengthening pre-existing and strong relationships (Valkenburg & Peter, 2007, 2011). Furthermore, online contact with close offline friends was found to be positively associated with all indicators of well-being, while interacting with online-only friends was associated with lower self-rated health, life satisfaction, greater loneliness, and greater problematic social media use (Lyyra et al., 2022).

This distinction may be due to differences in emotional contagion, (i.e., one's emotions and emotion-driven behaviours elicit similar emotions and behaviours in others; Gaines, 2021), which is more likely to occur among close friends online, but less so for distant friends. For example, within adult samples in correlational and experimental work, users report greater happiness for a friend and positive emotions after viewing positive posts from a close, but not distant, online friend (Lin & Utz, 2015; Liu et al, 2016). However, this emotional contagion also

occurred for negative posts and evoked negative emotions if viewing posts of close friends (Liu et al, 2016). The authors discuss the mechanism behind this contagion to be assimilation within close relationships and given adolescents' propensity for social connection and sensitivity to peer feedback this is likely to be more salient within adolescent samples. However, further research must be done to examine this relationship within developmental populations. Within the limited work, emotional contagion seems to be more common with close social ties online and social comparison seems to be more prominent with weak social ties (Yang et al., 2021). This distinction is important given the power of peers on adolescents' mood, well-being, and increasingly large social networks filled with some people that teens have likely never met before or have weak social ties with.

In summary, youths' well-being is most at risk when adolescents are using social media primarily for compensation methods such as FOMO, to connect with online strangers at the expense of pre-existing relationships and engaging in upward social comparison with others. Conversely, youth who use social media primarily to enhance their pre-existing social relationships, use social media for informational comparison (upward) tend to have more adaptive use and better psychological well-being. Thus, in seeking to understand the nuanced digital lives of adolescents and the realities of their social networks online these factors as well as the individual factors of youth need to be taken into account. While my work does not directly examine the psychological outcomes of social media use, it examines adolescents' response motivations and the transparency of such motivations to other users which has implications for understanding the emotional outcome for youth.

Adolescent Characteristics and Social Media Behaviour and Experiences

One plausible explanation for the differential findings regarding the effects of social

media use is that there is considerable variability across adolescents' online experiences due to the association between users' individual characteristics and their online experiences. In this section, I will provide an overview of the literature examining adolescents' characteristics in relation to their online behaviour, general motivations for use, and outcomes of social media use. In the following chapter, individual differences are revisited with the (shorter) summaries focused on relations to online behaviours specifically.

Characteristics of social media users such as personality have been found to relate to how vulnerable users are to the effects of online disinhibition (Suler, 2004). Moreover, the effects of social media on well-being have been found to differ from adolescent to adolescent (Beyens et al., 2020), suggesting that individual differences and person-specific effects can no longer be empirically ignored both empirically and clinically. Past work has also demonstrated that adolescents' characteristics such as personality and susceptibility to peer influence are associated with how adolescents engage with and respond to social media (Armstrong-Carter et al., 2023). Relevant to my specific work, previous work suggests that factors such as age, gender, and socio-emotional skills (i.e., skills that afford adolescents the ability to perceive, process, and respond appropriately in social exchanges) may be associated with how adolescents engage with and respond to social media content (Arató et al., 2020; Bowman-Smith et al., 2021). Yet, the social media literature remains mixed with respect to individual characteristics and methodological challenges due to a lack of nuanced and objective measures of social media behaviour and perceptions. My dissertation aims to elucidate the association between online motivations, perceptions of motivations, and individual characteristics within the context of an experimental paradigm rather than relying on self-report and retrospective reports of social media behaviour.

Given that past work (see reviews below) has identified the following socio-demographic and individual characteristics as being associated with adolescents' social media behaviour, my first study (Chapter 2) investigates the role of age, gender, empathy, social media use, peer relationships, emotion regulation, and mood as they relate to how adolescents convey, perceive, and respond to posts with differing motivations on social media. Further, my second study (Chapter Three) explores themes and linguistic styles in adolescents' social media posts. Past work examining how these individual characteristics relate to adolescents' online engagement with social media is described in the following sections below.

Gender¹

Within offline communication, boys are typically found to adopt riskier and less prosocial communicative strategies than girls, such as using humour and sarcasm more (see Rose & Rudolph, 2006 for a review; Mewhort-Buist et al., 2020). Such differences are likely due to gender roles that socialize boys to be dominant and assertive, while girls are encouraged to adopt more socially affiliative communicative strategies (e.g., empathy, cooperation; Koenig, 2018). In the arena of online communication, research suggests that gender may also relate to adolescents' communicative styles, for instance, boys seem to experience the toxic online disinhibition effect more strongly than girls (Huang et al., 2020). However, findings on gender differences in online communication remain inconsistent, with some studies finding that boys are more likely to perpetrate risky and aggressive online communication, while other work suggests that girls are more likely to be perpetrators given the relational nature of online interactions (Barlett & Coyne, 2014; Connell et al., 2014; Kiriakidis & Kavoura, 2010). Further, findings about how gender moderates the relationship between social media use and well-being also

¹ Within this dissertation, "gender" refers to adolescents' self-identified gender (shaped by social and cultural circumstances) rather than biological sex (Canadian Institutes of Health Research, 2020; Heidari et al., 2016).

remain mixed (Svensson et al., 2022). This inconsistency is likely due to a lack of specificity in research about the activities youth are engaging in online, which as the MMSMU posits is essential for interpreting well-being findings (Yang et al., 2021).

Indeed, research has found that girls and boys differ in the online activities they are drawn to, with girls spending more time on social media while boys are often found to spend more time online gaming (Twenge & Farley, 2020). These activities are qualitatively different, given that social media provides multiple opportunities for upward social comparison with a large social network, while online gaming often involves verbal real-time interactions with a small group of close friends. Indeed, heavier social media use is typically associated with poor well-being and mental health, with these associations being stronger for girls than boys (Twenge & Martin, 2020). In terms of social media activities, girls are found to post a greater number of selfies, use filters, and delete posts more frequently, whereas boys are found to post less and tend to post more informational or factual content (Dhir et al., 2016; Gioia et al., 2021). Greater time spent on social media was associated with more self-harm behaviours, depressive symptoms, lower life satisfaction, and low self-esteem but this association was stronger for girls with respect to depressive symptoms (Twenge & Farley, 2020). Further, emerging research suggests that heavy social media use is associated with body image concerns for cisgender adolescent girls in particular (Weinstein & James, 2022).

Interestingly, both parent and child gender have also been associated with differences in social media monitoring practices. That is, mothers are more likely to talk to their children about social media than fathers, and both mothers and fathers are more likely to have open discussions about social media with girls compared to boys (Wallace, 2021). This finding speaks to different socialization and parenting practices that may shape the ecological lens of adolescents' digital

lives. Further, while beyond the scope of this dissertation, research has also begun exploring how transgender and gender-diverse adolescents use social media advantageously, finding that social media provides emotional, appraisal, and informational support for youth who may not have access to supportive communities in their offline lives (Selkie et al., 2020). Given previous conflicting findings in the literature, my work aims to investigate the role of participant gender in how adolescents convey and perceive the motives of others online within an experimental social media paradigm.

Age

While much of the literature about age-related differences focuses on comparisons between adolescents and adults, some research has explored differences in communicative styles and online activities among younger and older adolescents. For instance, older adolescents (68%) are more likely to use platforms such as Instagram compared to younger adolescents (45%; Pew Research Centre, 2024). Older adolescents also self-reported higher levels of constant internet use compared to younger adolescents (Pew Research Centre, 2024). Older adolescents, particularly older girls (15-17 years), report avoiding posting certain online content on social media due to fear of embarrassment or for fear of offending others compared to younger adolescents (13-14 years; Pew Research Centre, 2024). Further, active social media use was associated with delayed bedtime in younger adolescents only, compared to mid and late adolescents (Maksniemi et al., 2022). The authors suggest that as adolescents get older they may be more skilled at self-regulating their social media habits and prioritize sleep over social connection. However, when middle and older adolescents reported an increase in active social media use, they also reported an increase in emotional exhaustion one year later (Maksniemi et al., 2022). Thus, the results suggest that adolescents' age is an important factor to consider when

studying social media and may influence how adolescents convey and perceive motivations online.

Empathy

Empathy may play a particularly salient role in predicting adolescents' communicative behaviour and interpretations of online content, given that social cues that facilitate perspective-taking are limited online. Affective empathy (i.e., experiencing the emotions of others) and cognitive empathy (i.e., understanding the emotions of others) have both been implicated in adolescents' online behaviour (Ouvrein et al., 2018). Adolescents low on self-reported affective and cognitive empathy were found to engage in more cyberbullying behaviour, yet the role of cognitive empathy was found to be more important in influencing boys' engagement in aggressive online behaviour than girls (Ang & Goh, 2010). Within both online and offline contexts, youth who victimize others are typically found to have lower levels of affective, cognitive, and total empathy (Zych et al., 2019). Nevertheless, social media use has also been associated with a host of relational and emotional benefits, such as fostering adolescents' affective and cognitive empathy over a one-year time span (Vossen & Valkenburg, 2016). Further, a recent study with just under 5000 adolescents found that greater empathetic concern and perspective-taking abilities were associated with using social media for purposes of social connection (Riley et al., 2022). While empathy has been studied extensively in relation to harmful self-reported online behaviour (e.g., cyberbullying), few studies explore the role of empathy within neutral or typical exchanges among youth. Further, a paucity of work exists examining the role of empathy within experimental paradigms, despite findings that self-reports of social media behaviour are often inaccurate (Verbeij et al., 2021). Yet, preliminary evidence finds that adolescents who reported greater affective empathy within typical peer exchanges

made more prosocial communicative decisions on a simulated Snapchat app (Bowman-Smith et al., 2021). Further, empathetic concern and perspective-taking have been found to be negatively associated with social media “addiction” in youth (Dalvi-Esfahani et al., 2021). While past work provides insight into the characteristics of youth that impact online behaviour globally, gaps remain, including the role of empathy within more nuanced and objective online communication. More specifically, the proposed studies aim to investigate the role of empathy in relation to specific aspects of online behaviour (explored in an experimental social media task), including perceiving and conveying motivations online and features of adolescents’ online content.

Emotion Regulation

Emotion regulation, the ability to monitor, evaluate, and modify emotions (Thompson, 1994), is another socio-emotional skill thought to be related to adolescents’ online behaviour. Emotion regulation strategies may be adaptive such as cognitive reappraisal, or maladaptive such as suppressing emotions (McMahon & Naragon-Gainey, 2018). In a simulated Reddit task, undergraduate students who reported utilizing less adaptive emotion regulation skills (i.e., expressive suppression) were found to communicate more aggressively in response to positively valenced online stimuli (Villacis et al., 2021). Adolescents who do not report engaging in adaptive emotion regulation skills are also found to communicate more aggressively online, such as engaging in cyberbullying (Baroncelli & Ciucci, 2014). Moreover, challenges with emotion regulation have been associated with problematic social media use, such as excessive self-disclosure among adolescents (Marino et al., 2020). A recent study of social media and gaming addiction found that lower emotion regulation skills significantly predicted social media addiction for girls and internet gaming addiction for boys (Giordano et al., 2023). However, these disorders are not official diagnoses in the Diagnostic and Statistical Manual of Mental

Disorders (DSM-5-TR, 2022). Yet, there is reason to believe that variability in adolescents' emotion regulation abilities may differentially impact adolescents' online behaviour and communication, given the immediacy of online interactions. However, research also supports the notion that social media allows adolescents new avenues for upregulating positive affect and downregulating negative affect if platforms are utilized in socially appropriate ways among youth (Blumberg et al., 2016).

Mood

Adolescents' trait and state moods may also relate to their perceptions and behaviour online. For instance, depressed adolescents have been found to use social media in both adaptive (e.g., social support) and maladaptive ways (e.g., social comparison, overly emotional posting) to regulate their negative affect (Radovic et al., 2017). Anxious youth have also been found to have negative attentional biases when interpreting ambiguous social situations on social media (Haller et al., 2016; Kingsbury & Coplan, 2016). Regarding more state-specific moods, anger and frustration have been found to foster risky and aggressive communication online, such as cyberbullying (Bai et al., 2020; De Pasquale et al., 2021). Existing social media research has studied the consequences of social media use on mood extensively, yet there is a scarcity of research investigating the reverse relationship, and how mood influences adolescents' choices and behaviours online. Further, the present studies explore mood within the context of an experimental social media task, rather than relying on retrospective self-reported online behaviour.

Peer Experiences

Youths' experiences with peers have also been found to shape the way in which adolescents themselves communicate online (Nesi et al., 2018). That is, adolescents who have

been victims of cyberbullying are more likely to perpetrate cyberbullying themselves compared to youth who have not had such experiences (Mishna et al., 2012). Thus, there is reason to believe that peer experiences may influence adolescents' online behaviour within the proposed studies. The age of social media presents new friendship dilemmas and peer experiences for adolescents. Consider a teen finding out in real-time through social media that they have been the only one not invited to the movies with their friends compared to finding out on Monday morning at school. Or seeing that a friend is active online but ignoring personal text messages you sent them. While social media and technology provide many avenues for positive interactions among friends and peers, teens also identify elements of online communication that feel burdensome including dilemmas of availability, constant connectivity, and expectations to respond rapidly to friends or fear having that friend feel slighted (Weinstein & James, 2022). Thus, peer experiences (online and offline) are important individual characteristics to consider in the current study as they may influence adolescents' perceptions of communicative motivations or how they convey their own motivations online.

Social Media Use

Although a crude measure of social media use, time spent on social media is still a frequently used metric in the social media use literature. Adolescents who self-report spending increased time online are more likely to be involved in cyberbullying, either as a perpetrator or as a victim (Ybarra & Mitchell, 2004). Further, youth who report belonging to more social media platforms were found to engage in more high-risk behaviours such as self-harm or sexting (Vente et al., 2020). Symptoms identified by the Canadian Pediatric Society (Ponti, 2017) as problematic screen use include: (1) boredom or negative emotions without access to screens; (2) oppositional behaviours when screens are removed or time limit rules are enforced; (3)

interference with sleep, school, relationships, work, etc.; (4) interference with offline physical play and, activities, socialization in face-to-face interactions; and (5) negative emotions or behaviour following interactions or online activities. The Goldilocks Hypothesis (Przybylski & Weinstein, 2017) postulates that a moderate amount of time spent on social media can be beneficial for psychological well-being, while higher or lower levels can be harmful. Thus, it may be the case that increased exposure to online interactions can desensitize adolescents or shape communicative styles negatively such that they adopt these styles themselves. It may also be the case that these youth are better at deciphering the response motivations of others, given that they are more familiar with the interpersonal context of social media. In the current work, time spent on social media was measured in addition to online experiences with peers as a more fine-grained measure of social media experiences as an important individual characteristic to consider.

Research Aims

For social exchanges to be successful, both social partners must attune to social-contextual factors, engage in perspective-taking, and adapt their behaviour appropriately to convey their communicative intentions accurately (Clark, 1992; Jensen, 2014; Nilsen & Bacso, 2017). The meeting of the minds that occurs within conversation is facilitated by rich social information available within face-to-face interactions, including verbal (e.g., spoken language, meaning of words, tone of voice, volume of speech) and paralinguistic cues (e.g., facial expressions, gestures, proximity, posture). However, in online social interactions, cues that provide a window into the minds of social partners are largely absent (Nesi et al., 2018). Within online exchanges, increased communicative ambiguity and users' anonymity foster a socially impoverished context that relies heavily on brief visual social cues (e.g., text, pictures, videos). It

has yet to be determined whether, within the context of social media, adolescents have difficulty accurately conveying or perceiving communicative motivations and intentions, and whether certain individual characteristics relate to how motivations are conveyed or perceived. Thus, the overarching aim of my dissertation was to address this gap in the literature which has both clinical and practical applications for adolescent social media users.

Addressing a call for more experimental paradigms to examine the experiences of adolescents to capture their experiences as they post and receive social media content (rather than relying on self-report reflections), for my dissertation, I created an app that simulated the platform Instagram. The app (programmed by the Waterloo Psychology IT Department) was designed to feel similar to posting on social media, to collect data confidentially, be user-friendly given that it was a self-guided online study for youth, be accessible from multiple types of devices (i.e., tablet, laptop) and operating systems (i.e., Android and iOS), and have the ability to show participants their own posts so they could reflect on their created content. After several revisions of the app, it was piloted on two adolescents within the age range for the study and their feedback was incorporated for a smoother user experience prior to beginning recruitment. Through this approach I was able to address my research aims of a nuanced exploration of adolescents' response motivations for created content at a post level.

Study One: Adolescents' Response Motivations and Perceptions

The first study, which constitutes the main inquiry of my dissertation, investigates how adolescents convey and interpret communicative motivations (i.e., wanted responses to social media posts) within an experimental social media context. More specifically, the first study examines what social media *posters* want as a response from others and how transparent these motivations are to other social media users. A second aim of the first study was to explore how

individual characteristics, including socio-emotional skills (i.e., age, gender, empathy, emotion regulation, affect, peer experiences, and social media use) relate to adolescents' perceptions, communicative behaviour, and communicative transparency on social media. The research questions for the first study were: (1) How much insight do adolescents have into the response(s) they want from other users when posting on social media? (2) What type of response(s) do adolescents want when creating posts on social media? (3) What are adolescents' perceptions of the likelihood of receiving their wanted response(s) from other users? (4) How transparent are adolescents' wanted response(s) to other social media users (i.e., adolescent viewers)? (5) To what degree do adolescent *viewers* perceive accuracy in their interpretations of *original posters'* wanted responses? (6) What individual characteristics in socio-cognitive skills are associated with adolescents' insight, wanted responses, perceptions of likelihood, transparency of motivations, and perceived interpretation accuracy of others' wanted responses online?

With respect to what type of responses adolescents want when creating posts on social media, I predicted (H1) that motivations of engagement (e.g., likes and comments) would be most desired by youth given that likes on social media serve as a proxy for adolescents' status and popularity (Blease, 2015; Martinez-Pecino & Garcia-Gavilán, 2019). I also predicted that there would be a gap in transparency between posters' wanted responses and viewers' perceptions given the features of online communication (Nesi et al., 2018) and that online communicators tend to greatly overestimate the transparency of the communicative motivations online (Krueger et al., 2005). Given this overestimation, I predicted that adolescent posters will underestimate the socially impoverished context in which they are communicating, and as a result, will perceive a high likelihood of receiving their desired responses from others and that their motivations are clear to other users.

With respect to individual differences, I had several hypotheses. I did not have any firm predictions with respect to age or gender given the mixed findings in the literature. Given that past research finds that adolescents with negative affect tend to engage in online behaviours such as oversharing and stressed posting (i.e., sharing negative life events), it is hypothesized that participants who self-report greater negative affect will also report a desire for support from other users (Radovic et al., 2017). It was also predicted that adolescents who use social media more may be more likely to be overconfident in their perceptions of transparency, given that they may become more oblivious to the context in which they are communicating over time and with more frequent social media use. With respect to peer experiences, it was hypothesized that youth who report greater negative peer experiences will be less likely to perceive they will receive their desired response from other users given their prior experiences with social rejection or peer victimization (Ophir et al., 2019). Lastly, adolescents with more competent socio-emotional skills (e.g., higher empathy, high cognitive reappraisal, low expressive suppression) may be more likely to recognize the socially impoverished context in which they are communicating and thus be more likely to perceive that their comprehension in deciphering the social media posts of others may be inaccurate due to the online environment.

Study Two: Features of Social Media Posts

In the second study, which constitutes the supplemental inquiry of my dissertation, I investigated the themes and linguistic styles that adolescents included in the social media posts they created for the first study. The research questions for the second, more exploratory study were: (1) What are the linguistic characteristics of the posts (e.g., word count, word frequency, analytic and authentic language)? (2 & 3) Is there affective congruency between the picture and caption and are most posts conveying a literal or ironic meaning? (4) How much self-disclosure

do adolescents make in their posts? (5 & 6) What is the emotional valence of the post captions, and what is the overall affective valence of the posts considering both caption and picture? (7) Are posters' characteristics associated with any elements of the posts themselves? Given that this study was exploratory I did not have hypotheses regarding the linguistic and emotional features adolescents would include in their posts. Together this work will address a gap in the literature exploring nuanced and content-based social media use within an experimental paradigm, rather than relying on retrospective and unvalidated self-reports of social media behaviour/content. Further, this work seeks to elucidate the relationship between adolescents' own characteristics and their communicative motivations on social media.

Chapter Two - Study One: Adolescents' Response Motivations and Perceptions

A version of this chapter has been submitted to an academic journal for publication.

Introduction

Online communication, particularly social media, has become ubiquitous among adolescents. With 95% of teens reporting access to a smartphone, and most youth using social media platforms daily (Pew Research Center, 2024), communicative technology has transformed how adolescents communicate with parents, friends, acquaintances, and strangers (Janssen et al., 2024; Nesi et al., 2018; Subrahmanyam & Greenfield, 2008). Learning to navigate the nuances of one's social environment is a core developmental competency during adolescence when peer connections are salient and influential (Brown & Larson, 2009). However, this developmental task has become incredibly complex in an online world of constant connectivity, amplified social demands, and unwritten rules of social media use (Orben & Dunbar, 2017). As youth increasingly turn to social media for social interaction, identity exploration, and self-expression concerns have been raised by parents, educators, policymakers, and even teens themselves about the impact on adolescents' development, mental health, academics, sleep, interpersonal relationships, and academics (Barry et al., 2017; Michikyan & Suárez-Orozco, 2016; Weinstein & James, 2022). However, despite such concerns, gaps remain in our understanding of adolescents' social media use, with a call for fine-grained measures and experimental designs of adolescent social media use (Parry et al., 2022; Valkenburg, 2022) with a greater focus on content-based analysis rather than time spent on social media (Meier et al., 2024).

Hundreds of studies have examined the impact of social media use on well-being and ill-being in recent years, with mixed findings, methodological challenges, and varying effect sizes (see Valkenburg, 2022 for a review). Much of this work has been limited by a reliance on the

amount of time spent using social media, prompting calls for studies examining *how* (i.e., online activities beyond passive vs. active use) and *why* (i.e., motives) teens engage online (Weinstein & James, 2022; Yang et al., 2021). Adolescents' most reported motives for using social media are the need for social connection, entertainment, inspiration, and information (van der Wal et al., 2024). However, while adolescents may have certain motives and expectations when posting online, others may interpret their posted content differently and not respond accordingly. For instance, sharing personal information online may elicit positive feedback from others, particularly when sharing positive emotions (Rimé, 2009), but sharing negative emotions can be viewed harshly by others (Waterloo et al., 2018).

While past work has explored adolescents' general motivations for social media use, less is known about adolescents' specific motivations for sharing content as well as how other users perceive such motivations. Addressing this gap, in the present study we asked adolescents to create social media posts within a simulated Instagram platform and reflect on what responses they hoped to receive from others. To determine whether these motivations were transparent to others, other adolescents viewed the posts and indicated what responses they thought the original poster hoped to receive. Further, I examined whether adolescents' demographic characteristics (age, gender), social media use, and socio-emotional skills (empathy, emotion regulation, affect, peer experiences) related to their motivations as well as how others perceived their motivations.

As a step to understanding the vast diversity in experiences and outcomes of social media use (van der Wal et al., 2024), this work provides insight into the transparency of adolescents' communication online both generally and as a function of their characteristics. Given that adolescents use social media to meet social and emotional needs, and that online blunders can be especially damaging during this developmental period, it is essential to understand the

communicative transparency between online posters and viewers. Findings from this work have theoretical and practical implications for understanding adolescents' social media ecosystems.

Theories and Frameworks of Social Media

Weinstein and James' (2022) three lenses for understanding adolescents' online experiences (i.e., digital, developmental, and ecological) provide a useful framework for contextualizing the present investigation. Starting with the *digital* lens, features of social media can be examined to understand how this is a distinct interpersonal context for adolescents, and for this study, may affect motivations for sharing and create increased ambiguity in motivations between posters and viewers. For instance, relative to offline interactions, social media has asynchronicity, constant availability, permanence, social cue absence, quantifiability, publicness, replicability, algorithms, and visualness (Nesi, et al., 2018; Weinstein & James, 2022). At a broad level, these features transform adolescents' social experiences and interactions with peers (Nesi et al., 2018), but in the moment they may affect how/why adolescents share information and how created content is perceived by others.

Speaking specifically to the absence of social cues, online communication may be affected by both less inhibition and greater ambiguity (Lapidot-Lefler & Barak, 2015; Suler, 2004). Thus, there may be a disconnect between what adolescents want from other users in response to their social media posts, and how viewers perceive and respond to these posts. Indeed, individuals tend to underestimate the socially impoverished nature of online communication resulting in a more egocentric communicative approach (i.e., using one's own perspective as a reference point). For instance, undergraduate students who composed email or face-to-face messages perceived their statements as highly transparent regardless of context, however, the gap between perceived and actual transparency was greatest for emails (Kruger et

al., 2005). As well, compliance with requests communicated over email tends to be overestimated due to a lack of perspective-taking online (Roghanizad & Bohns, 2017). Together, online users seem to overestimate others' comprehension of their shared content as well as overestimating the degree to which they understand other users' intentions. However, there is a paucity of research exploring how users convey and perceive specific communicative motivations (e.g., wanted responses/motivations) on social media platforms. Further, and related to the second lens (*developmental*) there is a lack of work investigating specific motivations within adolescent samples, with this being a unique developmental stage for social media use (Politte-Corn et al., 2023).

Adolescents' developmental stage makes them particularly vulnerable to the compelling features of social media use, yet it is also a time when social interactions are crucial to adolescents' well-being (Brown & Larson, 2009). Within adolescence, youth experience significant social, emotional, physical, and cognitive changes (Brown & Larson, 2009) with identity development seen as a core competency (Erikson, 1968). What is unique about identity development on social media is the potential for immediate and quantifiable social feedback, during a time when peer opinions have a strong influence (Weinstein & James, 2022). Social feedback received can be beneficial or detrimental depending on the nature of that feedback. Indeed, adolescents who reported that their self-worth is dependent on the feedback they receive on social media were found to have greater depressive symptoms (Schreurs et al., 2024). Thus, it is important to understand adolescents' motivations for posts, specifically what sort of responses they hope to receive, and the transparency with which this comes through to other users.

Of course, adolescents will vary in what they hope to receive from their social media posts, which maps on to the third lens framing this work (*ecological*). In addition to positing that

online communication is interconnected with various environmental and social systems, this lens suggests that individual characteristics influence how teens navigate their online digital lives. Moreover, the differing effects of social media on well-being from adolescent to adolescent (Beyens et al., 2020) and relations between demographic/socio-emotional skills and online experiences (Arató et al., 2020), suggest that individual differences should be considered within social media research. Accordingly, we examined whether adolescents' identified gender, age, empathy, emotion regulation, mood, online peer experiences, offline peer relationships, and social media use relate to how adolescents convey and perceive posts with differing motivations.

Demographic Factors and Socio-emotional Characteristics

Gender² & Age

Findings on gender differences in online communication are mixed, with some studies finding that boys are more likely to perpetrate aggressive online communication (Huang et al., 2020), while others find that girls are more often perpetrators given the relational nature of online interactions (Connell et al., 2014; Kiriakidis & Kavoura, 2010). Also, findings as to whether gender moderates the relation between social media use and well-being are inconsistent (Svensson et al., 2022), potentially due to the lack of specificity in research about the activities youth engage in online (Yang et al., 2021). Regarding social media specifically, girls tend to post a greater number of selfies, use filters, and delete posts more frequently, whereas boys are found to post less and tend to post more informational or factual content (Dhir et al., 2016; Gioia et al.,

² Gender, referring to socially constructed roles/behaviour, is used to describe youths' gender identity or expression (reported by parents). An increasing number of youth describe themselves as transgender, gender fluid, or nonbinary (Diamond, 2020). Past work has often examined gender in binary terms, rather than allowing for a spectrum of identities. As gender is a social construction, influenced by societal norms, it is important to consider gender findings in relation to the time of data collection (Diamond, 2020).

2021). Thus, it may be the case that girls and boys report hoping to receive different types of responses from others when creating posts online, as explored in the current study.

In addition to age relating to the platform of choice (Pew Research Centre, 2024), social media content varies with older girls (15-17 years), who report avoiding posting certain online content on social media due to fear of embarrassment or for fear of offending others compared to younger adolescents (13-14 years; Pew Research Centre, 2023). Further, older (versus younger) adolescents are more skilled at self-regulating their social media habits (Maksniemi et al., 2022), which may translate to differing motivations for responses (and perceptions from others) when posting online.

Empathy

Affective (i.e., experiencing the emotions of others) and cognitive empathy (i.e., understanding the emotions of others) have both been implicated in adolescents' online behaviour such as cyberbullying (Ang & Goh, 2010; Ouvrein et al., 2018, Zych et al., 2019). While empathy has been studied extensively in relation to harmful self-reported online behaviour and communication (e.g., cyberbullying; Salem et al., 2023), few studies explore the role of empathy within more neutral or positive peer exchanges. Further, a paucity of work exists examining the role of empathy within experimental paradigms, despite findings that self-reports of social media behaviour are often inaccurate (Verbeij et al., 2021). One exception to this is work by Bowman-Smith and colleagues (2021) who, using a simulated Snapchat app, found that adolescents who reported greater affective empathy chose to send more prosocial comments. How empathy relates to the types of responses adolescents hope to receive from others or how they consider what others hope to receive remains unknown and is explored in the current study.

Emotion Regulation & Affect

Emotion regulation is the ability to monitor, evaluate, and modify emotions (Thompson, 1994) with strategies seen as adaptive, such as cognitive reappraisal, or maladaptive such as suppressing emotions (McMahon & Naragon-Gainey, 2018). In an adolescent sample, less adaptive emotion regulation skills related to more aggressive online communicative styles (Baroncelli & Ciucci, 2014). Moreover, challenges with emotion regulation have been associated with problematic social media use, such as excessive self-disclosure among adolescents (Marino et al., 2020). Adolescents' trait and state moods may too relate to their perceptions and behaviour online. For instance, depressed adolescents have been found to use social media in both adaptive (e.g., social support) and maladaptive ways (e.g., social comparison) to regulate their negative affect (Radovic et al., 2017). Thus, there is reason to believe that variability in adolescents' emotion regulation abilities and mood may differentially relate to what adolescents hope to receive from others when posting online or determining the motivations of other online users.

Peer Experiences Online and Offline

Youths' experiences with peers have been found to shape how adolescents themselves communicate online (Nesi et al., 2018). For instance, adolescents who have been victims of cyberbullying are more likely to perpetrate cyberbullying themselves (Mishna et al., 2012). Thus, peer experiences (online, but also offline) may relate to motivations adolescents have for online communication as well as how their social media posts are perceived by others.

Social Media Use

Although a crude measure of social media experience, time spent on social media is still a frequently used metric of social media use. The Goldilocks Hypothesis (Przybylski & Weinstein, 2017) postulates that a moderate amount of time spent on social media can be beneficial for

psychological well-being, while higher or lower levels can be harmful. Thus, it may be the case that increased exposure to online communication can desensitize adolescents or shape communicative styles negatively such that they adopt these styles themselves. In the current study, time spent on social media was measured in addition to online experiences with peers.

Current Study

Using an experimental design, our aims were to investigate what responses adolescents (aged 13-17) hoped to receive from others, whether these wanted responses were clear to others, and whether posters' individual characteristics were associated with their wanted responses. More specifically, we first asked adolescents to generate social media posts and then indicate how much insight they felt into what they hoped to receive from others, what the likelihood would be of receiving such a response, and then a rating of how much of certain responses (engagement, entertainment, support, advice) they hoped to receive. We then showed these posts to different adolescents and asked them to rate how much of each response type they thought the poster wanted and how much confidence they felt in their perceptions. We compared both poster and viewer ratings to the demographic and socio-emotional characteristics of the adolescent who created the post to determine whether adolescent characteristics relate to what they hope to receive from others as well as what others perceive they hope to receive. Finally, we compared poster and viewer responses to determine the degree to which desired responses are transparent to others. In this way, we were able to capture the interests and motivations adolescents hold at the individual post level of social media engagement and, importantly explore if their motivations are transparent to other adolescent viewers.

We anticipated that adolescents would report the most interest in receiving engagement (e.g., likes and comments), given that likes on social media serve as a proxy for adolescents'

status and popularity (Blease, 2015; Martinez-Pecino & Garcia-Gavilán, 2019). Moreover, we anticipated that there would be variability in what youth hoped to receive from others, with this variability partially accounted for by their individual characteristics. This said, the literature is somewhat mixed (particularly for age and gender), which made specific predictions difficult to make. Given some past work, we anticipated that negative affect would relate to increased desire for support (Radovic et al., 2017), greater social media use would relate to greater confidence in receiving their wanted response, negative peer experiences would relate to less likelihood of receiving a wanted response (Ophir et al., 2019), and finally that adolescents with better socio-emotional skills (empathy/self-regulation) may report higher confidence in their ability to accurately perceive the degree of posters wanted responses.

We were unsure whether adolescents would indicate that they were likely to receive their wanted responses, but this question provides insight into youths' motivations when creating social media content. We also predicted that there would be a mismatch between posters' wanted responses and viewers' perceptions given the features of online communication and that online communicators tend to overestimate the transparency of their communicative motivations (Kruger et al., 2005).

Method

Phase One: Participants and Procedure

Adolescents aged 13-16 years old ($N = 103$) participated in the first part of the study ($M_{age} = 14.28$ years; $SD = 1.22$ years; 59 girls, four non-binary youth), recruited through a lab database and community recruitment. Most participants spoke English as their first language (94%) and the study was conducted in English. 90% of parents had a college degree or higher. Within this sample, some adolescents were reported to have confirmed (some comorbid)

neurodevelopmental disorders ($n = 13$) and mental health disorders ($n = 13$). Rates were consistent with expectations for a community sample (DSM-5-TR), except for ASD which was more prevalent ($n = 7$). The general pattern of results remained when all participants with neurodevelopmental disorders were removed, as well as when participants with ASD only were removed; thus all participant data was retained. Parents' open-ended responses regarding ethnicity, fell within categories of³: multi-ethnoracial background ($n = 24$), Canadian ($n = 18$), White/European ($n = 27$), Asian/South Asian ($n = 18$), Middle Eastern ($n = 4$), and Indigenous Peoples ($n = 1$).

Procedure

Parents/caregivers were emailed a Qualtrics consent form and a demographic questionnaire. If consent was given, adolescents were invited to participate remotely in a self-guided study (approximately 45 minutes), including a social media task and a series of questionnaires assessing individual characteristics.

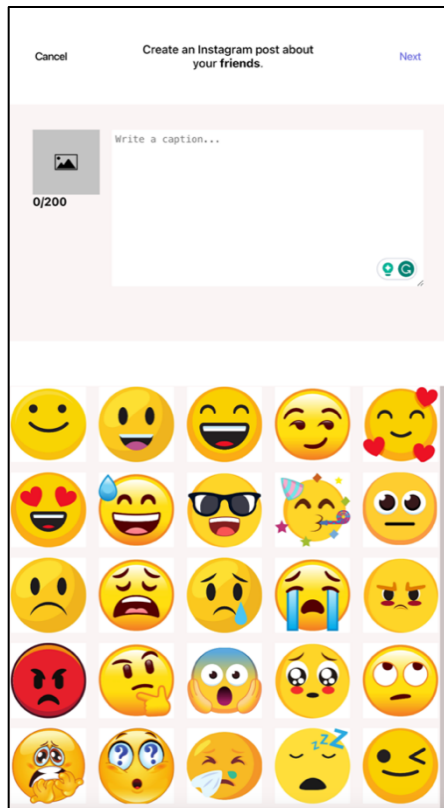
Social Media Task. A simulated social media app was designed to recreate Instagram, wherein participants created eight posts about various topics (Figure 1), informed by what adolescents report posting about most frequently on social media (i.e., friends, family, emotions, and achievements; Pew Research Center, 2018). These topics were included to help guide adolescents' post creations during the study. Following the introduction, participants were provided with the topic of each post and instructions at the top of the screen (Appendix A).

Participants were given an array of 25 emoji pictures to use for their posts (presented in two orders) to maintain participants' confidentiality (i.e., not using personal photos). After all the posts were created, each post was shown back to the participants, and they were asked questions

³ Because this question was open-ended, participants' self-identification did not always align with biasfree language suggested by the APA publication guide (APA, n.d.b).

Figure 1

Phase One Social Media Communication Task – Creating Posts Example



about each post. Adolescents were asked to rate **how much insight** they felt they had into what response they hoped to receive from other teens who viewed their post using a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*to a great extent*). Participants were then asked to rate **how likely it would be for them to receive** their wanted response from others using a 5-point Likert scale ranging from 1 (*definitely not*) to 5 (*definitely*). Finally, participants were then asked to indicate the extent to which they hoped for **specific types of responses** from other users using a slider (ranging from 0-100), including entertainment, engagement, support, and advice (options informed by Rimé, 2007). The definition of each response type was displayed and an ‘other’ textbox was also included if the options provided did not capture adolescents' wanted responses.

Individual Characteristic & Demographic Measures. Following the social media communication task, participants were asked to complete questionnaires assessing their socio-emotional characteristics and peer experiences (see Table 1), presented in a fixed order to ensure participants were exposed to identical stimuli (Carlson & Moses, 2001).

Demographic Factors. Parents were asked to report on participants' age, gender, first language, siblings, parental education level, and developmental diagnoses.

Empathy. The Empathy Questionnaire for Children and Adolescents (EmQue-CA; Overgaauw et al., 2017) is a 14-item questionnaire assessing empathy in youth aged 10- to 18-years-old. The EmQue-CA measures Affective Empathy ($\alpha = .65$), Cognitive Empathy ($\alpha = .86$), and Intention to Comfort ($\alpha = .73$), using a 3-point Likert scale ranging from 1 (*not true*) to 3 (*true*). An empathy total score was calculated by averaging across the three subscales and demonstrated an acceptable internal consistency within the current sample ($\alpha = .78$).

Emotion Regulation & Mood. The Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA; Gullone & Taffe, 2012) is a 10-item questionnaire assessing emotion regulation in youth 10- to 18-years-old, measuring Cognitive Reappraisal (i.e., adaptive strategy; six items) and Expressive Suppression (i.e., maladaptive strategy; four items), using a Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Items of each subscale were summed; however, items 9 and 10 (one from each subscale) were removed due to technical errors in the social media app resulting in more than 30% missing data. With these items removed, the ERQ-CA demonstrated sound internal consistency for both the Cognitive Reappraisal ($\alpha = .80$) and Expressive Suppression ($\alpha = .80$) subscales.

To assess affect, adolescents completed the short form of the Positive and Negative Affect Schedule for Children (PANAS-C-SF; Ebesutani et al., 2012). The PANAS-C-SF is a 10-item

self-report questionnaire, measuring Positive Affect (5 items) and Negative Affect (5 items), in youth 6- to 18-years-old. Participants rated the frequency with which they experienced each emotion in the past few weeks on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*extremely*). An affect composite was created by averaging positive affect and reverse scoring negative affect ($\alpha = .83$), with higher scores reflecting more positive affect. Recall that one item from each subscale was removed due to the same technical issue noted above.

Peer Experiences. Adolescents' experiences with peers were measured using two questionnaires. The Social Networking Experiences Questionnaire (SNEQ; Dredge et al., 2015), is a 14-item questionnaire for adolescents 15-24 years-old assessing adverse online peer experiences (e.g., someone has posted cruel messages or threats on my social media). Adolescents were asked to indicate the frequency they experienced each item over the past six months on a 7-point Likert scale ranging from 1 (*never*) to 7 (*daily*). Participants' responses were averaged across all items to create an online experience total score ($\alpha = .87$).

For a measure of offline peer relationships, I administered the Patient Reported Outcomes Measurement Information System (PROMIS) Pediatric Peer Relationships Scale (PR-SF; DeWalt et al., 2013) developed for youth aged 8- to 17-years-old. The short form of this scale includes 8-items and adolescents were asked to indicate the frequency they have experienced each item over the past seven days on a 5-point Likert scale ranging from 0 (*never*) to 4 (*almost always*). The items were summed to create a peer relationship total score, with higher scores reflecting more positive peer relationships ($\alpha = .93$).

Social Media Use. A measure of social media use was created to assess everyday social media use, including frequency of daily time spent on social media and Instagram, in addition to ownership of a cellphone and Instagram profile. A social media use composite was created by

averaging daily time spent on social media and daily time spent on Instagram ($r = .47, p < .001$).

Phase Two: Participants and Procedure

Parents and participants who participated in Phase One were contacted to participate in Phase Two of the study. At the time of Phase Two, some participants had turned 17 years of age, expanding the age range for the sample from 13-17 years old. As expected, there was some attrition with 88 adolescents participating in Phase Two of the study ($M_{age} = 14.34$ years; $SD = 1.25$ years; 53 girls, 4 non-binary youth).

Procedure

Participants viewed posts from others via Qualtrics. Twenty ‘sets’ of posts were created, each containing 4 posts from 10 different participants from Phase One (i.e., 40 posts/set). The sets were created in a pseudorandom order, ensuring that participants did not view their own posts. Across the post sets, a total of 800 social media ($n = 100$) posts created in Phase One were included in Phase Two. Three participants’ posts were not included due to promoting risky behaviour; $n = 1$), incompleteness ($n = 1$), or participation after the post sets were created for Phase Two ($n = 1$). Each set of posts was shown to adolescents with 4-5 viewers rating each set of posts (i.e., each viewer rated 40 posts total). For each post, participants were asked to determine what type of response the original poster wanted from viewers (i.e., support, engagement, entertainment, advice) using a 0-100 slider (Appendix B). No additional response options were included in the ‘other’ textbox in Phase One of the study. As well, adolescents were asked to estimate the accuracy of their interpretations on a 5-point Likert scale ranging from 1 (*definitely not*) to 5 (*definitely*).

Viewers’ perceptions of the posters’ wanted responses and their perceived interpretation accuracy of responses were then averaged across the 4-5 adolescent viewers. In this way, we

were able to create a score of what other adolescents felt the poster wanted that could be compared to the self-reported wanted responses of the original poster.

Results

Preliminary Analyses

Missing Data

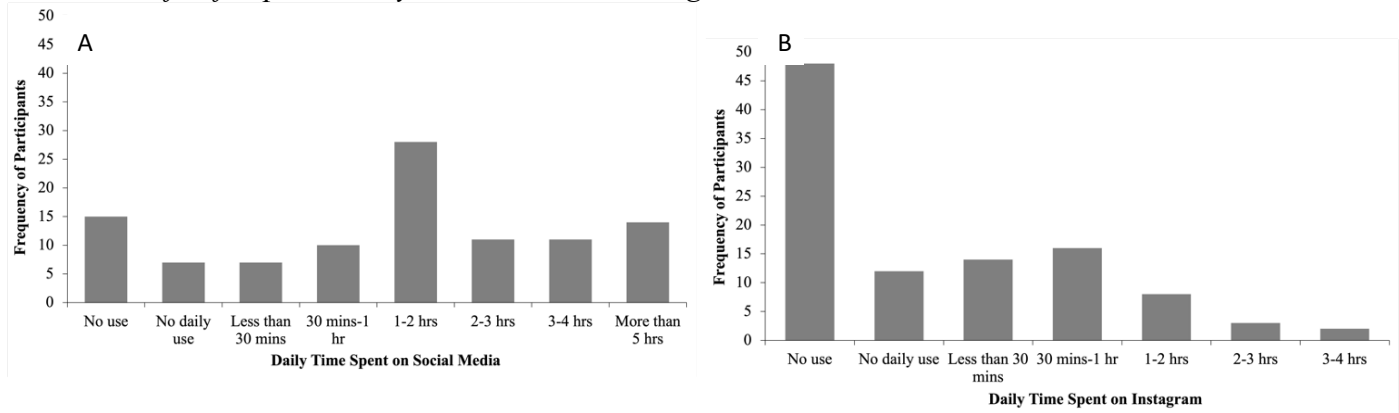
All of the data were analyzed for missing values. The EmQue-CA and social media use questions had no missing values. The SNEQ had two missing values and the PR-SF had one. Following the item removal noted above, the ERQ-CA had four missing values and the PANAS-C-SF had two missing values. Little's Missing Completely at Random test was not significant for the PANAS-C-SF ($\chi^2 = 10.14$, $df = 14$, $p = .752$), but was significant for the ERQ-CA ($\chi^2 = 37.83$, $df = 20$, $p = .009$). Only the values that were missing at random (*ns*) were imputed using single stochastic regression imputation, and the Cronbach's alpha for each subscale, reported above, was calculated using the imputed values. For Phase One, one participant completed the individual differences questionnaires but did not respond to any of the social media task questions due to technical errors with the social media application. In Phase Two, the Qualtrics survey sliders were used by participants to indicate how much of each response type was wanted – a total of 4 sliders per post. The slider was defaulted to the zero position (thus scored as zero when left in that position). However, if a participant left the slider in the default position for all response options for that post (i.e., they never moved the slider for any responses; $n = 5$), this was recorded as missed data (and was not imputed).

Outlier Analysis

No variables violated normality assumptions (i.e., $|\text{skew}| \leq 3$; $|\text{kurtosis}| \leq 10$). Several univariate outliers ($\pm 3SD$) were detected [seven within the questionnaires; four within response

Figure 2

Distribution of Self-Reported Daily Social Media and Instagram Use



Note. Frequency of participant's self-reported daily social media use (A) and Instagram use (B).

ratings (Phase One); 12 within viewers' responses (Phase Two)] and were subsequently

Winsorized. No multivariate outliers (as per Mahalanobis distance) were detected.

Social Media Use Reported by Adolescents

Most adolescents reported owning a cellphone (83%) and having an Instagram account (60%). The majority of participants were daily social media users (79%), with 1-2 hours per day being the most frequently reported amount of daily use (Figure 2A). However, less than half of the sample (42%) reported being daily Instagram users (Figure 2B).

Phase One: What Adolescents Hope to Receive When Posting on Social Media

Analytic Approach

In Phase One, I examined how much insight adolescents felt they had into what they wanted to receive, whether they felt they would receive this response, and then their ratings of how much of various responses they hoped to receive. After reviewing these ratings, I examined whether the demographic and socio-emotional characteristics of the youth related to their responses. For all individual characteristic analyses in Phase One, multilevel modelling (MLM)

was used with a maximum likelihood estimator in SPSS Statistics (Version 29; Nezlek, 2008; Snijders & Bosker, 2011). This approach was chosen given the hierarchical nature of the data whereby social media posts (level-1) were nested within participants (level-2). Analyses were considered adequately powered to estimate unbiased regression coefficients, standard errors, and variance components as more than 50 units were available at the participant-level (Maas & Hox, 2005; Paccagnella, 2011). That is, for each participant there were 8 social media posts available for analysis (103 participants = 824 units of data). Prior to analyses, continuous level 2-predictors were grand-mean centered. Of note, given that the post topics were not related to our main research questions, response type was collapsed across topics.

An unconditional model was first conducted to determine the Intraclass Correlation (ICC) for each of the wanted responses, perceived insight, and perceived likelihood. The ICCs for support, engagement, advice, and entertainment were .28, .39, .30, and .39 respectively, indicating the approximate amount of variability for each response that was due to between-person differences. The ICCs for perceived insight and perceived likelihood were .37 and .34.

To test the individual characteristic hypotheses, gender, age, empathy, emotion regulation, affect, peer experiences, and social media use were added as level-2 fixed effects with a random intercept. Of note, to explore the predictor of gender, the models were first run with non-binary participants excluded ($n = 4$) from the analysis given that the small number of youth in our sample would not allow for a meaningful interpretation of a non-binary population. Snijders and Bosker's (2011) model specification recommendations were followed, and accordingly, nonsignificant predictors were trimmed from the final models to avoid overfitting. Given that gender was not a significant predictor in any of the individual characteristic analyses (and trimmed from the final models), non-binary youth were added back and included in all final

models ($N = 103$). See Table 2 for all final trimmed multilevel models.

Adolescents' Reported Insight into What They Hope to Receive from Others

On average, adolescents reported having moderate insight as to what type of responses they wanted for their social media posts ($M = 3.40$, $SD = 1.22$, Range: 1-5), with higher ratings reflecting greater perceived insight into responses. To examine if adolescents' individual characteristics related to their perceived insight into what responses they want on their posts, an MLM model was conducted with insight as the dependent variable. In the final trimmed model, participants with greater empathy ($B = 1.20$, $SE = 0.22$, $p < .001$) and more social media use ($B = 0.15$, $SE = 0.04$, $p < .001$) reported having more insight into what responses they wanted from their posts. See Table 2 for all final trimmed multilevel models

Adolescents' Perceived Likelihood of Receiving the Response They Want

On average, adolescents reported that it was moderately likely they would receive their wanted responses from other social media users ($M = 3.53$, $SD = 0.94$, Range: 1-5). To address whether adolescents' individual characteristics were related to their perceived likelihood of receiving their wanted response, an MLM model was conducted with likelihood as the dependent variable. In the trimmed model, participants with greater empathy ($B = 0.81$, $SE = 0.17$, $p < .001$) predicted a greater likelihood of receiving their wanted responses from users. Also, participants with greater expressive suppression ($B = -0.04$, $SE = 0.02$, $p = .044$) predicted a lower likelihood of receiving their wanted responses from users.

What Adolescents Want to Receive from Others on Their Posts

To examine what responses adolescents were endorsing, I first looked at the extent to which posters reported wanting each of the responses (support, engagement, advice, entertainment; from 0-100 using a repeated-measures ANOVA (response type: support,

engagement, advice, entertainment). Notably, I collapsed across post topics given that they were prescribed and not of focus⁴. Mauchly's Test revealed a violation for the main effect of response type, ($\chi^2(5) = 38.38, p < .001$). Thus, the Greenhouse-Geisser correction is reported to correct for this violation of sphericity. There was a main effect of response type, $F(2.45, 246.99) = 51.14$, $MSE = 268.30, p < .001, \eta_p^2 = .34$. Follow-up planned comparisons paired samples t-tests were conducted, with Bonferroni correction applied (six comparisons; $p < .008$). Adolescents reported wanting more engagement ($M = 65.21, SD = 18.96$) and entertainment ($M = 66.22, SD = 20.05$) than both support ($M = 49.39, SD = 20.50; ps < .001$) and advice ($M = 46.10, SD = 19.98; ps < .001$). There were no differences between participants' interest in receiving support or advice ($p = .208$), and between receiving engagement or entertainment ($p = .607$). See Table 1 for descriptive statistics.

To examine how adolescent characteristics related to their ratings for each response type four separate MLM models were analyzed (Table 2).

Entertainment. With all predictors entered, cognitive reappraisal and offline peer relationships emerged as significant predictors of entertainment ratings. In the trimmed model, adolescents with better cognitive reappraisal skills ($B = 1.19, SE = 0.46, p = .011$) and more positive peer relationships ($B = 0.94, SE = 0.26, p < .001$) wanted others to be more entertained (i.e., smiles/laughs) by their posts.

Engagement. With all predictors entered, empathy, affect, and offline peer relationships, emerged as significant predictors of engagement. In the trimmed model, participants with greater empathy ($B = 15.94, SE = 5.99, p = .009$) and more positive peer relationships ($B = 0.92, SE = 0.31, p = .004$) wanted more engagement from their posts. Participants with more positive affect

⁴ See Appendix C for repeated measures ANOVA 4 (post topic) x 4 (response type) results.

reported wanting less engagement in response to their posts ($B = -1.81$, $SE = 0.77$, $p = .021$).

Support. No predictors emerged as significant for predicting the degree participants wanted support in response to their posts ($ps > .081$).

Advice. With all predictors entered, age emerged as a significant predictor of the degree participants wanted advice in response to their posts. However, when the nonsignificant predictors were trimmed, age was not significant ($B = -3.09$, $SE = 1.59$, $p = .055$).

Phase Two: Viewers' Perception of What Posters' Want as a Response

Analytic Approach

In Phase Two, adolescents viewed 40 social media posts and rated the degree of each response type they felt the poster wanted and their confidence in their ratings. Thus, I could examine how viewers felt about their ability to accurately perceive what type of response posters wanted, and whether the degree of confidence varied by their own characteristics in a similar way to how the data was treated in Phase One using MLM.

With respect to perceptions of specific response options, recall that 4-5 adolescent viewers rated each social media post as to how much the poster wanted to receive entertainment, engagement, advice, and support (from 0-100). Thus, I was able to create an average score (for each post) that reflected adolescents' perception of the degree to which posters wanted each response. I analyzed ratings across response types using a repeated measures ANOVA to determine what response types are perceived as being most desired and then examined each post's average score in relation to the posters' characteristics to determine whether the posters' demographic and socio-emotional characteristics related to how their posts were being perceived.

Adolescent Viewers' Confidence in Determining What Response Posters Want

Across the 40 posts each adolescent rated, adolescent viewers generally perceived they

were probably accurate ($M = 3.69$, $SD = .90$, Range: 1-5) in their interpretations of the posters wanted responses. With respect to individual characteristics, with all predictors entered into the MLM model ($ICC = 0.31$), peer relationships emerged as significant. In the trimmed model, viewers with more positive peer relationships ($B = 0.02$, $SE = 0.01$, $p = .002$, $R^2_\beta = .11$) perceived more accuracy in their interpretations of posters' wanted responses.

Adolescent Viewers' Ratings of What Posters' Want as a Response

I first conducted a repeated-measures ANOVA on the averaged score of adolescent viewers' perceptions of desired responses⁵. Mauchly's Test revealed a violation for the main effect of response type ($\chi^2(5) = 142.75$, $p < .001$) and the Greenhouse-Geisser correction is reported. There was a main effect of response type, $F(1.63, 162.80) = 149.62$, $MSE = 158.87$, $p < .001$, $\eta_p^2 = .599$. Follow-up planned comparisons paired samples t-tests were conducted, with Bonferroni correction (six comparisons; $p < .008$) and all comparisons were significant. Viewers perceived that posters wanted more engagement ($M = 49.46$, $SD = 10.10$) and entertainment ($M = 43.60$, $SD = 10.58$) than support ($M = 32.69$, $SD = 10.80$; $ps < .001$) or advice ($M = 24.09$, $SD = 8.14$; $ps < .001$) for their posts. Further, viewers reported that posters wanted more support than advice ($p < .001$) and more engagement than entertainment ($p < .001$) in response to their posts.

Next, I examined whether the characteristics of posters' (Phase One) were associated with adolescent viewers' perceptions of what responses posters wanted on their social media posts (Phase Two; Table 3). Given that each post rating was averaged across 4-5 viewers (i.e., nested across multiple participants), multilevel modelling was deemed not appropriate. Thus, bivariate correlations (4) and linear regression analyses were conducted. Continuous predictors were grand

⁵ See Appendix D for repeated measures, ANOVA 4 (post topic) x 4 (response type) results.

mean-centred prior to analyses. A total of four linear regressions were conducted, with the dependent variable being the degree of each response type viewers perceived from posts. Original posters' individual characteristics of gender, age, empathy, online experiences, offline peer relationships, cognitive reappraisal, expressive suppression, affect, and social media were entered. Data from non-binary youth ($n = 4$) were excluded from the original models and included in the trimmed models given that gender was *ns*. The models for entertainment, support, and advice were not significant ($ps > .607$), suggesting that the posters' individual characteristics did not relate to the degree to which others viewed their interest in receiving those responses. The model for engagement was significant, $R^2 = .24$, $F(9, 87) = 3.05$, $p = .003$, and age emerged as a significant predictor. In the trimmed model, the older posters were, the less engagement viewers perceived they wanted, $B = -3.40$, $SE = .76$, $p < .001$.

Phase One & Two: How Well Do Adolescent Viewers Perceive Posters' Motivations

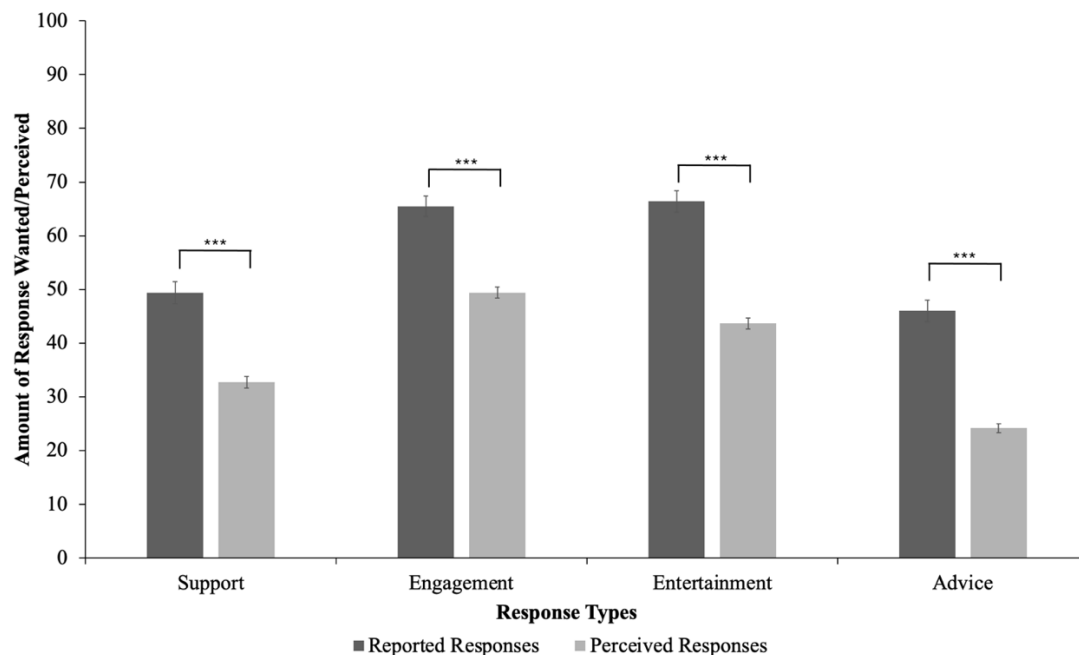
As a final step, I wanted to compare what posters indicated they wanted in response to posts with viewers' perceptions of what posters wanted. I approached this comparison in two ways: comparing the magnitude of ratings for each response type and examining the association between the ratings.

First, a 2 (rater type: poster, viewer) x 4 (response type: entertainment, engagement, support, advice) repeated measures ANOVA was conducted. The dependent measure was how much (from 0-100) of each response was wanted as reported by posters (Phase One) or perceived by receivers (averaged across 4-5 viewers; Phase Two). Mauchly's Test revealed a violation for the main effect of response type ($\chi^2(5) = 64.36$, $p < .001$) and the interaction ($\chi^2(5) = 50.04$, $p < .001$). As such, the Greenhouse-Geisser correction is reported. A main effect of rater type emerged, $F(1, 99) = 162.08$, $MSE = 460.88$, $p < .001$, $\eta_p^2 = .62$. Across all response types,

original posters reporting wanting a greater degree of response ($M = 56.81$, $SE = 1.53$) than viewers perceived they wanted ($M = 37.48$, $SE = 0.59$). A main effect of response type also emerged, $F(2.10, 207.88) = 133.95$, $MSE = 249.76$, $p < .001$, $\eta_p^2 = .58$. These main effects were qualified by a significant interaction of rater type by response type, $F(2.35, 232.80) = 4.48$, $MSE = 169.88$, $p = .009$, $\eta_p^2 = .04$. However, when each response type was examined separately, results are consistent with the main effect, namely, that adolescents hope to entertain others ($t(99) = 10.76$, $p < .001$), receive more engagement ($t(99) = 7.59$, $p < .001$), receive more support ($t(99) = 7.53$, $p < .001$), and receive more advice ($t(99) = 11.91$, $p < .001$), than the adolescent viewers thought they wanted (Figure 3).

Figure 3

What Posters Want to Receive and Viewers' Perceptions of what Posters Want



Note. Comparison of wanted responses as reported by original posters (Phase One) and viewers' perceptions of posters' wanted responses (Phase Two).

Second, while the ANOVA allowed us to explore the magnitude of discrepancy between posters' wanted responses and viewers' perceptions, I also conducted bivariate correlations to determine the associations between posters' and viewers' perceptions for each type of response to see if there was an association and whether the strength of the association differed by response type. Engagement and entertainment showed significant, but weak correlations ($r = .24, .22$, respectively, $ps < .001$); support and advice showed significant, moderate correlations ($r = .43, .37$, respectively, $p < .001$). Fisher's z-test was used to compare the strength of the correlation coefficients, showing the associations between poster and viewer ratings were significantly stronger for support and advice than for entertainment and engagement ($ps < .001$). Thus, while support and advice are desired less often (as per findings above) when posters are interested in receiving them, these interests are better detected by viewers.

Discussion

Social media is a part of many adolescents' daily lives. I created a simulated Instagram platform that examined (a) what adolescents want from other users when posting on social media (b) viewers' perceptions of social media posts, (c) how adolescents' individual characteristics relate to what they hope to receive and others' perceptions of their posts, and (d) a comparison between what posters' want to receive from others and what viewers think they want.

What Adolescents Hope to Receive from Others When Posting (Phase One)

Adolescents, on average, reported having moderate insight into the responses they wanted on their posts and that it was moderately likely they would receive their desired response. However, ratings varied by adolescent characteristics: adolescents with more social media use rated themselves as having greater insight into what they hoped to receive from others, potentially as increased experience with the act of posting may provide adolescents with the

opportunity to reflect on what they are hoping to receive from others and/or the norms associated with social media behaviour. Additionally, adolescents with greater empathy reported both more insight and more likelihood of receiving their desired response, possibly due to generally having a greater sense of their own internal states, including motivations and expectations (Guttman & Laporte, 2002; Moriguchi et al., 2007).

With respect to specific responses, adolescents reported wanting engagement and entertainment more than advice and support. There were no differences between participants' interest in support vs. advice, and engagement vs. entertainment. This supports my hypothesis that engagement from posts is highly valued by youth (Sherman et al., 2016), however, adolescents may hold several motivations for posting on social media (i.e., they are not mutually exclusive). Another primary response wanted when posting was entertaining others by making them laugh and smile, which recent work found is a common motivation for adolescent social media use (van der Wal et al., 2024). Viewed through the developmental lens, finding that engagement and entertainment are the most desired responses is consistent with expectations for this developmental stage, namely that peer relationships, social status, and peer influence are extremely salient in adolescence (Brown & Larson, 2009).

Adolescent Characteristics and What They Hope to Receive from Others

Adolescents' characteristics were associated with the degree to which they hoped to receive certain responses from others. First, adolescents with more positive peer relationships and more adaptive emotional regulation skills indicated more interest in providing others with entertainment (i.e., laughs/smiles) from their posts. The entertainment response is somewhat different from the others in that it focuses more on a poster wanting to provide the viewer with something more than receiving something in the response. Thus, it may be the case that

adolescents who report positive relationships and have good emotion regulation are motivated to use social media as a way to create positive experiences for others. Moreover, given the value of using humour in creating social connections (Dunbar et al., 2021), it may be the case that these individuals use social media to affiliate with others.

Second, adolescents with greater empathy and positive peer relationships wanted more engagement on their posts. Previous work finds that social media users with greater trait empathy are more likely to engage with others' social media content (Mayshak et al., 2017), and as such may hold these communicative expectations for other users when posting their own content. Youth who engage in honest self-presentation online were found to have greater positive peer relationships which in turn facilitated more positive engagement online (Tian et al., 2024), which may reinforce wanting more engagement from peers given users' expectations that social feedback and engagement are likely to be positively valenced from experience. However, I also found that adolescents with greater negative affect wanted more engagement. Thus, it may also be the case that adolescents post on social media with hopes that engagement from others could regulate their negative affect, consistent with previous findings suggesting smartphones as a mood modification tool for adolescents (Minich & Moreno, 2024).

Interestingly, I did not find that, generally, the characteristics of the poster related to the types of responses that *others* perceived (discussed in the section below). The one exception to this was a trend wherein adolescent posters who were older created posts that were viewed as wanting less engagement than younger posters. Thus, in general, it seems that adolescents' characteristics are related more to their own desires/motivations when posting than to the content of the posts they are creating (from which their motivations could be gleaned by others). Though, of course, that conclusion needs to be considered in the context of our methodology, wherein

adolescents were provided with general topics for posts.

Viewers' Perception of What Posters' Want as a Response (Phase Two)

Adolescent viewers perceived that posters hoped to receive engagement and entertainment more than support and advice. Moreover, viewers reported that posters wanted support more than advice and engagement more than entertainment in response to their posts. In general, viewers indicated that they were probably accurate in their interpretations of what the poster wanted as a response to their posts, with adolescents who had better peer relationships showing more confidence in their perceptions.

I compared the ratings of the adolescent posters to the perceptions of the viewers for each social media post in order to examine whether what adolescents hope to receive from others is evident to those who view their posts. Significant associations between poster and viewer ratings were found, suggesting that the interests of the poster are coming through for viewers via social media posts, particularly when the poster is interested in receiving support and advice. However, the study findings revealed that across all response options, posters wanted a greater amount of a response than viewers perceived posters wanted. Thus, similar to other work examining online communication (albeit looking at communicative intent; Krueger et al., 2005), our findings suggest a disconnect between poster and viewer. A recent study found that while the inclusion of emojis, which are utilized in our methodology, does lead to greater communicative success, senders still significantly overestimated how likely receivers would be to interpret their conveyed meanings correctly (Holtgraves et al., 2024). This gap between what posters are hoping to receive and what others perceive they want may mean that within the process of posting via social media, there are expectations that are not met and/or feelings of dissatisfaction/disappointment.

Together these findings provide a valuable foundation from which future work can be developed, for instance, examining whether the degree of difference between what a poster hopes to receive and what others perceive they want is related to individual well-being/ill-being following social media use. Moreover, these findings could be extended to examine how perceptions of what someone hopes to receive as a response translates to actual responses (i.e., asking how often adolescents actually provide the type of response they think others' want?) and what factors affect such an association.

Limitations and Future Directions

There are limitations of the present study that warrant consideration. A central limitation was the use of prompted social media post topics. I utilized this approach to provide some structure for youth during the study, drawing from past work on the most common topics for social media (Pew Research Center, 2018, 2022), and allowing for examination of adolescents' motivations and perceptions of such motivations in a controlled context. However, it did not allow us to explore posts that adolescents create and respond to spontaneously. Further, the use of emoji pictures in the posts, while protecting confidentiality, limited the ecological validity of the posts created by participants. For instance, rather than picking a photo to post and then generating the caption, our simulated social media task shifted the emphasis on the caption as primary rather than the visual image. Further, typically when creating posts on social media, adolescents would have a general sense of who will see the posts (i.e., followers). However, in our task, social media networks were not replicated and thus the generalizability of results should be tested in the future with real and various audiences (i.e., exploring if motivations differ when posting to private close friend networks versus a larger audience that may include family on social media networks). Last, the current study did not investigate within-person effects but

recent work points to the importance of extending our knowledge beyond between-person effects (Beyens et al., 2020). Future work could use experience sampling methods (van der Wal et al., 2024) that track adolescents' online activity over several weeks and take measurements at several time intervals to examine within-person effects more effectively.

Conclusion

Emerging theories and models of social media use call for more ecologically valid methodologies (i.e., less reliance on self-reported online behaviour) and within-person characteristics (Beyens et al., 2020; van der Wal et al., 2024). In two phases, the present study investigated the types of responses adolescents hoped to receive when posting on a simulated social media app (Instagram) and whether other adolescents perceived what type of response the poster hoped to receive. Adolescents indicated they wanted engagement and entertainment more than advice or support when posting on social media. While there were associations between the ratings of adolescent posters and viewers, adolescents who viewed the posts felt that the poster wanted less of all responses. Thus, it may be the case that what adolescents hope or expect to receive from others after they post on social media is not provided by users. Speaking to the variability in social media experiences, adolescents' demographic factors and characteristics were found to relate to what adolescents hoped to receive from others' responses, but not to how others perceived their posts. Together, this work provides input for models of adolescent social media use (Yang et al., 2021) by highlighting the various hopes and motivations adolescents have when posting online (and mismatch with how their posts are viewed), as well as the individual characteristics that relate to such hopes. Moreover, this work extends practical recommendations, for instance through suggesting that social media literacy should include information regarding the mismatch between response motivations and perceptions.

Chapter Three – Study Two: Features of Social Media Posts

To address the overarching goal of learning more about how adolescents communicate on social media, I explored the content/themes of the social media posts created by participants in Phase One (see Chapter Two for study method). This examination was primarily descriptive and where associations were examined, exploratory. As such, I did not have specific predictions for what would emerge in my analyses of what was generated and whether this varied by adolescents' characteristics. This chapter is intended to be supplemental to the main research findings reported in Chapter Two.

Introduction

Adolescents' Social Media Content

Social media offers opportunities for youth to express themselves, share their ideas, connect with others, and post about what is going on in their life. But what are teens actually posting on social media, with respect to content? In a cross-platform analysis of what teens post about online (Pew Research Center, 2022), 43% of teens reported posting accomplishments, 34% reported posting about family, 25% reported posting about emotions/feelings, 12% reported posting about dating, 11% reported posting about personal problems, 10% posted about political beliefs, and 9% reported posting about their religious beliefs. Past work finds that the content of adolescents' posts, and the depth of emotional sharing online, is influenced by the platform they are using and the norms and characteristics of those platforms. For instance, Snapchat, Facebook statuses, and Instagram are typically used mostly for sharing positive emotional content, which is consistent with the norms and expectations of such platforms (Vermeulen et al., 2018). In contrast, apps such as Twitter and Facebook Messenger were used for sharing negative emotional content with others and were more permissible and accepted on these particular social media

apps. Thus, it seems that on social media platforms with an emphasis on visual content (i.e., photos, videos, brief statuses) the expectations/norms are presenting oneself positively (yet authentically), but that sharing content or information with a negative valence is somewhat more permissible and accepted by youth when using text-based social media apps. Given that sharing positive and negative content has different receptions on social media (Radovic et al., 2016; Vermeulen et al., 2018), I was interested in coding the emotional features of the participants' posts for this supplemental analysis. To enhance our understanding of commonalities in the language used and communicative intentions of adolescents in their social media content, I was also interested in exploring the linguistic features of the post captions. Further, I was interested in examining the individual characteristics of youth that may influence the emotional or linguistic features included in adolescents' social media content.

In addition to navigating the unwritten norms and expectations of social media generally, youth must also create social media content that may be viewed by and is appropriate for, multiple audiences. That is, in a highly digitized world, youth's social media content may be viewed by close friends, peers, strangers, parents, grandparents, employers, schools, etc. This online phenomenon, where youth interact simultaneously with people from different environments of their life on social media, known as *context collapse* (Marwick & boyd, 2011), influences the content they share online. Adolescents show sensitivity and awareness to their imagined audiences and recognize that they should present themselves differently online to different members of their social network (e.g., friends vs. family; Marwick & boyd, 2011). Thus, to navigate the digital dilemma of *context collapse*, teens adopt various strategies, one of which is by utilizing digital features of social media apps that allow sharing different content with different audiences (e.g., Instagram's Close Friends feature – permits sending content to a

subsection of one's social network). Another method reported by teens, and often without parents' knowledge, is creating secondary and more exclusive social media accounts (Weinstein & James, 2022). For example, a *Finsta/Finstagram* or fake Instagram is defined as, "an account made so that a user can post images and interact with other accounts in a more private way, usually reserving the account's followers to close friends" (Merriam-Webster, n.d.). Another strategy adolescents utilize to achieve social privacy is by layering multiple meanings within online posts that are interpreted differently by different audiences, coined as *social steganography* (boyd, 2010). Illustrating the nuances of adolescents' communicative intentions online, boyd (2010) uses the example of a teen who reported using song lyrics to communicate her sadness, with a layered message that would only be decoded by close friends:

When Carmen broke up with her boyfriend, the relationship wasn't working but she was still sad. She wanted her friends to know how she was feeling, but she was afraid that if she posted a moody message to Facebook, her mother would assume she was suicidal. She didn't want to upset her mother, so rather than posting a sappy message, she chose to post lyrics from "Always Look on the Bright Side of Life." Her geeky friends immediately recognized the song from "Life of Brian" and knew that the song was sung when the main character was about to be executed. Her mother, on the other hand, did not realize that the words were a song lyric, let alone recognize the Monty Python reference. She took the words literally and commented on Carmen's post, noting that she seemed to be doing really well. Her friends, familiar with the Monty Python reference – and witnessing Carmen's mother's misinterpretation in her comment – texted her to get the full story. (p. 21-22).

Thus, adolescents use a variety of approaches to convey their communicative motivations and

intentions while navigating the different audiences present within social media. Indeed, research suggests that when generating online content teens spend a great deal of time considering how they want to present themselves online with their social media content when posting and do consider factors such as how posting might impact their future school or job prospects (Pew Research Centre, 2022; Weinstein & James, 2022). Of course, this does not apply to all adolescents' online behaviour, with some adolescents being more disinhibited and impulsive online (Suler, 2004).

Addressing a call for content-based analysis of adolescents' social media use (Meier et al., 2024), the present exploration investigates themes and styles in adolescents' social media posts (albeit within the constraints of an experimental task with predetermined topics). My research also investigates how adolescent posters' individual characteristics relate to their online posts and styles. Understanding the content that adolescents are posting and viewing online is essential given that content can be entertaining, informative, and educational, but may also be harmful (e.g., promoting self-harm, suicide, or eating disorders, suggestive pictures of risky behaviour) to well-being and mental health (Custers & Van den Bulck, 2009; O'Reilly et al., 2018; Reid & Weigle, 2014).

Individual Characteristics & Social Media Content

Although there are commonalities in what adolescents post online generally (Pew Research Centre, 2022), individual characteristics and demographic factors also influence the content that adolescents post. For instance, older adolescent girls are found to post more regularly about accomplishments, family, emotions, personal problems, or dating than younger girls or boys (Pew Research Centre, 2022). Further, the same study found that many older adolescent girls avoid posting altogether to avoid embarrassment, offending others, or

misrepresenting themselves. Posting risky content online (e.g., sexualized pictures or content) has also been linked to higher age, sensation seeking, and family conflict eliciting more negative feedback from social media users (Koutamanis et al., 2015). Thus, the literature suggests that individual characteristics of youth and contextual factors (e.g., interpersonal relationships) are important for understanding the content they generate and post on social media. Another individual characteristic that has been studied in relation to social media use is mood. A qualitative study of depressed adolescents found that when youth were feeling more depressed, they utilized social media to regulate their mood by gaining social support, releasing emotions, searching for an online community that understands them, or searching for positive and entertaining content (Radovic et al., 2017). This type of use illustrates the potential for social media as a positive emotion regulation strategy for youth with mental health challenges and using technology in an advantageous way. However, in the same study, some depressed adolescents also reported engaging in negative use that violated social media norms, particularly oversharing (e.g., posting trivial events, suggestive photos, or exaggerating positive events), stressed posting (e.g., posting negative thoughts or emotions, venting), and encountering/seeking triggering posts (e.g., content that promotes negative coping like self-harm, disordered eating, cyberbullying). While the initial motivation reported by all adolescents was to improve their moods, such use of social media resulted in negative consequences for some youth such as cyberbullying, judgement, or misinterpretation by others (Radovic et al., 2017). However, some youth indicated that the motivation for receiving support through stressed posting outweighed these potential consequences or risks:

A lot of people will say, ‘Oh, if you feel mad write a letter and rip it up.’ I can’t do that. I would rather rant and have someone see it—because it makes me feel better. Even if no

one cares, as long as it's public, I feel better about it. —it's like something I can post, and someone can say something about it, like their opinion, and in a way it kind of helps me. I did say before how I don't really like people who put their opinions, especially if they're attacking me, but if it's an opinion where they're agreeing with me, or they're just saying, 'Oh, maybe you shouldn't do that' and then they're just trying to help me. I like that. (p. 8, Radovic et al., 2017).

Although individual factors such as age, gender, and mood have been studied in relation to adolescents' online content, gaps remain. For instance, there is not a clear understanding of the specific linguistic and emotional features of youths' social media content, and importantly it is not known how youths' own characteristics relate to the degree to which these features are present in their social media posts. To address this gap, the current study explores individual characteristics and factors of age, gender, social media use, peer relationships, empathy, mood, and emotion regulation associated with styles and themes in adolescents' social media posts created on a simulated Instagram application.

Current Study

While the previous chapter investigated adolescents' motivations (i.e., wanted responses) for their social media posts and the transparency of such motivations to other users, the current chapter explores the specific content of the social media posts created by adolescents in Phase One of the study. Recall that adolescents were prompted to provide posts on certain topics (i.e., achievement, emotions, family, friends) given that these are topics that most adolescents post online (Pew Research Center, 2018, 2022). Thus, I am not examining the topic per se (as that was prescribed), but rather the features of the posts within and across these topic areas. First, the analyses in this chapter addressed the questions: What are the linguistic characteristics of the

posts (e.g., word count, word frequency, analytic and authentic language)? Is there affective congruency between the picture and caption and are most posts conveying a literal or ironic meaning? How much self-disclosure do adolescents make in their posts? What is the emotional valence of the post captions, and what is the overall affective valence of the posts considering both caption and picture? Finally, central to the theme of understanding individual differences, are posters' characteristics associated with any elements of the posts themselves? These questions were explored through both manual coding and linguistic analysis software. As a reminder for readers, I did not have firm hypotheses about the content of adolescents' social media posts, given limited past work focusing on content-based social media analysis and individual characteristics.

The current exploration was undertaken with awareness of the limitations. That is, in addition to the prescribed topics, the experimental context is a different context relative to youths' typical social media use (e.g., I asked youth to generate posts rather than them making that decision for themselves without an authentic social media network). As well, there may be communicative intentions to the social media posts generated that we, as adult researchers (rather than close adolescent friends) were not able to accurately interpret. This being said, the exploration allows for assessing the posts of adolescents when they are told that the audience will be other teens for whom they do not know, a scenario that is possible with platforms such as Instagram where individuals follow and are followed by individuals they do not know offline. With such constraints acknowledged, examining the themes and styles in adolescents' social media posts has both practical and theoretical applications. For instance, this exploration addresses a gap in the literature for more content-based studies of social media, and less focus on time spent on social media (Meier et al., 2024). With respect to clinical applications, Yang and

colleagues (2021) recommend that assessment, prevention, and intervention should consider the impact of adolescents' offline lives and focus on the *quality* of adolescent social media use rather than *quantity*. A more in-depth assessment of the content adolescents post and view may help elucidate some of the dilemmas and challenges they face daily. Although this work did not directly explore outcomes for youths' well-being, it will help to inform future research investigating which youth may be particularly vulnerable to consequences associated with posting certain content (e.g., those with poor socio-emotion skills) such as negative feedback from peers.

Method

Exploration of the themes and linguistic styles of adolescents aged 13 to 16-years old ($N = 102$; $M_{age} = 14.29$ years; $SD = 1.22$ years; 59 girls, 4 non-binary youth) used when creating posts on social media (Phase One) was undertaken using two methods of coding described below.

Coding Method and Procedure

For ease of reporting, all coding dimensions are categorized into either linguistic or emotional features of posts. Within each category, both coding methods were used. Thus, these are described first with the features obtained from the coding method listed.

LIWC-22 Software Coding

To analyze the captions of the social media posts generated by adolescents, the Linguistic Inquiry and Word Count (LIWC-22; Pennebaker et al., 2022) software was utilized. The social media post captions were uploaded to the software which provided us with linguistic features: word frequency analysis, word count, analytic summary, authenticity summary; and emotion features: positive and negative emotion. All of the scores for the LIWC-22 dimensions listed

(with the exception of the summary scores which are percentiles) reflect the percentage of each post caption that included each feature (Boyd et al., 2022).

Manual Coding

Given that LIWC-22 can only provide information on the captions of the posts, I was interested in coding some additional features for the entire post (considering the full effect of both the caption and picture). More specifically, manual coding was done to provide information about linguistic features: picture and caption congruence, communicative intent, depth of disclosure, and valence of the entire post (i.e., caption and picture). The process for the manual coding was as follows: two undergraduate coders met with the graduate student who explained the coding scheme and demonstrated how to code posts. Both undergraduate coders were provided with a coding guide with post examples and details of each dimension being coded. Coding was practised as a group using the guide, with codes discussed and compared amongst one another. Following this training, each coder independently coded 25 posts and a reliability analysis was conducted to establish inter-rater reliability of the coding scheme. The intraclass correlation (ICC) for each dimension is reported for each manually coded dimension; all dimensions were found to have good to excellent inter-rater reliability. After reliability was established between the two undergraduate coders, the primary undergraduate coder coded all the remaining posts.

Linguistic Features of Posts

I was interested in the linguistic features of the posts to explore the type of language and words adolescents use in their post captions. Further, I was interested in whether any of these linguistic features varied by posters' individual characteristics.

Word Frequencies & Word Count

Although the topics were preestablished (and provided to adolescents during the task), I was interested in exploring if there were any common subtopics or themes within each of the broader topics. Thus, for each topic of post (achievement, emotions, friends, family), the software provided an output of relative frequencies and word clouds of commonly used words in the captions of posts. The LIWC-22 analysis guidelines were followed and a preprogrammed list of non-meaningful function words (e.g., he/she, yes, no, okay) were filtered out of the frequency analysis. Word count was used to examine whether post length varied by post topic or individual characteristics. This score reflects the total raw word count of each caption. Within the LIWC-22 software, each hashtag and emoji used in the caption were counted as one word.

Analytic and Authentic Summary Scores

Given previous work that suggests that adolescents' online self-presentation can elicit both positive (e.g., receiving likes or positive comments) and negative outcomes (e.g., self-esteem that is dependent on online social approval), I was interested in exploring the language styles youth used in their post captions (Meeus et al., 2019; Yau et al., 2019). The LIWC-22 summary dimension scores reflect standardized scores that have been converted to percentiles ranging from 1 to 99 (based on a normal curve). These norms were established through text samples from college admissions essays, blogs, conversations, emails, social media, movies/TV, and speeches with over 31 million words sampled. Notably, these norms and percentiles are not comparative to an adolescent sample and thus I am not using normative comparisons to make conclusions about adolescents' social media content generally. Rather, these summary dimensions will be interpreted descriptively to determine which post topics had more or less of a certain feature with a focus on the pattern of results rather than specific percentiles.

The analytic summary variable is factor-analytically derived and reflects the degree to which participants used words in their captions that are formal, logical, and suggest hierarchical thinking patterns. Text low on this dimension typically reflects writing that is more personal and friendly. Texts high on this dimension tend to use formal language that would be fitting in settings such as academia but may be perceived as cold or rigid in social media posts.

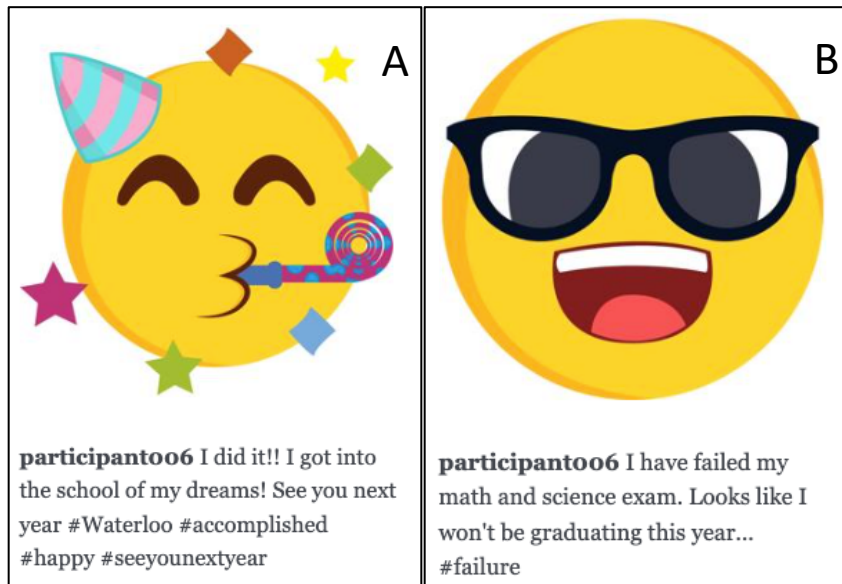
The authenticity summary variable refers to language that reflects genuineness, and honesty, and is perceived as “real”. Texts that have low authenticity could reflect someone who is being cautious, only presenting their best self, or has prepared the text in advance (e.g., speeches/lectures). Texts high on this dimension tend to use spontaneous language and do not self-monitor or filter their writing.

Picture and Caption Congruence

Given that incongruencies (e.g., between the literal words and the tone or context) can be used to convey intent, I was interested in coding the congruency/match between the affect of the posts’ picture and caption. The emoji pictures used in Phase One of the study were pre-sorted as conveying positive or negative affect. The coders then compared the affect of each post’s picture to the affect of the caption (analyzed by the LIWC-22 software) and coded the posts for affect congruency ($ICC = 1$). That is, posts that had both a caption and a picture that were both negative/positive were coded as 2 (*congruent*). Posts that were mismatched in their affect were coded as 1 (*incongruent*; i.e., positive picture with negative caption or negative picture with positive caption). Incongruent posts (with mismatched affect) may reflect a different conveyed intent than the literal interpretation or meaning of the post and was a first step in exploring adolescents’ conveyed meaning in their posts. Post captions that did not have a clear affect were coded as 0 (*ambiguous*). See Figure 4 for examples of congruent and incongruent posts.

Figure 4

Examples of Posts with Congruent and Incongruent Pictures and Captions



Note. A social media post with a congruent (Panel A) and incongruent (Panel B) picture and caption affect.

Communicative Intent

Given that previous work has found that adolescents use more ironic utterances in computer-mediated communication than in face-to-face communication (Aguert et al., 2016), I was interested in exploring the communicative intent and linguistic expression of irony in the social media posts. Irony can serve many functions in face-to-face and online communication, such as to be humorous, to mock or tease, or to mute the impact of a hurtful comment (Whalen & Pexman, 2010; Whalen et al., 2013). The coders ($ICC = .86$) were asked to rate the conveyed meaning of each post as either literal or ironic. Literal posts were operationalized as not having a hidden meaning and directly conveying the post's tone/meaning. Ironic posts were

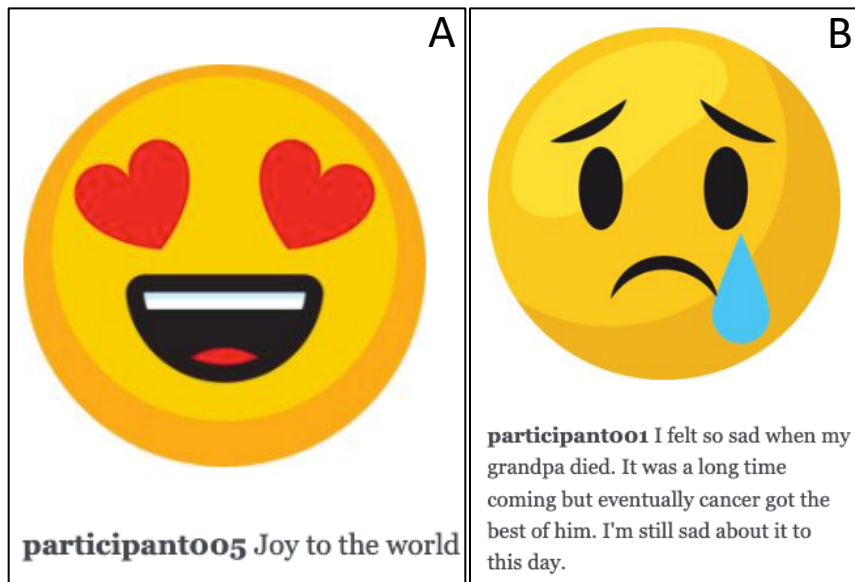
operationalized as having a communicative intent that is conveyed indirectly or hints at a hidden meaning. Coders were provided with several examples and definitions of types of irony (hyperbole, understatement, rhetorical questions, sarcasm, jocularity) using criteria adapted from Whalen et al., 2010, used for coding irony use in personal blogs. Hyperbole in posts was operationalized as exaggerating or overstating reality (e.g., “Dying of laughter”). An ironic understatement was operationalized as understating reality (e.g., posting a picture of a face with steam coming out of the ears with the caption “Feeling just a little annoyed today”). A rhetorical question was operationalized as a question that is not searching for an answer, but rather making a point or creating a dramatic effect (e.g., “Are we destined to be forgotten?”). Sarcasm was operationalized as posts that convey meaning that is counterfactual to the actual words/language written (e.g., “Can’t wait to be stuck in a car with my brother for 5 hours during our family road trip...”). Jocularly was operationalized as language that conveys a different meaning than the actual words/language without being counterfactual (e.g., “Well that was a roller coaster. Trauma anyone else?” with a nervous emoji picture). Thus, post captions were coded as 1 (*literal meaning*), 2 (*ironic meaning*), or 0 (*ambiguous*) for posts without sufficient detail or that were nonsensical (e.g., “Weeh!!!”).

Depth of Disclosure

Coders ($ICC = .81$) were asked to rate the depth of personal disclosure included in the social media posts on a Likert scale from 1 (*very little/nothing*) to 3 (*a lot*). Posts that revealed very little/nothing disclosed things that would be easily observable to others (e.g., hairstyle, clothing) or did not disclose anything personal (Figure 5, Panel A). Posts with greater depth of disclosure were personal, not easily observable, and often revealed the personal internal experiences or emotions of the poster (Figure 5, Panel B).

Figure 5

Examples of Posts with Varying Depths of Disclosure



Note. A social media post with very little/no depth of disclosure (Panel A) and a lot of disclosure depth (Panel B).

Emotion Features of Posts

To understand the general emotional valence of adolescents' posts as well as whether the valence varied by individual characteristics, positive and negative emotion words in the post captions were examined with the LIWC-22 software and undergraduate coders coded the valence of the entire posts considering both post caption and picture.

Valence of Post Caption & Picture

The coders ($ICC = .95$) were asked to rate the valence of the entire post (considering both the caption and picture) on a 5-point Likert scale ranging from 1 (*very negative*) to 5 (*very positive*).

Positive and Negative Emotions

The post captions were analyzed for text that reflected positive emotions (e.g., good, love, happy, hope) and negative emotions (e.g., bad, hate, hurt, tired). Recall that the LIWC-22 software provides the percentage of each post that includes emotion words.

Adolescents' Individual Characteristics

Associations between the coding dimensions listed above and *posters'* individual characteristics of age, gender, empathy, online experiences, peer experiences (online and offline), emotion regulation, affect, and social media use were explored. See Chapter Two Method for details of each questionnaire.

Results

A total of 816 social media posts (created in Phase One; created by 102 participants⁶) were analyzed using both linguistics software (LIWC-22) and manual coding to explore the content of the posts⁷.

Analytic Approach

For the majority of the exploratory analyses, raw descriptive statistics for each post topic are reported to capture the full variability of the responses. As noted below, there were several outliers and skewed distributions within the data. Thus, for descriptive statistics interpretations are based on the median as the measure of central tendency, rather than the mean, given that it is less susceptible to outliers. The descriptive statistics are available in Table 4 (linguistic features) and Table 5 (all emotion coding dimensions).

⁶ Data from one participant was excluded because they bypassed the programming by entering a space as the caption, resulting in 4/8 incomplete social media posts (i.e., picture only).

⁷ Data from two posts, included in the current analysis, were not included in Phase Two due to what the researchers deemed inappropriate content that may affect viewers' well-being ($n = 1$) or participating after post sets were already created for the second phase ($n = 1$).

For the purposes of examining the associations between individual characteristics analyses and post features, average scores were calculated across participants' eight social media posts for each coding dimension. The posts were collapsed across topic areas for parsimony, to reduce the need for multiple comparisons (i.e., avoiding inflation of Type 1 error), and because post topics were not related to our main research questions. Additionally, for these analyses, the means of the composites were subsequently winsorized to ensure that analyses were not unduly influenced by a few participants' responses (see outlier analysis below). The majority of comparisons are bivariate correlations; however, gender was treated as a dichotomous variable and are reported as point-biserial correlations. Non-binary youth ($n = 4$) were excluded from the gender correlations given that the limited number of participants would not be representative of a non-binary population.

Preliminary Analyses

Missing Data

All the data were analyzed for missing values. For the social media posts, the app was programmed to ensure that all participants created eight social media posts with pictures and captions (i.e., participants couldn't move on in the study until a picture was selected and text was entered for each post - ensuring no missing data). After data from one participant was removed⁶, there were no missing values in the data.

For the individual difference measures (collected in Phase One), four individual difference measures (SNEQ, PR-SF, PANAS-C-SF, ERQ-CA) were found to have missing values. As described in Chapter Two items missing at random were imputed (see Chapter Two for further details).

Outlier Analyses

The data was checked for normality assumptions and univariate and multivariate outliers. Average scores were calculated across two social media posts each participant generated for each of the four topics, for the coding dimensions (nine coding dimensions x four post types = 36 composite scores). Across these composite scores, a total of 44 univariate outliers were identified and several multivariate outliers were detected using Mahalanobis distance ($n = 10$). As noted above, these outliers were not winsorized within the reported descriptive analyses to retain the true variability of the data. There were skew and kurtosis violations across multiple variables ($|\text{skew}| > 3$; $|\text{kurtosis}| > 10$) within this data.

For the correlation analyses examining associations between individual characteristics and post features, nine average scores were calculated (collapsed across post topic for each coded dimension). Reflecting a different approach than taken with the descriptive data, within these scores, six univariate outliers were detected and subsequently winsorized to reduce the influence of the outliers.

Linguistic Features of Posts

Recall that the raw descriptive statistics reported below (for both linguistic and emotion features of posts) utilize the median as the measure of tendency given the presence of several outliers in the raw data. Note that the median will provide a general sense of the degree to which adolescents included certain elements within each post feature. However, comparisons across post types are provided descriptively rather than being statistically compared. As a reminder to readers, for linguistic features the following dimensions were manually coded: picture and caption congruence, communicative intent, and depth of disclosure; all other features were obtained from LIWC-22.

Word Frequencies & Word Count

To explore common themes or subtopics of posts, a frequency analysis of the social media post captions was conducted. Each post topic (i.e., family, friends, emotions, achievement) was analyzed separately for frequently used words (204 posts per post topic). See Figure 6 for word clouds representing common words and emojis used in post captions by post topic.

For post topics of achievement, a total of 41 commonly used words were identified. The ten most common words for achievement posts were: finally, year, won, school, today, time, job, team, happy, grade. For posts about emotions (43 identified frequent words), the ten most common words were: time, today, day, life, friends, sad, best, died, year, happy. For posts about family (43 identified frequent words), the ten most common words were: family, love, fun, time, mom, happy, great, guys, fam, birthday. For posts about friends (33 identified frequent words), the ten most common words were: friends, love, friend, best, fun, people, guys, time, day, besties.

The median post length of captions for achievement, family, and friends were similar (*Mdns*:13.75-15.75 words), with participants writing the most for posts about achievement and the least for posts about emotions.

Analytic and Authentic Summary Scores

Recall that the following summary scores of analytic and authentic language from the LIWC-22 software reflect percentiles, and not percentages like the rest of the results provided by the software but were utilized to compare the pattern of results across topics rather than interpret the percentiles (given that the normative sample isn't representative of our sample). With respect to analytic language, participants used a similar level of formal and logical words in their post captions for topics of achievement, emotions, or family, but used slightly less analytic language

Word Clouds of Frequency Analysis by Post Topic



when creating post captions about friends. That is, adolescents in the sample tended to use more personable and casual language when posting about friends.

With respect to authenticity, participants' post captions had somewhat more genuineness, honesty, and "realness" when posting about topics of family or achievements than when posting about emotions or friends. The results suggest that adolescents may be somewhat more cautious when posting about emotions or friends, although it is not entirely clear why. It is possible that it is "riskier" for youth to be genuine about these topics given that they may potentially violate social media norms by disclosing too much or expressing too much emotion when creating content.

Picture and Caption Congruence

Overall, manual coding revealed that participants' posts were largely congruent regardless of post topic meaning both captions and pictures were conveying the same affective valence. Notably, only 7% of posts included incongruent affect between pictures and captions.

Communicative Intent

Regardless of the post topic, the majority of posts created were coded as having a literal meaning compared to an ironic meaning. Of note, only 4% of posts included elements of ironic communicative intent (e.g., hyperbole, understatement, sarcasm, rhetorical questions, jocularity).

Depth of Disclosure

When creating post captions about achievements, participants typically disclosed a moderate amount of personal information in their posts. For all other kinds of post topics, participants disclosed very little/nothing to a moderate amount of personal information in their posts. However, there was variability in the depth of disclosure, with 16% of posts including a lot of personal disclosure. Disclosing very little (45%), or a moderate amount (38%) of personal

information was more typical for posts.

Emotion Features of Posts

Valence of Entire Post - Both Post Caption and Picture

When posting about achievements or family, the median coded valence of posts (considering both caption and picture) was mostly neutral, meaning that posts did not typically convey a positive or negative emotional valence. However, when posting about emotions or friends the median valence of the posts was mildly positive.

Positive and Negative Emotions – Captions Only

Across post types, the median inclusion of positive emotion language ($Mdn = 0 - 3.85\%$) and negative emotion language ($Mdn = 0$) revealed that most post captions included little to no emotion words, particularly negative emotions. However, posts about emotions and friends were the most positively valenced post captions. Overall, 37% of posts included some element of positive emotion words, while 14% of posts included some element of negative emotion words.

Associations between Adolescents' Characteristics and Post Features

To investigate associations between posters' individual characteristics and coding dimensions correlations were conducted for linguistic and emotion coding dimensions (Table 6). Recall that for the descriptive results reported above, the median was used, but for the individual difference analyses reported below, the mean was utilized. Also, recall that for these analyses, the posts are collapsed across post topics and the data was windsorized to reduce undue influence of extreme responses (see Table 7 for descriptive statistics collapsed across post topics). Features of posts that were rarely included (<10% of posts) in participants' social media posts (i.e., incongruent picture and caption affect, ironic communicative intentions, and negative

emotions) were not included in the correlation analyses given that any significant findings would be driven by a few participants.

Age & Gender

No associations were found between age or gender and any of the linguistic or emotion dimensions for posts.

Empathy

Posters' self-reported empathy was negatively associated with negative emotion (from LIWC-22). Thus, participants with greater empathy created post captions that included fewer negative emotion words. However, this association did not emerge in the manual coding of overall post valence (considering both picture and caption).

Online Experiences

Poster's self-reported negative online experiences were negatively associated with manually coded post valence (considering picture and caption), but this association did not emerge in the software coding of the post caption text. Participants who reported greater negative online experiences created posts that were less positively valenced overall.

Peer Experiences

Posters' self-reported positive (offline) peer relationships were negatively associated with negative emotion words (from LIWC-22), but this association did not emerge in the manual coding of overall post valence. Thus, participants who reported better peer relationships created post captions that used fewer negative emotion words.

Emotion Regulation

Participants' self-reported cognitive reappraisal was found to be positively associated with manually coded post valence, but this association did not emerge in the software coding of

emotion. Participants expressive suppression was negatively associated with word count and positively associated with negative emotion language (both from LIWC-22) but was not associated with manual coding of these dimensions. In sum, participants with more adaptive emotion regulation skills had more positively valenced posts overall (considering both picture and caption), and those with more maladaptive emotion regulation skills created post captions that were shorter and contained more negative emotion words.

Affect

Participants' self-reported affect was negatively associated with negative emotion (LIWC-22) but was not associated with manual coding of emotion for the entire post. Thus, participants with more positive affect created captions with less negative emotion language.

Social Media Use

Participants' self-reported social media use was positively associated with positive emotion (LIWC-22), but was not associated with manual coding of emotion for the entire post. That is, participants who reported spending more time on social media created post captions that included more positive emotion language.

Discussion

Social media use is nearly ubiquitous among today's adolescents or *digital natives* (Prensky, 2001). My program of research broadly examines adolescents' communication on social media and the individual characteristics of youth that relate to such communication. The current chapter explored the themes and features included in adolescents' posts. Within more than 800 social media posts, I explored both (a) linguistic features (word frequencies, word count, analytic and authentic language, picture and caption congruence, communicative intent, and depth of disclosure) and (b) emotion features (valence of entire post and positive and

negative emotion in post captions) of social media posts, and (c) the individual characteristics of posters that were associated with linguistic or emotion features. This was an exploratory analysis with the aim of providing preliminary findings regarding adolescents' social media content and relations of such content with their own characteristics, from which future research studies can emerge.

Features of Social Media Posts

Various themes emerged within each of the post types, as demonstrated by the word clouds, providing a visual reflection of what adolescents include when asked to generate posts for peers (albeit with predetermined post topics; Figure 6). With respect to linguistic features, adolescents created posts that were typically more authentic than analytic, were congruent (affect of picture and caption), used literal language to convey intent, and revealed little to a moderate amount of personal information about the poster, however, there were slight differences across post topic. For instance, adolescents tended to use somewhat more authentic or genuine language when posting about family or achievements than when posting about emotions or friends.

Social media affords adolescents the opportunity to decide and choose *what* and with *whom* they share aspects of their self and allows for more control over one's self-presentation (Fullwood et al., 2016) than in face-to-face interactions due to the asynchronicity of online interactions (Nesi, 2018). Indeed, in a qualitative study, adolescents reported feeling pressure and expectations to present themselves as interesting, and likeable, and to appear attractive in their social media content (Yau & Reich, 2018). However, the same study found that there are also many social media norms and unwritten rules that users must follow to be viewed favourably in their self-presentation. For instance, participants described that posts should be about topics of achievements, events, and nonroutine activities that will keep users engaged. Yet, older

adolescents also reported concerns that posting about their achievements can sometimes come across as pretentious and insulting to others, rather than eliciting support as desired (Yau & Reich, 2018). Thus, the present study's findings are consistent with the existing literature on norms that adolescents must share themselves on social media in a specific way that appears authentic and does not reveal overly intimate details or emotions for a public audience.

While computer-mediated communication (including social media) often includes elements of nonliteral language (Aguert et al., 2016; Whalen et al., 2013), in the present study irony was infrequently used. This likely is a factor of the audience, which were unknown peers, given that irony is more frequently and successfully used among friends (Pexman & Zvaigzne, 2004). Participants limited depth of disclosure while consistent with expectations was also likely influenced by methodological factors of the social media task given that participants were not creating content for friends and family that make up a typical social media network. Thus, future work should investigate adolescents' social media content with various and real social media audiences and across multiple social media platforms.

With respect to the emotion features of posts, my study found that adolescents created posts that were mildly positive and only a handful of posts included a negative valence. The present results are consistent with past work where adolescents described what is considered appropriate versus inappropriate posting behaviour. For instance, sharing personal details, sharing emotions (particularly negative emotions), and posting too often, were considered inappropriate by adolescent users (Yau & Reich, 2018). Instead, these adolescents reported that sharing intimate details and emotions was more appropriate within the context of a text-messaging exchange with close friends rather than posted for a public audience on social media. My study findings are also broadly consistent with norms in young adult populations which find

that overly emotional posts and heated discussions on social media are perceived as uninteresting and uncomfortable by one's social network (McLaughlin & Vitak, 2011; Uski & Lampinen, 2014). Certain strategies to achieve appearing likeable online are also condemned by youth, such as purchasing followers/likes or using hashtags such as "like for likes" that adolescents felt were desperate and unearned (Yau & Reich, 2018). The present study's findings are consistent with the existing literature on norms that adolescents must share themselves on social media in a specific way that appears authentic and does not reveal overly intimate details or emotions for a public audience. In sum, I found that variability across post features is mainly in the emotional content of the posts created by participants, rather than in measured linguistic features of posts.

This study provides an exploration into the content of adolescents' social media posts. While this work is preliminary, it provides a stepping stone to understanding the content that adolescents post online, and in turn, are exposed to online, and will inform future work exploring the effects of social media content/communicative styles on well-being.

Adolescent Characteristics Associated with Post Features

Although the experimental context likely constrained participant posts, it is noteworthy that there was variability in the linguistic and emotion features of the posts. Moreover, I found several associations with the individual characteristics of posters, suggesting that the variability in post features may be partially explained by the characteristics of the adolescents themselves. Notably, these associations emerged mainly for emotional features of posts, not for linguistic features.

First, participants with greater empathy created posts with fewer negative emotion words. My study findings are consistent with previous literature in both online and offline contexts which finds that empathy is typically associated with greater prosocial behaviour and

communication (see in Yin & Wang, 2023 for a review). In an offline context, greater empathy is often associated with social, psychological, and personal benefits for youth (Wagaman, 2011; Van der Graaff, 2018). For instance, greater empathy has been associated with greater quality offline peer relationships, more social competence, and lower aggression (see Silke et al., 2018 for a review). In an online context, previous work found that self-reported affective empathy was associated with more prosocial communicative choices on a simulated Snapchat application (Bowman-Smith et al., 2021). Thus, it may be the case that these youth act more prosocial online and avoid violating social media norms by posting less negatively on social media. Given these adolescents' well-developed socio-emotional skills, they may have a better sense of how their posts may be perceived by others and create their social media content accordingly.

Second, the pattern of correlations demonstrates associations between adolescents' social relationships (both online and offline) and the features of their social media posts: 1) participants with more negative online peer experiences created posts that were less positively valenced; 2) participants with better offline peer relationships had posts that were more positively valenced. Taken together, it may be the case that individuals who have worse peer relationships and more negative online experiences in turn demonstrate more negative communicative styles themselves. Alternatively, it may be that there is something about these youths' communicative style, which is captured within the social media posts created, that elicits more negative reactions from others both online and offline. Indeed, previous work finds that youth who are targets of peer aggression tend to have more aggressive communication styles both online and offline (Werner et al., 2010).

Third, with respect to emotion regulation, participants with more adaptive emotion regulation skills (i.e., more cognitive appraisal) had more positively valenced posts. Further,

participants with more maladaptive emotion regulation skills (i.e., more expressive suppression) tended to create posts that contained fewer words and had more negative valence. Speaking to the emotional valence first, these two findings suggest that better emotion regulation is related to the generation of posts that are more positive, while worse emotion regulation is related to more negative posts. Considering social media norms, this finding suggests that emotion regulation relates to greater adherence to what is considered appropriate post valence. Consistent with the current study, previous research found that youth with greater expressive suppression seemingly violated social media norms by posting more negative emotions which are viewed as inappropriate online and have been associated with problematic social media use (Marino et al., 2020; Vermeulen et al., 2018). Thus, youth with less adaptive emotion regulation skills may be more at risk of negative peer feedback given that they may violate social media norms and expectations. Future work should explore the impact of prevention or intervention skills (e.g., teaching youth adaptive regulation skills applied within an online context) for youth with poor regulation skills or maladaptive strategies.

Lastly, more frequent social media use was associated with more positively valenced posts. It is likely the case that these youth are more familiar with the norms of social media, which include avoiding sharing or posting negative content or emotions online (Yau & Reich, 2018). It is also likely that these adolescents receive more positive feedback from peers when posting mildly positive (but authentic) posts, which positively reinforces posting this content on social media. While greater social media use may be related to the generation of posts that follow social conventions, when it comes to responding to social media posts, greater social media use seems to relate to more aggressive communicative choices (Bowman-Smith et al., 2021). Future work should explore these associations with more fine-grained measures of adolescents' quality

of social media experiences rather than time spent online. In sum, my study found that socio-emotional characteristics of adolescents that are conducive to offline social functioning and/or psychological well-being (empathy, positive relationships with peers, adaptive well-being) are all (in some way) associated with post features that either include more positive elements or less negative elements.

Limitations and Future Directions

There are limitations of the present study that warrant consideration, many of which are discussed in Chapter Two in further detail. Most relevant for this chapter, are the inclusion of pre-determined post topics provided to participants during the social media task. This approach was utilized to provide structure for the tasks but did not allow for naturalistic analysis of post topics. Thus, the generalizability of my findings is limited. Future work should explore this experimentally in a less structured task, or by utilizing experience sampling methods that capture real-time social media posts and content and have the potential to analyze content patterns across multiple social media platforms. However, even when provided with prescribed social media topics there was quite a lot of variability in the approaches taken by youth, with some of this variability explained by posters' individual characteristics.

Typically, when posting online, adolescents have an imagined audience, and the content they create is shaped by both their audience and the affordances of the social media platform they are using (Yau & Reich, 2018). In the current study, the audience was not specified for participants and did not construct a real social network in which youth may have been more likely to disclose more personal details or use more sarcasm/irony (as they would among friends). Thus, the methodology likely influenced the content that was generated, and the generalizability of such findings should be interpreted with caution. Regardless, the current

findings can inform future work and serve as a preliminary exploration into the themes and styles youth include even when communicating with an ambiguous audience. Future work should explore the content and themes of adolescents' social media posts using real photos, instead of emoji photos, and with a less structured task to allow for the naturalistic styles of adolescents to come through.

Conclusion

The present chapter explored the themes and styles (through software and manual coding) in adolescents' social media posts created on a simulated social media app (Instagram) and the individual characteristics of youth that related to the content of their posts. Individual characteristics of empathy, negative online experiences, positive offline peer relationships, cognitive reappraisal, expressive suppression, affect, and social media use were found to relate to linguistic and emotional features of adolescents' social media posts. Findings address a call in the social media literature for more content-based analyses of youths' social media experiences and inform models of adolescent social media use by highlighting the features of adolescents' online content. The findings from this supplemental analysis may inform future work exploring the impact on well-being that results from various communicative styles or themes in social media content. This supplemental work extends practical and theoretical applications for clinical work and research, which will be discussed in more detail within my General Discussion.

Chapter Four: General Discussion

While several social media studies rely on self-report data, the present study addresses a call in the literature for more ecological and in-the-moment measurement of youths social media experiences such as experimental designs, dynamic mock-up studies (using vignettes to simulate social media experiences), and ecological momentary assessment which screen records online behaviour and communication (Minich & Moreno, 2024; Valkenburg et al., 2024). Such methodology is important as differential results emerge. For instance, a recent study of social media users (aged 17-53) utilizing smartphone screen time tracking tools (rather than relying on self-reported time spent on social media) found little to no associations between time spent online and users' mental health (Jones et al., 2024), thereby challenging hundreds of studies published about the negative effects linking time spent on social media (or online in general) to depression, anxiety, stress, and other mental health challenges (see Keles et al., 2020 for a systematic review). Thus, objective measures of social media use, such as simulated social media apps, with a focus on the content adolescents create and view online will help to clarify the relationship between social media use and well-being.

While designing the studies, I had several hypotheses including that adolescent posters would report most wanting engagement (e.g., likes, comments, shares) in response to their content and that there would be a transparency gap between posters reported wanted responses and how much (i.e., the degree of) of each response viewers perceived posters wanted (Nesi et al., 2018). I also had a few hypotheses with respect to the individual characteristics of youth, although the mixed literature made specific predictions difficult. For instance, I anticipated that negative affect would relate to increased desire for support (Radovic et al., 2017), greater social media use would relate to greater confidence in receiving their wanted responses, negative peer

experiences would relate to less likelihood of receiving a wanted response (Ophir et al., 2019), and finally that adolescents with better socio-emotional skills (empathy/self-regulation) may report higher confidence in their ability to accurately perceive the degree of posters wanted responses. Regarding the supplemental study (Study Two), I had no firm hypotheses given this study was exploratory in nature due to a paucity of work investigating social media content generated within simulated social media applications.

Given the potential implications for well-being, if adolescents' communicative needs tend to be unmet or misperceived by others online, it is crucial to understand if the content adolescents generate and if their wanted responses for such content are decipherable to other users. The present body of work contributes several novel contributions to the social media and developmental literature that have both theoretical relevance and practical application that will be considered in the next section of this discussion following a summary of the results of both studies discussed in Chapters Two and Three.

Features of Adolescents Social Media Posts

Although the features of adolescents' social media posts were analyzed following my main research questions (i.e., Chapter Three/Study Two), I will discuss the findings from this study first to provide a background for next discussing how adolescents perceived their own and others' posts.

Linguistic Features

The majority of posts were approximately 15 words in length (based on the median collapsed across post type), and several subtopics emerged within the post topics provided to adolescents. For post topics of achievements, frequently used words were finally, year, won, school, today, time, job, team, happy, and grade. For post topics of emotion, frequently used

words were time, today, day, life, friends, sad, best, died, year, and happy. For posts about family, frequently used words were family, love, fun, time, mom, happy, great, guys, fam, and birthday. Lastly, for posts about friends, frequently used words were friends, love, friend, best, fun, people, guys, time, day, and besties. Thus, even within topics provided to participants, several subtopics emerged.

I explored both analytic (i.e., formal and logical language) and authentic (i.e., genuine and honest language) features in post captions using linguistics software. Participants used somewhat fewer analytic/formal words when posting about friends than when posting about other topics. Further, participants were slightly more authentic when posting about family or achievements which suggests that adolescents may be more cautious when posting about emotions or friends online. Other findings revealed that the majority of posts conveyed a literal communicative intent (rather than an ironic intent), and the affect of pictures and captions was mostly congruent across posts meaning the valence of post pictures and captions was the same. Lastly, participants typically disclosed very little to a moderate amount of personal information in their posts.

Emotion Features

When considering both the picture and caption (i.e., entire post through manual coding) the emotional valence of the posts ranged from mostly neutral (when posting about achievements or family) to mildly positive (when posting about emotions or friends). When post captions only were explored, the coding software revealed that post captions included few emotion words, particularly negative emotions. The linguistic and emotional features of posts found in the present work are consistent with social media norms reported by adolescents. That is, adolescents generally report that disclosing personal details and sharing emotions (especially negative

emotions) is against the norms of social media and would be more appropriate within the context of messaging with close friends rather than posting for a public audience (Yau & Reich, 2018). The adolescents in the current studies created content that was relatively neutral with respect to emotions, disclosed surface-level information, and communicated literally with their audience consistent with expectations based on the literature. Of course, one must consider these results within the context of a simulated social media app in which topics were provided to participants, and content was not spontaneously generated by adolescents, and was also created for an unfamiliar audience. Even with these constraints, understanding the content that adolescents create on social media also helps to inform what adolescents are generally exposed to themselves on social media platforms.

Adolescent Posters' Response Motivations

In the first phase of Study One, adolescent posters reported feeling moderate insight into their wanted responses for posts and that it would be moderately likely that they would receive these responses from other users. Thus, adolescents do not express certainty in their insights but seem to feel some sense as to what they want to receive and whether they will indeed receive it. Regarding their (moderate) confidence in receiving a desired response, it may be the case that adolescents understand that within the arena of online communication, their motivations and desires have the potential to be misinterpreted by other users and may temper their expectations of actually receiving desired responses accordingly to account for the interpersonal context in which they are communicating.

In terms of specific responses, my hypothesis was supported in that adolescent posters reported wanting more engagement and entertainment than support or advice in response to their social media content, which is not surprising given their developmental stage and the importance

of peer relationships and approval (Brown & Larson, 2009). This is also in line with past research which finds that engagement on social media represents social status and popularity online (Blease, 2015; Martinez-Pecino & Garcia-Gavilán, 2019). It is not surprising then that many teens, especially adolescent girls, may delete or modify their social media posts if they receive too few likes, comments, or shares (i.e., engagement) from other users (Lee et al., 2020; Pew Research Center, 2013; Weinstein et al., 2021). What I did not specifically predict, was that adolescents indicated that entertaining others with their posts was equally as desirable as engagement. This finding is consistent with a recent study wherein entertainment emerged as a primary motivation for adolescents' social media use in general (van der Wal et al., 2024). For each post, multiple responses were desired suggesting that response motivations are not mutually exclusive and that participants want different types of responses on their social media content. Within the context of my study, it is notable that entertainment (i.e., wanting to make other people laugh or smile) differed from the other wanted responses in that it is not always as tangible as receiving a like, supportive comments, or advice from other users. That is, a social media poster may hope that they entertain others when posting yet may never actually receive confirmation that they made other users laugh or smile given the features of online communication. However, it is of course possible for users to respond by layering response types such as responding with a comment, "That was hilarious" with a crying laughing emoji communicating they were entertained through engagement with the post.

Adolescent Viewers' Perceptions of Response Motivations (Study One, Phase Two)

Overall, adolescent viewers perceived that they were probably accurate in their interpretations of the posters' wanted responses. Additionally, viewers perceived that posters wanted more engagement and entertainment than support or advice overall which is consistent

with what original posters reported wanting in Phase One. More specifically, viewers perceived that posters wanted more engagement than entertainment and more support than advice.

My primary hypothesis that there would be a disconnect in the transparency between posters wanted responses and how much (i.e., the degree) of each response viewers perceived posters wanted was somewhat supported. That is, while there was a significant correlation between the poster/viewer perceptions, across all response types, original posters reported wanting a greater degree of each response than viewers perceived they wanted. This finding is in line with previous work which finds that online communicators tend to overestimate the transparency of their communicative motivations when communicating via email (Kruger et al., 2005) and when making requests via email (Roghanizad & Bohns, 2017). Comparisons of the strength of the poster/viewer bivariate correlations between response types revealed when support and advice are wanted as a response, these interests are better detected by viewers. This is most likely because posts tended to show little emotional valence and disclosed very little in general, but when they did contain elements of emotion or disclosure that were higher, as would be expected for those posts that are seeking advice or support, it stood out to viewers.

Adolescents' Characteristics in Relation to Motivations, Perceptions, and Features of Posts

Several significant associations emerged across the studies with regard to individual characteristics which are briefly summarized below. Of note, a number of my specific predictions were not supported (as outlined in Chapters 2 and 3). However, given the mixed literature due to differing methodologies across studies, specific predictions were initially made with a degree of speculation. Regardless, the present study addresses a call to understand the varied experiences of youth based on their own characteristics (Beyens et al., 2020; Yang et al., 2021) by exploring how adolescents' response motivations, perceptions, and the transparency

between posters and viewers on social media varied by the individual characteristic of youth. Findings from both Chapters 2 and 3 are integrated below, organized by the specific characteristic of focus.

As mentioned at several points in this dissertation, many studies have examined the amount of time on social media in relation to adolescent well/ill-being (Boers et al., 2019; Santos et al., 2023; Twenge & Campbell, 2018). Thus, it is important to consider this factor in relation to adolescents' behaviour and experiences online. Within my work, participants who reported spending more time online created post captions that included more positive emotion language and reported feeling greater insight into their wanted responses for posts from viewers. The former finding is interesting given that my previous work shows that adolescents who spend more time on social media use respond to posts from others who violate various social norms in less prosocial ways on a simulated Snapchat platform (Bowman-Smith et al., 2021). It is possible that with time spent on social media, youth come to understand the norms and unwritten rules of social media communication which includes presenting oneself positively but authentically, avoiding overly emotional posts or revealing personal information – and that they are more likely to respond negatively when others do not follow social norms.

My work revealed several demographic and socio-emotional factors that relate to social media content, motivations, and perceptions. With respect to age, there were generally no associations between adolescents' age and the features of their social media posts, motivations, or perceptions. The one exception to this was that the older the original posters were, the less engagement viewers of their posts perceived they wanted. Interestingly, this was the only finding to emerge when examining the associations between posters' characteristics and viewers'

perceptions. In general, posters' characteristics did not relate to the degree to which other viewers perceived their interest in receiving responses.

With respect to empathy, participants with greater empathy created post captions that were found to include fewer negative emotion words, which falls more in line with social media norms and expectations. In terms of self-ratings, adolescents reported greater insight into their wanted responses for their created social media posts, with an interest in receiving more engagement from other users (e.g., likes and comments). Adolescents with greater empathy reported a higher likelihood that they would receive their desired responses from other users, though perceptions of others did not vary by the posters' empathy. Thus, together, it seems that adolescents with higher self-reported empathy generate posts that follow the norms of social media use and report greater insight into their motivations and confidence in others' responses.

Participants with more adaptive emotion regulation skills had more positively valenced posts overall and wanted others to be more entertained by their created social media content. It is possible that such youth use social media to regulate their mood in adaptive ways, by seeking out positive or humorous content to entertain themselves and subsequently improve their mood. Those with more expressive suppression (i.e., maladaptive emotion regulation skills) created post captions that were shorter and contained greater negative emotion words. Further, those with more expressive suppression predicted a lower likelihood of actually receiving their wanted responses from other users. Thus, youth with maladaptive emotion regulation skills are more likely to include post elements that go against social media norms (Gioia et al., 2021) and as such they may not be as confident in receiving their wanted responses from other users.

Participant mood did not relate to social media features, but adolescents who reported more negative mood reported wanting more engagement in response to their posts. This was not

surprising, given that many adolescents report using social media to regulate their emotions, particularly negative emotions (Blumberg et al., 2016; McAlister et al., 2024). For example, seeking out engaging or humorous content online to improve one's mood. In this case, it seems that participants want more likes and comments when they are feeling down or more negative emotions.

In terms of social/peer experiences, I assessed both positive peer relationships and negative online experiences. Participants with more positive peer relationships created post captions that used fewer negative emotion words – and in contrast, participants with more negative online experiences created posts that were less positively valenced. Thus, there is some convergence in findings whereby past social experiences relate to captured social media behaviour: more negative social experiences (online) relate to more social media norm violation and more positive peer experiences relate to more social media norm adherence. Of course, the direction of such findings cannot be determined – for instance, it may be that creating posts that are less positively valenced elicits more negative reactions or it may be the case that through negative online experiences, adolescents adopt a more negative communication style themselves. With respect to motivations, adolescents who report more positive peer relationships report wanting more engagement and entertainment in response to their posts. It is not surprising that if such youth have positive peer experiences online, they will want to create positive peer experiences for their social network.

Taken together, my work demonstrates that the individual characteristics of youth relate to both the content of social media posts and to understanding social media motivations and perceptions. The findings of this dissertation contribute to both the social media and developmental psychology literature given that it could allow for a greater understanding of the

variability in adolescents' online experiences. Further, this body of work could allow for identifying youth who may be at greater risk for negative online experiences potentially informing prevention and intervention strategies.

Of course, there were some individual characteristics that did not yield significant associations as expected that warrant mention. For example, I anticipated that participants with lower mood would report an increased desire for support in response to their posts. Instead, such participants reported wanting more engagement, but not support, in response to their posts (e.g., likes, comments, shares). It is possible that adolescents hope for engagement for purposes of emotion regulation. For instance, a past study found that adolescents experience greater fluctuations in mood in response to receiving likes online compared to adults (da Silva Pinho et al., 2024). More specifically, this study found that for adolescents, receiving engagement with posts boosted their mood and created a sense of social connectedness with others (da Silva Pinho et al., 2024), which likely has supportive benefits for youth. Further, I made some predictions with respect to adolescent posters' perceptions of the likelihood of receiving their desired responses. Specifically, that youth with greater social media use would report a greater likelihood of receiving their desired response, and participants with more negative peer experiences would report less likelihood of receiving their desired responses. Instead, participants with more social media use reported more insight into what responses they wanted on their posts but not increased likelihood. Thus, it is possible that given their increased experience with social media, these youth are aware that just because they desire a particular response does not necessarily increase the likelihood they will receive this response. Further, while participants with greater negative online peer experiences tended to create social media posts that were negatively valenced, this did not appear to impact their perceptions of the likelihood they would receive their wanted

responses. However, given the paucity of work exploring such concepts of insight into motivations and perceptions of likelihood within an experimental paradigm, specific predictions were difficult to make, and these hypotheses were someone speculative based on the general literature on social media use and peer victimization (Ophir et al., 2019).

Theoretical Implications

The Multidimensional Model of Social Media Use (Yang et al., 2021) is comprised of three major factors including online activities, motives for social media use, and online communication partners. Addressing several gaps in the developmental social media literature, my dissertation work speaks to specific motives for social media use, and provides a more nuanced understanding beyond general motives of use, to in-the-moment motivations (i.e., desired responses) when posting on social media (engagement, entertainment, support, advice), as well as, if these motivations are transparent to other social media users. Further, Study Two provides insight into the themes and features of emotion and linguistics adolescents include in social media posts created in an experimental paradigm. This work addressed a need for moving beyond self-report measures of online behaviour and decision-making utilizing a more ecologically valid measure of social media (i.e., simulated social media app; Valkenburg et al., 2022). Although, as the social media app was simulated without a real audience, there would undoubtedly be an influence on the content adolescents create and share. However, even within this context, several novel contributions emerged that inform the MMSMU with respect to specific motivations. While the model valuably speaks to general motives for use, our work examines the specific motivations youth hold for each social media post they share online, and, further, that these motives may be underestimated by other adolescent users. That is, simply understanding the general motives for social media use may not be specific enough to fully

understand the impact of social media use, and perhaps the model should be expanded to consider more in the moment (as an adolescent generates a post), micro-level motivations for use. Although my work did not directly examine well-being, future work should explore the impact of such response motivations being repeatedly underestimated by peers. Further, the degree to which response motivations that posters hold are/are not obvious to others may be an important predictor of well-being/ill-being.

Practical Implications

The Multidimensional Model of Social Media Use provides an overview of both beneficial and detrimental uses of social media and can serve as a guide to mental health professionals working with youth as to what behaviours and types of use are cause for clinical concern (Yang et al., 2021). In summary, youths' well-being is most at risk when adolescents are using social media primarily for compensation methods such as fear of missing out, to connect with online strangers at the expense of pre-existing relationships and engaging in upward social comparison with others. Conversely, youth who use social media primarily to enhance their pre-existing social relationships and use social media for informational comparison tend to have more adaptive use and better psychological well-being. The MMSMU model instructs that clinicians should ask questions about what youth do on social media (activities), why they use social media platforms (motivations), and who they are communicating with online (communication partner) and that this is more clinically useful than asking about how much time youth spend online. To illustrate this concept, imagine that while assessing your 13-year-old client's online communication partners, they reveal that they have been communicating with a 42-year-old "friend" they are meeting up with in person this week. Asking about time spent online rather than how that time is being spent online (and with whom) would not have revealed

this concerning situation and risk. Our work extends such work by suggesting it may be important for clinicians to ask detailed questions when exploring youths' motives for using social media. That is, moving beyond general motives for use to explore specific response motivations youth hold for other online users and if such social needs are being met or left unfulfilled and the impact that may have on youth.

Although there is increasing recognition that social media is a big part of adolescents' everyday lives, some mental health professionals may not know how to start the conversation about teens' digital lives with their clients/patients or feel uninformed about social media use in youth. The *Handbook of Children and Screens: Digital Media, Development, and Well-Being from Birth to Adolescence* (Turner et al., 2025) is an excellent open-access resource for synthesizing literature on the cognitive, physical, mental, and psychosocial impacts of screen use, with many articles specific to social media use, providing recommendations for clinicians, policymakers, educators, and parents on how to guide this conversation. In this handbook, Turner and colleagues (2025) suggest that care providers utilize media literacy assessment questions (rather than discussions of screen time generally) that focus on youths':

(1) *consumption* (passive watching of videos, listening to audio, or playing of games without interaction and analysis, (2) *engagement* (meaningful conversation/questioning about the media itself, with a peer or adult, during the watching of video, listening to audio, or playing of games), and (3) *production* (active creation of new media products including text, image, audio, video, or interactive content; pp. 545).

The present work suggests that discussion of the production of new media should include conversation about motivations and expectations for content and youth should be given psychoeducation about the transparency gap between posters and adolescents (and general

pitfalls of online communication due to its unique interpersonal features; Nesi et al., 2018) to improve interpersonal effectiveness within an online context.

In general, mental health professionals should be informed that some youths are at increased risk for mental health problems related to social media such as cisgender females (i.e., due to a tendency for upward social comparison and body image; Orben et al., 2022), minoritized identities (e.g., LGBTQIA+ youth; Saha et al., 2019), economically disadvantaged youth (George et al., 2020; Odgers & Jensen, 2020), youth with preexisting mental health conditions, and youth who engage problematically with social media (e.g., loss of control of use, not completing responsibilities such as going to school due to screen use; see Hamilton et al., 2025 for a review of risk factors). When problematic social media use is detected, some possible interventions include psychosocial treatments (e.g., CBT, motivational interviewing, mindfulness, and family interventions), abstinence and restriction of screen time, and psychopharmacology (Sussman et al., 2025). Empirically supported guidelines for prevention strategies for problematic digital use at home include an emphasis on routine, structure, limit-setting, offscreen social and stress-reducing activities, physical activity, and parental role modelling of moderate technology use (Király et al., 2020).

Limitations and Future Directions

Although this research presents novel contributions regarding adolescents' motivations on social media and the transparency of motivations to other users, there are limitations of the present study to mention. Future work should explore spontaneous, adolescent-driven social media posts in a real social media exchange with other social media users. For instance, utilizing a screen recording tool to capture the creation of authentic social media posts and send prompts in the moment (similar to the questions asked in Phase One) to capture adolescents in the

moment motivations and desires for posts when creating content. Further, such an approach would allow for the recording of the act of posting social media content, and if adolescents actually receive their desired responses from other social media users. To capture, viewers' experiences, screen recording tools could capture the content adolescents are exposed to and send prompts (similar to the questions asked in Phase Two) to viewers asking about which responses they think posters want. However, this approach would not allow for an analysis of poster and viewer perceptions (i.e., transparency) if this was not controlled in an experimental fashion.

In addition, our sample size was relatively small, particularly for Phase Two given some technological challenges, expected attrition, and that the data was collected during the COVID-19 pandemic which presented novel recruitment and methodological challenges. Although I chose multilevel modelling to maximize power within the present sample, modelling was not appropriate for all analyses and thus some important individual differences may not have emerged as significant, and I cannot confidently interpret the null findings.

Another limitation is a lack of ethnic and parental education diversity among participating adolescents, all of which limits the generalizability of the present findings. For instance, a large majority (90%) of parents had a college degree or higher in the current sample, while recent census data on the regional municipality of Waterloo suggests 55.9% of parents typically have a college degree or higher (Akbari et al., 2024). Further, past research has shown socioeconomic status influences social media use (Micheli, 2015; Pew Research Centre, 2024). Thus, the studies should be replicated with a larger and more diverse (e.g., parental education, ethnicity, non-binary youth; Pew Research Centre, 2024) sample to strengthen the generalizability of the present findings.

Given the degree to which time spent on social media has been used in the past, we also included a measure of this – and yielded interesting findings regarding variability in content and motivations. However, we know that how much time youth spend online is less predictive of well-being than how much time is spent online. Thus, a future direction could be to include a more fine-grained measure of adolescents' social media experiences to fully understand which experiences relate to how they convey and perceive desired responses online. However, even with these limitations in mind, the findings presented in this dissertation are novel contributions to the developmental and social media literature, elucidating adolescents' online experiences and factors that may influence successful online exchanges among youth.

There are a number of avenues that could be explored as the next steps for this line of work. For example, one route could be to explore if adolescents do indeed generate responses that are in line with posters' motivations and expectations and whether there are individual characteristics of youth that are associated with youths' willingness to provide a desired response to original posters. For instance, to what extent do adolescents generate responses that are in line with their perceptions of the poster's motivations? Does this alignment differ by the type of motivation (e.g., are viewers more likely to provide support if this is detected as a motivation, versus engagement)? A second route could explore the transparency gap in more depth and how the mismatch between desired responses and actual responses maps onto poster well-being/ill-being. A third route could be to provide psychoeducation to adolescents on the transparency gap between posters' desired responses and the degree to which viewers can detect these wanted responses and explore if this attenuates the transparency gap by increasing awareness of the pitfalls of online communication.

Conclusion

This work explores adolescents' social media behaviour. Specifically, through an experiential task whereby adolescents were asked to create social media posts, I was able to examine what responses adolescents want when posting on social media, how transparent such motivations are to other adolescent social media users, and what are the linguistic and emotional features of adolescents' social media posts. Moreover, I explored the individual characteristics of youth associated with such motivations, perceptions, and content of social media posts.

Adolescents tended to create social media posts that were congruent in their affect between pictures and captions, literal in their meaning, disclosed little to a moderate amount of personal information, and conveyed a neutral affect with few emotion words overall. Thus, adolescents created content that was consistent with social media norms in the current study. On average, adolescent posters reported moderate insight into what responses they hoped to receive back from others, and that it was moderately likely they would receive their wanted responses. I found that, when generating posts, adolescents generally wanted more engagement and entertainment than both support and advice in response from others. These wanted responses were perceived by others generally, as per significant correlations between poster and viewer ratings. However, across all response types, posters wanted more (i.e., a greater degree) of each response than viewers could perceive. This important and novel finding suggests a mismatch between the expectations posters hold for responses and the degree to which such motivations are detected by viewers. Future work should explore the impact of such a gap on adolescents' well-being.

Extending recent work highlighting the importance of individual characteristics for understanding adolescents' well-being in relation to their social media use (Beyens et al., 2020;

Yang et al., 2021), the present study also investigated associations between adolescent characteristics and social media content, the expectations adolescents' hold for others when posting online, and the perception of such motivations to other adolescent viewers. This research captured much variability in how adolescents create social media posts as well as in their motivations, with this variability accounted for by some of their individual characteristics.

Adolescents who reported spending more time online also reported more insight into their wanted responses and created captions that included more positive emotion language.

Participants with more negative mood reported wanting more engagement in response to their posts. The older original posters were the less engagement viewers of their posts perceived they wanted. Participants with greater empathy reported greater insight into wanted responses, greater likelihood of receiving such responses, wanted more engagement from others on their posts, and used fewer negative emotion words in their posts. Participants with more adaptive emotion regulation skills had more positively valenced posts overall and wanted others to be more entertained by their created social media content, while those with more maladaptive skills were more likely to create posts that violate the norms and expectations of social media. Participants with more negative online experiences created less positively valenced posts, while those with positive peer experiences offline used fewer negative emotion words in their posts.

Together, the findings from this research inform our understanding of the ways in which adolescents navigate their complex, and increasingly online, communicative interactions.

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Tables

Table 1

Descriptive Statistics and Bivariate Correlations for Individual Characteristics and Social Media Task (Phase One)

Variable	<i>M</i>	<i>SD</i>	1	2 ^a	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Individual Characteristics</u>																	
1. Age	14.28	1.22	–	-.04													
2. Gender	–	–	-.04	–													
3. Empathy	2.35	0.32	.07	.11	–												
4. Online Experiences	1.33	0.39	-.10	-.11	-.14	–											
5. Peer Experiences	21.80	7.32	-.01	.01	.37**	-.21*	–										
6. Affect	14.23	2.87	-.10	-.06	.32**	-.35**	.61**	–									
7. Cognitive Reappraisal	16.26	4.21	.10	.13	.33**	-.32**	.33**	.38**	–								
8. Expressive Suppression	8.56	2.99	-.07	-.12	-.21*	.13	-.28**	-.41**	-.06	–							
9. Social Media Use	2.57	1.68	.16	.15	-.07	.36**	.13	-.15	-.16	.04	–						
<u>Social Media Ratings</u>																	
10. Entertainment	66.22	20.05	.03	.06	.23*	-.10	.42**	.28**	.35**	-.21*	.09	–					
11. Engagement	65.21	18.96	.04	.17	.30**	.05	.28**	.03	.21*	-.12	.20*	.49**	–				
12. Support	49.39	20.50	-.11	.02	.15	-.02	.16	.16	.22*	-.14	-.05	.38**	.41**	–			
13. Advice	46.10	19.98	-.19	-.04	.15	-.07	.14	.17	.22*	-.17	-.16	.41**	.25**	.73**	–		
14. Response Insight	3.40	0.82	.07	.12	.48**	.11	.28**	.10	.01	-.20*	.28**	.26**	.48**	.13	.14	–	
15. Response Likelihood	3.53	0.61	.16	.10	.46**	.04	.25*	.14	.10	-.27**	.14	.28**	.43**	.26**	.26**	.69**	–

* $p < .05$. ** $p < .01$. $N = 103$ (variables 1, 3–9); $N = 102$ (variables 10–5).

^aNon-binary youth were excluded from gender analyses ($n = 4$). The correlation with gender was run as a point-biserial correlation ($N = 98$), with girls coded as (1; $n = 59$) and boys coded as (0; $n = 40$). All other correlations reported are bivariate correlations.

Table 2

Multilevel Models Predicting Degree of Posters' Wanted Responses from their Individual Characteristics

Fixed Effect	Perceived Insight			
	<i>B</i>	<i>SE</i>	<i>df</i>	R^2_{β}
Intercept	3.41	0.07	102.00	
Empathy	1.20**	0.22	101.91	.23
Social Media Use	0.15**	0.04	102.04	.12
Fixed Effect	Perceived Likelihood			
	<i>B</i>	<i>SE</i>	<i>df</i>	R^2_{β}
Intercept	3.53	0.05	102.00	
Empathy	0.81**	0.17	101.86	.19
Expressive Suppression	-0.04*	0.02	101.76	.04
Fixed Effect	Engagement Response			
	<i>B</i>	<i>SE</i>	<i>df</i>	R^2_{β}
Intercept	65.06	1.74	102.00	
Empathy	15.94**	5.99	102.00	.06
Peer Experiences	0.92**	0.31	102.00	.08
Affect	-1.81*	0.77	101.93	.05
Fixed Effect	Entertainment Response			
	<i>B</i>	<i>SE</i>	<i>df</i>	R^2_{β}
Intercept	66.20	1.76	101.99	
Peer Experiences	0.94**	0.26	102.60	.12
Cognitive Reappraisal	1.19*	0.46	101.93	.06

* $p < .05$. ** $p < .01$. $N = 102$

Note. *B*s represent the unstandardized regression coefficients. Continuous predictors were grand-mean centered. Effect sizes were estimated using semi-partial R^2 , whereby 0.10 = small effect, and 0.50 = large effect.

Table 3*Bivariate Correlations for Posters' Individual Characteristics (Phase One) and Viewers' Perceptions of Posts (Phase Two)*

Viewer Perceptions of Posts	<i>M</i>	<i>SD</i>	Age	Gender ^a	Empathy	Online Experiences	Peer Experiences	Affect	Cognitive Reappraisal	Expressive Suppression	Social Media Use
Entertainment	43.60	10.58	-.19	.14	-.01	.05	-.01	-.00	.03	.04	-.11
Engagement	49.46	10.10	-.41**	.11	-.06	-.01	-.01	.12	.13	-.00	.02
Support	32.69	10.80	-.13	.11	-.02	.03	-.01	-.02	-.01	-.04	.04
Advice	24.09	8.14	-.09	.10	.04	.02	-.06	.00	.01	-.12	-.08
Perceived Accuracy	3.69	0.22	-.10	.15	.17	-.08	.10	.19	.14	-.03	-.07

* $p < .05$. ** $p < .01$. $N = 101$

^aNon-binary youth were excluded from the gender variable ($n = 4$) given that this would not be representative of a non-binary population (limited sample). The correlation with gender was run as a point-biserial correlation ($N = 97$), with girls coded as (1; $n = 59$) and boys coded as (0; $n = 38$). All other correlations reported are bivariate correlations.

Table 4

Descriptive Statistics for Linguistic Features by Post Topic (Raw Data)

Coding Dimension	Post Topics															
	Achievements				Emotions				Family				Friends			
	Mean	Median	Mode	Range	Mean	Median	Mode	Range	Mean	Median	Mode	Range	Mean	Median	Mode	Range
Word Count	15.87	15.75	12.50	1.50-38.50	14.99	13.75	11.00	1.50-41.00	15.72	15.25	5.50	2.50-37.00	15.36	14.00	7.50	2.00-39.50
Analytic (Percentile)	41.95	43.20	1.00	1.00-97.40	43.84	45.94	45.26	1.00-99.00	42.45	45.26	94.26	1.00-98.78	38.83	38.41	1.00	1.00-98.58
Authentic (Percentile)	69.98	76.29	99.00	1.00-99.00	65.23	71.33	99.00	1.00-99.00	72.31	78.98	99.00	1.00-99.00	66.27	68.82	99.00	1.00-99.00
Post Congruence	1.86	2.00	2.00	0.50-2.00	1.87	2.00	2.00	0.50-2.00	1.84	2.00	2.00	1.00-2.00	1.90	2.00	2.00	1.00-2.00
Communicative Intent	1.13	1.00	1.00	0.50-3.50	1.14	1.00	1.00	0.00-3.50	1.08	1.00	1.00	0.00-3.50	1.11	1.00	1.00	0.00-3.50
Disclosure Depth	1.80	2.00	1.50	1.00-3.00	1.58	1.50	1.00	1.00-3.00	1.76	1.50	1.50	1.00-3.00	1.71	1.50	1.00	1.00-3.00

N = 102

Note. Word count, analytic, and authentic coding were obtained through LIWC-22. Post congruence, communicative intent, and disclosure depth were obtained through manual coding. See the method section in Chapter Three for scoring details for each coding dimension.

Table 5

Descriptive Statistics for Emotion Features by Post Topic (Raw Data)

Coding Dimension	Post Topics															
	Achievements				Emotions				Family				Friends			
	Mean	Median	Mode	Range	Mean	Median	Mode	Range	Mean	Median	Mode	Range	Mean	Median	Mode	Range
Post Valence	3.31	3.00	3.00	1.00-5.00	3.67	4.00	4.00	1.50-5.00	3.24	3.00	3.00	2.00-5.00	3.56	4.00	4.00	1.00-5.00
Positive Emotion (%)	3.23	1.52	0.00	0.00-25.00	5.85	3.85	0.00	0.00-35.72	2.21	0.00	0.00	0.00-25.00	4.79	3.13	0.00	0.00-26.67
Negative Emotion (%)	1.90	0.00	0.00	0.00-50.00	0.58	0.00	0.00	0.00-12.50	2.35	0.00	0.00	0.00-50.00	0.87	0.00	0.00	0.00-13.34

N = 102

Note. Positive emotion and negative emotion coding were obtained through LIWC-22. Overall post valence was obtained through manual coding.

Table 6

Correlations Between Posters' Characteristics and Coded Dimensions

Coding Dimension	Age	Gender ^a	Empathy	Online Experiences	Peer Experiences	Cognitive Reappraisal	Expressive Suppression	Affect	Social Media Use
Linguistic Features									
Word Count	.067	.016	.133	-.086	.060	.115	-.242*	.065	-.190
Analytic Summary	-.006	-.155	.043	.032	.018	.134	-.051	.120	.048
Authentic Summary	-.133	-.106	-.020	-.161	.063	-.100	-.135	.063	-.172
Disclosure Depth	.083	.102	.126	-.003	.109	.085	-.182	-.060	.022
Emotion Features									
Post Valence	-.135	.095	.179	-.235*	.139	.229*	-.115	.117	-.071
Positive Emotion	-.057	.099	.075	.072	.148	.041	.062	-.006	.250*
Negative Emotion	-.075	-.047	-.287**	.174	-.270**	-.022	.211*	-.229*	-.079

* $p < .05$. ** $p < .01$. $N = 102$

^aNon-binary youth were excluded from gender analyses ($n = 4$) given that this would not be representative of a non-binary population (limited sample). The correlation with gender was run as a point-biserial correlation ($N = 98$), with girls coded as (1; $n = 59$) and boys coded as (0; $n = 39$). All other correlations reported are bivariate correlations.

Table 7*Descriptive Statistics for Coding Dimensions Collapsed Across Post Topic (Windosrized Data)*

Coding Dimension	Mean	Median	Mode	Range
Linguistic Features				
Word Count	15.49	15.00	5.00	1.88–38.25
Analytic (Percentile)	41.77	42.83	6.67	6.67-90.70
Authentic (Percentile)	68.52	71.53	19.10	19.10-97.71
Post Congruence	1.87	1.88	2.00	1.38-2.00
Communicative Intent	1.11	1.00	1.00	0.25-2.08
Disclosure Depth	1.71	1.63	1.38	1.00-3.00
Emotion Features				
Post Valence	3.44	3.50	3.38	2.38-4.38
Positive Emotion (%)	4.01	3.11	0.00	0.00-13.52
Negative Emotion (%)	1.27	0.90	0.00	0.00-9.63

N = 102

Appendix A

Phase One Instructions on Screen for Social Media Task

You will be asked to create 8 Instagram posts that will be posted for other teens your age to see.

It is okay if you do not have an Instagram account in real life or have not used Instagram before.

You will create two posts about each topic: friends, family, emotions, and accomplishments.

Instructions will appear at the top of each page. Try to create posts similar to what you post or see (or think you could see) on Instagram. On the app, you will be asked to choose from emoji photos instead of your own photos to protect your identity from other participants. You may need to scroll down to see all options. Do not use real names or other identifying information. After you have created all the posts, you will be asked some questions about each post.

The screenshot displays a mobile application interface for a social media task. The left panel shows a user profile for 'uwkogdeviab' with a placeholder image of a computer monitor displaying 'Instructions'. Below the profile, a post is shown with a yellow smiley face emoji and the text 'participantID created post would show up here'. At the bottom of the left panel is a blue button labeled 'Next Post'. The right panel contains a survey titled 'Click here to answer questions about this post'. The survey includes three questions with radio button options and three slider scales for 'Support', 'Engagement', and 'Advice'. The 'Entertainment' section is partially visible at the bottom.

uwkogdeviab

Instructions

uwkogdeviab Now you will be asked some questions about your posts.

participantID

participantID created post would show up here

Click here to answer questions about this post

Next Post

Click here to answer questions about this post

1) When making this post, do you have a sense as to what type of response you hope to get from other teens?

Not at All A Little Maybe Somewhat To A Great Extent

2) Think of a response (or type of responses) you would most like to receive from other teens on Instagram. Do you think you will receive a response that you want from other teens?

Definitely Not Probably Not Possibly Probably Definitely

3) For each of the possible responses listed below, use the sliding line to indicate the extent to which you hope someone would respond in that way. Click on the bar to record your response, the slider will turn blue.

Support:

I want empathy, comfort, or help from others

I would not want this response at all I would very much want this response

Engagement

I want to be likeable to others (e.g., receiving likes/attention)

I would not want this response at all I would very much want this response

Advice

I want feedback or guidance from others

I would not want this response at all I would very much want this response

Entertainment

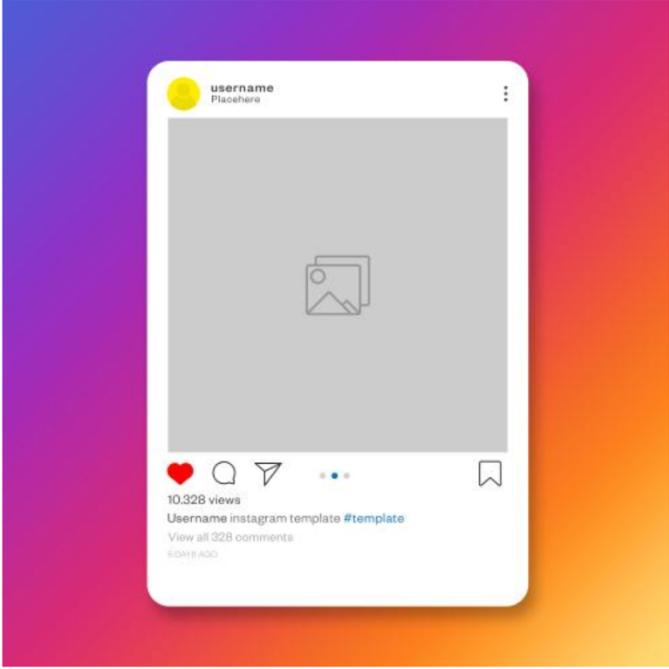
I want others to make me laugh/smile

I would not want this response at all I would very much want this response

If there is a different type of response you would like from others, please indicate it in the box below.

Appendix B

Phase Two Instructions on Screen for Social Media Task



Instructions: We are interested in understanding how you think about others' social media posts. You will be shown a total of 40 Instagram posts created by other users and will be asked some questions about each post. Please imagine you are viewing these posts on Instagram, like in the picture above.



participant001 #throwbackthursday to when I won the principal award at Grade 8 Graduation!

What responses do you think the original poster wanted from users?

For each of the possible responses listed below, use the sliding line to indicate the extent to which the poster wanted each response.

0 10 20 30 40 50 60 70 80 90 100

Support: They wanted empathy, comfort, or help from others

Engagement: They wanted to be likeable to others

Advice: They wanted feedback or guidance from others

Entertainment: They wanted to make others laugh/smile

Do you think you interpreted the responses the poster wanted correctly?

- ☐ Definitely not
- ☐ Probably not
- ☐ Possibly
- ☐ Probably
- ☐ Definitely

Appendix C

Phase One: What Adolescents Want to Receive (Post Topic x Response Type)

To first examine what responses adolescents were endorsing, I looked at the extent to which posters reported wanting each of the responses (support, engagement, advice, entertainment; from 0-100). While differences across post topics were not a main focus, included post type in the analysis, resulting in a 4 (post topic: achievements, emotions, friends, family) x 4 (response type: support, engagement, advice, entertainment) repeated measures ANOVA. Mauchly's Test revealed a violation for the main effect of response type ($\chi^2(5) = 35.65, p < .001$) and the interaction ($\chi^2(44) = 214.64, p < .001$). Thus, the Greenhouse-Geisser correction is reported to correct for these violations of sphericity. There was a main effect of post topic, $F(3, 297) = 14.23, MSE = 316.03, p < .001, \eta_p^2 = .13$, as well as a main effect of response type, $F(2.47, 244.58) = 50.10, MSE = 1065.65, p < .001, \eta_p^2 = .34$. These main effects were qualified by a significant interaction of post topic by response type, $F(5.40, 534.56) = 24.81, MSE = 588.15, p < .001, \eta_p^2 = .20$. Follow-up planned comparisons paired samples t-tests were conducted, with Bonferroni correction applied. Across three post topics (achievement, friends, family), adolescents reported wanting more entertainment and engagement than advice and support, $ps < .001$, with there being no difference between entertainment and engagement ($ps > .001$) and between advice and support ($ps > .001$). However, when posting about emotions, this pattern differed. Namely, there was no difference between participants' interest in receiving engagement, entertainment, and support ($ps > .001$), and participants reported wanting more support than advice, $p < .001$.

Appendix D

Phase Two: Viewers' Perception of Responses Posters Want (Post Topic x Response Type)

Again, post type was not a main interest, but I added this factor in the analyses, resulting in a 4 (post topic: achievements, emotions, friends, family) x 4 (response type: support, advice, entertainment, engagement) repeated measures ANOVA. Mauchly's Test revealed a violation for the main effect of response type ($\chi^2(5) = 126.59, p < .001$) and the interaction ($\chi^2(44) = 618.23, p < .001$). As such, the Greenhouse-Geisser correction is reported.

There was a main effect of post topic, $F(3, 297) = 41.40, MSE = 83.79, p < .001, \eta_p^2 = .30$ and a main effect of response type, $F(1.67, 164.99) = 161.83, MSE = 562.09, p < .001, \eta_p^2 = .62$. These main effects were qualified by a significant interaction of post topic by response type, $F(3.21, 317.51) = 91.79, MSE = 640.42, p < .001, \eta_p^2 = .48$. Follow-up planned comparisons paired samples t-tests were conducted, with Bonferroni correction. Across two post topics (achievement, friends) there were differences between all types of perceived wanted responses, $ps < .001$. For these post topics, viewers reported that posters wanted more engagement and entertainment than support or advice, but that they wanted more engagement than entertainment. This pattern differed slightly when viewing posts about family, in that there was no difference between viewers' perceptions of how much the poster wanted engagement and entertainment. For posts about emotions, viewers perceived posters wanted support (more than engagement, entertainment, or advice) and wanted more engagement than entertainment ($ps < .001$). Lastly, there were no perceived differences between advice, engagement and entertainment for posts about emotions, $ps > .001$.