ESSAY
Instagram and Adolescence

Kristen Hinshaw[1][*] and Colleen Lloyd Eddy[2]
[1]Department of Counselor Education and School Psychology, Duquesne University School of Education, Pittsburgh
[2]Department of Health and Human Development, University of Pittsburgh School of Education, Pittsburgh,
*Corresponding Author: hinshawk@duq.edu 215-983-6203

Adolescents have been notably increasing their use of social media in recent years and much speculation has gone into how these digital, social realms might impact their development. Meta's Instagram, a social networking site used for sharing pictures and videos, has been an influential app among adolescents and contains features that may be particularly attractive to teens as it caters to the unique characteristics of their developmental stage. This paper examines the similarities between common characteristics of adolescence and characteristics of the app Instagram, and how the app's features may influence adolescent development. Unlike other reviews that have focused solely on the negative aspects of social media apps like Instagram, this paper focuses on identifying both the potential negative impacts as well as the positive impacts of Instagram on adolescent development and provides recommendations to practitioners, parents, and policymakers on how to best navigate youth through an online social world.

Keywords: social media, adolescence, youth development; Instagram

With the advent of social media in the 21st century, much speculation has arisen to how this addition to our lifestyle has affected children growing up in this digital era. Parents, practitioners, and policy makers are still learning how to best help youth navigate this unfamiliar territory. Social media, a collection of communal applications, allows us to create and share information about ourselves, our interests, and our ideas to the world with immediate ease (Cipolletta et al., 2020). While this may seem wonderfully advantageous and convenient, critics of social media have pointed out its detrimental effects on those who use it, especially the adolescent population (Cipolletta et al., 2020; Mayo Clinic, 2022). Studies on social media use among adolescents have been gaining recognition due to suspected links between adolescent depression, insomnia, body dissatisfaction, and technological addiction

(Giedd, 2020). These negative outcomes are alarming considering the widespread use of social media among teenagers. As of 2022, the Pew Research Center surveyed 1,316 adolescents ages 13 to 17 about their use of technology and social media. They found that 95% of teens have access to a smart phone (an increase from 73% in 2014-2015), 97% reported using the internet daily, and 46% were online almost constantly (2022). This study examined the popularity of social media platforms including YouTube, TikTok, Instagram, Snapchat, and Facebook. YouTube was the most popular platform reported with 95% of youth reporting using this platform and 19% reported using YouTube almost constantly. 62% of youth surveyed used Instagram with 10% stating that they use the platform almost constantly (Pew Research Center, 2022).

To try to prevent teen social media use altogether, however, could be futile, as teens may not listen to a parent or practitioner's advice, and policies that ban teens from social media seem unreasonable when you consider its relevance in our culture (Phillips, 2018). Rather, we should first attempt to understand how specific characteristics of adolescence make social media so enticing but also potentially dangerous for teens. One reason these social media sites are so appealing to adolescents is because they incorporate features that are attractive to the adolescent brain. Adolescence is characterized by a period of extensive social cognition development as well as substantial changes in motivational behavior. Four common characteristics that mark adolescence are the desire for perceived social acceptance, need for agency, increased risk taking, and an inclination to participate in activities that have a perceived low failure cost (Åström, 2021; Giedd, 2020; Kilford et al., 2016; Noon et al., 2021). This review will focus on Meta's "Instagram", as it possesses all these qualities, and consequently has captured the attention of many adolescents. On the Instagram app, adolescents may receive social acceptance through "Likes", agency through the freedom to put forth their own content, and risk taking with low failure cost through being able to post provocative media with the safety net of deleting something later if they reconsider. These features, however, can also have negative consequences and provoke feelings of inadequacy from social comparison as well as ostracism and negative self-view.

This paper will explore how the unique characteristics of adolescent development are remarkably correlated to the features of apps such as Instagram (Giedd, 2020), making the app alluring and at the same time potentially precarious. Understanding how

the adolescent mind may be linked to their social media use can be a key factor in providing new recommendations for practitioners, policy makers, and parents on how to navigate teenagers through an online social world. With this information, we can hopefully understand how to mitigate the detrimental aspects of social media and make it a safer and more beneficial space for teens.

PERCEIVED SOCIAL ACCEPTANCE

The Positives

As adolescents shift away from spending time with their families and begin to focus more on peer relationships, social connectedness becomes a crucial part of their life (Giedd, 2020). During adolescence, significant structural and functional development occurs in a network of areas in the brain associated with social cognitive processes, also called the "social brain" (Kilford et al., 2016). Cognitive changes in the motivational center of the brain also make adolescents particularly attuned to rewarding stimuli (Kilford et al., 2016). Teens hunger for symbols of peer validation, and Instagram provides the perfect indication with its "Like" feature. The idea behind the feature was to allow users to conveniently show that they enjoyed a particular post; however, this feature has become synonymous with social acceptance among social media users and has been particularly effective on adolescents who are especially vulnerable to the rewards of peer approval (Åström, 2021). FMRI studies have shown high reward activation in the brains of adolescents for successfully connecting with others (Giedd, 2020), and when both receiving and giving "Likes" (Åström, 2021). Instagram, therefore, may be especially alluring to adolescents because it allows them to obtain the peer validation they crave during this reward-sensitive period.

The Negatives

The inverse to this reward system is that adolescents experience equally negative impacts to the absence of "Likes". While adolescents may gain greater rewards from social acceptance compared to adults, they also show substantial changes in baseline brain activity when it comes to sadness experienced from social exclusions (Giedd, 2020), and they are more likely to report a worsened self-view after being rejected (Åström, 2021). This reaction can be compounded when we consider the evidence that adolescents tend to

"Like" photos that already have more "Likes" rather than photos with fewer "Likes" (Åström, 2021), allowing those who have received social validation to keep accumulating more, and those who have received less to continue to be ostracized further.

The introduction of "followers" to social media can also lead to feelings of ostracization in teens. Unlike Instagram's popular predecessor, Facebook, which allowed users to commit to a mutual patronage by agreeing to be "Friends", Instagram employed a system of "followers", which need not be mutual. While this allows for people to keep up with more prestigious individuals, such as celebrities, who would not likely accept the friendship of every single one of their fans, this dynamic also allows for everyday people to reject a mutual connection with their peers. Anyone can choose to not follow someone back, and a user's ratio of their number of "Followers" to the number of accounts they are "Following" is displayed on their profile. Followers then, or lack thereof, may also become a symbol of social popularity and acceptance. Indeed, in a study of adolescents aged 11-16, Girls believed that having too few followers would make them seem like a "loser", while having more than 800 followers made them popular (Cipolletta et al., 2020). In this way, perceived social acceptance from "Likes" or "Followers" can harm adolescent self-esteem just as much as it can lift it, and future research and suggestions are needed on how to best mitigate these negative consequences.

AGENCY, RISK-TAKING, AND PERCEIVED LOW FAILURE COST
The Positives

Identity Development. During adolescence and emerging adulthood, teenagers spend more time reflecting on who they are and who they want to become (Noon et al., 2021). For many teenagers, this can be an especially frustrating period because they are now desiring to express themselves and explore new things, but often lack the agency to do so because most adolescents are still under the watch and rules of their parents. According to Erikson (1968), adolescents should be encouraged to explore and develop a sense of identity, otherwise they may not feel secure in themselves in the future. Instagram has become an area for identity development since the app is mainly self-promotive. On Instagram, adolescents can take back that sense of agency and craft their own identity according to how they want to be perceived. They can choose which photos

they want to post, who they want to follow, and what they want to say. They can even embellish their photos with editing or filters to create a certain uniqueness or theme to their profile.

For youth with marginalized or non-majority identities, connecting with other adolescents who share the same identities and experiences can be supportive for their development. Specifically, youth who identify as transgender, non-binary and gender non-conforming can find affirming online communities to be a source of social support (Selkie et al., 2020; Singh, 2013). Online friendships with peers who have similar identities can be a safer place to discuss sensitive topics related to identity development such as the coming out process and gender transition. This can buffer against the negative effects of bullying, victimization, and non-acceptance from family members (Evans et al., 2017). Social media can also serve as a place to access information and specific experiences about gender affirming care like hormone therapy and resources for talking with offline friends and family members (Selkie et al., 2020). Following and seeing the lives of role models with diverse and intersecting identities for non-majority youth can be inspiring and another way that social media can provide affirmation (Singh, 2013).

Positive Risk-Taking. Development in the limbic system and amygdala, otherwise known as the "emotional center" of the brain also increases during adolescence. This surge of development, paired with a slower development in the frontal cortex which guides impulse control and judgment, often leads to increased sensation seeking and risk-taking during adolescence (Åström, 2021; Giedd, 2020). Duell and Steinberg (2021) define risk as situations with uncertain outcomes that can result in undesirable effects; however, in contrast to negative risks, positive risks are generally socially acceptable and can be positive for development. Online formats have the potential for both negative and positive risk taking. Risky behavior may be especially alluring to adolescents on social media sites because they may perceive the risk as "low cost" due to the belief that failure is easier to deal with behind a screen than in person, or because they can easily delete previously posted items and have a "do-over" (Giedd, 2020). Online communities can also be a way for youth to engage in positive risk taking like increasing their political involvement and activism. For example, 15-year-old Greta Thunberg began protesting political inaction

towards climate change and began the FutureForFridays movement using social media to involve adolescents across the globe in environmental activism (Belotti et al., 2022).

The Negatives

Negative Social Comparison. Unfortunately, the agency afforded to adolescents by Instagram to put forth whatever content they want can lead to harmful consequences as well. With any self-promotive app such as Instagram, the information others decide to put forth is often idealized, which can cause adolescents to try to live up to unrealistic standards. This can be especially damaging to teens when considering that adolescence is the age in which social comparison is most frequent (Noon et al., 2021). Constant comparison against idealized images can be particularly harmful for adolescents when it comes to their body image. Highly visual social media such as Instagram can reinforce a focus and value on appearance that may not be found on other social media sites (Marengo et al., 2018). Teenagers are often unaware of photos that have been enhanced, and consequently mistake these enhancements for reality, especially when it comes to body modifications (Franchina & Lo Coco, 2018; Kleemans et al., 2018). In a study by Kleemans et al. (2018), adolescent girls not only had a difficult time identifying photos that had reshaped bodies, but they also saw these photos as "realistic" and rated them more positively than photos that were not manipulated (Kleemans et al., 2018). Social networking sites such as Instagram also add an element of peer involvement that did not play a role in media before. Not only is there a heightened focus on appearance on apps like Instagram, but commenting features on images and videos now allow for both peers and strangers to make judgements on one's appearance. Remarkably, some research has shown that all comments on appearance, even positive ones, can have negative impacts on body self-esteem, as it reminds individuals that others are judging their bodies (Herbozo & Thompson, 2006).

The negative effects of body image concerns can also be exacerbated by the heightened risk-taking during adolescence. A report by the Be Real campaign (2017) found that 37% of the adolescents surveyed would do "whatever it takes" to look good, with 57% saying they have or would consider going on a diet, and 10% saying they would consider plastic surgery. A hyper-fixation on appearance coupled with heightened risk-taking could

pose a dangerous threat to adolescent health, especially if they are trying to achieve unrealistic goals.

Negative Risk-Taking and Online Harassment. The increase in risk-taking behavior that occurs during adolescence can also cause teens to post more provocative pictures and captions or even dangerous content that could get them hurt or in trouble. Adolescents may think these risks are low-cost because they have privacy restrictions and the ability to delete posts later if they change their mind, but unfortunately nothing on the internet is truly private. People can hack accounts, take screenshots, or share content whether they have malicious intentions or not.

Online harassment can also be an issue on social media sites, as the adolescent years are often rife with bullying, and online anonymity can exacerbate these problems further. Online harassment can refer to the creation or sharing of harmful content about an individual in the form of false or demeaning information and/or sending unsolicited or threatening messages to the individual (Phillips, 2018). Instagram can be used to post humiliating or inappropriate pictures or videos of a victim, and depending on a user's privacy restrictions, malicious comments can be written on a user's posts both by peers as well as by strangers (Byrne et al., 2018). Online harassment, especially via social media, can be more difficult to rectify than face-to-face bullying. The possibility for anonymity and lack of adult figures present on social media contribute to a lack of repercussions for digital offenders (Byrne et al.,2018; Phillips, 2018), and once a harmful image or message is posted and spread online, it can be almost impossible to track the source or get rid of the content completely (Byrne et al., 2018). In addition, victims may be able to escape face-to-face bullying when they are separated from the perpetrator/s, but on social media, which consumes the daily lives of most adolescents, online bullying can become an omnipresent source of torment (Byrne et al., 2018; Mayo Clinic, 2022). While Instagram can be a safe and beneficial space for many teens, online harassment proves to be a serious safety concern for today's youth, and action should be taken to reduce the possibility for bullying on social media sites.

CONTEXTUAL INFLUENCES

Oftentimes, social media use in adolescence is discussed in relation to the individual and peer contexts; however, from Bronfenbrenner's ecological systems theory (1979), other critical microsystems in youth development also shape how youth interact with and use Instagram in ways that promote adaptation and risk.

School Context

Many schools and communities have some sort of social media presence. For instance, Kimmons and colleagues (2019) reported that 39.7% of schools in the United States have Twitter pages and many teachers and school administrators have personal and professional social media accounts. Individual school clubs and organizations have pages to raise awareness for charity causes and support team fundraising. With the 2020 pandemic, schools increased in their use of social media to communicate critical information and celebrate milestones and student accomplishments (Michaela et al., 2022). For example, some schools made individual posts on Instagram for each graduating senior sharing their interests, accomplishments, and post-graduation plans. This type of school presence on social media can build community, identity, and pride.

Family

Family members' use of social media is also likely to have a strong influence on how this format is used by youth. When talking about social media, parent and caregiver supervision and communication about internet safety is recommended (O'Keeffe & Clarke-Pearson, 2011); however, this can be strongly influenced by how parents and caregivers use social media themselves. Adults may also spend excessive time on social media, which can reduce the quality of in-person interaction with their children and disrupt learning (Reed et al., 2017) and bonding (Kildare & Middlemiss, 2017). Parents and caregivers may also post pictures of their children online, which can potentially be embarrassing. Adolescents in 2022 could feasibly have had their entire childhood from infancy to present chronicled on social media, and little is known about these long-term effects.

On the positive side, social media can serve to connect family members and relatives, especially those who may be more distant. Grandparents, cousins, or other family members who live physically far away can be kept up to date on daily stories and posts. Children also may feel more comfortable communicating through an online space

and may prefer to messaging personal things to their family members rather than communicating face-to-face. While in-person communication may be ideal, family members may be able to use social media to build a stronger bond than they otherwise would have been able to develop. Parents may also use social media as a form of social support and way to seek information about their parenting practices (Moon et al., 2019).

FUTURE RECOMMENDATIONS

While it is easy to get caught up in all the negative media attention towards social sites like Instagram, we should refrain from thinking of the app as inherently negative. Many teens turn to Instagram as a source of inspiration, identity formation, and a chance to connect and maintain peer relationships. Instead of taking away the app altogether, we must try to make the environment as safe as possible for adolescents to explore their identity and friendships.

Practitioners

Practitioners should educate parents on why social media is so alluring to adolescents and encourage them to talk to their children about troubling social media topics such as idealized pictures and online bullying rather than criticizing social media and limiting their child's use. Practitioners can also encourage parents to get involved with social media themselves to learn more about what their child uses. However, parents should be aware that their own use of social media is an important model for their children. Parents can set a positive example through the limits they set for themselves on social media use and the images they post. Since Instagram use can lead to social comparison among adolescents, and adolescents may turn to Instagram for validation, practitioners should remind parents to give their children real life positive feedback and affirmations and limit compliments about appearance as it can influence children to believe physical appearance is vital. Lastly, practitioners can teach teenagers to emphasize their personal best and celebrate their own goals rather than comparing themselves to others.

Policymakers

Instead of policies that ban teenagers from using Instagram, preventative measures should be taken to try to make Instagram a safer place for adolescents. First, digital safety

courses should be incorporated into school programs and may be added into the health and sex education classes already taught to teenagers. These classes can educate adolescents on the permanence of online media, the consequences of online bullying, hate speech, or sexual harassment, and the idealized culture of social media sites such as Instagram and how believable enhanced photos can be. Since self-esteem has shown to be a moderator to the detrimental outcomes of social media use (Martinez-Pecino & Garcia-Gavilán, 2019), more self-esteem courses should be integrated into school programs as well.

Although education is a great first step, teenagers may still be enticed to take online risks regardless of the consequences. To assuage this, policy makers at Instagram should focus on limiting experiences that can be potentially harmful for adolescents. There are already features in place where users can report a post if it features sexual content, hate speech, bullying, or false information. Pop-up warnings also come up before posts that may have sensitive content. Other features Instagram has added in recent years are the ability for users to turn off comments on their posts and hide their "Like" counts. This inhibits online bullying and harassment by preventing other users from commenting on photos and allows adolescents to avoid perceived peer rejection by hiding the number of "Likes" they receive on a post. In the future, Instagram policy makers can continue to add features that help protect adolescents from accessing or posting risky content and modify features that may negatively affect self-esteem in teenagers.

CONCLUSION

Instagram has not only become a widely popular app, but an influential component of modern culture and social dynamics. As apps like Instagram become more central to our lives, we must remain vigilant to the effects they have on us, and regularly think of ways to improve them to make them a safe space for all users. It can be daunting to try to navigate our youth through a digital age that we ourselves are very unfamiliar with, but with the right communication and adjustments, social media sites such as Instagram can become a positive and valuable resource to adolescent development.

References

Åström, M. (2021). The adolescent brain on social-media: A systematic review.

Be Real. (2017). *Somebody Like Me: A report investigating the impact of body image anxiety on young people in the UK.* https://www.berealcampaign.co.uk/research/somebody-like-me

Belotti, F., Donato, S., Bussoletti, A., & Comunello, F. (2022). Youth Activism for Climate on and Beyond Social Media: Insights from FridaysForFuture-Rome. *The International Journal of Press/Politics, 27(3)*, 718-737. https://doi.org/10.1177/19401612211072776

Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. Cambridge, MA: Harvard University Press.

Byrne, E., Vessey, J. A., & Pfeifer, L. (2018). Cyberbullying and social media: Information and interventions for school nurses working with victims, students, and families. *The Journal of School Nursing, 34*(1), 38–50. https://doi.org/10.1177/1059840517740191

Cipolletta, S., Malighetti, C., Cenedese, C., & Spoto, A. (2020). How can adolescents benefit from the use of social networks? The iGeneration on Instagram. *International Journal of Environmental Research and Public Health, 17*(19), 1–15. https://doi.org/10.3390/ijerph17196952

Duell, N., & Steinberg, L. (2021). Adolescents take positive risks, too. *Developmental Review, 62,* 100984. https://doi.org/10.1016/j.dr.2021.100984

Erikson, E. H. (1968). Identity: Youth and crisis. New York: Norton.

Evans, Y. N., Gridley, S. J., Crouch, J., Wang, A., Moreno, M. A., Ahrens, K., & Breland, D. J. (2017). Understanding online resource use by transgender youth and caregivers: A qualitative study. *Transgender Health, 2(1),* 129-139. https://doi.org/10.1089/trgh.2017.0011

Franchina, V., & Lo Coco, G. (2018). The Influence of Social Media Use on Body Concern. *International Journal of Psychoanalysis and Education, 10*(1). Retrieved from https://www.researchgate.net/publication/331114176_The_Influence_of_Social_Media_Use_on_Body_Concern?enrichId=rgreq-6efc282b6afa18f81e023dc563884e60-XXX&enrichSource=Y292ZXJQYWdlOzMzMTExNDE3NjtBUzo4NzExNDM1NjA5OTg5MTNAMTU4NDcwODIxODQxNQ%3D%3D&el=1_x_2&_esc=publicationCoverPdf

Giedd, J. N. (2020). Adolescent brain and the natural allure of digital media. *Dialogues in Clinical Neuroscience, 22*(2), 127–133. https://doi.org/10.31887/DCNS.2020.22.2/jgiedd

Herbozo, S., Thompson, J. K. (2006). Appearance-related commentary, body image, and self-esteem: Does the distress associated with the commentary matter? *Body Image: An International Journal of Research, 3*(3), 255-262. https://doi.org/10.1016/j.bodyim.2006.04.001

Kildare, C. A., & Middlemiss, W. (2017). Impact of parents mobile device use on parent-child interaction: A literature review. *Computers in Human Behavior, 75,* 579–593. https://doi.org/10.1016/j.chb.2017.06.003

Kilford, E. J., Garrett, E., & Blakemore, S.-J. (2016). The development of social cognition in adolescence: An integrated perspective. *Neuroscience & Biobehavioral Reviews, 70*, 106–120. https://doi.org/10.1016/j.neubiorev.2016.08.016

Kimmons, R., Carpenter, J.P., Veletsianos, G., Krutka, D.G., (2019). Mining social media divides: An analysis of K-12 US school uses of Twitter. *Learning, Media and Technology, 43(3),* 307-325.

Kleemans, M., Daalmans, S., Carbaat I., & Anschütz D. (2018). Picture Perfect: The Direct Effect of Manipulated Instagram Photos on Body Image in Adolescent Girls. *Media Psychology, 21*(1), 93-110, DOI: [10.1080/15213269.2016.1257392](https://doi.org/10.1080/15213269.2016.1257392)

Martinez-Pecino, & Garcia-Gavilán, M. (2019). Likes and Problematic Instagram Use: The Moderating Role of Self-Esteem. *Cyberpsychology, Behavior and Social Networking, 22*(6), 412–416. https://doi.org/10.1089/cyber.2018.0701

Mayo Clinic. (2022, February 26). *How to help your teen navigate social media.* Mayo Foundation for Medical Education and Research. https://www.mayoclinic.org/healthy-lifestyle/tween-and-teen-health/in-depth/teens-and-social-media-use/art-20474437#:~:text=Social%20media%20is%20a%20big,%2C%20Facebook%2C%20Instagram%20or%20Snapchat.

Marengo, D., Longobardi, C., Fabris, M. A., & Settanni, M. (2018). Highly-visual social media and internalizing symptoms in adolescence: the mediating role of body image concerns. *Computers in Human Behavior, 82,* 63-69. https://doi.org/10.1016/j.chb.2018.01.003

Michela, E., Rosenberg, J. M., Kimmons, R., Sultana, O., Burchfield, M. A., Thomas, T., (2022). "We Are Trying to Communicate the Best We Can": Understanding districts' communication on Twitter during the COVID-19 pandemic. AERA Open 8, 23328584221078542.

Moon, R. Y., Mathews, A., Oden, R., & Carlin, R. (2019). Mothers' perceptions of the internet and social media as sources of parenting and health information: qualitative study. *Journal of Medical Internet Research, 21(7),* e14289. doi: 10.2196/14289

Noon, E. J, Schuck, L. A., Guțu, S. M., Șahin, B., Vujović, B., & Aydın, Z. (2021). To compare, or not to compare? Age moderates the relationship between social comparisons on instagram and identity processes during adolescence and emerging adulthood. *Journal of Adolescence (London, England.), 93*, 134–145. https://doi.org/10.1016/j.adolescence.2021.10.008

O'Keeffe, G. S., Clarke-Pearson, K., & Council on Communications and Media. (2011). The impact of social media on children, adolescents, and families. *Pediatrics, 127(4),* 800–804. https://doi.org/10.1542/peds.2011-0054

Pew Research Center (2022, August 10). *Teens, social media and technology 2022.* Retrieved August 30, 2022, from https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/#fn-28469-2

Phillips, A. L. (2018). Youth perceptions of online harassment, cyberbullying, and "just drama": Implications for empathetic design. *Online Harassment*, 229–241. https://doi.org/10.1007/978-3-319-78583-7_10

Reed, J., Hirsh-Pasek, K., & Golinkoff, R. M. (2017). Learning on hold: Cell phones sidetrack parent-child interactions. *Developmental Psychology, 53(8),* 1428–1436. https://doi.org/10.1037/dev0000292

Selkie, E., Adkins, V., Masters, E., Bajpai, A., & Shumer, D. (2020). Transgender adolescents' uses of social media for social support. *Journal of Adolescent Health, 66(3)*, 275–280. https://doi.org/10.1016/j.jadohealth.2019.08.011

Singh, A. A. (2013). Transgender youth of color and resilience: Negotiating oppression and finding support. *Sex Roles, 68(11)*, 690-702. https://doi.org/10.1007/s11199-0 12-0149-z

Funding and Acknowledgements