

AMENDED Exhibit 224

PLAINTIFFS' OMNIBUS OPPOSITION TO DEFENDANTS' MOTIONS FOR SUMMARY JUDGMENT

Case No.: 4:22-md-03047-YGR

MDL No. 3047

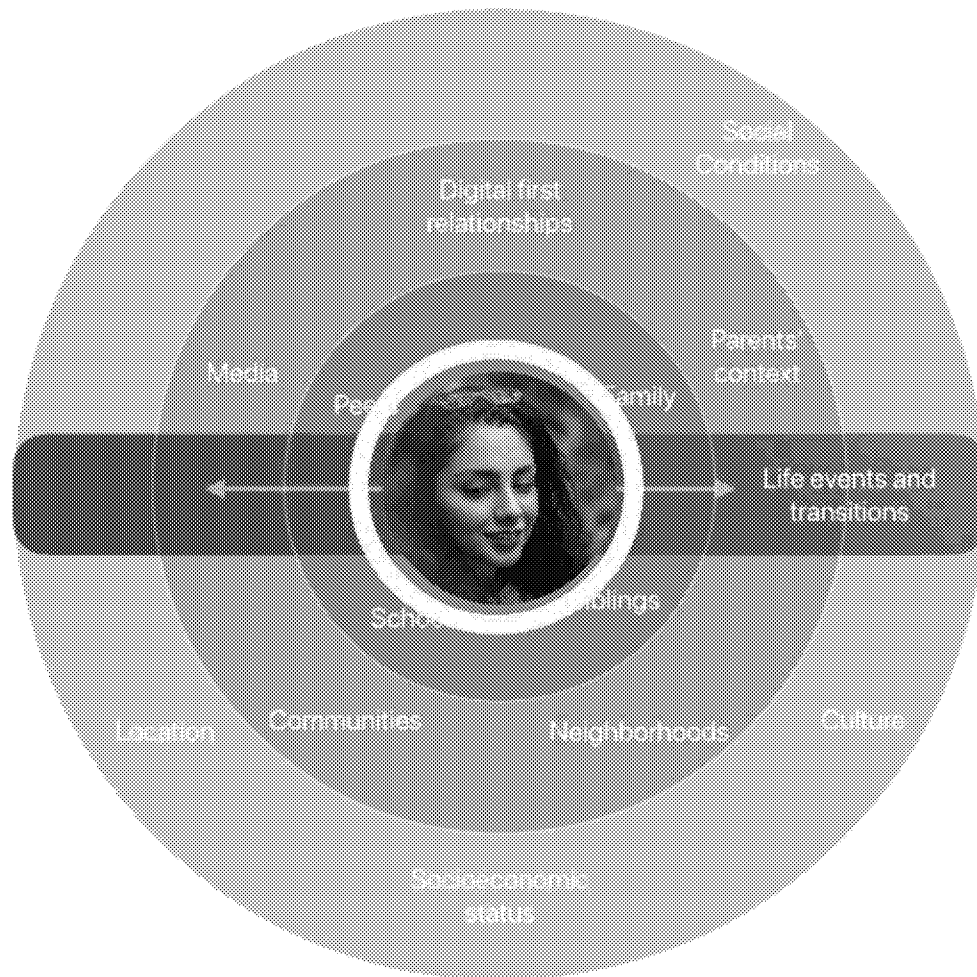
In Re: Social Media Adolescent Addiction/Personal Injury Products Liability Litigation

What Makes Teens Tick?

Think back to the time when you were a teenager...

It could have been in the 80s (neon colors, cassettes, big bangs), 90s (butterfly clips, CDs and pagers) or 2000s (velour track suits, flip phones and iPods). In any case, each generation is marked by different trends in entertainment, style and technology and while many of these things happened before our eyes, there are many aspects of teenage life that evolve behind the scenes.

The teenage experience consists of complex layers of circumstances that play a part in the future person a teen will become. And while there is immense variability of culture, socioeconomic status, family, location, etc. — We can first look inward to biological factors that are relatively consistent across adolescent development and gain valuable *unchanging* insights to inform product strategy today.



Adapted from Bronfenbrenner's Bioecological Systems Theory

What makes teens tick?

TLDR; New things, feeling good and reward.

1. The teen brain is easily stimulated by novelty, making discovery surfaces very engaging if the content is fresh.

Redundancy is a buzzkill. We must make deduping content across surfaces a priority for the teen audience. We also need to provide more opportunities to help teens discover new content, interests and people.

2. Teens are prime to exploration and learning. Interests, conversations and sharing new experiences are top exploration tasks for teenagers.

Exploration is currently a shallow pool on IG. We need to better facilitate deep dives into interests and conversation by leveraging IGTV and further facilitating community. We should also be striving to spearhead innovative interactions that create new shared experiences.

3. Teens are still developing self control. They are motivated by the prospect of immediate rewards.

Teens are not finding enough value to the proportion of time they are spending on IG. We must find ways to make teens feel more productive and rewarded on our platform. This could mean making "feel good" content and connections more accessible. We should also incorporate account insights such as what their content diet looks like, goal setting and reminders about their usage.

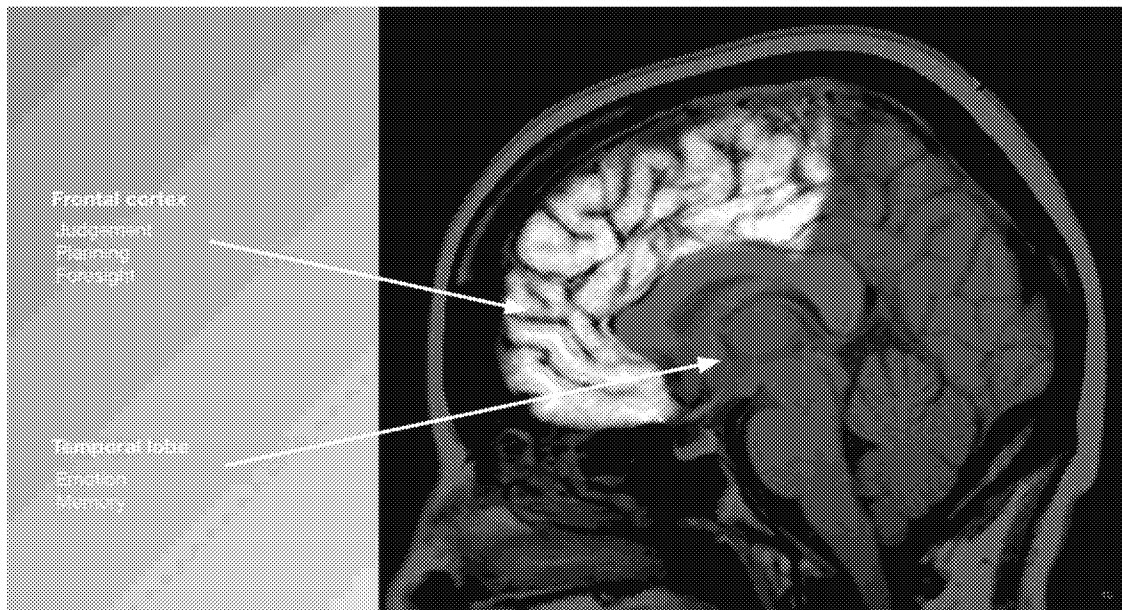
4. Teens are sensitive and vulnerable to experiences that can have lasting harm.

We should continue to seek ways to prevent negative experiences and hurt feelings on the platform. We should also invest in an education experience to teach teens how to protect themselves from dangers on IG.

Adolescent Development

Puberty is the most obvious outward evidence of progression to maturity. We are all aware of what happens - there is increased hormone production, new environmental effects and cognitive changes that cause an abundance of confusion for youth at all stages.

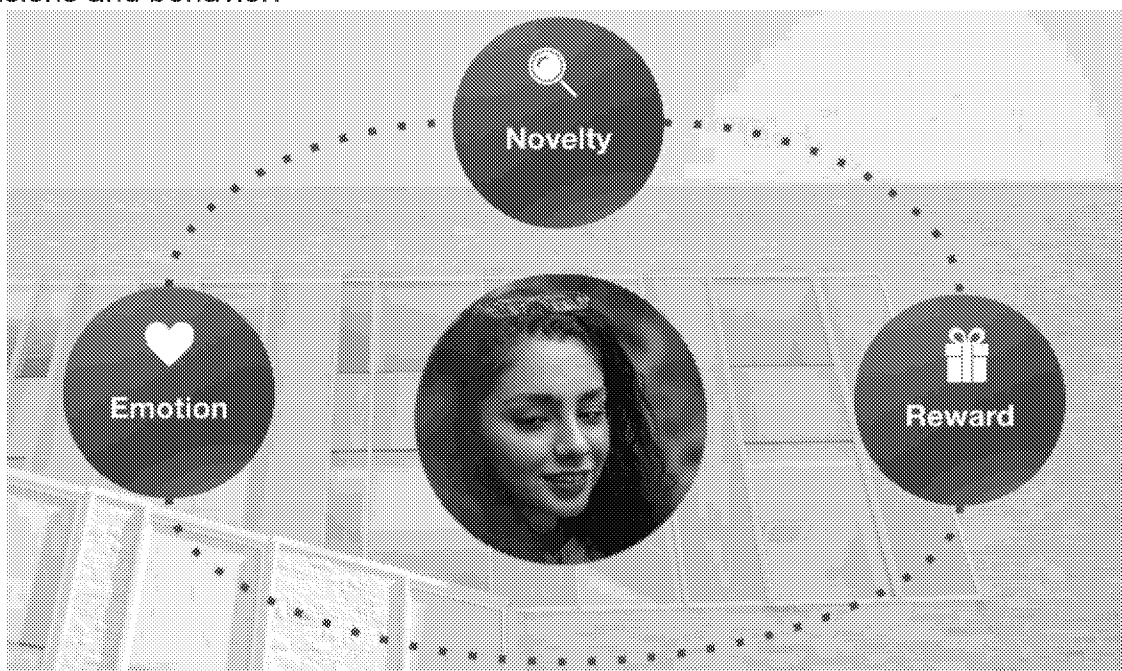
But what is less evident is teenage brain development. As you would expect this also matures over time - but not at the same speed as the body. Your brain's maturity occurs from the back to front and gray matter density (which drives connections in the brain) increases over a long period of time. Unlike the body which functions wholly from day one, the brain essentially spot trains certain areas and functions at a partial capacity before it is wholly developed which in some cases doesn't happen until age 30.



The frontal cortex is not fully developed during adolescence.

The teenage brain is usually about 80% mature. The remaining 20% rests in the frontal cortex - the area of the brain responsible for planning, judgement and foresight. So teens are highly dependent on the temporal lobe of the brain where emotions, memory and learning, and the reward system reign supreme.

Emotion, the intrigue of novelty and the prospect of reward are the drivers behind teens' decisions and behavior.

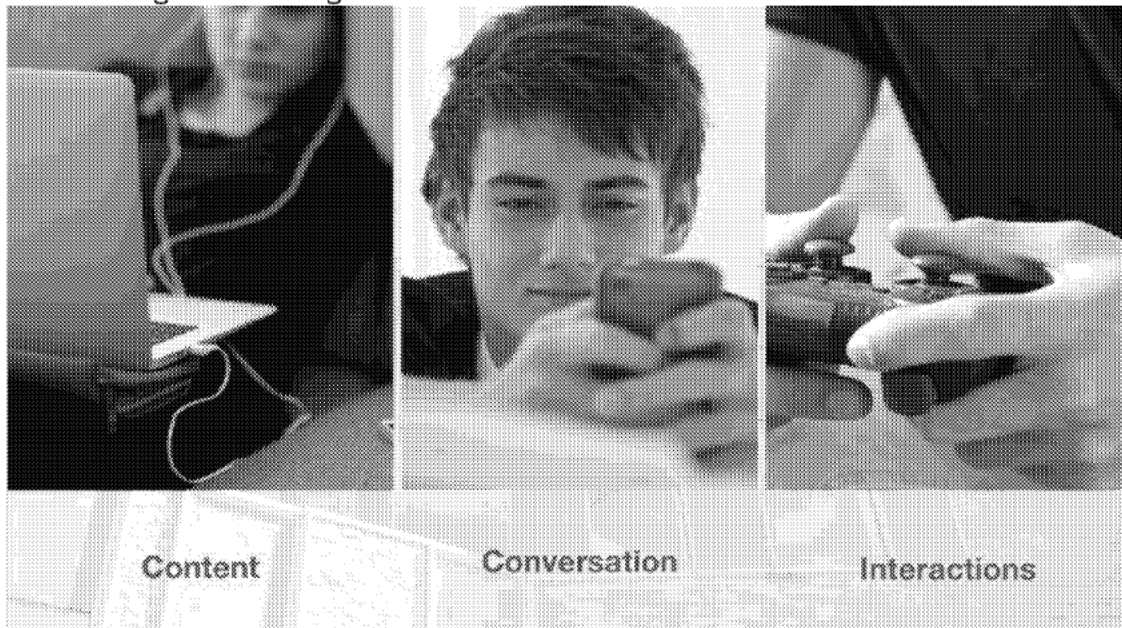


Teen's decisions and behaviors are ruled by novelty, emotion and reward

Novelty

Teens are hungry to learn and therefore seek new experiences. Since teen's exposure is relatively limited due to the short amount of time they've been alive, the teenage brain happens to be pretty easy to stimulate and teens often look to social media for the stimulation that comes from exploration, discovery and shared experiences.

Exploration is an invaluable tool for the teenage mind. Teens explore interests through content, they develop moral reasoning skills through conversation and share experiences together through interactions.



Teens use content, conversation and interactions to learn and grow

Content

We know IG has traditionally been quite strong on the entertainment front, but we are beginning to get signal the relevance of content on IG may be waning among teens. Why is that? Well for a novelty seeking mind - slow or repetitive content is a major buzzkill. [[HYPERLINK "https://fb.workplace.com/notes/\[REDACTED\]/tik-tok-vs-ig-stories-what-can-we-learn-from-a-video-first-app/607131403516278/" \h](https://fb.workplace.com/notes/[REDACTED]/tik-tok-vs-ig-stories-what-can-we-learn-from-a-video-first-app/607131403516278/)]

Conversation On the topic of conversation, communicating with peers is not just a boredom buster, it is an important part of adolescent development and one they rely on to feel connected. Psychosocial research tells us that moral reasoning is achieved through a process called mutual perspective taking - put more plainly it is the exchange of interactions with peers where adolescents confront one another with differing perspectives and engage each other with in-depth discussions. This provides some insight around why messaging apps are so popular among this age group.

Our DM product is certainly a utility to teen users when it comes to lightweight interactions and content sharing but apparently [[HYPERLINK "https://fb.workplace.com/notes/kenzie-snyder/households-ig-experiential-needs/688558791716307/" \h](https://fb.workplace.com/notes/kenzie-snyder/households-ig-experiential-needs/688558791716307/)]

Interactions For teens literal words are not the only means of interchange. Emojis, streaks, photos, memes, GIFs, videos, reactions, likes and comments are just some of the interactions that play a part in shared experiences. People are now able to interact and communicate feelings without saying or typing a word.

But the challenge for teens is in getting these experiences started. Recent insights from the Household Ecosystem study showed teens are seeking online presence cues and looking for friends responsiveness to spark interaction but they struggle to maintain convos and go deeper than just light socializing.

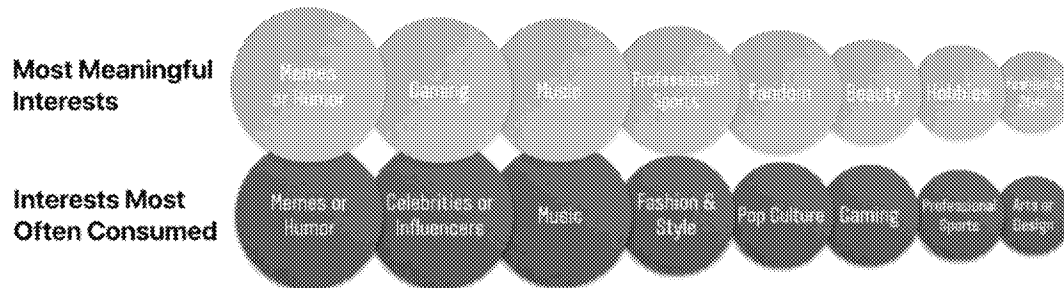
DiscoveryWhen it comes to discovering something new or novel, much like our big bro FB, IG has a pretty good hold on the serendipitous aspect of discovery through our Explore surface, recommendations and social graph. And, every time one of our teen users finds something unexpected their brains deliver them a dopamine hit.

Teens are insatiable when it comes to “feel good” dopamine effects. Humor and fun are highly valued. But, this does not mean that other types of content don’t engage teens. [HYPERLINK

"https://fb.workplace.com/profile.php?id=100021573512940&sk=media_set&set=a.453291598733287&type=3" \h]

Teens' top interests are memes & humor long with gaming.

Teens top interests are very similar to adults' top interests. The primary difference is the omission of food & drink interest and the addition of gaming for teens.



Top multi-select, reported five days of usage. Bottom single-select, responded to once.

Project Freedive: Teen Interests, Randy Illum, Nov. 2019

Further, teen brains' are especially “plastic” or keen to learn which presents a unique opportunity that when coupled with curiosity, can send teens down some interesting rabbit holes - absorbing as much as they can about a particular topic. How well does IG cater to this activity? How does it stack up against intentful discovery platforms

[HYPERLINK

"https://fb.workplace.com/groups/556913631334045/permalink/798363593855713/" \h] and We [HYPERLINK

"<https://fb.workplace.com/groups/556913631334045/permalink/798363593855713/>" \h
]about an interest. The ability to go deep on a topic can be somewhat difficult on IG.

What would it be like if there was a discovery feature on every IG surface?

How can your team give teens somewhere new to go or something new to find from the product you work on?

Emotion

Sex hormones are particularly active in the limbic system, which is the emotional center of the brain. There are also unique features of teenage emotional experience — increased sensitivity, as well as established psychological concepts known as “personal fable” and “imaginary audience.”

The root of these concepts has to do with the fact that adolescents find it difficult to distinguish their view of what others think of them from reality. They show adolescent egotism, a perspective taking error that renders them highly sensitive. Teens often refer to all the “drama” of their lives, which to adults may seem frivolous. But it is a reality for teens.

“Personal Fable” When teens believe the intensity of their emotions are different from other people’s emotions and that others simply do not understand. Teen psychologists coin this “personal fable”. This may move teens towards a desire to express themselves in various introspective ways such as journaling and engage with relatable content such as that is expressed through memes and vlogs.

“Imaginary Audience”

Personal fable is compounded by another psychological concept called “imaginary audience”, which is a heightened self consciousness fueled by the belief that all eyes are on them. This proves true in the data as well. At least in the [[HYPERLINK "https://fb.workplace.com/permalink.php?story_fbid=229574601466828&id=100032428698906"](https://fb.workplace.com/permalink.php?story_fbid=229574601466828&id=100032428698906) \h]. It’s no wonder then why there are so many [[HYPERLINK "https://fb.workplace.com/permalink.php?story_fbid=326200728365106&id=100029255447206"](https://fb.workplace.com/permalink.php?story_fbid=326200728365106&id=100029255447206) \h].



"Imaginary audience" is a heightened self consciousness fueled by the belief that all eyes are on them.

Negative Experiences There is quite a bit of threat to be wary of especially among teens on Instagram, [[HYPERLINK "https://fb.workplace.com/notes/diego-castaneda/how-should-we-default-new-teens-into-new-interactions-settings-a-survey-of-safet/888495351577331/" \h](https://fb.workplace.com/notes/diego-castaneda/how-should-we-default-new-teens-into-new-interactions-settings-a-survey-of-safet/888495351577331/)] and most notably in DM ([[HYPERLINK "https://fb.workplace.com/notes/diego-castaneda/how-should-we-default-new-teens-into-new-interactions-settings-a-survey-of-safet/888495351577331/" \h](https://fb.workplace.com/notes/diego-castaneda/how-should-we-default-new-teens-into-new-interactions-settings-a-survey-of-safet/888495351577331/)]).

Unsurprisingly, people being bullied on IG are [[HYPERLINK "https://fb.workplace.com/notes/moira-burke/bullyings-impact-on-account-deletion-deactivation-and-engagement/729832067760685/" \h](https://fb.workplace.com/notes/moira-burke/bullyings-impact-on-account-deletion-deactivation-and-engagement/729832067760685/)]

Even when teens don't have a particularly negative experience on IG, they can still feel bad based on how they self evaluate compared to what to they see. When adolescents identify a self they aspire to be, and this mismatches with their actual selves studies associate this with poor grades, low self esteem and symptoms of depression. A related problem we have identified internally as social comparison.

[[HYPERLINK "https://fb.workplace.com/notes/moira-burke/social-comparison-on-facebook-on-instagram-and-in-everyday-life/450931945650700/" \h](https://fb.workplace.com/notes/moira-burke/social-comparison-on-facebook-on-instagram-and-in-everyday-life/450931945650700/)] One effort that has made some stride towards reducing social comparison for teens is project Daisy - which does not display the number of likes a post received. [[HYPERLINK "https://fb.workplace.com/groups/ProjectDaisyFYI/permalink/857680248023154/" \h](https://fb.workplace.com/groups/ProjectDaisyFYI/permalink/857680248023154/)]

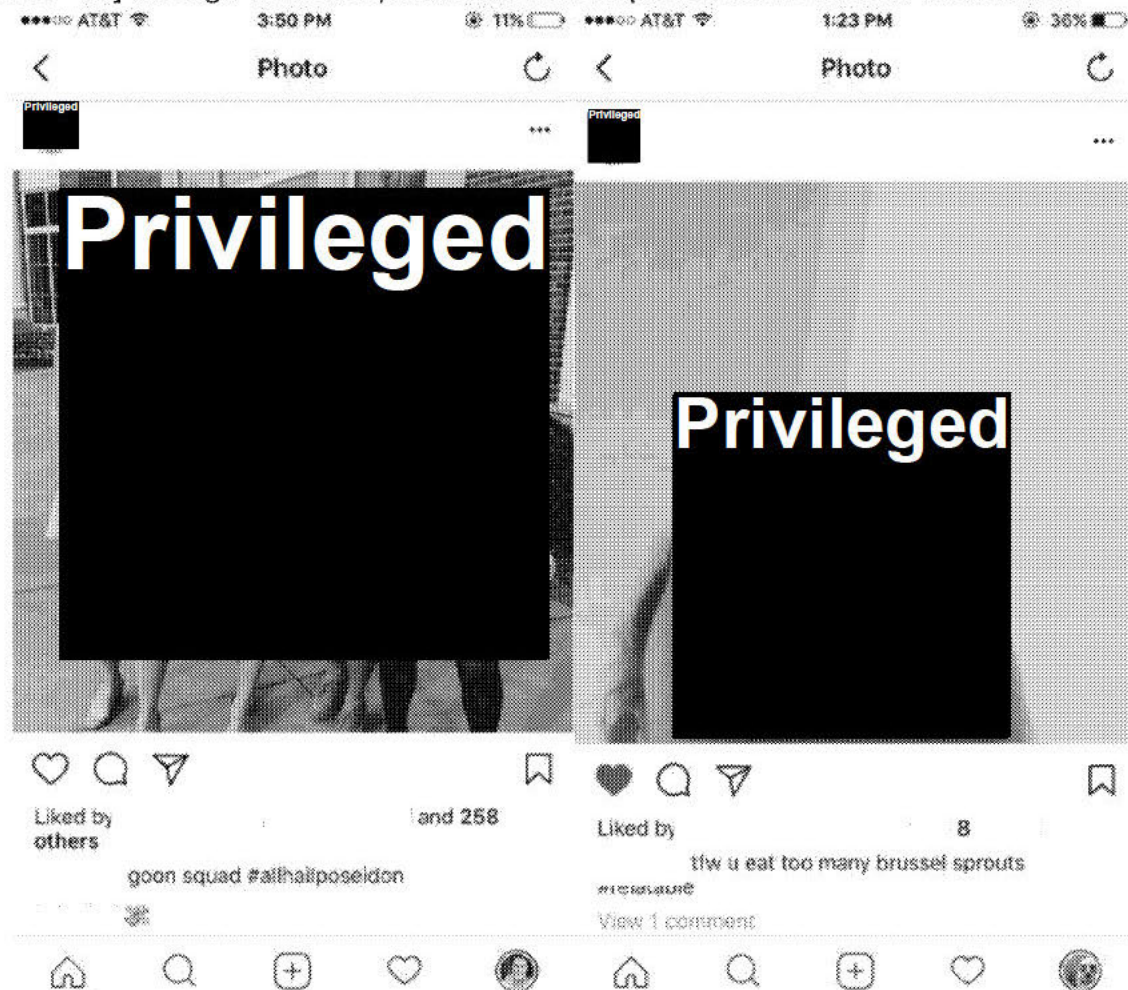
Identity

All of these factors can make it challenging for young people to form a balanced and consistent sense of self. That is because they also begin to realize that their feelings, attitudes and behaviors change with any given situation causing even more confusion

about their identity.

IG lends itself well to identity exploration. The ability to create multiple accounts [HYPERLINK

"https://fb.workplace.com/permalink.php?story_fbid=229574601466828&id=100032428698906" \h] through more frequent authentic expressions to smaller audiences.



Finstas allow teens to show different sides of themselves

Many teens have capitalized on IG for that need as we see teen "finstas" in the [HYPERLINK

"https://fb.workplace.com/groups/igidentity/permalink/1491416067697338/" \h] for this inherent teen need. It implies that teens are interested in building boundaries and small spaces to express themselves, so it's important to think about the effect that inter-operative family experience efforts may have on teens who want discreet and distinct control over their identities.

Can you identify what aspects of the IG experience have ever caused you to second guess yourself?

What value do numbers really bring people?

Reward

Lastly a huge driver for teen behavior is the prospect of reward. This is what makes them predisposed to impulse, peer pressure, and potentially harmful risky behavior like drugs, stunts and pranks.

Teen brains are much more sensitive to dopamine, one of the reasons that the risk of drug addiction is higher for adolescents and it's the same thing that keeps them scrolling and scrolling. Due to the immature brain, they have a much harder time stopping even though they want to -- our own product foundation research has shown [[HYPERLINK "https://fb.workplace.com/notes/kenzie-snyder/what-do-marshmallows-have-in-common-with-notifications/557554604816727/" \h \]](https://fb.workplace.com/notes/kenzie-snyder/what-do-marshmallows-have-in-common-with-notifications/557554604816727/)

And sadly, a short term reward and inexperience makes teens prone to risky behavior and there are plenty that present themselves online and on Instagram. This could be engaging with predators, consuming dark content, sharing nude photos or copycat self-harm.

New research does indicate that older siblings may have a unique opportunity to help mitigate some of these risks - teens are often going to siblings for advisement on social media management.

Siblings aside - it is no secret adolescent decisions are more likely to be influenced by their peers. Close friends are of the utmost importance to teens. Snapchat is essentially built off of this fact. [

In fact, [[or inner circles. These accounts over-index on production and \[](https://fb.workplace.com/media/set/?set=oa.2106587529389851&type=3)

Approval and acceptance are huge rewards for teens and interactions are the currency on IG. DMs, notifications, comments, follows, likes, etc. encourage teens to [

So what makes teens tick? New things, feeling good and reward.

We are not quite checking all of these boxes and [[to supplement for these needs. The fact that \[](https://fb.workplace.com/permalink.php?story_fbid=218171705940451&id=100032428698906)

297485" \h]speaks to a couple of our opportunity areas including close friend communication and the depth of content we offer.

We do well to think hard about how we can make IG an app tailored to the teenage mindset.

- What paths can I make for people to find something they haven't seen before?
- What can I do to make people feel good before/during/after engaging with the feature I'm working on?
- How can my product area help build bonds between users?
- What positive reinforcement can be baked into the experience I work on?

Iterative and step changes will be necessary to retain this generation and gain the next. Let's do this!