

The Impact of Social Media on Adolescents: The Effect of Instagram Usage on Body Image

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Abstract

The purpose of this study was to examine how Instagram usage influences body image satisfaction and self-esteem amongst adolescents. Prior research has investigated how being on social media, specifically Instagram, contributes to negative self-perceptions through different social comparisons. They also looked into how algorithm-based content and the promotion of unrealistic body image standards can lower adolescents' body image satisfaction and self-esteem. We hypothesized that increased time spent on Instagram would be associated with higher body image dissatisfaction and that body image scores would differ by age. Additionally, we predicted that males would report seeing more muscle-related content than females, while females would report higher levels of pro-thinness content than males. Seventy high school students completed a survey evaluating their body image satisfaction, how often they see certain content, and their average daily time spent on Instagram. We found a significant negative relationship between time spent on Instagram and body image satisfaction, indicating that students who spent more time on the app reported lower body image satisfaction. There was no significant relationship between age and body image. However, the gender differences revealed that females reported significantly greater exposure to the thin ideal than males, while both males and females showed similarly high levels of muscle-idealized content. Our data suggest that higher Instagram usage is connected to lower body satisfaction among adolescents, and females are especially at risk of being affected by pro-muscle and pro-thinness content, which can affect them negatively.

Introduction

The rise of social media has significantly influenced adolescents, shaping their body-image perspectives and self-esteem, and may lead to social comparison. According to the Office of the Surgeon General, 46% of adolescents aged 13-17 said social media makes them feel worse about themselves (1). With this percentage being so high, it highlights the growing concern over how online platforms contribute to negative self-perceptions. Researchers suggest there are big differences in how men and women are affected by social media, and the impact of it on Black women is particularly strong (2). Instagram has contributed to this problem by continuing to host “thinspo” accounts that promote disordered body image and lacking adequate moderation to protect its users (3). This topic is important because social media is a big part of our daily lives and greatly influences adolescents' self-esteem, which can often lead to negative outcomes that can lead to eating disorders. In our study, we surveyed adolescents about their Instagram usage to examine how it affects their self-esteem and body image across gender, race, and body type ideals.

Given that Instagram's algorithm can harm young people's body image, what is Instagram's next move to address this? In Tiffany's article from *The Atlantic*, “The End of the Old Instagram,” she examines how Instagram's efforts to make its platform safer for teens are changing its overall culture and purpose, as well as social media itself (4). The article focuses on how efforts to make Instagram safer may lead to or have already led to making it less authentic and enjoyable, especially for long-time users. Instagram's new safeguard feature in all accounts under 18 will be limited to the PG-13 rating. She finds that Instagram's push and strive towards safety, for example, hiding likes, filtering or archiving posts, and limiting exposure to certain users, is making the app feel more restricted and less fun. This is because PG-13 is extremely restrictive and will prevent people who are almost adults from accessing more mature content. Ultimately, the article concludes that while the intention to protect teens is extremely important, overregulation risks removing the creativity and connection that made Instagram popular in the first place. However, the new PG-13 rating does nothing to stop body image concerns, because things like “thin” or “diet” are allowed. Furthermore, most teens lie about their age so they can often get around the limitations anyway.

Like the previous study, other researchers have also explored Instagram's algorithm and how it promotes harmful content related to extreme thinness and eating disorders (3). Also, how can it lead users, especially teens, to have access to more unhealthy posts, just by interacting with a few? The main idea that's been stated in this source is that the algorithm is a feature that actually helps spread eating disorder content. Even when someone shows only a little interest in weight loss or “thin” content, the app quickly recommends more harmful posts. The Tech Transparency Project, which authored this report, argues Instagram's tool to “protect users” often doesn't work well or is easy to bypass. Also, younger audiences have access to toxic content really quickly, like extreme “thinspo” accounts. Teens are also being easily exposed to these toxic communities that promote eating disorders, and also, how Instagram knows that this is a repetitive problem, but real change continues to be lacking. In fact, in 2019, a whistleblower from Facebook named Francis Haugen showed that 1 in 3 young girls who use Instagram have

worse body image after using the platform. This is important to our study because it shows that algorithms are the main issue with social media usage and teens.

In this next section, this paper by Franchina et al. highlights how social media affects users' body image, particularly in adolescents (5). Especially with the more traditional mass media and new features on social media that impact those who use them even more than traditional media. Scrolling on Instagram and looking at all the "perfect" bodies makes teens feel bad about their own looks. Social media has a larger effect because it has easier access, as well as direct commentary with other users. Also, ideal bodies receive more "likes," which can influence someone's behavior. Boys and girls feel this pressure differently, but it hits everyone. Girls have pushed towards the "thin ideal", while boys experience a "muscular ideal." On social media, the algorithm that is unique to each user tends to amplify a person's perceptions about their body, and can feed people content that is more extreme, and even content that encourages eating disorders. Our takeaways were the many factors on social media that helped influence the young adults more than mass media. It relates to my study because of the deeper truths about the effects of social media and body image, as well as the power of the media in damaging the relationship between adolescents and their body image.

This next study by Xygki et al. explores how comparing one's physical appearance while viewing Instagram affects body image, self-esteem, and eating disorders (6). The authors hypothesize that viewing Instagram and comparing appearances negatively affects body image and self-esteem while also increasing the likelihood of eating disorders. This study used 348 college-aged and young adults. The researchers then analyzed the relationship between social comparison and self-esteem and body-image outcomes. Their major findings were that viewing Instagram and engaging in appearance comparisons were likely to harm body image and self-esteem, and increase disordered eating tendencies. The type of accounts viewed on Instagram did not matter; the following of fashion and beauty accounts was not related. However, when people compared their bodies to those of people on those types of accounts, it led to lower self-esteem and body appreciation. In addition, significant differences were observed between men and women; women were more likely to follow beauty accounts, compare their bodies to those of others, and have lower body appreciation and self-esteem. This study overall shows that social media can have a serious effect on mental health and body confidence, encouraging users to think critically about what they're being exposed to online.

The study conducted by Portugal and Siquara explores descriptively how the use of Instagram relates to body dissatisfaction and self-esteem in young women (7). They hypothesized that the more time spent on Instagram would be associated with lower body satisfaction and lower self-esteem levels. They examined 329 young women, aged 18-24, using Instagram, by administering the Body Attitude Questionnaire and Rosenberg's Self-Esteem Scale. Their hypothesis was supported because the young women who spent more time on Instagram, especially the posts with the ideals of fitness and good-looking gym bodies, were reported to have lower body satisfaction and lower self-esteem. Specifically, those who spent more than 2 hours per day on Instagram increased biased feelings of salience and body fat

perception. When having any type of comparison to posts, especially the “perfect body” posts, it can negatively impact self-perceptions.

Additional studies have examined the varying degrees of body satisfaction and dissatisfaction amongst Black American women and the factors that contribute to these exact feelings (2). It was hypothesized that greater time spent on Instagram is associated with higher body dissatisfaction among black female college students (2). They used 190 Black female college students, ranging in age from the ages of 18 to 34. In this procedure, they used students who gave consent to complete online surveys about their Instagram use, body image, and other attitudes. After viewing the photos, they answered follow-up questions measuring social comparison and self-objectification. They found that those black college students who had been exposed to body-oriented images on social media did not engage in more social comparison. Nor did they have any self-objectification or show any interest in cosmetic surgery. My takeaway was that Black women avoided the system that portrayed body dissatisfaction in young women and instead showed resilience to those negative body effects.

Overall, these studies argue that adolescents' exposure to social media, especially appearance-focused platforms, is strongly associated with lower self-esteem and more negative body image (5, 3, 6, 7). This study contributes to the understanding of how social media use influences adolescents' body dissatisfaction and body image, specifically by showing how body image concerns may play a key role in lowering self-images. Whereas previous studies typically address body image concerns among young women as a whole, this research contributes to exploring the patterns within African American adolescents. In our study, we administered surveys to Neighborhood Academy students, measuring the time spent on the platform, frequency of appearance-based comparisons of thinness and muscle ideals, and body satisfaction.

We hypothesized that there is a positive relationship between time on Instagram and body image dissatisfaction. This is because research suggests that spending more time viewing negative content on social media can harm adolescents (6, 7, 3). Second, we hypothesize that there is a relationship between body image dissatisfaction and age. This is nondirectional because we did not find any specific sources about age. Third, we hypothesize that males will score higher on the muscle ideal score than females. This is because research says male students are influenced by muscular body-image ideal posts (5). Last, we hypothesized that females would score higher on the thinspo ideal score than males. This is because research says females are more influenced by diet and thinness-related (thinspo) content (5, 3).

Materials and Methods

In this study, we tested a total of 70 high school students from The Neighborhood Academy who completed this survey, with 36 in 9th grade, 21 in 10th grade, 5 in 11th grade, and 8 in 12th grade. All participants were African American, composed of males (56%) and females (44%), from ages 14-18.

Participants were given a survey known as the Body Image Satisfaction Scale to get their baseline scores on how they view their body image. The survey consisted of 19 statements in total, with 9 negative questions and 10 positive body image questions. For instance, the negative body-image questions had such statements as, "My body image gives me displeasure." For the positive body-image questions, there were statements such as "I look appealing." Based on all of the participants' responses to those statements, they would answer 0, meaning they strongly disagree and it never applies to them, and 4, meaning they strongly agree and it always applies to them all the time. The participants were scored by their ratings, by adding up the positive body-image questions and then subtracting the negative body-image questions. These totals for each side would then determine the severity of the problem for each side of body image. For example, a score of 0-7.24 would be someone who is very dissatisfied with their body image, while a score of 29-39 would be someone who is very satisfied with their body image.

Participants also took a self-made questionnaire on how often they saw a certain kind of content on Instagram. This survey consisted of 19 statements in total, with 8 filler questions about random content they would see on Instagram. For example, these questions had statements such as "Posts about cooking," where it wasn't related to anything about self-esteem or body image posts. For the body-related statements on content, there were such statements as "Posts on people showing off how thin they are." Based on the participants' responses to those statements, they would answer 0, meaning that they never saw this certain kind of content, and 4, meaning that they always saw this certain kind of content. There were two different scores taken, one based on muscle content and the other on thinness content.

First, we approached participants and requested that they retrieve their phones from the lockers where students are required to stow them during the school day. Then, they opened Instagram to get their daily averages of the past 7 days from the app. Once that was recorded, we then had them take both of the questionnaires. If a participant did not use Instagram, they were instructed to still complete the questionnaires as normal, but for the Instagram self-esteem content section, they wrote 0 for every item, indicating that they never saw posts related to muscular ideals or the thinness ideals because they don't use Instagram.

Relationships between Instagram usage and body image were measured using a Pearson correlation coefficient r-test. Differences in the muscle scores and the thinness scores for males and females were then measured by using a t-test. The abbreviation M is the mean, and SD is the standard deviation. All tests were calculated using vassarstats.net with a 0.05 significance threshold.

Results

The objective of our study is to show how Instagram's platform can influence teenagers' body image and self-esteem. Understanding these effects can help people become more aware of what they see online and how it shapes their self-image. A total of 70 African American high school students, ages 14-18, completed surveys measuring their body image satisfaction and exposure to muscle-ideal and thinness-ideal content.

Our first hypothesis was that there is a negative relationship between the time spent on Instagram and body image. The more time a person spends on Instagram, the worse their body image score is likely to be. We used a Pearson correlation coefficient r-test for a negative relationship between time spent on Instagram and body image satisfaction ($r = -0.36$, $p = 0.0018$; Figure 1). Adolescents who spent more time on Instagram tended to report lower body image scores. This result was statistically significant.

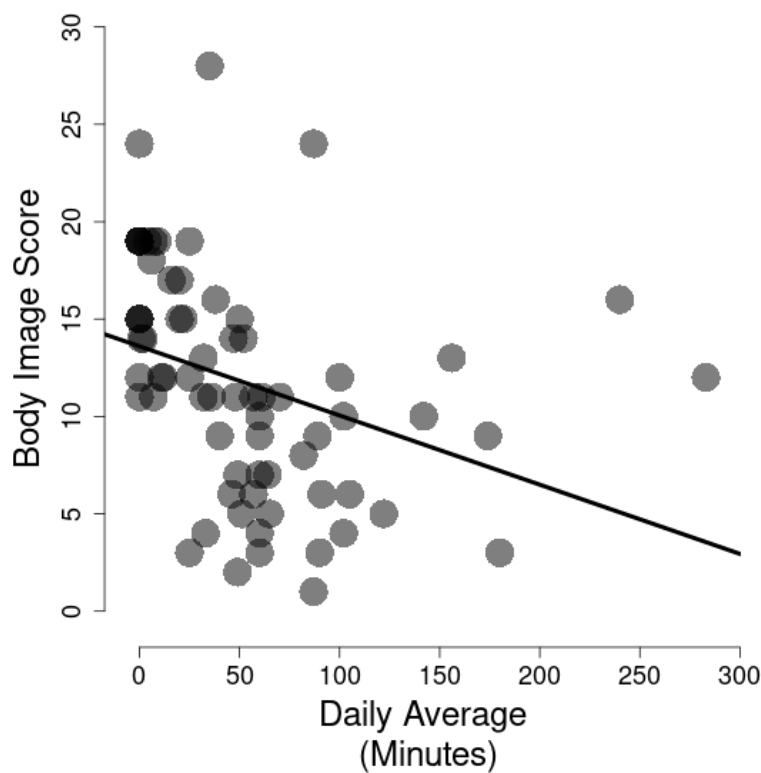


Figure 1. A scatter plot shows the relationship between daily time spent on Instagram (minutes) and body image score. The line of best fit indicated a significant negative correlation, with higher time associated with lower body image scores.

Next, we tested our second hypothesis, which examined whether there is a relationship between body image and age. We hypothesized that body image satisfaction would change as age increased. To test this prediction, we conducted a two-tailed r-test to get the correlation between age and body image score. The analysis revealed a negative relationship between age and body image satisfaction ($r = -0.13$, $p = 0.1398$, Figure 2). This suggests that although body image scores decreased slightly with age, the relationship between them was weak and nonsignificant. Because this result was not statistically significant ($p > 0.05$), we failed to reject the null hypothesis, and it does not support our hypothesis.

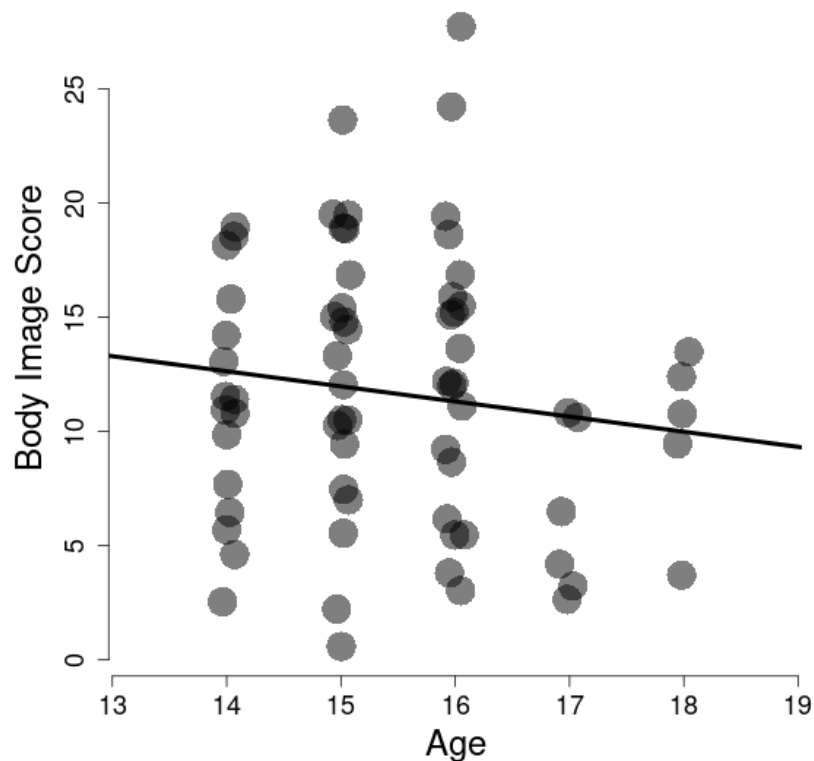


Figure 2. Scatter plot showing the relationship between age and body image score. The line of best fit indicates a weak and non-significant correlation between age and body image satisfaction.

We then evaluated our third hypothesis, which tested whether males would score higher on the muscle ideal score than females. We hypothesized that males would report higher muscle scores compared to females. To test this prediction, we conducted an independent samples t-test using muscular scores from the self-created Gender Stereotypes Questionnaire based on what they see on Instagram. We compared the average muscular ideal scores of males and females to test this hypothesis. The results showed that males had a higher average muscle ideal score ($M = 8.82$, $SD = 4.91$) than females ($M = 6.24$, $SD = 5.12$). This implies that men generally express a greater support for the muscle ideal than women. However, the difference between the two groups was **not** statistically significant ($t = 0.03$, $p = 0.42519$). Because ($p > 0.05$), we failed to reject the null hypothesis, and it does not support our hypothesis. Both genders reported seeing pro-muscle content.

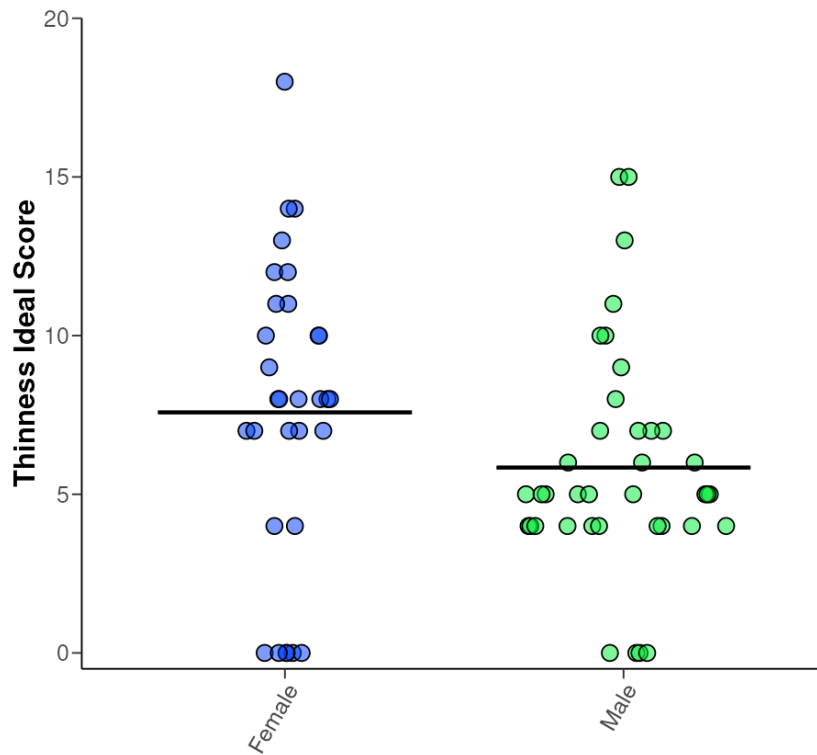


Figure 4. Independent samples show that thinspo scores for both males and females. Females showed significantly higher scores than males, indicating greater exposure to thin-ideal content.

Discussion

In this study, we examined whether Instagram's use influences adolescents' body image. Our first hypothesis was supported, as more time spent on Instagram was significantly negatively correlated to body image, meaning higher usage time is associated with lower body image scores (Figure 1). Our second hypothesis was not supported, indicating that age was not significantly associated with body image, regardless of the slight decrease as age increased (Figure 2). Our third hypothesis was partially supported; although the males had a higher muscle-ideal score than females, the difference between the two scores was not significant enough to reject the null hypothesis and support our hypothesis (Figure 3). However, in our fourth hypothesis for the thinness-ideal, it was found that the females scored significantly higher than the males (Figure 4)

Our results are consistent with those of Portugal and Siquara et al., and Xygki et al. (7, 6). Portugal and Siquara found that young women who spent more than 2 hours per day on Instagram reported lower body satisfaction and lower self-esteem (7). Xygki found that young adults viewing Instagram and engaging in the app were likely to harm body image and self-esteem, and even increase disordered eating tendencies (6). Our study found that the time

spent on Instagram and body image are negatively correlated. These studies help strengthen the claim that negative body image satisfaction and self-esteem are associated with increased Instagram usage. Additionally, our study revealed a consistent trend that has remained unchanged for decades or generations. It's simply becoming worse, more widespread, and worsening self-esteem and body image. It also showed that what a person specifically views on Instagram is not as important as how much time they spend on it. What matters is that they are using the app and spending time on it.

Regarding the second hypothesis, there were no previous studies that compared to my research; however, the findings are both unexpected and somewhat predictable. We believe it's unexpected, as younger teenagers on Instagram should not be exposed to as much as those who are eighteen years old. Based on this assumption, I expected to see clear differences between the scores across all age groups. At the same time, the findings can be viewed as predictable, as social media usage patterns may not be as significant by age as originally thought. Despite age differences, many Instagram users may engage with similar types of content, which could explain the lack of difference in the results. This may be comparable to the fact that younger audiences on Instagram often have unrestricted access to content because they can easily bypass the age restrictions. Overall, while our expectations weren't fully met, this outcome still shows insight into how social media usage may be more consistent across all ages.

Similar studies can also be compared to our last two hypotheses, as both align with existing studies on the impact of social media on gender-specific body image standards. Franchina et al. highlight how social media, specifically Instagram, worsens teenage body image problems by encouraging unrealistic ideals validation based on looks through likes and comments (5). Their findings on the "muscular ideal" have a significant impact on teenage boys. They revealed that boys are more exposed to images of slender and overly muscular bodies, which are associated with greater popularity. This exposure can lead them to internalize these muscular ideals, giving muscularity more significance. This relates to our third hypothesis, which predicted that males would score higher than females on our Muscle Ideal score. Our findings supported this prediction, as males reported higher average Muscle Ideal scores compared to females. However, the difference between the scores of males and females is in the muscle scores. This suggests that although males are influenced by ideals of muscularity, females are also subjected to and impacted by similar body expectations. This shows that pressure to be muscular isn't just for males anymore, but also becoming something that can affect both genders.

Building on this, Franchina et al. (5) also emphasize the impact of thin-ideal content, often referred to as "thinspo," on adolescent girls. Their study explains how girls are more exposed to images that promote extreme thinness as the "standard" of beauty that's reinforced through comments, likes, and shares. This repetition of exposure leads to unrealistic body expectations. This also compares to our third hypothesis, where we predicted that the females would score higher than the males on the Thinspo Ideal Scores. Our findings supported this

prediction, as the females reported a higher Thinspo Score, suggesting they are more influenced by that ideal. Expanding on this, the problem becomes increasingly alarming when analyzing Thinspo content on Instagram's Algorithm as outlined by the Tech Transparency Project report (5). They explain how adolescents can encounter detrimental content that advocates for extreme thinness and eating disorders. Even slight engagement with the posts that are mainly about weight loss or appearance can quickly result in the algorithm showing more extreme Thinspo content. This is consistent with our study because we also found that females are more likely to see and be affected by this kind of content. Together, these studies show how our results fit with other research on how social media affects body image in teens.

A future improvement could be to get the same number of both genders; we had more males than females. This could've swayed our results in having the gender stereotypes sway more for the males, specifically with thinspo. But an interesting finding that we found in the results is that both hypotheses showed patterns that are consistent with societal stereotypes, even if they didn't have a major difference. Also, it could be helpful to examine age more closely, even though our results suggest it was not a significant factor in our study. Exploring a wider age range could provide additional insights on how adolescents' body image is truly affected by Instagram across all ages. This is an area that could be further explored by future researchers.

According to our research, we found that even though males and females had similar scores for the muscular ideal content, females scored significantly higher overall. This suggests that females are influenced by both thin-ideal and muscular-ideal standards, while males are only really held to the standards of the muscular ideal. In other words, females are held to various body ideals at once, which makes social media pressures on their body image even more powerful. Both genders' time spent on the app was also correlated with lower body image satisfaction. Our research, this helps us better understand how Instagram influences adolescence, ideas about body image, and gendered appearance standards. Adolescents and parents should pay more attention to the algorithms that they are exposed to on Instagram and how badly just being on Instagram can affect their body image and self-esteem as a whole. This idea also extends to students and their electronic usage in schools. For example, The Neighborhood Academy collects students' phones in the morning to limit access from using it during school hours, which can help students limit their social media usage. This helps reduce social media use and minimize the impact that it has on students.

Additionally, parents should consider setting limits on the time their children spend on social media. They should also talk to their children and help them feel confident in their own skin, rather than comparing themselves to what's online. Emphasizing health and promoting self-esteem can set their kids up to not be affected by the harms of social media. Also, schools should consider teaching children about the harmful effects of media, helping children understand that Instagram is a lie and pictures can be altered, which can potentially alter students' self-esteem.

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