Challenging negative stereotypes to narrow the achievement gap

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Directions:

1. Look at the values you picked as most important to you.
2. Think about times when these values were or would be very important to you.
3. In a few sentences, describe why these values are important to you. Focus on your thoughts and feelings, and don't worry about spelling, grammar, or how well written it is.

These Values are important to me because they help me in life. I chooes Relation Ship with friends and family because I ♡ love my friends and family. No matter what happenes were still one. I choose music cause its my thing. It's what I listen to and I love singing. Singing is part of music and what I love best. I choose creativity cause I draw to impress my Sister, but everytime I draw something she said I print or some one draw it. when I was little I was only good at draw televisions, houses, Boys, Girls, trees, and flowers, but now when am grown I draw all Kinds of things but I still draw the things I could draw. Now people could see the things I like and is part of my life. These Values I think will be in my life FOREVER.

In a computational analysis of essays linked to improved academic performance

in girls and African Americans, researchers found that social themes dominated.
Credit: Courtesy of the researchers

Negative stereotypes can work in subtle but powerful ways to sap confidence in the classroom. Girls and minorities may fear that a bad grade will confirm negative stereotypes about their intelligence, creating added stress that can undermine performance.

It turns out that a simple intervention—having students write a short essay affirming values important to them—can ease the anxiety and improve academic performance. In the first computational analysis of essays used in this earlier research, researchers at Columbia University find that social themes dominate the students' writing, providing insight into how the so-called "values affirmation" effect works to counteract stress. They will present their results at the International Education Data Mining Society's annual conference in Madrid in late June.

"The act of writing about family and friends gives students the chance to assert their self-worth in an otherwise threatening environment," said the study's lead author, Travis Riddle, a postdoctoral researcher at Columbia. "This psychological foothold may motivate them to challenge themselves and live up to their potential."

To understand why the writing intervention works, Riddle and his colleagues developed an algorithm to explore the content of several thousand essays written by students in middle school and college during earlier research experiments. Amid the jumble of words, they extracted 50 overarching themes, or topics, and found that students focused most on "social relationships," indicated by words like "support," "family," and "friends."

Though all students, regardless of race and gender, emphasized social relationships in their writing, the earlier experiments showed that the writing exercise improved academic performance among African American girls and boys as well as white girls.

My racial/ethnic group is most important to me when I am placed in situations that are alienating or dangerous or disrespectful. Since coming to Yale a school much larger than my former school where I feel my minority status that much more sharply or feel like people are judging me because I have dark skin I have placed a much higher value on being black. I work for the Af-Am House. I am involved in Black groups and most of my friends are Black. But often being black holds me down and depresses me because people are surprised at how much like them I can be and I dont think Im pretty. Its stressful to have to avoid stereotypes like being late or liking to dance or being sexual. I dont want people to put me in a box labeled black Girl 18. I am my own person.

To uncover common themes in the essays, the researchers extracted words that appeared in similar contexts using a technique called topic modeling. Credit: Courtesy of the researchers

In the current study, the researchers looked at how essay themes varied among the writers. They found that African American boys and girls emphasized social relationship terms slightly more often than white girls,

and significantly more often than white boys. Their results echo earlier findings that students of stigmatized groups who wrote about social connections did better in school than those who didn't write about social connections.

In the current study, the researchers found that African American girls and boys were more likely than white girls and boys to use racial terms in their essays, which was not a surprise considering African Americans make up a smaller part of the population, making their identity more distinct.

One puzzling result to emerge from the study was how students handled the topic "problem solving," defined by words like "creative," "solution," and "mind." The researchers found that African American girls and white boys used similar problem solving terms than African American boys and white girls. Riddle wonders if their creative efforts my have been reinforced in similar ways during childhood.

Evidence that [negative stereotypes](link) can hurt academic performance was established in the 1980s by pioneering social psychologist Claude Steele, formerly the provost of Columbia, now the provost at University of California at Berkeley. Steele and his colleagues showed that women's math scores improved if they were told that gender made no difference in test results, and that African Americans did worse on a verbal test if first asked to identify their race.

A 2006 study in Science built on this work by showing that a brief exercise in which seventh-graders wrote about values important to them substantially raised the grades of African Americans, reducing the achievement gap by 40 percent. The study's lead author, Geoff Cohen, a psychologist at Stanford University, is a co-author of the current study, which makes use of those earlier essays.
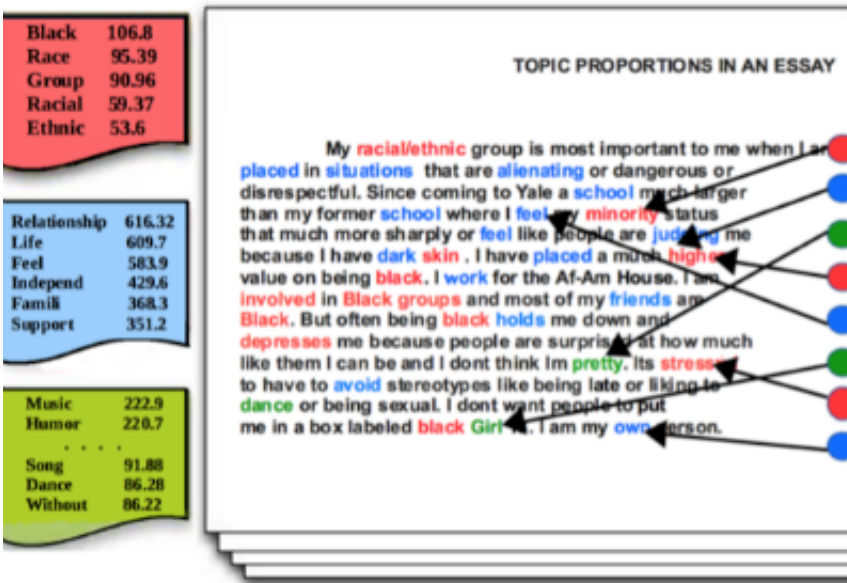
Topic modeling allowed the researchers to see how the popularity of topics varied among students.

The researchers will continue to use text mining to explore Cohen's essays as well as essays written by older students at Yale and Columbia, among other universities. Next they will look at whether topics changed two years later, when the same students were asked to write essays again, and if those changes led to improved grades.

The research is led by Smaranda Muresan, a computer scientist with Columbia Engineering's Center for Computational Learning Systems, and Valerie Purdie-Vaughns, a social psychologist with Columbia's faculty of arts and sciences. Their work is supported by the National Science Foundation and a two-year, $200,000 grant awarded by Columbia's Office of the Provost through the Data Science Institute.

This summer, the research team will follow up with the seventh-graders

who wrote the essays and graduated from middle school five, and nearly 15, years ago. Will those who wrote values-affirming essays be heading to college, and will they have higher salaries and more fulfilling lives?

"One of the ideals of American society is that everyone should get an equal chance at success," said Riddle. "Educational interventions like these can help us get part way there."

More information: www.educationaldatamining.org/ … papers/paper_129.pdf

Provided by Columbia University