STEM-Minority Students Guide to Recognizing Microaggressions in Group Work

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Abstract:

Educators use group work in hopes of enhancing student performance in STEM. However, this session will facilitate discussions of the impact of diversity on producing deleterious microaggressions for STEM-minorities. This session will guide STEM-minority students in recognizing these microaggressions and will close with recommendations and call to action to be successful in STEM.
Key Words: group work, microaggressions, student performance, STEM-Minority

Notes:

Group Work In Higher Education
   There are many benefits to group work in STEM. Teachers use group work as an active, educationally purposeful activity in enhancing student learning and performance (Ledford, Saperstein, Cafferty, McClintick & Bernstein, 2015). It can greatly supplement lecture-style classes. Additionally, group work promotes students to have confidence and motivation to participate in discussions and ask questions with their group members, helping to reduce anxiety in large classroom settings, like lectures. Moreover, group work provides the opportunities for groups of students to interact through communication, cooperation and collaboration (Jehn, Northcraft & Neale, 1999). Through this, group work serves as a medium for students to form social relationships (Byrd, 2007). Finally, group work supports academic success and matriculation for STEM students. A challenge with group work is that, outside of organizations of workplaces and higher education institutions, different racial/ethnic groups seldom interact on a personal level (Byrd, 2007). Intersectional analyses of group work and diversity illuminate how interlocking systems of power, privilege, and oppression shape key issues such as gatekeeping and achievement gaps. For example, social relationships in the classroom mirror the socialized larger society, as students tend to interact with others like themselves and less likely to have meaningful interactions with those different from themselves. Similarity-attraction paradigm supports this phenomenon by highlighting that the more similar one perceives another person to be, the more that the other person is liked (Ensher & Murphy, 1997). These similarities can be perceived in demographics (e.g., educational backgrounds, age, gender, and race/ethnicity) or cultural values. In contrast, perception in differences in these variables can create poor communication and excessive that can impact group cohesion and group performance. This proves disadvantageous for STEM-minorities like Blacks/African-Americans, Non-White Hispanics, Indigenous, Pacific-Islanders, and women, who are underrepresented in STEM majors and classes.
Evidence-Based And Culturally-Responsive Recommendations
With an increasingly diverse STEM student body on many dimensions (e.g., age, gender, ethnicity) enrolling in higher-education institutions, there is a call to action for students to be aware of the impact of diversity in group performance. Using Byrd's model of organizational culture (Figure 1), which highlights that a diverse student body, as displayed in differences in demographic, cultural, technical or cognitive differences, is affected by group processes (e.g., communication, conflict, cohesion, information, and creativity). These processes, in turn, affect group outcomes, like performance, satisfaction, or turnover, which is seen by the educator as a higher or lower grade on an assignment.

Figure 1: The model: The effects of diversity on group processes and outcomes. Replicated from: Byrd, M. Y. (2007). The effects of racial conflict on organizational performance: A search for theory. New Horizons in Adult Education and Human Resource Development, 21(1-2), 13-28.

Students should, also, be aware of micro-aggressions, or negative micro-messages, and how they manifest in diverse STEM student groups engaged in group work. National Alliance for Partnerships in Equity (NAPE) identified micro-messages as a critical but insufficiently addressed phenomenon (2015). NAPE's cultural wheel (Figure 2) shows how microaggressions can come from biases and cultural stereotypes and that these micro-messages can lead to an accumulation of disadvantage performance outcomes in affected students and lower self-efficacy, especially for STEM-minorities. Subsequently, perceptions of one's self-efficacy can lead to behavioral changes in students. While many efforts have been placed on teaching undergraduate students and staff to reflect on bias and stereotypes and their own behaviors (NAPE, 2015), further efforts should be used with students in discovering and addressing micro-messages in the classroom.

Figure 2: Replicated from: NAPE, 2015. Mighty Micromessages for Student Success. National Alliance for Partnerships in Equity. Retrieved at: Avid.org.

Students should also be privy to impact and sources of the three different types of diversity: informational diversity, social category diversity, and value diversity (Jehn, Northcraft, & Neale, 1999). Informational diversity comes from differences in educational background and training experiences. Social category diversity comes from differences in race, gender and ethnicity, between members in a group. This can come from members of a group choosing to show favoritism to members that belong to their social category. Value diversity comes from differences in the group that exist in what the group's real task, goal, target or mission should be (p. 745). In a group work setting at a higher institution, for example, value diversity could present itself when members value effectiveness while others value efficiency. Examination of the diversity types in a group, for a student, can help students be proactive or to predict the different types of diversity that may arise and how that can enhance or impede interpersonal relations, or group cohesion, within the group. Jehn, Northcraft, and Neale (1999) conducted a significant study that measured diversity and workgroup performance. They used a study sample of 545 employees that formed various work units or teams in one of the top three firms in the household goods moving industry. The researchers found that relationship conflict was often caused by social category diversity and value diversity, with informational diversity being the least likely of the three to form relationship conflict in the group. The research supported the hypothesis that process conflict will mediate the effects of informational diversity on workgroup performance. This research concluded that for a team to be effective, members should have high information diversity and low value diversity and for a team to be efficient, members should have low value diversity. Students, alongside educators, can support these findings by promoting effectiveness and efficiency practices in group work.

Differences in race between members, a type of social category diversity in a group, can be a big reason for micro-messages. For instance, non-marginalized racial members of a group, or STEM-majorities, through a culture of privilege, can cause members of a marginalized group, like STEM-minorities, to not function at their highest level of performance (Byrd, 2007). Stressful situations, like those created by the perceptions of micro-inequities in a group, can lead groups members who differ from the majority to develop negative psychological and physiological factors, like depression, anger, nervousness, anxiety, and elevated blood pressure. Additionally, manifestations of dysfunctional psychological outcomes, like low self-worth and self-esteem, can occur. Students should learn to recognize these negative psychological and physiological factors and intervene. Students, with the aide of their educators, should encourage group cohesion is a group process, the forces interacting to keep a group intact, in group work (Nagel, 2015). Nagel (2015) defined group cohesion by three variables: (a) interpersonal attraction, a shared attachment to members of the group; (b) task commitment, a share commitment to the group's tasks; and (c) group pride, the

share importance of being a member of the group. In a higher education settings, group performance is dependent on group cohesion (Byrd, 2007). Actions like avoidance, closed and unfriendly communication, unwillingness to communicate, and failure to offer assistance leave an individual with unsatisfied social interactions. Supported by Maslow's theory in psychology, a lack of sense of belonging and group identification in a group decreases an individual's drive to the performance outcome. Additionally, performance of an individual in conditions of stress and anxiety interferes with learning capacity and performance ability. With unsatisfied social needs in a group, a STEM-minority student may show lower levels of psychological commitment, higher levels of turnover intent, and absenteeism. Students should be made aware of these types of "push out" behaviors that can impact group work and group performance, in order to address them.

Call To Action

At the conclusion of this workshop, students will be called to action to create dialogues in their classroom that will promote the examination of micro-messaging on diversity, group cohesion, and group performance in higher education settings for STEM-minority students. STEM-minority students will be called to ask educators to intervene when they realize that microaggressions are negatively affecting their educational success. Lastly, attendees will realize that they have the power to break interlocking systems of power and privilege and to increase representation of STEM-minorities, like themselves, to matriculation.

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