Teachers
Integrating
Prior
Scholarship

Group Diversity vs. Homogeneity

Capsule: While there is increasing recognition of that diversity in team's benefits creativity in problem solving, it is important to recognize potential social divisions, divisiveness, and stereotyping that can create negative group outcomes.

Summary: The increasingly common and accepted view is that the outcomes of collaborative work is enhanced by team diversity, promoting idea exchange, a variety of perspectives, and access to multiple problem solving methods. An important caution is offered by Mannix and Neale, who warn that diversity in teams has the potential to cause social division, feelings of "in" and "out" sub-groups, and stifle the team productivity through segmented and disjointed sub-group efforts. To effectively characterize when and why diversity generates a positive group effect, the nature of a group's diversity must be categorized, the leadership of the team considered, and goals of the cooperation defined.

Diversity can be defined as "any attribute that one person can use to detect individual differences in another," that can include physical differences (race or gender), educational and experiential differences, or proportional differences (size of majority vs. minority). The resultant effects of diversity lie in three paradigms: the similar-attraction paradigm, self- and social-categorization paradigm, and informational processing paradigm. Each paradigm has some bearing on the success of the team. Similar-attraction refers to a cognitive process of grouping based upon facets such as race, gender, values, and beliefs, even if individuals have had no previous social interaction with members of that group. This leads to a rapid segregation of individuals into sub-groups, subsequent differing expectations of those in and outside the sub-group, and an atmosphere for stereotyping. Self and social categorization arising from similarity attraction (again as stated by Mannix and Neale) are aspects that tend to lead to negative outcomes from diversity in groups. In groups dominated by this behavior, homogeneous groups acting cohesively will function to achieve a better outcome than diverse groups.

Contrary to this concept is the idea of information-processing, which results in a positive effect on group performance. Information processing refers to the fact that individuals of different backgrounds have access to different respective networks of people with varying expertise, information, and skill sets. Capitalizing on this aspect can lead to an improved outcome of group performance. It is important to note that in more diverse groups, in order to benefit from the information processing advantage, significant attention needs to be paid to coordination and control of the different viewpoints, else the group gets unfocused and off-topic.

These ideas leave the concept of diversity in a group as a subject of debate. Mannix and Neale present three suggestions for group formation. (1) Diverse groups are appropriate for tasks involving innovation and creativity, while homogeneous groups are better for exploitation and implementation of existing knowledge. (2) Careful attention needs to be paid to control process problems in diverse groups, more so than in homogeneous groups. (3) Efforts need to be made by group mediators to ensure that minority voices are heard, ensuring that group stereotyping and muffling are suppressed.

Implications in Engineering Education: The relation to Engineering education is straightforward, especially when considering the both the migration of engineering to collaborative and translational research, and the diversity of students pursuing engineering as a discipline. In the formation of lab groups, study groups, or project groups, it is important to consider the team members and the objective of the cooperation. Forming groups in educational setting should be considered different than formation of teams in a working environment for the purpose that students should more often be put into widely diverse groups. This has a three-fold advantage in engineering education, it forces the students to overcome inherent self-segregation and resulting judgments placed on each other, it teaches them to work through differences with other group members, and helps them learn to best harness the creative potential of the group as a whole independent of stereotyping.

References: Mannix, E. and Neale, M. A.(2005) "What differences make a difference" Psychological Science in the Public Interest 6: 31-55

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