The Effect of Shared Mental Models on Consensus

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Abstract
Modern organizations are increasingly relying on teams to solve problems and make decisions. In order to effectively utilize teams, it is important to understand the conditions in which the team can function most efficiently. One of the conditions required to make team work successful is to ensure that there is consensus among the team members about the decisions made. Organizations consider consensus-based decision-making to be important because it has the potential to increase commitment and enable the successful execution of strategies. There are various factors that can have a bearing on consensus decision-making. This study focuses on one such factor that may influence team consensus - shared mental models. Specifically, this study explored if shared mental models had a positive relationship with the consensus decision making in groups. Results show that teams with higher shared mental models reached higher levels of consensus. In addition, it was discovered that perceptions of fairness in the decision-making process was the greatest contributor to difference between groups’ shared mental model scores.

1. Introduction

Decision-making groups are ubiquitous in today’s organizations. They can be found in all facets of organizational life – from committees in universities and work teams in corporations to juries in court houses. Small groups are being used for decision-making because it is increasingly difficult, if not impossible, for individuals to effectively solve the complex problems of our modern world [6, 31, 35]. Further, research shows that being in a productive team environment enables individuals to share their unique and critical perspectives and expertise more effectively, resulting in a more complete and effective solution [44, 45]. Therefore, many organizations are giving increasing importance to collaborative means and approaches and are using the expertise of groups to make decisions [3, 7, 14, 53].

There are many decision-making rules that can be utilized by the team-members to reach an agreement. One such decision-making rule is consensus decision-making [40]. Studies show that diverse groups and communities commonly use consensus decision-making methods [15, 47]. For example, consensus development conferences are also being hosted in the United States to enable researchers and organizations to benefit from the latest developments in the field. For example, the National Institute of Health has been organizing consensus conferences since 1977 to help resolve issues related to knowledge of healthcare [10]. Due to its popularity in a variety of group settings, the study of consensus has captured the attention of small group researchers [1, 18] and is the focus of this research study.

The purpose of this study is to examine one of the antecedents of consensus – Shared Mental Models (SMMs). Next section will evaluate the consensus decision-making literature in order to justify the definition of consensus used in this study. In the succeeding section, the concept of shared mental models will be discussed. In the next section, the proposed model and hypothesis will be described. This will be followed by the results of the study. The final section will discuss the implication of the results and some future directions.

2. Background

2.1 Consensus

A variety of definitions for consensus exist in the literature, and a universally accepted definition of consensus yet to evolve. A commonly accepted definition of consensus was proposed by Hare [15], who defined the construct as a decision that all group members are satisfied with and that incorporates all points of view. Differentiating majority vote from consensus, Hare explained that during voting, the group makes decisions on issues that require gathering information or exercising power, whereas consensus requires the group to ensure that all individual members agree on common values.

Another widely used definition of consensus was proposed by Schweiger, Sandberg, and Rechner [48].
According to their definition, consensus is achieved when all group members accept the final decision. In this process, discussions begin with the individual members presenting facts, ideas, and data to support their recommendation and continue until all individuals in the group not only subscribe to the resulting outcome but also understand and accept the commitments involved.

An alternative definition used by many researchers is that consensus is a unanimous agreement with a proposal as characterized by their satisfaction with it [17, 23, 42, 58]. Other researchers have suggested a variation to this definition and contend that while a decision that is made by the consensus approach needs to be understood by all members who are then prepared to support it; it also requires all members to have an opportunity to express their feelings about the decision [21, 26]. Any member who disagrees with the decisions made by the consensus process should still be willing to accept the decision for a period of time [26]. In other words, the group members should commit to the outcome of the process that they have all agreed to follow in spite of their personal opinions regarding the decision.

Another group of researchers claimed that consensus cannot be achieved by all members who accept the logic and feasibility of the group’s decision. For example, Schwenk and Cosier [49] believed that both the consensus process and decision aids need to be considered during a group decision-making exercise as either of them can positively influence group members’ acceptance of the logic and feasibility of decisions which determines the indicators of consensus within the group. An alternate view of consensus is that it is achieved when there is at least a partial agreement between all the members regarding the decision [34]. Finally, a definition of consensus has also been derived from the social consensus model [43]. This model posits that individuals who voluntarily reach consensus are satisfied with the decision, view the decision as mirroring their own, and perceive the decision-making process to be fair.

A common thread that can be seen across all of these definitions is that all members accept and agree to support the final solution [13, 17]. However, this does not mean that every group member has to believe that it is the best course of action [12]. In sum, when there is consensus, it means that all members of the team have accepted and supported the decision even if they did not completely agree with it [26, 28]. Building from this literature, consensus has been operationalized into three major components in this study: (a) perception of fairness in the decision-making process, (b) voluntary commitment to the decision of the group, and (c) satisfaction with the group decision. These particular components have been chosen because consensus is likely to be achieved if the group members feel that the process to achieve consensus has been fair and that they have not been coerced to arrive at the decision. Also, group members are likely to support the implementation of the consensus decision if they have voluntarily made the decision themselves. Finally, consensus is likely to be achieved and maintained if the group members are satisfied with the decision.

2.2 Shared Mental Models

Though the concept of shared mental models is fairly new, the term mental models have previously been used to explain the interactions between people and their surroundings [41, 60]. One of the ways to describe mental models is to think of them as “knowledge structures” [41]. These knowledge structures can be used by individuals to describe, explain, and predict the world around them [41]. Said differently, mental models enable us to identify and remember the relationships between the elements and create explanations for the events that are likely to occur next. Accordingly, a mental model is a “mechanism whereby humans generate descriptions of system purpose and form, explanations of system functioning and observed system states, and predictions of future system states” [41, p.360].

In the past decade, the concept of shared mental models (SMMs) has been used to explain team functioning [2, 11, 37]. Though SMMs are being used more often in group research, a succinct definition for SMM is lacking. One of the most commonly accepted definitions is that a SMM is the shared understanding between team members about their tasks, task contexts and strategies, patterns of interaction among team members, team members’ roles and responsibilities, and traits [61]. Another common definition of SMM is the “amount of overlap in knowledge among different negotiators about the problem or task they face and its possible solutions” [52, p. 130]. This means that when group members share a mental model, they have a common understanding about various aspects of team dynamics and tasks such as team goals, learning procedures, team member roles, and required resources [24].

The concept of SMM is useful in explaining how teams cope with challenging and dynamic task conditions. The ability to adapt has been acknowledged as an important skill in high performance teams [4]. SMMs can potentially offer an explanation of what underlies this mechanism of adaptability [4]. That is, it might explain the dynamics that enable teams to quickly and efficiently reformulate their strategies.
under difficult situations or strained conditions. However, a shared model is not formed instantaneously when a group is assembled together. The group has to build it over time [61]. For example, as the group shares information and ideas, members may revise and improve the mental model that is shared by all members of the group.

Unfortunately, limited research has been done on SMM and their influence on consensus decision-making. In one of the studies that looked at SMMs and consensus, SMM was found to be correlated with intuitive consensus decision-making. In this study, Kline [25] explored whether cohesive work teams make intuitive decisions and how this was related to SMMs and consensus decision-making. The study involved interviews with five cohesive work-based teams using critical incident, case study, and grounded theory methodologies. The critical incident approach was used to recollect the intuitive decisions made by the team. The grounded theory approach was used to create a model that explained the intuitive decision-making in a cohesive group. The results indicated that cohesive teams developed common understandings about their goals, norms, and identities, which in turn helped them to intuitively compare the event to the knowledge through their SMMs. When the event was commonly interpreted using the SMMs, the team implicitly knew the solution and thus was able to reach intuitive consensus more easily. Once the decision was made, the team members communicated with each other and brought the elements that were shared in their mental model to a level of conscious awareness. This allowed the members to consensually validate and implement the decision they made.

In another study, having a SMM enabled demographically diverse teams to reach consensus. In the study by Knight et al. [62] mentioned earlier, the effects of demographic diversity within the top management teams on group processes and strategic consensus were investigated. It was observed that strategic consensus was achieved when the managers acted on a common set of priorities. The top management team strategies and group processes were used in this research to predict consensus. The researchers also explored the extent to which the shared cognitions of strategy were influenced by diversity or group processes. The authors argued that each top level manager has a mental model or perception of the strategic concepts in the organization and these mental models vary among the various managers. The results from the individual mental models were analyzed to understand the group level measure of strategic consensus. They found that though diversity can reduce the strategic consensus among the group members, the presence of SMMs among the team members can help reduce the impact of diversity.

In addition to facilitating consensus among geographically collocated and diverse teams, SMMs have also predicted team performance [29]. In a field study, Lim and Klien analyzed the performance of 71 action teams in the Singapore Armed Forces. The soldiers were randomly assigned to teams, but all teams received the same training. The team members remained together during the training and underwent extensive fitness regimes together. Data was collected from 477 soldiers, 77 team leaders and three SMEs. The respondents were asked to judge the relatedness of 14 statements describing team procedures, equipment, and tasks. A cognitive mapping technique called pathfinder was used to categorize and create the mental models. Pathfinder was also used to calculate the team mental model similarity and accuracy. Finally, team performance was evaluated by asking a trained team assessor to calculate the performance of the teams after they completed a task at an assessment center. Results showed that team mental model similarity and team mental model accuracy were directly and positively related to team performance. When teams have a high degree of similarity in their mental models, they function as a unified group and have clarity regarding the roles and actions of each individual. This unity enables teams to perform in a coordinated manner under stressful situations.

Research in other fields also demonstrates the relevance of SMMs to consensus building. For example, it has been found in the negotiation literature, that the degree of sharing of mental models is positively correlated to the negotiation outcome in terms of joint economic gain, satisfaction with the outcome, and expectation for future relationships among participants [30]. Thus, when there is a shared mental model among the group members, consensus is achieved faster among the group members with conflicting interests. Similarly, Kline [25] found that SMMs enable group members to develop a common ground on which to base their norms, identities, and goals. It was also found that they intuitively fall back to the knowledge in their SMMs when faced with complex decisions. Thus, when a group is required to reach a consensus regarding a complex decision, the process will be smoother if the group members share a mental model that they can fall back on.

Thus, research indicates that SMMs are related to consensus decision-making. Although SMMs are different from consensus, they may play an important role in reaching consensus in the group. Based on the literature, the relationship between SMM and consensus can be shown through the causal model depicted in Figure 1.
It is posited that teams with shared mental models are more likely to reach consensus. As mentioned earlier, this proposal assumes consensus to be achieved in a team when all individual members are committed to the final decision, perceive the decision-making process to be fair, and are satisfied with the group decision. Team members with a shared mental model will have a similar viewpoint regarding the problem and its solution, which in turn will make it easier to reach consensus. Thus, when teams with highly shared mental models arrive at a decision, they are posited to have a higher commitment to the decision, higher perceptions of fairness with the process, and experience higher satisfaction with the group decision.

**Hypothesis 1.** Teams with higher shared mental model index score will have a higher level of consensus.

### 3. Method

#### 3.1 Participants

Participants were college students, recruited from a Midwestern university. Participation in the study was voluntary and course credit or extra credit was awarded for participation. Past studies have yielded effect sizes (h²) ranging from .24 [54] to .46 [57] for consensus. A conservative effect size of h² = .24 with an alpha of .05 and power set at .83 required about 40 groups.

Accordingly, the sample consisted of 212 (105 males, 104 females, 3 did not state their gender) undergraduate students enrolled in psychology or business courses at a university from the Midwest. The participants were randomly assigned into 53 teams of four. Thirteen teams were not viable for the final decision analysis because they either did not follow the instructions or did not complete the questionnaires, and thus were removed from further analysis.

After eliminating the teams that were not viable, the sample size was 160 (79 males and 81 females). The average age of the participants in the viable teams was 23 years (SD = 5.92; Range = 18 years -51 years). Among the sample, 4.4% of the participants were freshmen, 18.9% were sophomores, 47.2% were juniors, 28.3% were seniors, and 1.2% were graduate students and other. Within the viable sample, 79.4% were Caucasian/White, 8.1% were Hispanic or Latino, 3.8% of the participants were African American/Black, 3.1% were Asian American, 1.3% were Native American, and 4.4% indicated “Other” as the race with which they most identified.

#### 3.2 Design, Task and Procedure

An adaptation of the information sharing task by Stasser and Titus [51] was used for this study. This task involves the participants reviewing the campaign statements of three potential candidates vying for the position of the student body president. The participants have to select the most capable candidate. However, the information that is provided to the participants about the candidates is not the same. Some campaign statements are shared between the group members while other campaign statements are unique to the participants, creating a situation where information needs to be shared in order to reach an optimal decision. While the basic idea has remained the same, some modifications were made to the task based on the needs of the current study. One of the major modifications made was to use a different set of characteristics for the potential candidates so that the characteristics would be relevant to the students of the University.

The procedure of the experiment was as follows: When participants arrived in the lab, they were randomly assigned to a four person group. A brief description of the study was given to each participant. The participants were given the impression that their analysis will be used as a guideline to elect student body president of the University. After reading the description, students who agreed to participate signed an adult consent form, after which they were handed the task.

The participants in each group read the initial description of the task. The group members were then instructed to individually select their choice for a student body president and support their decision in one or two sentences. Each participant was asked to return his/her decision to the experimenter after completing the task. Participants were also asked to return the campaign statements after the completion of the individual task. After all participants in the group handed in their individual decisions, they were allowed to start discussing the merits of each of the candidates. They were instructed to reach consensus about who they would jointly recommend to be the student body president. The participants were specifically instructed to argue their case based on their opinions. Members were told that they could only reach consensus by ensuring that all participants agree to the final decision of the group. Furthermore, they were instructed not to...
use majority voting or other democratic techniques to reach consensus. When the group reached consensus about the recommendation, one of the participants handed the decision to the experimenter.

Finally, participants were asked to complete a questionnaire that measured their perceptions of fairness with the process, their satisfaction of the decision, their commitment toward the decision, and their perceptions of a shared mental model within the group. The participants were then debriefed and informed of the actual purpose of the experiment.

3.3 Measures

Shared mental model. The shared mental model index score was determined using an instrument adapted from Johnson et al. [22]. The original instrument included 42 items measuring five dimensions (general task and team knowledge, general task and communication skills, attitude toward teammates and task, team dynamics and interactions, and team resources and working environment). Johnson et al. validated this instrument using both exploratory and confirmatory factor analysis. For this study, items dealing with continuous team interactions or that are more appropriate for teams within organizations, as opposed to those in the lab, were omitted, resulting in 28 items representing five dimensions.

Quantitative responses for the dimensions in the instrument were summed to create a single shared mental model index score. Team score measures are commonly operationalized by averaging the individual level scores [59]. Accordingly, this study operationalized the team mental model index score by calculating the mean of the scores of the individual team members. The $r_{WG}$ [20] for the shared mental model index score was used to calculate the value of within team agreement. This value is used as a measure of reliability. The $r_{WG}$ was measured on a scale of 0 to 1.0. Scores above .70 indicate agreement within the team [20]. The $r_{WG}$ was above .85 for all groups. Also, Cronbach’s alpha for the revised instrument used in this study was .94.

Degree of voluntary commitment to decision. Decision commitment was measured using an adaptation of the short form of the Organizational Commitment Questionnaire developed by [33]. The original questionnaire measured organizational commitment. For the purpose of this study, wording of the items were changed to reflect the team members’ attitudes towards their group’s decision rather than towards the organization. Consequently, the adapted questionnaire measured the extent to which the team members were willing to stand by their decision and make active effort towards its implementation. This scale consisted of six items measured using a 1-5 scale ranging from strongly disagree to strongly agree. The items were summed to obtain the individual level score. Team level operationalization of this variable was done by calculating the mean of the individual scores. The $r_{WG}$ score [20] was used to assess within team agreement and was above .85 for all groups. A sample item in the instrument is “I really care about seeing that the right student body president is selected.” Cronbach alpha for the original questionnaire was .88. However, the Cronbach’s alpha for the revised questionnaire in this study was lower than suggested by Nunnally [36] at .60.

Perception of fairness of the process. Perception of fairness of the process was measured using an adaptation of the instrument by Tyler and Degoeij [56]. The scale consisted of seven items measured using a 1-5 scale ranging from strongly disagree to strongly agree. The seven items were summed to obtain the individual level score. Team level operationalization of this variable was then done by calculating the mean of the individual scores. The $r_{WG}$ score for perception of fairness was above .82 for all groups. A sample item in the instrument is “The rules, procedures, or approach followed by my group to elect the student body president were fair”. The reliability of this scale from other studies was 0.80. However, the Cronbach’s alpha for the questionnaire in this study was low at .68.

Satisfaction with decision. Satisfaction with the decision of the participants was measured using the adaptation of the satisfaction with the decision (SWD) scale developed by Holmes-Rovner and colleagues [16]. The scale consisted of five items. These items were summed to obtain the individual level score. Team level operationalization of this variable was then done by calculating the mean of the individual scores. The $r_{WG}$ score for perception of fairness was above .88 for all groups. Cronbach’s alpha for the original study suggested an adequate level of reliability ($\alpha = 0.86$). Cronbach’s alpha for the questionnaire in this study was .83.

4. Results

Descriptive statistics for the dependent variables are displayed in Table 1. Correlations between all the variables are displayed in Table 2. It was observed that group members who perceived the decision-making process as fair also tended to have greater commitment to the decision such that a moderate amount of overlap was evident. Also, group members who perceived the decision-making process as fair also tended to be more satisfied with the decision. However, there was no significant relationship observed between commitment to decision and satisfaction with decision.
Table 1. Means, Standard Deviations, and Ranges of Commitment to Decision, Fairness of Process, and Satisfaction with Decision

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment to Decision</td>
<td>3.44</td>
<td>.27</td>
<td>1.28</td>
</tr>
<tr>
<td>Fairness of Process</td>
<td>4.19</td>
<td>.28</td>
<td>1.15</td>
</tr>
<tr>
<td>Satisfaction with Decision</td>
<td>4.20</td>
<td>.30</td>
<td>1.40</td>
</tr>
</tbody>
</table>

Table 2. Intercorrelations between Shared Mental Model, Commitment to Decision, Fairness of Process, and Satisfaction with Decision

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Commitment to Decision</td>
<td>1</td>
<td>.35**</td>
<td>.16</td>
</tr>
<tr>
<td>2. Fairness of Process</td>
<td>1</td>
<td></td>
<td>.51*</td>
</tr>
<tr>
<td>3. Satisfaction with Decision</td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Note. n = 42.
*p < .05

Table 3 WITHIN+RESIDUAL Correlations with Std. Deviations on Diagonal

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perception of Fairness</td>
<td>.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Commitment</td>
<td>.28**</td>
<td>.26</td>
<td></td>
</tr>
<tr>
<td>3. Satisfaction</td>
<td>.42**</td>
<td>.09</td>
<td>.29</td>
</tr>
</tbody>
</table>

*p < .05

Hypothesis 1 predicted that teams with higher shared mental model index score would have a higher level of consensus than teams with lower shared mental model index score. In order to test the hypothesis, one-way between groups multivariate analysis of variance (MANOVA) was performed to investigate the effect of shared mental model difference scores on consensus in decision making groups. Three dependent variables were chosen to operationalize consensus: commitment to decision, fairness of process, and satisfaction with decision. The independent variable was group shared mental model scores (high and low). Preliminary assumption testing was conducted to check for normality, linearity, univariate, and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity with no serious violations noted.

There was a statistically significant difference between groups with high shared mental model index scores and groups with low shared mental model index scores on the combined consensus indicators, $F(3, 42) = 4.86, p = .006$; Wilk’s Lambda = .72; partial $\eta^2 = .28$. Supporting our hypothesis that groups with more (vs. less) similar mental models tended to have higher levels of consensus; the results reflected a high association between shared mental model scores (low vs. high) and the combined DVs. However, when the results of the dependent variables were considered separately, the only variable to reach statistical difference, using a Bonferroni adjusted alpha level of .017, was perception of fairness with process, $F(1, 42) = 14.43, p = .000$, partial $\eta^2 = .27$.

To investigate the impact of each main effect on each individual consensus indicator, a Roy-Bargmann stepdown analysis was performed on the predetermined prioritized DVs. As there were no apriori theoretical assumptions that could be made regarding the prioritization of the DVs, the result of the Bonferroni adjustment was used as a deciding factor. Accordingly, fairness to process was given the highest priority, commitment to decision was given the second highest priority, and satisfaction with the process was given the third priority. All DVs were judged to be sufficiently reliable to warrant a stepdown analysis. In the stepdown analysis each DV was analyzed, in turn, with higher priority DVs treated as covariates and with the highest priority DV tested using univariate analysis of variance (ANOVA). Homogeneity of regression was achieved for all components of the stepdown analysis.

Groups’ perceptions of the fairness of the decision making process provided a unique contribution in predicting differences between groups low versus high in the shared mental model index score, $F(1, 42) = 14.43, p = .00$, partial $\eta^2 = .27$. Thus, groups that had high shared mental model index scores had a higher perception of fairness with the process ($M = 4.32; SD = .25$) and groups that had a low shared mental model score had a lower perception of fairness of the process ($M = 4.02; SD = .23$). Neither of the remaining two
Decision-making is an important aspect of organizational life [6, 31, 35]. Many of these decisions have to be made with some degree of consensus among team members. Therefore, a study of consensus in organizational groups is timely. One of the possible antecedents to consensus is shared mental model of the group. However, only limited exploration has been done on the effect of shared mental models on consensus in groups. Consequently, the purpose of the study was to expand the existing literature and ascertain whether the presence of shared mental models affects consensus decision-making. The hypothesis that shared mental models positively affect the consensus decision making of the group was supported. In addition, it was discovered that perceptions of fairness in the decision-making process was the greatest contributor to difference between groups’ shared mental model scores.

5.1 Implications

A meta-analysis that investigated 15 years of shared mental model literature demonstrated that little research has been done in the group decision making literature regarding the effect of shared mental models on affective outcomes, such as commitment to decision and perceptions toward the process [32]. Consequently, the current study fills one of the important existing gaps in the literature regarding the relationship between shared mental models and affective outcomes of a team process by examining the association between shared mental models and commitment to decision and perceptions of fairness in the decision-making process.

However, associations between shared mental model, commitment to the decision, satisfaction with the decision, and the perceived fairness of process are reflected in other disciplines. For example, the leadership literature has also demonstrated that shared decision making and understanding often results in a higher buy-in and commitment from team members [5]. This phenomenon has also been observed in the area of information technology. Clients are more likely to embrace a system and be more satisfied if they are involved in the decision-making process regarding the system requirements as this allows them to develop a shared understanding of the system’s functionality [55]. A study by Shokef and Erez [50] found that having shared mental models and meaning allowed multicultural team members to have faith in the fairness of workload distribution along with other challenges that these teams face in the workplace.

Another study showed similar positive effects of fairness in familial teams [46]. This study examined the effects of shared understanding on the perception of fairness in autistic children. They found that if autistic children had a shared understanding regarding the rationale behind parental instructions, they perceived their parents’ ultimatums to be fairer and thus were more amenable to follow them. The association between perceptions of fairness and shared mental model was also illustrated in an industrial setting by Prussia, Brown, and Willis [38]. The authors found that having a shared understanding of the causes...
of unsafe behaviors and accidents with the managers enabled the employees to perceive the safety rules to be fairer.

Another theoretical implication of the study is derived from the relationship between the variables of perception of fairness, satisfaction with the decision, and commitment to the decision. The moderate correlation between these three variables demonstrated that they were associated with each other while still being distinct and thus, they could be used as factors in assessing the level of consensus. This finding supports the literature which operationalizes consensus using these three variables.

The results of the current study suggest that teams with a shared mental model have a higher likelihood of being satisfied with their decision, being committed to that decision, and perceiving the decision-making process to be fair. Organizations can use this finding as a basis to justify reserving time at the beginning of a project to create a shared mental model of their task, goal, and group processes. This may enable the group to reach consensus more easily.

In addition, the results of the current study may provide some insight on how to improve decision-making at the department level. Having shared mental models among teams and departments may reduce the role confusions in the workplace. That is, everybody can be on the same page about what the goal is and what their responsibilities are to achieve the goal. At the team level, if managers ensure that teams have a shared mental model of the group goal, there is a higher chance that the decision-making process will proceed smoothly. Finally, this finding is useful on an individual level. If subordinates have a shared understanding with their managers regarding the task objectives and procedures that the leader envisions, this allows the subordinates to be more committed to the task at hand.

5.2 Limitations and future research

Limitations of the current study should be taken into account when considering the implications of the results. One possible limitation of the study was the lack of ecological validity of the task. Though every effort was made to make the task realistic to the students in the university, they appeared relatively unconcerned about the next student body president. This apathy towards the task may have influenced the decision-making of the groups. It is possible that did not find it necessary to exert themselves and argue over an issue that they did not care about. In addition, their lack of concern towards the issue may have affected their consensus decision making process and the affective aspects like satisfaction and commitment.

It should also be noted that potential covariates that may influence shared mental models were not controlled for in the current study. For example, studies show that familiarity of the team members with each other results in a higher sharing of the mental model [25]. Other research found that team members who had similar roles or expertise in the organization had higher levels of shared mental models [27]. Both of these variables were relevant to this study as participants in each group were students from the same class. Therefore, group members might have been familiar with each other and shared similar levels of expertise. Taking such covariates into account might enable researchers to assess the degree to which each of these elements affect the degree of sharedness of the mental model.

Future research can also examine moderating factors between shared mental model and consensus. For instance, some studies have found that effective teams respond to stress by drawing on their shared mental models to come up with successful strategies [9]. Other research found that a high degree of shared cognition enables teams to build shared mental models [8]. Furthermore, research also shows that variables like conflict are negative moderators [39] while variables such as information processing are positive moderators [19] for shared mental models and effective team outcomes. Further, factors like information sharing within the group and the regulatory focus of the group may play a role in the relationship between shared mental model and consensus. That is, it may be that teams with a high level of shared mental model reach consensus faster, but are influenced by their regulatory focus and the amount of information they have been sharing. Finally, the development of SMMs over time and how they affect consensus might merit further exploration. Studies such as these may further clarify the role of shared mental models in group decision making.

References


