

# Selective Sharing is Caring: Toward the Design of a Collaborative Tool to Facilitate Team Sharing

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## Abstract

*Temporary teams are commonly limited by the amount of experience with their new teammates, leading to poor understanding and coordination. Collaborative tools can promote teammate team mental models (e.g., teammate attitudes, tendencies, and preferences) by sharing personal information between teammates during team formation. The current study utilizes 89 participants engaging in real-world temporary teams to better understand user perceptions of sharing personal information. Qualitative and quantitative results revealed unique findings including: 1) Users perceived personality and conflict management style assessments to be accurate and sharing these assessments to be helpful, but had mixed perceptions regarding the appropriateness of sharing; 2) Users of the collaborative tool had higher perceptions of sharing in terms of helpfulness and appropriateness; and 3) User feedback highlighted the need for tools to selectively share less data with more context to improve appropriateness and helpfulness while reducing the amount of time to read.*

**Keywords:** Temporary Teams, Team Mental Models, Personal Assessments, Sharing Personal Information

## 1. Introduction

Research has consistently pointed to the importance of experience in teamwork (Entin & Serfaty, 1999; Musick et al., 2021) as "experienced teams provide information to and request information from the right team member at the right time" (p. 417) which is associated with improved team performance (Cooke, 2015). However, many organizations utilize teams that are temporary (e.g., emergency response, project

teams), which limits the amount of time these teams have to gain familiarity with their teammates (Dalal et al., 2017). Collaborative tools provide the opportunity to accelerate teammate understanding through sharing personal information amongst team members during team formation. However, little is known about team member perceptions of this sharing regarding accuracy, helpfulness, and appropriateness.

Two such sources of personal information commonly used in teamwork are personality and conflict management styles (CM) assessments. For personality, the Big 5 personality assessment is the most frequently used theoretical model and assessment in teamwork and psychology research which consists of five factors (i.e., extraversion, emotionality (or neuroticism), conscientiousness, agreeableness, and openness) (Kichuk & Wiesner, 1997). CM refers to how individuals deal with and handle interpersonal conflicts (Rahim, 1983) and understanding various styles can improve communication and collaboration on teams (Bradley et al., 2021; O'Neill & McLarnon, 2018).

The research that has been conducted on sharing personality assessment results shows promise. Research involving student software engineering teams suggests that taking and reflecting on personality assessments improved interpersonal relations and enhanced trust within teams (Pieterse et al., 2021). This particular study emphasized the importance of collaboratively looking at team profiles to see how similar or different the team is regarding various attributes (Pieterse et al., 2021). Similarly, another study found that members knowing their teammates' personality types was helpful for understanding team member behaviors and managing team dynamics (Clinebell & Stecher, 2003). Regarding sharing CM information, there is a lack of research investigating perceptions of this sharing

or its effectiveness on teams. However, it is reasonable to predict that similar benefits might occur since a team member who understands how they and their teammates manage conflict will assist in essential team processes such as communication and decision making (O'Neill & McLarnon, 2018).

Due to the popularity of using such personal assessments to promote teamwork, prior research has shown interest in utilizing technology and algorithms to automate sharing teammate information. Technology has been used to create anonymized team reports about teammate personality information (Ogot & Okudan, 2006). Similarly, a recent article has suggested the use of artificial intelligence (AI) to provide team recommendations based on member personalities to facilitate and strengthen teamwork on temporary teams after team formation (Webber et al., 2019).

Though the idea of using technology to share personal information through a collaborative tool seems promising from the standpoint of promoting understanding on temporary teams, other considerations must be made. Particularly, previous research points to the importance of: 1) sharing *accurate* information about teammates to promote understanding (Mathieu et al., 2000), 2) collaborative tools providing *helpful* information (Valin et al., 2001), and 3) collaborative tools providing *appropriate* information (Chakraborty et al., 2020). Based on these three requirements, the current study attempts to address the following research questions:

- RQ1: How do temporary team members perceive a collaborative tool sharing personal assessment data in terms of accuracy, helpfulness, and appropriateness?
- RQ2: How does experience with the tool sharing personal assessment data influence perceptions of helpfulness and appropriateness?
- RQ3: Based on user feedback, how can an information-sharing system be designed to promote teammate understanding?

## 2. Related Work

### 2.1. Team Mental Models

A review of the literature is necessary to understand *why* sharing personal information among team members would be helpful to support temporary teams. Temporary teams are often plagued by poor awareness of teammates' knowledge or abilities which can be exacerbated when integrating multiple personalities and communication styles that might be

unfamiliar (Yamane, 1996). This deficiency leaves unfamiliar teams at a notable disadvantage from the outset as they might stumble to understand how their new teammates operate (Rentsch et al., 1998).

Team mental models (TMMs) is a construct critical to understanding how experience facilitates teamwork. The concept of TMMs sees team members draw on common mental models to make decisions and coordinate with their teammates (Cannon-Bowers et al., 1993). In order to coordinate with team members and predict their behavior, *teammate* TMMs are utilized, which contain information specific to one's teammates (e.g., knowledge, skills, attitudes, tendencies, weaknesses, and preferences) (Cannon-Bowers et al., 1993). This understanding is important for team effectiveness as it supports members in their ability to adapt their behavior to what they expect their teammates to do and predict what their teammates might need from them (Cannon et al., 1995).

The default for many teams is to allow for *teammate* TMMs to improve naturally over time since interaction among team members can lead to stronger TMMs and team performance (Jo, 2012). Alternatively, research has focused on the importance of interpersonal interventions such as team training to promote team performance and accelerate understanding, particularly attitudes, tendencies, and preferences of each other (Bradley et al., 2021; Entin & Serfaty, 1999). Fortunately, these interpersonal interventions already exist as constructs within the aforementioned personality and conflict management assessments but distribution amongst team members has been an understudied topic worthy of exploration.

For team training, reviewing and discussing different personalities in general as a team can help team members value diversity of thought (Wells, 2002). However, less is known about how these assessments can be used to promote teamwork when the individual results of each member are shared with their teammates. Intuitively, sharing these assessment results would likely promote *teammate* TMMs due to the following rationale: 1) knowing the CM styles of other team members promotes an understanding of how they tend to communicate and make decisions; and 2) many of the sub-facets of personality relate directly to the teammate TMM content described in previous research (Mathieu et al., 2000). However, more research is necessary to understand perceptions of these assessments in terms of accuracy and sharing such assessments in terms of helpfulness and appropriateness).

## 2.2. Sharing Personal Assessment Data

Next, a review of literature is important regarding how team members perceive sharing personal assessment data. Regarding *accuracy*, prior research has pointed to Big 5 personality data being accurate throughout projects (Stidham, Summers, et al., 2018), with other research even showing that teammates can more accurately assess their teammate personalities at the end of the project compared to the beginning (Stidham, Flynn, et al., 2018). Meanwhile, to the authors knowledge, no research has investigated perceptions of accuracy for CM assessments in teamwork settings.

For *helpfulness*, prior research has indicated that sharing personality data of teammates is perceived as helpful (Clinebell & Stecher, 2003; Pieterse et al., 2021); however, these studies have utilized discussions and anonymized reports rather than having technology share traits at an individual level.

Research focusing on the *appropriateness* of sharing personal assessment data is of great importance. A study involving technology deriving personality profiles found that only 61.5% of users are willing to share their traits in the workplace (Gou et al., 2014). Similarly, a study involving AI that tried to discern personality found that participants tried to trick the chatbot to keep their personality private (Völkel et al., 2020). Thus, more research is necessary to understand how users perceive the use of a collaborative tool to share different types of personal information to improve teamwork on their behalf.

## 3. Methods

### 3.1. The Current Study

This study utilized student teams completing an industrial engineering capstone project course to investigate perceptions of sharing results from two popular personal assessments (i.e., personality and CM styles) within the team in terms of accuracy, helpfulness, and appropriateness. These perceptions were further investigated by creating two experimental conditions, a sharing condition and a non-sharing condition, to understand how some of these perceptions are influenced by experience with sharing. Thus, this study followed a two condition design with sharing assessment data as the only manipulated variable with one condition not sharing assessment data (non-sharing) and the second condition sharing assessment data (sharing).

## 3.2. Task and Participants

This study used semester-long student projects as a context for temporary teams. Student project teams meet the four criteria used for classifying teams as temporary including unfamiliarity with one another, work together for a short period of time, work on specific and complex tasks, and they disband after the task is completed (Dalal et al., 2017). As student teams are limited by how often they can meet due to other course requirements, they are often classified as temporary within the temporary team research (Druskat & Kayes, 2000).

Participants of this study were students of an industrial engineering capstone project course, a methodology common to teaming literature (Joshi & Summers, 2014). The current study recruited 103 individuals, who took part in a semester-long team design project to solve complex applied industrial problems submitted by regional industry partners. For example, one team was challenged to significantly improve the inbound and outbound logistics at a tire manufacturer's largest manufacturing facility. Teams were given 15 weeks to address the problem with several milestones/check-ins throughout the project to help guide teams through the course's learning objectives. The professor of the course also ensured that each of the projects given to the class were of similar difficulty and scope.

The 103 individuals taking this course were randomly divided into 20 teams by their instructor, averaging 5.15 individuals per team. Overall, students were unfamiliar with each other, having worked with an average of 0.84 members of their assigned teams previously. 89 individuals from this course elected to participate in data collection for this study (59 identified as males, 30 identified as females). Though non-participants were on teams with participants, their assessment data was not shared with their teammates. All participants were Industrial Engineering majors with 88 Seniors and 1 Junior.

### 3.3. Procedure

This study involved two stages. First, participants took personal assessments including the Big 5 Personality assessment and a CM assessment. After completion, participants were instructed to review their results and the associated reports.

Shortly after everyone completed the surveys in stage one, the individual personality and CM assessment results were compiled and shared with the respective teammates in the sharing condition. Sharing was conducted through a Python script that used all

assessment result data for a team to generate a PDF report specific for that team. An example section of a sharing report is shown in Fig. 1 where a graph showed the relative percentile each team member scored for the CM styles assessment and each of the sub-facets of a Big 5 personality measure (in this example, Extraversion). Additionally, highlights were provided that described when team members ranked high for a particular facet that one of their teammates ranked low on. The complete report included six sections, including a section for CM and five sections for personality. After sharing was completed (if applicable), all participants completed stage two surveys that collected their perceptions of assessment results and sharing such results.

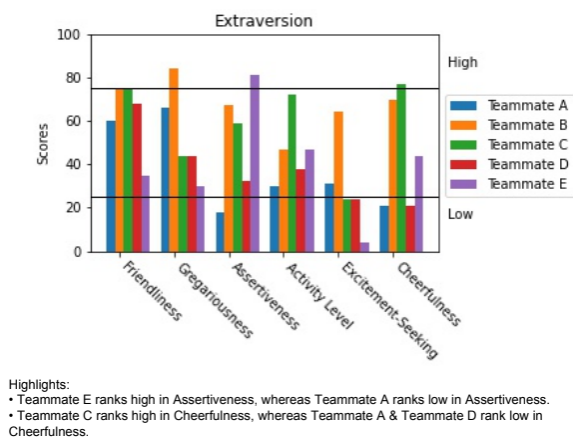


Figure 1: Example section of sharing report

### 3.4. Measurements

**3.4.1. Personal Assessments** Participants took two personal assessments including the Big 5 Personality assessment involving 30 facets and a CM Styles assessment. These assessments were not used in analysis and were simply used as part of the task design which required participants to take the assessments and view their results.

CM style is assessed using a questionnaire based on the scales produced by Rahim (1983). The scale includes 26 items answered on a five-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree.” The answers to these questions were summed and the resulting scores were factored into five different conflict resolution styles, Integrating, Obligating, Dominating, Avoiding, and Compromising (Thomas, 2008). A chart displaying where the individual falls on the continuum

compared to a general population (percentile) for each style was shown to each participant and their teammates (if applicable).

Personality is assessed using the Big 5 scale which give users insight into how their personality fits onto five factors of personality (Barrick & Mount, 1991). The scale consists of 120 items answered on a five-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree.” Answers were summed by factor with scores indicating the individual’s proclivity to the corresponding factor on a continuum for each of the five factors. Further, each of the five factors contained six sub-facets (e.g., Extraversion includes Activity Level, Assertiveness, Cheerfulness, Excitement-Seeking, Friendliness, and Gregariousness) that individuals received scores for resulting in 30 facets in total (Johnson, 2014). A chart displaying where the individual falls on the continuum compared to a general population (percentile) for each facet was shown to each participant.

**3.4.2. Survey Questions** Stage 2 involved a survey completed by participants in both conditions. The survey began with descriptive demographic questions. Afterward, the survey utilized a series of seven-point Likert-scale questions designed to better understand how team members perceived the assessments themselves. One question was asked for each of the two assessments to measure perceived accuracy (e.g., “My personality assessment results were accurate”), perceived helpfulness of sharing (e.g., “It was helpful to receive the conflict management assessment results of my teammates”), and perceived appropriateness of sharing (e.g., “It is appropriate for CM assessment data to be shared with teammates”). This resulted in a total of 6 different perception questions. Though participants in the non-sharing condition did not have experience with sharing this data, it was intended to understand how the sharing manipulation might influence perceptions of helpfulness and appropriateness.

**3.4.3. Qualitative Questions** Qualitative short-answer and free-response questions were used in stage 2 of this study. These qualitative questions focused on understanding why team members thought the reports were or were not helpful or accurate (e.g., “What information (if any) from the personal reports did you find useful and why?”). Additionally, these questions sought to understand how the sharing could be improved by technology in the future (e.g., “How could the report be improved so that you would find it more helpful?”).

The qualitative data was analyzed using thematic analysis based on grounded theory (Glaser & Strauss, 2017). This data set came from the free-response questions collected. In line with prior research involving thematic analysis (Terry et al., 2017), the following steps were taken to analyze the data: (1) the first author read through all the question responses to obtain a basic understanding of participant perceptions of assessment reports and the sharing of such reports; (2) the first author iteratively generated codes based on various patterns that the data contained; (3) the first author categorized participant responses by major themes and sub-themes and extracted quotes; and (4) three authors discussed and refined themes to ensure that participant perceptions were thoroughly understood and summarized.

## 4. Results

The following sections contain two parts, quantitative and qualitative, to address our research questions. First, we present quantitative data in the form of descriptive statistics, paired samples t-tests, and independent samples t-tests to describe and analyze perceptions of sharing self-assessment data (RQ1 and RQ2). Next, we present qualitative data through thematic analysis to represent what aspects of the shared self-assessment data users appreciated and how this sharing can be improved (RQ3).

### 4.1. Quantitative: Assessment Perceptions

**4.1.1. Comparison of Perceptions of Personal Assessment Data** A series of Likert-scale questions were used to determine how users perceived the accuracy of personality and CM style assessment reports and their perceptions of the helpfulness and appropriateness of sharing this information with their team. First, a look at response distributions and means reveal high-level findings. All participants were asked whether they thought the reports were accurate. Table 1 provides means and standard deviations for participants' perceived accuracy of the assessments as well as other perceptions. These results indicate that overall, team members perceive these assessments to be accurate ( $M = 5.45$  for personality and  $M = 5.51$  for CM). However, there was no significant difference in the perception of **accuracy** of **personality** results compared to **CM** results  $t(88) = -0.60, p > .05, r = .06$ .

Additionally, all participants were asked whether they thought sharing assessment data was helpful. Table 1 shows the results for perceived helpfulness for both assessment types ( $M = 4.80$  for personality and  $M =$

$4.93$  for CM). Though many participants felt neutral or disagreed that sharing was helpful, a large majority of participants perceived sharing this information to be helpful. Relative to helpfulness, participants agreed less to the statement that sharing these results was appropriate ( $M = 4.18$  for personality and  $M = 4.49$  for CM). Table 1 shows the perceived appropriateness of sharing both assessment types.

Table 1: Perceptions of personality and CM styles assessments. Mean values range from 1 (strongly disagree) to 7 (strongly agree).

| DV          | Assessment Type | Mean | SD   |
|-------------|-----------------|------|------|
| Accurate    | Personality     | 5.45 | 0.97 |
|             | CM              | 5.51 | 1.07 |
| Helpful     | Personality     | 4.80 | 1.38 |
|             | CM              | 4.93 | 1.31 |
| Appropriate | Personality     | 4.18 | 1.40 |
|             | CM              | 4.49 | 1.41 |

Second, a paired samples t-test of all participants showed a preference for sharing CM results. Participants had a significantly lower perception of the **helpfulness** of sharing **personality** results ( $M = 4.80, SD = 1.38$ ) than sharing **CM** results ( $M = 4.93, SD = 1.31$ ),  $t(88) = -2.32, p < .05, r = .24$ . Participants also had a significantly lower perception of **appropriateness** of sharing **personality** results ( $M = 4.18, SD = 1.40$ ) than sharing **CM** results ( $M = 4.49, SD = 1.41$ ),  $t(88) = -4.14, p < .001, r = .40$ . A visualization of these two comparisons is shown in Figure 2.

**4.1.2. Sharing Experience and Perceptions of Sharing** A comparative analysis of the data also revealed interesting differences between the sharing and non-sharing conditions. We used independent samples t-tests to determine if sharing assessment results had a significant effect on perceived **helpfulness** of sharing. On average, participants in the non-sharing condition ( $M = 4.49, SD = 1.49$ ) had a significantly lower perception of helpfulness regarding sharing **personality** results than participants in the sharing condition ( $M = 5.14, SD = 1.18$ ),  $t(85.85) = -2.31, p < .05, r = .24$ . A similar comparison can be made regarding **CM** results, as participants in the non-sharing condition ( $M = 4.70, SD = 1.46$ ) had a near-significantly lower perception of helpfulness than participants in the sharing condition ( $M = 5.19, SD = 1.08$ ),  $t(84.39) = -1.80, p = .075, r = .19$ . A visualization of these two comparisons is shown in Figure 3.

Next, we used an independent samples t-test to determine if sharing assessment results had a significant

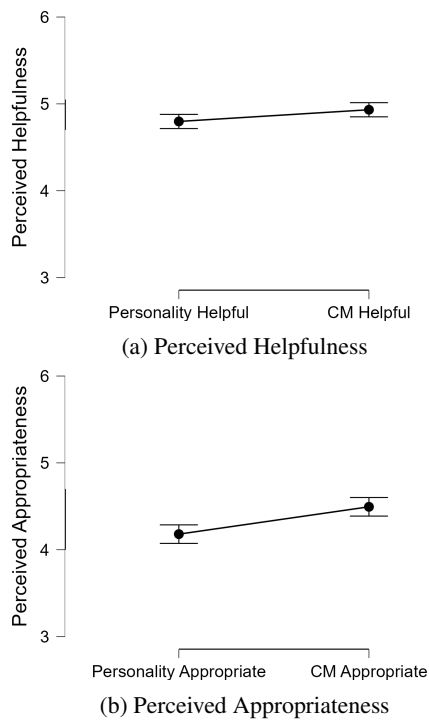


Figure 2: Comparison of Perceptions of Sharing Personality and CM Assessments

effect on perceived **appropriateness** of sharing. On average, participants in the non-sharing condition ( $M = 4.04$ ,  $SD = 1.53$ ) had a lower perception of appropriateness for sharing **personality** results than participants in the sharing condition ( $M = 4.33$ ,  $SD = 1.24$ ), but this difference was not significant  $t(86.23) = -0.99$ ,  $p = .33$ ,  $r = .24$ . However, for the appropriateness of sharing **CM style**, participants in the non-sharing condition ( $M = 4.19$ ,  $SD = 1.53$ ) had a significantly lower perception of appropriateness than participants in the sharing condition ( $M = 4.83$ ,  $SD = 1.19$ ),  $t(85.43) = -2.23$ ,  $p < .05$ ,  $r = .11$ . A visualization of these two comparisons is shown in Figure 4.

#### 4.2. Qualitative: Useful Features and Desired Improvements for Sharing Assessment Data

In order to better understand why team members had certain perceptions about the sharing of this information, participants responded to open-ended questions. These questions investigated what features participants liked about the assessments, why they liked or did not like sharing this data, and probed for information regarding what improvements they wanted to see to a system that shared such information. Thematic analysis revealed three major themes pertaining to these questions: (1)

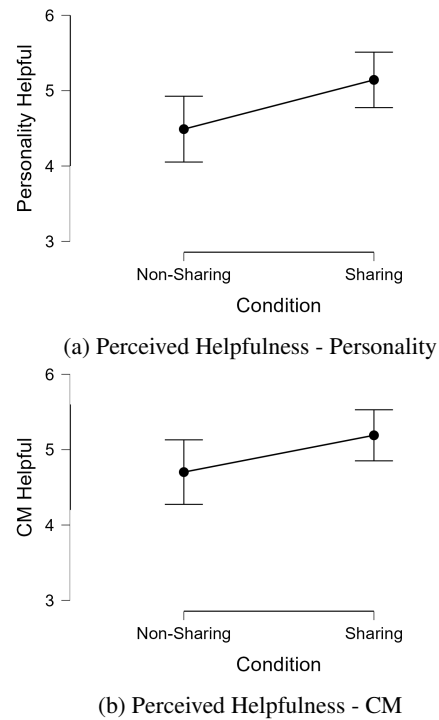


Figure 3: Comparison of Perceived Helpfulness of Sharing Personality and CM Assessments Between Conditions

uncertainty of accuracy; (2) the perception that certain assessment data is more helpful to share; and (3) proposed improvements regarding how this information could be presented better.

**4.2.1. Uncertainty of Accuracy** Data presented in the quantitative findings indicated that most participants perceived the assessments to be accurate. However, for those who were neutral or disagreed with the accuracy of these assessments, a common theme from the free-response questions emphasized their uncertainty regarding the accuracy of these assessments. This data provides insight into why participants might think the assessments are inaccurate or simply feel neutral regarding the assessment accuracy. Some of these participants expressed distrust for a computer's ability to classify such personal human traits:

*I just personally believe that it is difficult to have a computer program try to define someone's personality.*  
-P27

P27 described disbelief that a computer would be able to classify or describe a person's personality. Without trust that the generated reports and classifications are accurate, users would be unable to utilize any subsequent recommendations or information

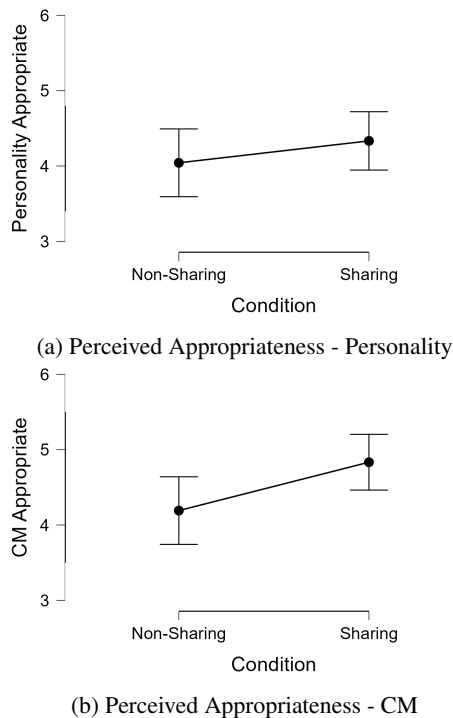


Figure 4: Comparison of Perceived Appropriateness of Sharing Personality and CM Assessments Between Conditions

provided. Other participants described *why* they might not trust the computer's output regarding the assessments:

*The [questions used] seemed broad and vague because I don't think the questions would give accurate results to show who people truly are. -P63*

*The questions don't offer flexibility in regards to situations. It's either one way or the other. Sometimes the question may apply but other times it may not. It didn't always account for that. -P21*

Since participants knew the assessment scores were driven by question responses, much of their trust for the assessments were based on how they perceived the quality of the questions themselves. P63 mentioned "scenario based," and P21 referred to "situations." It was clear that many participants understood that context matters when it comes to teamwork and how teammates might behave. Thus, participants were looking for better or additional questions to capture their personalities and how they handle conflict.

Additionally, participants who received assessment information about their teammates were unsure how to assess the accuracy of the information:

*I feel that I don't know them quite well enough to validate their results. This is mostly due to the fact that*

*I have not been in every situation in which each of their results could be distinguishable. -P35*

P35 was part of the sharing condition. Though many participants perceived their own personality results to be accurate, many participants were unsure how to perceive the accuracy of their teammates' assessments. Though individuals are likely to have self-awareness and an opinion regarding the accuracy of their own report, they have much less experience with their teammates and do not know if their assessment results are accurate.

#### 4.2.2. Certain Assessment Data is More Helpful to Share

Next, a review of responses revealed that participants had preferences for different types of information being shared with them and certain information *not* being shared about them. For instance, many participants found the sharing of CM style information to be beneficial. The preference for having this data shared compared to personality data was described often by participants. The following quotes describe how this CM information is helpful to them on teams:

*I found it interesting to understand their conflict management results. This may be used to explain some team member's reactions to tough situations when it comes to the project. -P43*

*I think that the conflict management section is useful (over using any personality information). Knowing how my teammates respond to conflict allows me to understand how my actions may affect them. Knowing their response tendencies, I can strive to ensure that no teammate dominates over the other and that all ideas are heard. -P34*

In these quotes, P43 and P34 describe their preference for utilizing CM data. P43 described how this information can allow them to understand their teammates better and how they react to situations. P34, on the other hand, described the ability to use this information in leadership to ensure that all ideas are heard. For instance, if they knew that one teammate ranked much higher in "dominating" for CM, they could be cognizant that additional effort would be necessary to ensure that less assertive voices were heard and understood.

Participants were less likely to describe the utilization of team personality information. In fact, P11 described a negative consequence of sharing such information:

*I do think that some parts of the personality test shouldn't be shared with the team, especially on sections such as anxiety and other emotional aspects. -P11*

P11 perceived that some personality information was too sensitive or personal to share with teammates

(i.e., emotionality scores). In addition to the quotes above describing practical uses of CM data, this description of hesitancy to share personality data helps explain why participants were more likely to perceive sharing CM information to be more appropriate than sharing personality information (see quantitative findings, Section 4.1). Importantly, not all participants felt the same way. A quote from P89 stands in stark contrast to P11's perspective:

*Seeing the emotionality levels helped me understand why some people seemed to either be overly confident or unconfident in their work. -P89*

Interestingly, P89 found the same personality metric (emotionality) to be especially helpful. However, it is essential to note that while P89 found this information to be *helpful*, P11 thought that sharing this information category to be *inappropriate*. In deciding what personal assessment information to share (especially sensitive personality categories), considerations should be made regarding helpfulness and appropriateness.

#### **4.2.3. Improvements to Presentation of Information**

The third theme contains several quotes describing desired improvements to how and what information is shared. For instance, P68 and P69 shared similar sentiments:

*I think there could have been fewer categories, some seemed too similar. -P68*

*I think a less detailed report on my teams evaluation would be useful. I personally don't care for the specifics of how my team scored on each of the extraversion scores. I would rather just see an overall score for who is extroverted, conscientious, etc. -P69*

These quotes touch on a practical limitation of these reports in that they can often be perceived as too long. P68 noticed that fewer categories could have been utilized since many of the attributes seemed similar. Similarly, P69 felt that there was too much information about their teammates. Though less information might provide a less accurate picture and would not be as descriptive, it could increase the report's readability, thus increasing the amount of usable information that users take away.

Parallel to these suggestions was the desire for more helpful information:

*The report lacked a lot of details. A list of common avoidances and tips would be helpful. -P30*

*I think it would be more helpful if it offered examples of strategies in a team environment that would allow you to perform your best. -P43*

P30 and P43 both described a desire for actionable information. To them, the report seemed like too much surface-level information and not enough tangible

details or examples. Though these quotes might seem to contradict the previous two quotes (which expressed a desire for less information), the pairing of these suggestions could complement one another to result in a report that contains fewer categories yet more actionable information. P36 described what such a recommendation could look like:

*For example, if teammates have a high self efficacy, dependability, self discipline, and low friendliness, then I conclude that on smaller tasks that teammate would rather work alone. -P36*

In this quote, P36 described how multiple metrics could be combined to create useful information that could inform how teammates work together. A sharing tool might use such personality features to share less information and convey only helpful information that could promote *teammate* TMMs regarding attitudes, preferences, and tendencies.

## **5. Discussion**

The current study makes a number of contributions to personal assessment literature and has important implications for future collaborative tools for teammate information sharing and team training. Prior research has emphasized the predictive behavior of the Big 5 personality assessment (Paunonen & Ashton, 2001). In this study, we augment the previous literature by providing evidence that team members also *perceive* this assessment to be accurate overall as well as that the CM assessment is perceived as accurate.

Additionally, much of the prior research has focused on the benefits of sharing personality results during team training (e.g., (Pieterse et al., 2021)). Though beneficial, prior literature has shown that many users feel uncomfortable with their personality information being shared (Gou et al., 2014). The current study contributes to this body of literature by suggesting that CM data is perceived as more helpful and appropriate to share compared to personality data. Therefore, future collaborative tools for teammate information sharing should consider incorporating CM data rather than just personality data. Implications of these findings are discussed further in the following section.

### **5.1. Design Implications for a Collaborative Tool to Facilitate Team Sharing**

Based on our findings, we propose design implications to address challenges associated with creating a collaborative tool to facilitate team sharing, including: (1) desired content and presentation; and (2) mitigating accuracy and privacy concerns. These recommendations can be viewed as promising



starting points for such a new and unexplored form of technology.

**5.1.1. Desired Content and Presentation** Our findings suggest the type of content that team members are interested in receiving and how they wish this information to be presented. First, a collaborative tool to facilitate team sharing should focus on suggesting limited content (recommendations) to reduce cognitive load. Participants described being overwhelmed by information, especially as they read through 30 different personality facets and five CM styles. This challenge was compounded as some participants were provided this information for 3-5 additional teammates depending on their team size. Thus, such a system should restrain how much information is presented to promote readability and usability.

Second, participants described their desire to have more actionable and helpful information about how their assessments related to their teammates. The presented information was often described as high-level or generic, which did not seem useful to some participants. A collaborative tool to facilitate team sharing should focus on presenting actionable and specific content so that users know how to use the information. This design might involve providing more context or giving examples of what interactions might look like between a given pair of teammates.

**5.1.2. Mitigating Accuracy and Privacy Concerns** Based on our findings, it seems pertinent to address both accuracy and privacy (appropriateness) concerns. It is important to note that much of these concerns center around the content source of the assessments rather than the collaborative tool itself. It is likely that similar concerns would be present with a system that was purely pen-and-paper. However, it is likely that features of a collaborative system could be designed to reduce such concerns. One design feature to mitigate such concerns would be to implement a user interface that affords flexibility and more user input. To achieve this, we suggest allowing users to review any data points or features attributed to them before this information is used in sharing. As such, if users have strong opinions regarding their privacy or how appropriate they think sharing such information would be, they can give that feedback to prevent the system from sharing it. This design would promote more flexibility than blocking particular personality or CM attributes for all users all the time. This feature is vital since diverse populations will have varying opinions regarding what information they find appropriate to share and what is not. In line with this, future systems should learn and adapt to

various privacy concerns that certain users have with certain attributes and predict which attributes certain users might prefer to keep private.

## 5.2. Limitations

Certain limitations of this study should be considered when interpreting the results. First, it is important to note that all participants were college students and a study involving participants in a professional work environment may yield different results. Second, time limitations and the exploratory nature of this study required brief surveys. Therefore, single item responses were used for perceived accuracy, helpfulness, and appropriateness measures. Future studies would benefit from using previously developed multi-item measures (if available) or developing and validating their own measures. Third, this study prioritized external validity by using actual student teams. However, the diverse nature of each participant's teammates likely created significant variation in user experience with the reports meaning future studies should also target internal validity.

## 6. Conclusion

The current study provides numerous insights that are helpful toward the design of an intelligent system to facilitate team sharing. First, users perceived personality and conflict management style assessments to be accurate. Users also perceived sharing results to be helpful with mixed perceptions of the appropriateness. Importantly, users perceived sharing conflict management results to be significantly more helpful and appropriate than sharing personality results. Second, results indicate that users with sharing experience had higher perceptions of sharing in terms of helpfulness and appropriateness. Third, qualitative results also revealed that users have varying opinions on *what* is helpful and appropriate to share. Future implementation of collaborative systems to facilitate team sharing should utilize these findings to create a system that promotes understanding through selectively sharing helpful information with actionable recommendations while mitigating concerns of accuracy and appropriateness.

## 7. Acknowledgements

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