Learning How to Improve Meeting Interactions to Achieve Meetings Effectiveness and Satisfaction

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About the Author

Aleister Avila is a Human Resources leader with experience in the healthcare and automotive industries and has worked at Fortune 200 and Fortune 100 Best Company to Work For. His experience spans several HR functions including organizational development, talent acquisition, and employee relations. Aleister has also worked as an adjunct professor at the School of Global Business, Trade and Transportation at Miami Dade College.

Aleister's expertise centers around delivering effective HR business partnership and the design and implementation of evidence-based leadership development, employee engagement, succession planning, onboarding, change management, and career development programs. Aleister's interest is to help the field of Human Resources become more evidence based and achieve demonstrable impact in organizations.

Aleister is a graduate of Leadership Miami where he received the Carlos Arboleya Award for his strong commitment to community service. He also served in the United States Marine Corps where he received the Gung Ho Award by the Board of Governors of the Marine Corps Association. Aleister received a B.S. in Psychology from Campbell University in Buies Creek, North Carolina, an M.S. in Industrial and Organizational Psychology from Albizu University, and an MBA from Florida International University in Miami, Florida.

Dedication

I would like to thank Carla Sanchez Griborio, my wife, and my children, Carlotta Avila and Christopher Avila, for supporting me in this long learning journey. Without your love and support, I would not have been able to have the space and energy needed to achieve this milestone. This is also dedicated to my parents Mariela Valverde Perea and Ivan Avila Belloso whose example from their own doctoral academic journey in Paris, France served as inspiration to start and complete mine in Nashville, Tennessee. I would also like to thank my Capstone Advisors, Dr. Erin Henrick, Dr. Chris Quinn Trank, and Dr. Laura Booker, for your tireless guidance and support. You kept me on track and motivated. I am the scholar practitioner that I am today because of you. Finally, I would like to thank my peers from prior and current cohorts who were there for me when I most needed it, Dr. Jacqui Schuman and Dr. John Harding. Thank you too to those who I did not mention here. I know you know who you are and I will be forever grateful to consider you my friends and Vandy family.

Executive Summary

Contemporary Leadership Advisors (CLA) developed ConvoLens, a web-based platform designed to improve meeting effectiveness and satisfaction. ConvoLens allows a facilitator to categorize behavioral interactions demonstrated in meetings and deliver feedback to meeting participants. In addition, the facilitator helps the team engage in team reflection to assess how the team interacted during the meeting, the impact of interactions on meeting effectiveness and satisfaction, and the identification of new ways of interacting to improve meeting effectiveness and satisfaction.

The problem of practice is that CLA had not yet implemented ConvoLens with a team over a period of time and did not know whether ConvoLens worked as intended. Therefore, this capstone project sought to assess ConvoLens's effectiveness in improving meeting interactions and meeting effectiveness and satisfaction by implementing ConvoLens with a real team that needed to meet over a period of time. The project sought to answer the following project questions: (1) To what extent was ConvoLens implemented as designed? (2) To what extent did the use of ConvoLens lead to improved meeting interactions and meeting effectiveness and satisfaction? And (3) what was the user experience with ConvoLens?

To answer these questions, this project used a mixed method design. ConvoLens was implemented with a hospital team comprised of six members who met for five meetings over the course of six weeks. A CLA Facilitator categorized interactions, delivered group feedback, and facilitated team reflections in each of these meetings. ConvoLens's implementation was assessed through observations and memoing. ConvoLens's impact on meeting interactions and meeting effectiveness and satisfaction was assessed through the triangulation of data from surveys, team reflection recordings, and focus group/interviews. The user experience was assessed through a satisfaction survey and focus group/interviews.

Major findings were the following:

1. ConvoLens was implemented as designed.
2. Fluctuations in meeting interactions over time were perceived as moderate to large improvements.
3. Meeting effectiveness and satisfaction ratings remained stable over time.
4. Changes in meeting interactions can result from a variety of intervention and non-intervention mechanisms.
5. About 86% of meeting effectiveness and satisfaction ratings were moderately to highly influenced by meeting interactions.
    a. Alignment between team's objective, meeting purpose, and meeting interactions influenced meeting effectiveness and satisfaction.
6. Meeting design and participation factors also influenced meeting effectiveness and satisfaction.
7. Users were moderately satisfied with ConvoLens.
8. Group feedback and perceived need for intervention influenced users' satisfaction with ConvoLens.

Recommendations centered around ConvoLens's design and implementation:

1. Implementing pre-intervention actions to create shared understanding and direction. These include assessing meting practices, setting objectives for improvement, and providing training.
2. Designing feedback to maximize learning and intent to use feedback. These actions include redesigning the feedback dashboard for and ensuring credibility and objectivity of facilitators.
3. Enhancing team reflection to promote improvements. This can be accomplished by ensuring effective participation, decision making, and follow up.
4. Using ConvoLens based on the team's needs. Assessing teams' needs for improvement would help customize how ConvoLens is implemented to drive intended outcomes more effectively.

Organization Context

Partner Organization

Contemporary Leadership Advisors (CLA) is a New York based consulting firm of behavioral scientists and business experts who help organizations select and develop leaders, drive senior team effectiveness, design aligned and agile organizations, and develop engaged and effective boards. They offer a variety of services that include executive selection and development assessments, leader and team coaching, organizational network analysis, employee resiliency consultation and strategic change management. CLA's clients include for profit and non-profit, private and public organizations across the United States in a variety of industries.

Some years ago, CLA realized that many solutions offered to organizations to improve meeting effectiveness focused mostly on what CLA calls conditions. That is, specific and discrete tactics to ensure the meeting is effective such as setting meeting objectives, creating an agenda, and clarifying roles. However, the available meeting practices at the time did not focus on how people interact during a meeting, despite a number of studies that showed the impact of team communication patterns on team's success (Losada & Heaphy, 2004; Pentland, 2012) and how meeting interactions impact meeting effectiveness (Lehmann-Willenbrock, Allen, & Belyeu, 2016; Kauffeld & Lehmann-Willenbrock, 2012). In addition, available interaction analysis tools such as the Interaction Process Analysis methodology developed by Bales (1950) had not been digitalized and were still paper based. As a result, based on this apparent gap between theory and practice and the opportunity to make tools easier to use by digitalizing them, CLA decided to design ConvoLens, a web-based platform designed to improve meeting effectiveness by categorizing and providing feedback on interactions that occur during meetings.

ConvoLens allows a trained facilitator to categorize interactions as they occur during a meeting using a coding scheme that CLA developed based on an extensive literature review on group interactions and their impact of team performance and meeting effectiveness and satisfaction. After the meeting

ends, the facilitator presents a visual dashboard showing the duration of the interactions at the team and individual level. After the feedback is presented, the facilitator helps the team engage in reflection to discuss how they interacted, the impact of interactions on meeting outcomes, and identify ways to improve their meetings.

The platform was originally developed based on interaction process analysis (IPA), a method designed to observe and analyze social interactions. The approach was developed by social psychologist Robert Bales, who evaluated the interactions of small groups in the 1950s. Since then, other methodologies and coding schemes have been developed and used in research (some of them will be mentioned later in this capstone). CLA has continued to update ConvoLens based on additional meeting effectiveness research.

Problem of Practice

CLA had not yet fully implemented ConvoLens within an organization and did not yet know whether its design and process help achieve meeting effectiveness and satisfaction. Therefore, the objective of this capstone was to implement ConvoLens with a real team to understand whether it helps improve meeting interactions and increase meeting effectiveness and satisfaction. In addition, feedback from the team and CLA facilitator who helped categorize the interactions, provide feedback, and facilitate the team reflection, were used to identify ways to improve ConvoLens so that it can effectively achieve its aims.

Area of Inquiry

Since ConvoLens was built on the premise that interactions impact team success and meeting effectiveness, and ConvoLens was designed with the purpose of improving how meeting participants interact over time, the literature review and synthesis sought to understand the factors that influence meeting effectiveness and how groups learn to interact over time. In addition, key features in

ConvoLens's design include the delivery of feedback and engaging in team reflection. Therefore, the following questions guided the literature review:

1. What factors impact meeting effectiveness and satisfaction?
2. How interactions impact meeting effectiveness and satisfaction?
3. How do teams learn to interact more effectively?
4. How do effective group feedback and team reflection look like?

Research Synthesis

Meeting Effectiveness and Satisfaction

Meeting effectiveness research has identified several factors that can impact a variety of meeting outcomes such as meeting effectiveness and meeting satisfaction (Kral et al., 2023; Lehmann-Willenbrock et al., 2018; Mroz et al., 2018). Researchers have studied and categorized these factors based on a temporal perspective (Lehmann-Willenbrock et al., 2018; Mroz et al., 2018). That is, factors that occur before a meeting is held, during a meeting, and after the meeting is completed. Furthermore, within each of these temporal categories, factors are generally categorized into meeting design characteristics; attendee and leader characteristic and behavior, and group dynamic factors (Lehmann-Willenbrock et al., 2018; Mroz et al., 2018).

In addition, researchers have studied the impact of these factors on a variety of proximal and distal outcomes (Lehmann-Willenbrock et al., 2018; Mroz et al., 2018). Proximal outcomes include meeting effectiveness, meeting satisfaction, consensus and decisions, team creativity, strategic direction, and organizational climate. Distal outcomes include job satisfaction, employee engagement, team and business performance, and wellbeing. For this capstone, which attempts to understand the impact of ConvoLens on meeting effectiveness and satisfaction, the literature review focused on interactions and non-interaction factors that impact these two proximal meeting outcomes.

Non-Interaction Factors' Influence on Meeting Effectiveness and Satisfaction.

To increase the likelihood that meetings will be perceived as effective, it is important to consider a number of meeting design factors and attendee characteristics (Lehmann-Willenbrock et al., 2018). These include the effective use of a meeting agenda, the state of physical and virtual environments, meeting relevance, meeting size, timely start and end of meetings, and meeting lateness.

As mentioned above, a key meeting design factor that positively impacts meeting effectiveness is the preparation and then, the distribution of an agenda to meeting participants before the meeting starts. The importance of distributing the meeting agenda prior to the meeting is that it allows participants to prepare for the meeting, and as a result, increase their motivation to participate more effectively during the meeting (Cohen et al., 2011; Leach et al., 2009).

In addition, Allen and Rogelberg (2013) discussed the importance of ensuring that participants perceive the meeting as relevant to their work as it could impact their ability to contribute effectively during the meeting. To that end, having an opportunity to review the agenda can help participants understand how the meeting is related to their jobs and how they can or are expected to contribute. In fact, recommendations from researchers include allowing participants to revise the agenda and even opt out of the meeting if it is not relevant to them (Allen et al., 2012).

Research has also shown that it is important to make sure that the agenda items are discussed and completed during the meeting because it can create a sense that the meeting was productive and thus, a good use of participants' time (Leach et al., 2009). The topic of meeting relevance and productivity are important because employees do not like attending meetings that are viewed as a waste of time and keep them away from their jobs (Allen et al., 2012).

Being intentional about who is invited to the meeting by inviting those who play a role in achieving the meeting purpose can also help increase meeting effectiveness and satisfaction by having the right number of attendees. That is, having the least number of attendees needed to accomplish the task at hand can influence attendees' perceptions of meeting effectiveness and positively influence work engagement, which eventually lead to better task performance (Allen et al., 2021). While large meetings have a negative correlation with the extent to which attendees participate in meetings (Leach et al., 2009) and meeting size has a negative correlation with perceived meeting quality (Cohen et al., 2011), these relationships can be ameliorated by having effective facilitation. Cohen et al. (2011) found that large meetings can be perceived in a more positive way when there is an effective facilitator in the meeting.

Another key meeting design factor is the timely start and end of meetings. Starting and ending a meeting on time are viewed more positively than meetings that start and end late (Cohen et al., 2011; Leach et al., 2009) and can negatively influence perceptions of meeting effectiveness and satisfaction (Allen et al., 2018). Consequences of late starts, especially if meetings start at least 10 minutes late, includes negative attitudes towards the person who is late, especially if that person does not have an appropriate excuse (Mroz & Allen, 2017). Lateness also leads to lower team performance and the occurrence of more counterproductive behaviors during meetings such as side conversations and interruptions, which in turn can negatively impact the ability for the team to solve problems and to engage in procedural behaviors such as bringing the conversation back to the subject at hand (Allen et al., 2018).

Finally, the environment in which the meeting takes place can influence the quality of meetings. More specifically, in-person meetings are more likely to be seen as effective when attendees perceive the room and equipment positively (Leach et al., 2009). Cohen et al. (2011) found that meetings were

perceived to be of higher quality when attendees felt the space, temperature, lighting, and refreshments were appropriate. For virtual meetings, ensuring that attendees use video, and that the audio and video are of appropriate quality and reliability can impact the perceived effectiveness of the meeting (Cutler et al., 2021).

The factors reviewed above are characterized as meeting design and attendee characteristics, which imply that they are not, in and of themselves, interactions; however, the mechanisms through which they influence meeting effectiveness and satisfaction can be related to interactions, which underscores the importance of communication and interactions in meetings. For example, as discussed earlier, being able to review the meeting agenda before the meeting starts allows attendees to understand the meeting objectives and better prepare for the meeting. In turn, this investment and effort in preparing for the meeting motivates attendees to participate and engage more effectively in the meeting (Kral et al., 2023). This is important because participation, otherwise termed as attendee involvement, has been found to mediate the impact of design characteristics on meeting effectiveness (Leach et al., 2009). That is, meeting characteristics are effective in driving meeting effectiveness when they promote attendees' active involvement demostrated as widespread member participation and members' hard work in meetings.

In addition, attendee involvement has been found to mediate the relationship between two-way communication and meeting effectiveness (Kral et al., 2023). That is, when members are involved in two-way communication, the more they feel they are involved in the meeting (attendee involvement), which positively influences meeting effectiveness. Similarly, meetings are perceived as unsatisfactory when meeting participants either do not participate or seem to be disinterested or, on the contrary, dominate the meeting by disregarding others, interrupting, and taking over the discussion (Odermatt et al., 2018).

Another example of the impact of non-interaction factors such as attendee characteristics on subsequent meeting behaviors is meeting lateness, which has been shown to promote counter-productive behaviors by team members. These behaviors include criticism, side bar conversations, and interruptions, which in turn, negatively impact the ability for the team to engage in procedural behaviors. This is important because the degree to which a team shares procedural meeting behaviors such as bringing people back to the topic of the meeting and summarizing ideas can have an impact on the attendees' satisfaction with the meeting process and outcomes (i.e., ideas generated, attendees' willingness to participate in future meetings, and their belief that the time was used effectively) (Lehmann-Willenbrock et al., 2013).

Geimer et al., (2015), in fact, suggested a number of non-interaction antecedents that could affect attendees' motivation, involvement, and then, perceptions of meeting effectiveness and satisfaction. More specifically, their research created a model of meeting motivation, which explains that meeting attendees' motivation influence their willingness to prepare for the meeting and to be involved or engage effectively during the meeting, which leads to meeting, process, and outcome satisfaction, and influences team-based culture.

The authors found that group members place great importance on factors that impact how the meeting is structured and organized such as sharing an agenda, providing direction and goals, ensuring only those who need to be invited are in fact invited, and ensuring proper interval between meetings. In addition, Geimer et al. (2015)'s model offers key drivers of involvement such as timely start and end of meeting, facilities, and leader facilitation. This model is particularly useful in summarizing key meeting design and attendee characteristic factors that impact attendee motivation, preparation, involvement, which eventually lead to meeting outcomes such as meeting satisfaction.

Because of the predictive and mediating influence of involvement and interactions on meeting effectiveness and satisfaction and the focus of ConvoLens on improving interactions in meetings, it is important now to explore the literature on meeting communication and interactions.

Interaction Factors' Influence on Meeting Effectiveness and Satisfaction

Until 2012, there was little understanding about how team meeting interactions impact meeting effectiveness and satisfaction. As a result, a call was made for researchers to study what type of interactions influence meeting effectiveness and how they do so (Kauffeld & Lehmann-Willenbrock, 2012).

Researchers have defined interactions in both broad and specific ways. Definitions include verbal utterances and behaviors creating patterns of communication such as procedural and socio-emotional communication (Allen et al., 2014; Kauffeld & Lehmann-Willenbrock, 2012) and small talk (Allen et al., 2014). Interactions have also been defined as participation in activities such as preparing materials and broadly having two-way communication with other meeting members (Kral et al., 2023). In addition, studies have recently focused on the impact of before-meeting, during-meeting, and after-meeting interactions on meeting effectiveness and satisfaction (Kral et al., 2023) using the same temporal framework described earlier for non-interaction factors. This is important to know because ConvoLens focuses on verbal utterances and behaviors that occur only during meetings. Since ConvoLens does not take into account other factors, it would be helpful to understand what type of interactions and non-interaction factors, occurring at any point in time, influence meeting outcomes so that ConvoLens can effectively drive meeting effectiveness and satisfaction.

Kauffeld & Lehmann-Willenbrock's (2012) study is seminal research when it comes to understanding what interactions have an impact on meeting success since they recognized that previous research had not studied this relationship and their study was an attempt to shed light on the type of behaviors that promote or prevent meeting satisfaction. In their study, Kauffeld & Lehmann-

Willenbrock's (2012) used the act4teams's coding scheme, which was developed based on previous coding schemes related to team interactions such as Bales (1950)'s interaction process analysis (IPA) and Futoran et al. (1989)'s time-by-event-by-member pattern observation (TEMPO). Act4teams coding scheme categorizes meeting interactions into procedural communication, socioemotional communication, problem-focused communication, and action-oriented communication.

Their study found that procedural statements, which help the team create structure and organize their conversations, influenced meeting satisfaction. Specifically, positive statements such as bringing attendees back to the topic or making sure contributions were concise had a positive correlation, while negative statements representing detraction from the topic of the meeting had a strong negative effect on meeting satisfaction. On the other hand, socioemotional communication which encompasses statements such as criticism, interruptions, and side bar conversations and positive statements such as active listening, encouraging participation, and agreement with someone's idea, had a more nuanced relationship with meeting satisfaction. That is, both negative statements, especially criticism, and positive statements, to the authors' surprise, showed a strong negative correlation with meeting satisfaction. The authors explained that positive statements such as fact-based disagreements and expressing feelings about the topic at hand might have been perceived as communication that inhibited meeting progress.

The study also found that problem-focused statements, which attempt to understand issues the team is facing and find solutions, positively influenced meeting satisfaction. Finally, action-oriented statements, which show the team's interest in making improvements, are categorized as proactive, and counteractive, negative statements. Proactive statements are those which denote willingness to change, acknowledging responsibility, and identifying next steps. These statements were positively correlated to meeting satisfaction. On the other hand, counteractive, negative statements such as showing lack of

interest in changing, blaming others, and not taking responsibility, were negatively correlated to meeting satisfaction.

In their study, Kauffeld & Lehmann-Willenbrock (2012), also identified positive and negative relationships between these interactions and organizational success and hard measures of team performance. More importantly, they concluded that there are functional and dysfunctional behaviors that can impact meeting outcomes; and that dysfunctional behaviors, in particular, have a stronger negative influence on meeting satisfaction.

Since Kauffeld & Lehmann-Willenbrock's (2012) study, researchers have identified how interactions can promote or prevent other interactions and have further clarified how interactions may influence meeting outcomes. For example, procedural behaviors have been found to promote supportive and proactive statements, as well as prevent dysfunctional meeting behaviors such as counteractive behaviors like the ones described above. More importantly, they found that satisfaction with meeting process and outcomes is driven by the distribution of procedural behaviors among participants instead of the total number of procedural behaviors occurring in a meeting (Lehmann-Willenbrock et al., 2013). That is, when meeting participants share the function of creating structure and organization, they tend to be more satisfied with the meeting. This might occur, as Leach et al. (2009) suggested, because people feel as if they are meaningfully involved in the meeting which leads to meeting satisfaction or because a shared responsibility of organization and structure might be viewed more positively than having one individual or a few individuals driving meeting structure (Lehmann-Willenbrock et al., 2013).

With similar but different operationalizations of interactions, Odermatt et al. (2017), found that Leaders also play a key role in driving meeting effectiveness and satisfaction. That is, leaders that are viewed as considerate and help meeting participants engage in relational procedures such as having

open communication in meetings and ensuring everyone's ideas are considered, are more likely to create meetings that participants view as satisfactory. In addition, these leaders are also more likely to balance the relational procedures and task procedures such as making sure that relevant information is being shared, the meeting has a clear structure, and that the meeting is leading to actions, which lead to higher meeting effectiveness.

The impact of balance among interactions has also been referenced in team interaction research such as Losada and Heaphy's (2004) study where they examined verbal statements based on three dimensions with two different polarities each: positivity and negativity, inquiry and advocacy, and other and self. They found that high performing teams demonstrated a balance between inquiry and advocacy behaviors and Other and Self behaviors. So, these were teams that were able to both support someone's perspectives (advocacy) and ask questions (inquiry); and to accept the views of team members (Self) and from those outside of the team (Others). In addition, their ratio of positive to negative statements was 5:1. Balance between the two sets of bipolar dimensions and expressing more positive statements than negative ones create an environment filled with enthusiasm and support where it is easier for teams to engage in actions towards their goals. On the contrary, low performing teams that demonstrated lopsided and mostly negative behaviors created an environment characterized by cynicism and mistrust preventing team members from engaging in productive action. Similarly, Lehmann-Willenbrock and Kauffeld (2010) found that criticism and complaints could lead teams to engage in a negative vortex preventing them from engaging in effective problem solving.

Losada and Heaphy (2004) developed the Losada Interaction Model (LIM), which was based on Bales (1950)'s Interaction Process Analysis (IPA) methodology. The interactions the LIM measures are very similar to Bales's. For example, Bales's IPA measures positive and negative socio emotional interactions, which are similar to Losada and Heaphy's positive and negative statements. Bales's IPA

measures task interactions which focus on two polarities: giving suggestions and opinions and asking for suggestions and opinions, which align with LIM's advocacy and Inquiry categories.

An effective interaction process for Bales would be one where group members spend time performing task acts, but alternate between providing and asking for suggestions, opinions, and orientation. However, Bales (1950) noticed that focusing on the task can create social-emotional tensions, which demand attention to solve them and end up detracting from the task at hand. The group then tries to attain a steadier state by resolving these problems, which Bales categorized as problems of communication, evaluation, control, decision, tension reduction, and reintegration. This is similar to research that supported the importance of balancing task and relational procedures so that teams can focus on advancing their work in a way that is respectful and considerate of everyone's perspectives, which positively influences meeting effectiveness and satisfaction (Odermatt et al., 2017).

Research on the impact of interactions on meeting effectiveness and satisfaction also includes the study of humor and uncivil behaviors. People tend to perceive meetings as satisfactory and effective when they engage in humor that generates positive emotions as it seems to create a pleasant meeting experience (Pham, & Bartels, 2021) and promote functional interactions such as procedural behaviors (i.e., suggesting a topic to speak about next, bringing people back to the topic at hand, and summarizing points made), problem-solving statements (i.e., suggesting solutions and asking questions about problem); and socio-emotional statements (i.e., praising attendees and encouraging others to participate) (Lehmann-Willenbrock & Allen, 2014).

In addition, inappropriate behaviors such as offending, intimidating, and making fun of other meeting participants, which might not happen frequently in meetings, also have a negative impact of meeting satisfaction and effectiveness (Odermatt et al., 2018). While this relationship might seem intuitive, it is important to understand what kind of impact these interactions might have on meeting

outcomes. For example, while Odermatt et al. (2018) found that making fun of others had a negative correlation to meeting effectiveness and satisfaction, Pham and Bartels (2021) found that negative humor about team members had a positive correlation with meeting effectiveness. They suggested that teams who work in certain hierarchical organizational cultures such as the police or military, or teams that have worked together for a long time might use negative humor in an effort to point out errors without appearing so confrontational and to drive compliance.

Recently, research has also focused on interactions that occur before and after the meeting. Allen et al. (2014) found that small talk, the type of personal conversations that happen before a meeting, creates bonds with other team members and was a strong predictor of meeting effectiveness since it can increase a level of comfortability and friendliness with team members, which then allows them to engage in more open conversations during the meeting. On the other hand, other types of pre-meeting interactions such as work talk, defined as talk about projects and work-related problems (Allen et al., 2014), and post meeting interactions, defined as informal discussions about the agenda after the meeting (Kral et al., 2023), did not predict meeting effectiveness.

The summary of these studies describes the complexity and nuances of how team interactions can be categorized and their relationships to meeting outcomes such as meeting effectiveness, meeting satisfaction, and team performance. In general terms, researchers have thus far concluded that there are both functional and dysfunctional interactions that influence meeting outcomes (Kauffeld & Lehmann-Willenbrock, 2012) and that there are more optimal patterns than others needed to achieve meeting effectiveness and satisfaction. As a result, it might also be possible that perceptions of attendee involvement defined as open communication (Kral et al., 2023) or shared communication and hard work (Leach et al., 2009) are not just be influenced by non-interaction factors such agenda distribution and meeting lateness, but also can be partly influenced by the type and distribution of functional and

dysfunctional interactions the team engages in. In summary, all these elements work together to explain why people perceive meetings as effective and satisfactory.

ConvoLens's coding scheme was based originally on Bales's IPA and was refined based on an exhaustive literature review. As a result, the interactions comprising the coding schemes include the following polarities: inquire vs. advocate, task vs. socialize, support vs. disagree, and facilitate vs. action plan. In addition, the coding scheme includes behaviors that might detract from effective interactions such as interruptions. In order to maintain confidentiality of this tool, descriptors of each interaction can not be provided. The reason for presenting these interactions is to create awareness about how they relate to prior research described above. Based on the totality of research, a balance should be attained with some interactions such as inquire and advocacy. Task, facilitate, and action plan interactions are key to drive action and achieve meeting effectiveness and should be distributed evenly among team members. Finally, it is important to foster effective socialization, support, and disagreement to create a meeting environment where people feel that they can have open communication, feel heard, and are able to discuss issues openly to resolve them effectively.

Since ConvoLens's main purpose is to achieve meeting effectiveness by improving how team members interact during meetings and it attempts to do so through feedback and reflection, it is important to understand how teams learn to improve their interactions over time. The following sections will explore how teams learn to improve and how key facilitating learning processes help drive these improvements.

Team Learning

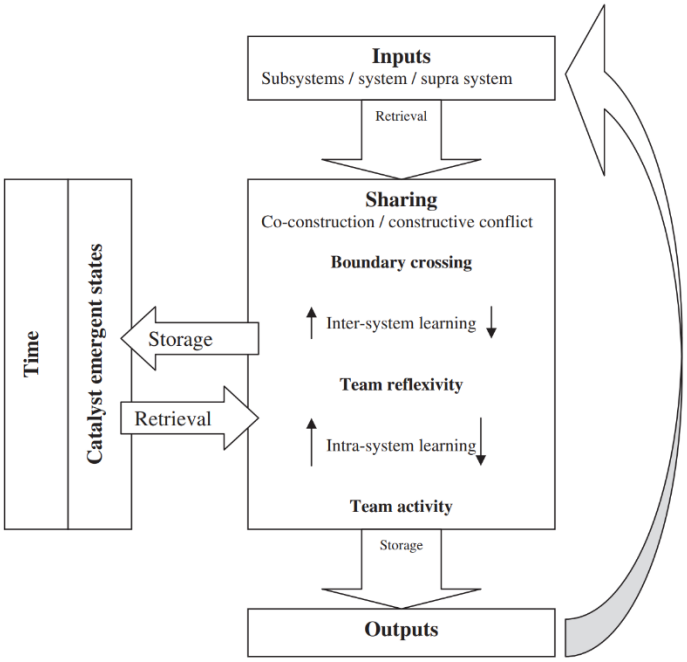
Decuyper et al.'s (2010) model integrated years of research that produced a variety of empirical findings and theoretical conceptions related to team learning. To this day, Decuyper et al.'s (2010) review and model are considered seminal work in team learning (Nellen et al., 2020).

Team learning is a phenomenon that describes how teams learn to work effectively, adapt to continuous change, and improve and sustain performance overtime (Bell et al., 2012; Decuyper et al. 2010). Decuyper et al. (2010) suggested that "All teams learn, but only effective learners improve." That is, teams can learn to behave in productive ways, but can also learn to behave in unproductive ones. The question then becomes: how can teams learn in ways that allow them to improve and achieve intended outcomes?

Decuyper et al. (2010) attempted to shed some light on this question by building an integrative model that allows researchers to study the phenomenon of team learning comprehensively. The integrative team learning model (see Figure 1) is comprised of input variables at the individual, team, organization, and environment levels, which serve as antecedents to team learning processes. These team learning processes are variables representing interactions between people without which learning could not occur. These learning processes are moderated by time and emergent state variables whose relevance and influence change as learning processes occur. Finally, the team learning processes lead to several outputs to include intended outcomes, emergent states, and ways in which teams learn such as adaptive, generative, and transformative learning.

Figure 1

Integrative systematic model for team learning (Decuyper et al., 2010)



Decuyper et al. (2010) explained that the team learning model is based on the idea that team learning occurs as a function of both interpersonal behaviors represented by learning processes and their outcomes; unlike previous research which had usually conceptualized team learning as a function of either behaviors or outcomes. In addition, their model describes team learning as a phenomenon that is greatly influenced by individual, organizational, and cross sectional-level learning processes, represented by both inputs and outputs.

Decuyper et al. (2010) distinguishes two types of learning processes: basic process variables and facilitating process variables. The former represents what happens when teams learn, which may lead to change, but not improvement. Basic process variables are included in three categories called sharing, co-construction, and constructive conflict. When sharing knowledge, opinions, and creative thoughts, the breadth and depth of the information shared with other team members (individual learning) can impact

the quality of team learning. As team members manage the shared information, co-construction and constructive conflict interactions may arise. In co-construction, members continuously develop and refine shared knowledge and meaning. In constructive conflict, members engage in dialogue and negotiation stemming from diversity of opinions. Consequently, team learning occurs as members both address task conflict and integrate different perspectives.

Facilitating process variables, on the other hand, represent processes that help teams improve by providing "context and focus to team learning" (Decuyper et al., 2010, p. 117). These variables are categorized into team reflexivity, team activity, boundary crossing, and storage and retrieval. Team reflexivity involves collaboratively constructing and re-constructing shared mental models in relation to the team's current reality, objectives they are hoping to achieve, and how they hope to achieve them. Team activity involves learning by doing and experimentation instead of evaluation and analyses. Because of the nature of learning by doing and experimentation, team activity may lead to improvements whether the members are aware or not of the reasons why they are improving. In boundary crossing, team members go beyond the team boundaries to interact with non-team members to build networks and bring back information the team might need for effective functioning and learning. Lastly, storage and retrieval processes involve the development over time of team knowledge, procedures, and habits.

Moreover, Decuyper et al. (2010) explained that team reflexivity is essential for effective team learning as long as it creates a learning cycle with team activity and boundary crossing. This cycle leads to intra-system team learning and inter-system team learning. The former results from members reflections on activities and decisions on how to move forward; the latter occurs as the team reflects and integrates knowledge and ideas from sources beyond the team boundaries. These sources include the team members as well as other teams and the organization.

Decuyper et al. (2010) also explained that team learning does not only occur as a function of basic and facilitating learning processes, but also because of their learning outcomes. Decuyper et al. (2010) found five ways to view team learning outcomes: adaptations and improvements; primary and secondary; adaptive, generative, and transformative; task, social, team, and context; individuals, team, organization, society. Team learning results in adaptations, which are ways in which teams adapt to respond to their environments. In effective team learning, these adaptations lead to improvements. In ineffective team learning, these adaptations are counterproductive. Primary outcomes are concrete products, changes and improvements that the team hoped to achieve. They include new knowledge, procedures, and plans. On the other hand, secondary team learning outcomes both arise from team learning processes and reinforce these processes. In the team learning model, these secondary outcomes are called catalyst emergent states and include variables such as team psychological safety, shared habits, and shared mental models.

Adaptive, generative, and transformative learning outcomes speak to how the team is learning. Sessa et al. (2011) defined adaptive learning as automatic reactions to cope with the environment in which the team operates and resulting in process and outcome changes. Generative learning involves proactive and intentional acquisition and application of "new skills, knowledge, behaviors, and interaction patterns to improve the team's performance" (p. 149). Transformative learning involves changing the "team's purpose, goals, structure, or processes" (p. 149). Each type of learning occurs for different reasons. Adaptive learning occurs as a response to stimuli; Generative learning comes from the recognition for the need to learn and change which leads to exploration and identification of new ways of doing things; and transformative learning results from disorientation and re-orientation, which results in new structures, strategies, and goals.

The final two learning outcomes provide some direction on what teams learn and who learns. For example, teams may learn about the task at hand which results in improved performance; they may

learn about social aspects of the team which aids members to interpret each other's behaviors and manage emotions; members can learn about processes, which produce effective routines and procedures; and they can also learn about their context and stakeholders' power, status, and knowledge, which can improve the team's overall effectiveness. In regards to who learns, team learning influences learning at the individual, organizational, and societal levels.

Decuyper et al. (2010) offered a multilevel integrative system that hopes to encompass every studied variable that was known to influence team learning; however, they believed that variables might vary in manifestation, configuration, and relevance. One way to understand the applicability of the team learning model to ConvoLens's program is by identifying the inputs, processes, and outputs most saliently constituted in the program theory. Then, it would be important to identify other variables that might impact team learning as a result of the context in which this study is taking place.

ConvoLens's program calls for categorizing interactions, providing effective group/individual feedback, and engaging in team reflexivity on how interactions worked or not, and ways to improve interactions. The program would be applied towards teams that meet regularly for a variety of purposes, among them brainstorming, decision making, information sharing, and coordination.

An important aspect to discuss first is the applicability of team learning in relation to its intended unit of analysis (teams) compared to that of ConvoLens's program (teams/groups in meetings). That is, since meetings could be comprised of both teams and groups, it is important to understand whether the team learning model would apply to any meeting, whether comprised of teams or groups. In addition, team learning is a phenomenon that occurs as teams interact over time, in a variety of contexts beyond meetings, to achieve a variety of goals. This prompts the question of whether a meeting, which is episodic in nature, provides a sufficient medium through which the mechanisms of team learning can emerge.

Raes et al. (2015) shared that team learning research is usually centered around the concept of teams as defined by Cohen and Bailey's (1997, p. 242) definition: "a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems (for example, business unit or the corporation), and who manage their relationships across organizational boundaries." On the other hand, a group is different because it is comprised of different individuals who perform similar or complementary tasks (Gilley & Kerno, 2010).

Based on these definitions, the main differences between teams and groups are related to the level of interdependency of tasks and shared responsibility of outcomes. However, Meinecke and Lehmann-Willenbrock (2015) offered an answer on whether people who meet can be considered teams. They explained that meetings can occur for a variety of reasons such as sharing information, solving problems, and socializing; however, most meetings occur so that people can interact to achieve certain outcomes such as collaboration and teamwork. They said that it is this type of interaction and interdependence that make these people a team instead of co-present individuals.

The purpose of implementing ConvoLens is for members of a recurring meeting to achieve effective social interactions and thus, certain meeting outcomes. To do so, they will have to agree on and commit to achieve these objectives and work together, over a period of time, to accomplish them; thus, making them a team irrespective of the purpose of their meeting. Meetings to work on a project and shared outcomes would also qualify the group as a team.

ConvoLens's program employs group feedback to raise awareness on the social interactions observed in the meeting and engage in discussions about lessons learned and ways to improve interactions and meeting outcomes. In this process, individuals are likely to share their opinions and viewpoints (sharing), develop shared meaning (co-construction), and manage differences of opinions

(constructive conflict). In addition, the ConvoLens program also includes discussions on the interactions in which the team engaged and how to maintain or improve them. This is similar to team reflexivity as a facilitating process. Finally, as the team practices new interactions in meetings, the team is participating in team activities where learning may occur by doing. ConvoLens's process, therefore, mirrors the basic learning processes in Decupeyer's (2010) integrative team learning model.

In addition, an important outcome in ConvoLens might be generative learning, which involves the proactive and intentional acquisition and application of "new skills, knowledge, behaviors, and interaction patterns to improve the team's performance" (Sessa et al., 2011, p. 149). ConvoLens starts from the perspective that meeting effectiveness can be improved through the engagement in and improvement of social interactions. As such, teams who might be willing to embark in this process will likely do so because they recognize a need to learn and that new knowledge, behaviors, and skills are needed to achieve better meeting outcomes. Teams that engage in generative learning seek feedback and make sure that the behavioral patterns they are identifying and implementing are working as intended (London & Sessa, 2006).

Finally, the team learning model includes the influence of inputs and emergent states on team learning. Decuyper et al. (2010) explained that all inputs and emergent states influence team learning processes and outcomes; however, their "manifestation and importance" depend on the types of team. However, no further explanation and reference to research were given on how types of team might influence the emergence of these variables. The authors categorized these variables into 10 different categories: shared mental models, team psychological safety, group potency and team efficacy, cohesion, team development and team learning dynamics, interdependence, team leadership, team structure, organizational strategy, and system thinking. One way to discern which variables might have more influence on team learning and how groups might learn to interact more effectively over time is to

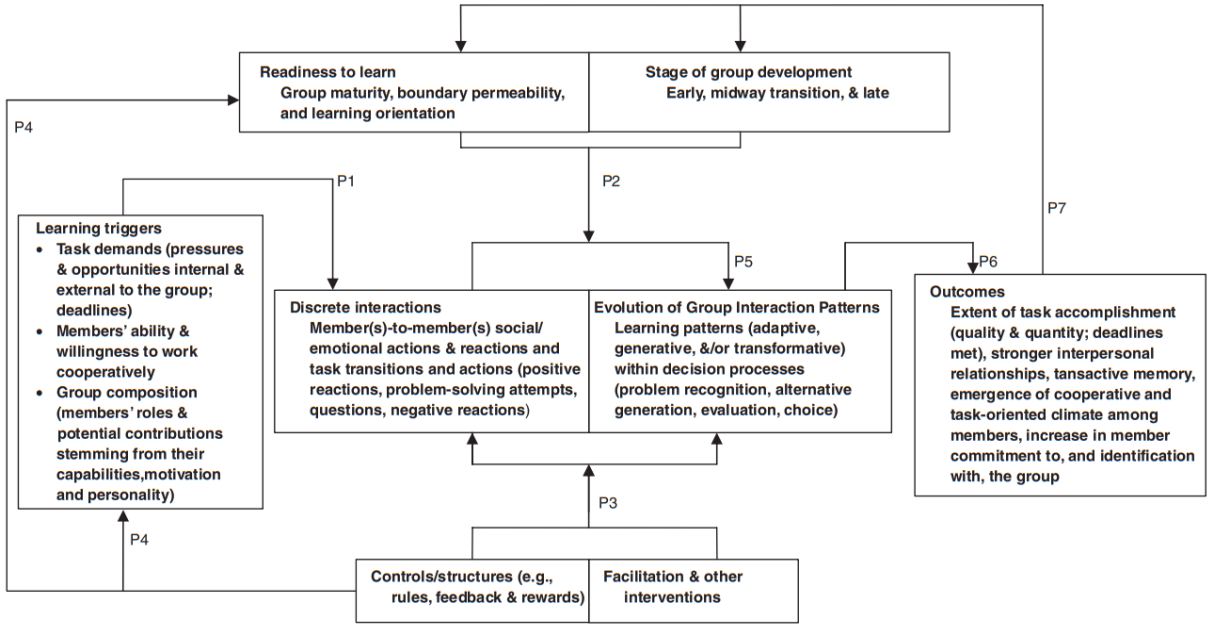
review London and Sessa's (2007) Group Interaction Learning model (see Figure 2), which explains how patterns of interactions develop in teams.

Group Interaction Learning

London and Sessa (2007) suggested that team members engage in speech acts and behaviors that are perfected over time through feedback, reinforcement, and repetition. These patterns of interaction, which occur in the regular course of work, do not only involve discrete interactions such as social emotional and task actions, but also learning patterns such as adaptive, generative, and transformative learning, as Decuyper et al. (2010) described. London and Sessa (2007) suggested that teams learn to interact more effectively to produce their intended outcomes by engaging in these learning processes. In addition, these interaction patterns and learning processes can be positively influenced by control factors such as effective meeting facilitation and interventions such as training.

Figure 2

The Evolution of Group Interaction Learning Patterns (London & Sessa, 2007)



In their model, London and Sessa (2007) proposed specific antecedents and moderating variables that influence how teams develop interaction patterns. These antecedents and variables align with some of the variables the team learning model includes, which provides additional and clearer guidance into the variables that might influence the team's ability to learn to interact effectively. These include readiness to learn; stage of group development; controls/structures such as rules, feedback, and rewards; facilitation; and learning triggers such as task demands, members' willingness to work together, and group composition.

More specifically, London and Sessa (2007) suggested that a team's readiness to learn, described as the team's inclination to engage in actions that help improve their effectiveness such as collaboration and open consideration of ideas, is more likely to develop effective interactions. The stage of group development can also influence the team's ability to interact effectively. That is, the interactions are more likely to be effective if they align with the needs of the team's development stage. For example, in a team's early stage, which is characterized by the need to reduce uncertainty (Raes et al., 2015) will require a team member, usually the leader, to provide direction and clear communication. On the other hand, being focused on getting things done, without clear guidance on what needs to be done, could be premature and counterproductive.

As mentioned above, London and Sessa (2007) also suggested that control factors can promote effective interactions. For example, a leader might set expectations and provide feedback on the type of interactions that are effective, or someone can facilitate effective ways of interacting during a meeting. Interventions may include training or processes to learn how to interact more effectively. London and Sessa (2007) suggested that these interventions should be designed based on the team's characteristics such as their readiness to learn, their task demands or pressures to improve and achieve outcomes, and development stage.

Therefore, while the team learning model (Decuyper et al., 2010) provides a framework for understanding how teams learn to improve performance in general, Group Interaction Learning provides a model for understanding how teams learn to interact more effectively over time, which aligns more closely with ConvoLens's purpose and context. That is, ConvoLens's interactions overlap with London and Sessa (2007)'s discrete interactions such as socioemotional and task behaviors, which occur in the regular course of work, including meetings. In addition, ConvoLens introduces interventions such as group feedback and team reflection that might lead into generative learning and more effective interactions. In summary, London and Sessa's (2007) Group Interaction Learning provides a clear framework to better understand how teams can learn to develop effective meeting interactions over time.

Since group feedback and team reflection play a prominent role in ConvoLens's process, it is also important to understand how these facilitating processes impact the ability for teams to learn and improve. To that end, the following sections explore research on effective team reflection and group feedback.

Group Feedback

An important aspect of the ConvoLens program that was not clearly described in the Team Learning model and Group Interaction Learning model was the concept of group feedback and its impact on group learning and performance. In an extensive review of research to determine the impact of group feedback on a variety of outcomes, Gabelica et al. (2012) found mixed results.

Performance feedback, characterized by the provision of information on the results a team achieved (i.e, 90% of task completed) was found to improve certain outcomes such as team performance, emergent states, and behaviors. On the other hand, other studies also found that team-level performance feedback did not have an impact on team performance.

Team-level process feedback, characterized by the provision of information on how the team performed (i.e., how the team interacted, as is the case in ConvoLens), has not been studied as much as performance feedback; however, studies have found that process feedback had positive but weak influence on team performance. On the other hand, process feedback had a stronger impact on emergent states and team processes (below are some examples).

Process feedback has been found to influence behavior changes (Dominick et al., 1997) whether the team members of a team received feedback or simply assessed themselves on effective behaviors. This might occur because self-assessments or reviewing behaviors could set expectations about how to behave to achieve expected performance.

Similarly, McLeod et al. (1992) found that team members changed how much they engaged in dominant behaviors after receiving feedback using the System for the Multiple Level Observation of Groups or SYMLOG, an interaction analysis tool developed by Bales and Cohen (1979). SYMLOG centers around the idea that behavioral acts take place within a large context comprised of personal, interpersonal, group, and external situations that influence both behavioral patterns and values. In this case feedback involved presenting an aggregate score based on frequency of interactions for each individual in the team and explaining what the data meant. In addition, the researchers asked the team to discuss the results for 10 minutes and provided optimal ranges of behaviors the team member should attempt to achieve. On the other hand, individuals who did not receive feedback did not change their behaviors.

Since ConvoLens focuses on process feedback, it will be important to define this type of feedback further. Process feedback can focus on interpersonal, cognitive, and task-related information (Gabelica et al., 2012). Interpersonal feedback involves information on the conditions that a team creates through their interactions such as being able to build trust through active listening. Cognitive

feedback involves information about how teams engage in cognitive processes such as sharing information and suggestions. Task-related feedback involves information about tasks the team completed such as creating an agenda or setting goals. ConvoLens encompasses all of these definitions as it can provide feedback on what people say and do during a meeting and the potential impact of these verbal and non-verbal acts. Given mixed results on the impact of process feedback on team performance, emergent states, and team processes, it would be important to understand how feedback is processed and used.

London and Sessa's (2006) comprehensive review of the literature suggested that certain variables can impact how people and teams respond to feedback and the extent to which they are willing to use it for improvement. Specifically, perceptions of group feedback affect how the feedback is processed, which in turn influences group and individual outcomes such as readiness to learn and behavioral change. Therefore, they suggest that it is important to consider characteristics of feedback such as its source, purpose, clarity, and valence in order to positively influence perceptions of feedback that stimulates learning.

London and Sessa (2006) describe the feedback source as being objective (hard measures) and subjective (someone's opinion). They explain that the source, whether it is a person or not, must be perceived as credible and trustworthy in order to be welcomed. The purpose of the feedback can be formative or summative, where the former is characterized by information delivered to an individual or team to improve their performance; and the latter is designed to provide an overall assessment once an objective has been achieved. They explain that formative feedback is most helpful when provided to a team that is currently working to accomplish an objective and summative feedback is more readily accepted once they have accomplished or not their goals.

Feedback is also more likely to be accepted when it is clear. That is, feedback that is unambiguous, timely, and one whose results is tightly connected to an individual or team's performance. Finally, feedback valence refers to whether feedback is positive or negative. Positive feedback is more likely to be accepted than negative feedback (London & Sessa, 2006). Similarly, Gabelica et al. (2012) found that feedback is better when it is "accurate, given in a timely manner, regular, non-threatening, shared, given directly to teams it targets, and when its distribution is fairly equal." (p. 140).

In addition to the impact of feedback characteristics on how the group perceives the feedback, individual, group, and situation characteristics impact how the feedback is processed. These characteristics include how teams learn (adaptive, generative, and transformative learning), the team's learning and feedback culture, how teams are held accountable for learning and receiving feedback, and the demands exerted in the team (i.e., urgency of accomplishing a goal). Ultimately, London and Sessa (2006) suggest that teams will be more likely to process feedback if they work in a culture that is used to receiving feedback and is willing to learn to fail, have high work demands, ascribe self-responsibility for mistakes, and receive feedback that supports adaptive, generative, and transformational learning.

London and Sessa's (2006) model provide an evidence-based model describing the variables that affect the presentation and the use of group feedback to improve performance, which in the case of this project, involves the improvement of meeting interactions. As a result, the group feedback quality survey was based on this model.

Team Reflexivity

Team reflexivity has been defined as a team's overt reflection on a variety of team-related matters such the team's performance and objectives and it can occur before, during, and after

performance (West, 2000). Team reflections can be helpful in processing feedback and learning (Gabelica et al., 2014) and improving performance (Kneisel, 2020; Lines et al., 2021).

Regarding the processing of feedback, Gabelica et al. (2014) suggested that teams accept and process feedback more effectively by discussing and reflecting on how they performed, discussing alternative ways of performing, and making decisions about new ways of performing. Gabelica et al. (2014) also suggested that team reflections help teams learn, and learning has been found to mediate the relationship between team reflection and team performance (Schippers et al., 2013). That is, team reflections can have an impact on team performance as teams learn from their mistakes, how to improve them, and acquire new knowledge or skills needed to make these improvements. However, teams do not always engage in every team reflection behavior as described above (Gabelica et al., 2014), which emphasizes the importance of an effective facilitator to help the team learn from their reflection and improve performance.

Regarding performance outcomes, Lines et al. (2021) conducted a meta-analysis on team reflexivity, which showed that team reflections can positively impact both performance measures and performance behaviors. The latter encapsulates verbal and non-verbal behaviors that occur in the regular course of work, including meetings, which in turn can lead to higher performance outcomes. In this meta-analysis, performance behaviors were categorized as cognitive, behavioral, and affective. Cognitive behaviors involved expressions of thinking; affective behaviors included expressions of feelings, and behavioral included physical actions. The strongest relationship was found between team reflexivity and cognitive behaviors, followed by behavioral outcomes, and lastly affective.

Lines et al. (2021) also found that the positive impact of team reflections on performance and behaviors is not guaranteed, but it is more likely to occur under the right conditions. That is, the most effective reflections occur in person, several times over a period of time, last for a sufficient (usually

long) period of time for in-depth reflections, are guided by a facilitator, and include feedback. For example, studies found that the quality of the team reflection defined as in-depth discussions (Otte et al., 2018) and recurring team reflections (Kneisel, 2020) can positively influence performance improvement. Moreover, team reflections can be more helpful in improving performance when the team's performance is relatively subpar since there is a higher need for the team to learn from mistakes and make changes than for teams whose performance is relatively high (Schippers et al., 2013).

Despite the above results, little is known about how team reflections can effectively lead to implementation of ideas identified in the team reflections (Otte et al., 2018). ConvoLens relies on team reflections to identify new ways of interacting that will be used in future meetings. This temporal gap might impede the implementation of commitments made and might require intentional efforts to change behaviors and actions. It is therefore important to understand the mechanisms through which ideas and strategies are implemented.

Team planning might provide some insights into these mechanisms. Fisher (2014) found that planning focused on how the task is to be done and the team's ability to accomplish the task are predictive of team performance. For example, a team should not only discuss different courses of actions but also set goals, how they are going to accomplish the tasks, understand who is responsible for doing the task based on team members' strengths and opportunities, and determine who can provide needed information to accomplish the task. Therefore, the ability for a team to make changes about how they interact in meetings might depend on their ability to not only identify opportunities, but also to be more intentional about how the change is going to occur and who is responsible to make the change. Meeting effectiveness research has also shown that proactive meeting behaviors such as discussing implementation steps and who is responsible are more likely to lead to the implementation of ideas and suggestions (Kauffeld & Lehmann-Willenbrock, 2012; Lehmann-Willenbrock et al., 2013).

Conceptual Framework

ConvoLens's underlying objective is to achieve meeting effectiveness and satisfaction by increasing awareness of meeting interactions and improving them over time. The program hopes to achieve so by categorizing relevant interactions, providing group feedback, and reflecting on ways to improve interactions. Ultimately, teams and work groups are expected to learn and engage in the type of interactions that will lead to better meeting outcomes.

Because of the program's expectations for learning and improvement, unit of analysis (team), and context (meetings in organizations), the conceptual frameworks that are relevant for this project include London and Sessa (2007)'s Evolution of Group Interaction Learning Patterns; Decuyper et al. (2010)'s Integrative Systemic Model for Team Learning, and Geimer et al. (2015)'s Model of Meeting Motivation. The conceptual framework, shown in Figure 3, is mostly based on London and Sessa (2007)'s Group Interaction Learning model, but incorporates important variables that align with team learning and meeting effectiveness research.

The discrete interactions that the team will engage in during meetings and thus, learn to improve are the interactions that ConvoLens measures such as Task, Socialize, Support, and Disagree. In addition, the team will likely engage in the learning patterns suggested by both London and Sessa (2006) and Decuyper et al. (2010). These include generative, adaptive, and transformative learning patterns, which will be influenced by key variables.

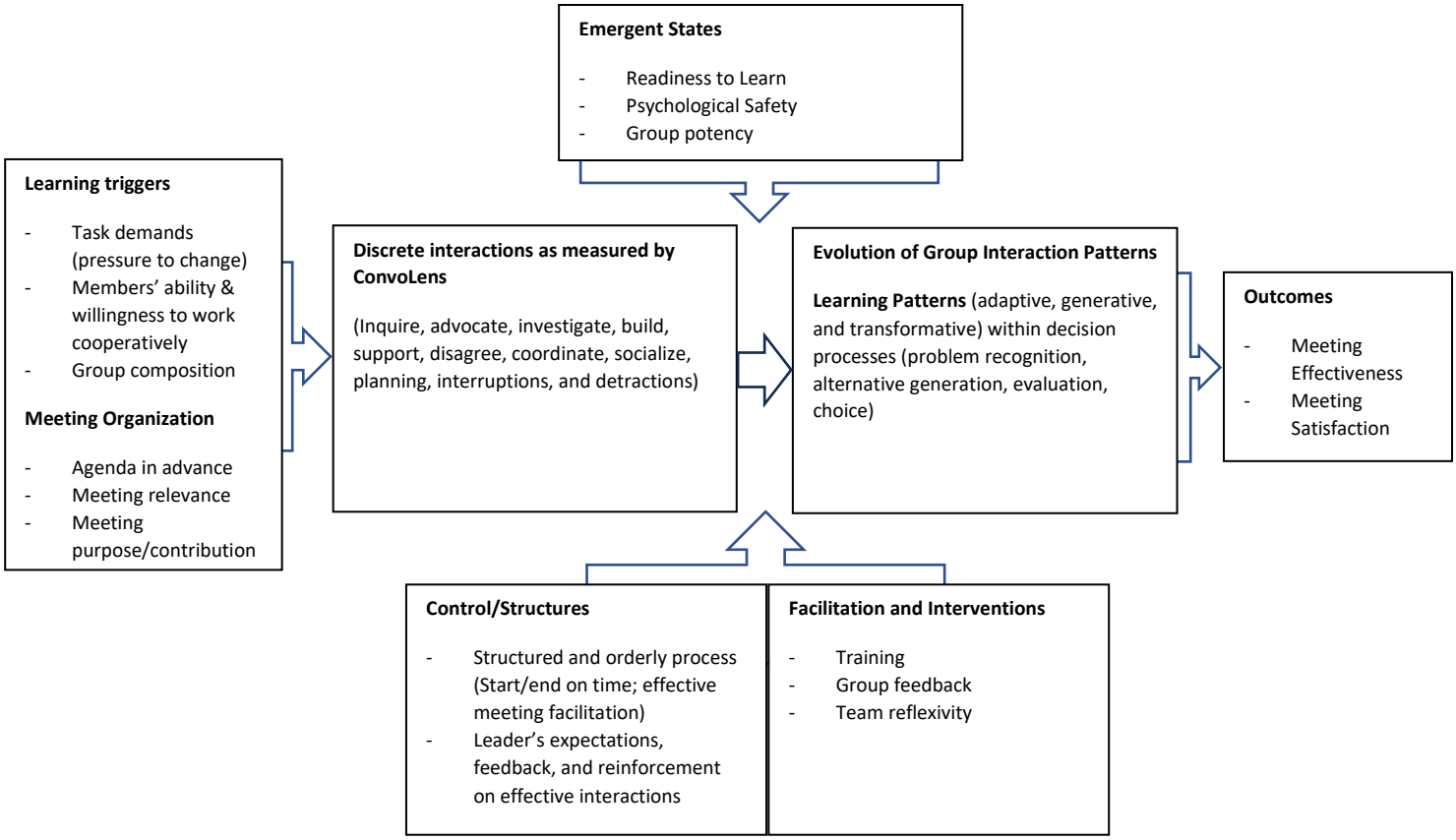
As explained earlier, London and Sessa (2007) suggested that certain learning triggers will influence the emergence of discrete interactions and learning patterns. These factors include the team's pressure to change, their willingness to work in a collaborative manner, and the group composition such as their role in the team and capabilities. Meeting effectiveness research has identified pre-meeting

factors that can influence team member's effective involvement and participation in meetings such as the distribution of a meeting agenda before the meeting and meeting relevance.

As described earlier, team learning research has also suggested the influence of emergent states on a team's ability to learn. These variables include readiness to learn, psychological safety, and group potency. In addition, some control structures, and interventions such as timely start and end of meetings, effective meeting facilitation, group feedback, and team reflection might help facilitate learning and improvement. Finally, in the meeting context, the intended outcomes involve the attainment of improved meeting effectiveness and meeting satisfaction.

Figure 3

Group Interaction Learning to Achieve Meeting Outcomes Adapted from London and Sessa (2007); Decuyper et al. (2010); Geimer et al. (2015)



Project Questions

To understand how ConvoLens helps improve meeting interactions and how these interactions help achieve meeting effectiveness and satisfaction, this project will answer the following research questions:

1. To what extent was ConvoLens implemented as designed?
2. To what extent does the use of ConvoLens lead to improved meeting interactions and meeting effectiveness and satisfaction (ME/S)?
    a. How do meeting interactions and ME/S change after using ConvoLens?
    b. How do interventions influence meeting interactions?
    c. How do meeting interactions influence ME/S?
    d. What additional factors influence meeting interactions and ME/S?
3. What is the user (participants/facilitators) experience with ConvoLens?
    a. What is the level of user satisfaction?
    b. What factors influence user satisfaction?
    c. What changes should be made to improve the user's experience and satisfaction with ConvoLens?

Project Design

This capstone project used a mixed method design to collect data. ConvoLens was implemented with the six-member project team for a total of five meetings over the course of six weeks from August to September of 2023. The number of meetings was selected to allow sufficient time for potential changes in meeting interactions and outcomes to take place.

Project Participants

The project team was comprised of 6 employees who worked in a hospital in the mid-west region of the United States. They were assigned by a hospital executive to participate in this project

because they had just come together to form a project team and were going to start meeting on a recurring basis to plan the implementation of the project. The purpose of their project involved the design and implementation of a more effective and efficient hospital-wide process.

Team members participated in an info session so that they could understand the purpose of the project, the ConvoLens process, and how data and confidentiality would be managed. This information allowed participants to gain clarity on what their participation would involve and to decide whether they wanted to participate voluntarily. All team members confirmed voluntary participation.

Team members included several leadership levels: 1 program manager who managed the project, 2 managers, 1 director, 1 physician leader, and 1 executive. Their highest level of education based on self-reported data included a medical degree and master's degrees. Their tenure varied from 5 to over 10 years of employment within the organization. No gender, age, or ethnicity information was requested. Even though inferences may be made from visible attendee characteristics, it would not be appropriate to make such assumptions, which renders an effective qualitative analysis based on these demographic characteristics unfeasible. In addition, it is interesting to note that while group dynamic and team learning have studied demographic variables, the extant literature on meeting effectiveness and meeting interactions does not yet seem to include these variables.

Meeting Characteristics

Five project team meetings were observed over the course of six weeks from August to September of 2023. The reason for making observations over the course of 5 meetings was to allow sufficient time for changes in interactions and meeting outcomes to occur. Each meeting lasted between 30 to 45 minutes and took place in intervals ranging somewhere between 6 to 12 days. The meetings involved a combination of purposes, which included task reviews, sharing and seeking information, work coordination and problem solving. The meetings were mostly led by the program manager. Fifteen

minutes were added to each meeting for participants to take two surveys to assess key metrics such as meeting effectiveness and meeting satisfaction, receive feedback on interactions, and engage in team reflection. Surveys and interventions are further explained below.

Measures

The data collection process section will mention the various surveys used to assess the measures listed below. To make it easier to reference, the measures are grouped in this section based on the name of the survey in which they were included.

Post-Info Session Survey (see Appendix A)

1. **Understanding of the Project**

   Four items were included to assess the participants' understanding of ConvoLens and their motivation to participate in the project. The items included "I understand how ConvoLens works: "I understand the objectives of this study"; "I believe improving meeting effectiveness and satisfaction is important"; and "I am excited about participating in this study." A five-point scale (1 = Strongly Disagree; 5 = Strongly Agree) was used.

2. **Meeting Effectiveness (ME)**

   Meeting effectiveness was measured with Rogelberg et al. (2006)'s six-item measure using a five-point scale (1 = Extremely Ineffective, 5 = Extremely Effective). This six-item scale asked participants to rate the effectiveness of meetings in relation to, for example, "promoting commitment to what was said and done in the meeting" and "achieving your department-section-unit's goals", which was adapted for this study to "achieving your project team's goals."

3. **Meeting Satisfaction (MS)**

   Meeting satisfaction was measured with Rogelberg et al. (2010)'s six-item survey measuring the extent to which certain adjectives describe the meeting in question. Adjectives included stimulating, boring, unpleasant, satisfying, enjoyable, and annoying. The rating anchors included

"yes", "no', and "?" responses. "Yes" should be selected if the adjective described the meeting. "No" should be used if the adjective does not describe the meeting. The interrogation symbol, "?", should be used if respondents can not decide. Instructions were included in the survey about the meaning of each anchor.

4. **Emergent States**

    a. **Team Psychological Safety**

    Psychological safety was measured using Edmondson's (1999) seven-item Psychological Safety scale. The scale includes items such as "working with members of this team, my unique skills and talents are valued and utilized" and "it is safe to take a risk on this team." A five-point scale (1 = Strongly Disagree; 5 = Strongly Agree) was used. The Cronbach's alpha is .79.

    b. **Group Potency**

    Group potency was measured with a six-item scale used by Raes et al. (2015). It includes items such as "this team believes it can be very effective" and "this team expects to be known as a highly performing group." A five-point scale (1 = Strongly Disagree; 5 = Strongly Agree) was used. The Cronbach's alpha is .89.

    c. **Learning Readiness**

    Learning Readiness was measured using a two-item scale that Sessa et al. (2011)'s adapted from Brett and VandeWalle (1999). The two items are "I often look for opportunities to develop new skills and knowledge" and "I like challenging projects." A five-point scale (1 = Strongly Disagree; 5 = Strongly Agree) was used.

    d. **Team Learning**

    Team Learning was measured using a nine-item scale used by Raes et al (2015), which includes items such as "Team members elaborate on each other's information and

ideas" and "Information from team members is complemented with information from other team members." A five-point scale (1 = Strongly Disagree; 5 = Strongly Agree). The internal consistency is .89.

Post-Meeting Survey (see Appendix B)

1. **Meeting Effectiveness and Satisfaction (ME; MS)**

   As described above.

2. **Perceived Interaction Effectiveness (PIE)**

   To assess the extent to which interactions had an impact on the participants' ratings of meeting effectiveness and satisfaction, a three-item survey was created using a five-point scale (1= not at all, 5 = to a very great extent). The three items are "today's interactions improved since our last meeting," "todays interactions influenced how I assessed meeting effectiveness," and "today's interactions influenced how I assessed meeting satisfaction." This scale was reviewed by capstone advisor.

Post-Reflection Survey (see Appendix C)

1. **Group Feedback Quality (GFQ)**

   The quality of the feedback was measured with an 11-item survey created based on London and Sessa (2006)'s feedback characteristics: source, purpose, clarity, and valence. The survey includes items such as "the feedback was objective", "the feedback was accurate", "the feedback was easy to understand" and "the feedback helped me become aware of how the group interacted." A five-point agreement scale was used (1 = Strongly disagree, 5 = Strongly Agree). This scale was reviewed by capstone advisor.

2. **Intervention Learning Outcomes (ILO)**

   To determine whether the feedback and reflection process helped the team achieve learning outcomes, a three-item scale was adapted from based on Schippers et al. (2013)'s team learning measurement. Items included "we learned from the opportunities in how we interacted," "we learned how to improve our interactions," and "we developed new knowledge or skills about our interactions." This scale was reviewed by capstone advisor.

ConvoLens Interaction Categories

Meeting Interactions (MI)

CLA identified 8 interaction categories that may influence meeting outcomes. These categories are titled socialize, task, inquire, advocate, support, disagree, facilitate, and action plan. In addition to these interaction categories, the following 3 types of distractions were measured: sidebar conversations, interruptions, and detractions. The CLA facilitator observed meeting behaviors demonstrated in each meeting and categorized them into these 8 categories of meeting interactions and 3 distractions. The visual dashboard the CLA facilitator presented to the project team showed the number of minutes the team and each participant engaged in the interaction and distraction categories.

Team Reflection Coding Scheme

3. **Team Reflexivity (TL)**

   Team reflections were coded using Gabelica et al. (2014)'s coding scheme of team reflexivity to determine whether the team engaged in effective reflection behaviors. Team reflections were recorded with participants' permission and transcripts were used to code the reflections. The coding scheme examples in table 1 below were adapted to align to the context of this project. A child code was created under the "evaluating or reviewing performance strategies" parent code

to indicate instances when participants were asking for clarification or trying to understand the interaction categories.

Table 1

Adapted Coding Scheme for Team Reflexivity based on Gabelica et al. (2014)

Categories	Description	Examples
Evaluating or reviewing performance strategies	Statements or questions about team performance (e.g., whether the team does/did well, is/was on the right track according to plans or received instructions), the goal of their task and its requirements, actions and strategies (mis)used, reasons behind success, failure, or problems (e.g., he/she gives examples of behaviors, task or team strategies that may explain why they achieved success or encountered problems during this meeting).	"John and Mary did a good job at asking follow up questions" "The meeting wasn't effective because went off a tangent"
Looking for alternatives	Suggestions or discussions of alternatives in how they approached the task (at the task or team levels) and of the sequence of actions undertaken. In other words, teams discuss how they could do or could have done differently.	"We could have asked more clarifying questions about the issue Mary brought up" "How about if we try to schedule meeting earlier next time?"
Making decisions	Statements clearly depicting a decision about a new direction to take or observable behaviors following a decision. Team members‟ utterances depicting very explicit decisions about the way they were going to approach the task or work as a team, explicit statements about the intention to follow decisions made within the team, and explicit reaction to a decision by an action.	"Next meeting, we'll need to assign someone as Devil's advocate" "I will try to speak less next time"

Data Collection Process

The project team participated in an information session conducted by the CLA facilitator and the doctoral student to explain the study's purpose and process, for participants to ask questions, and to invite them to confirm voluntary participation. After participants confirmed voluntary participation, they completed a post-info session survey (see Appendix A) designed to assess their understanding of the project, their perceptions of meeting effectiveness and satisfaction for meetings they held prior to the

implementation of ConvoLens, and emerging states which could have an impact on their ability to learn over time such as learning readiness, psychological safety, and group potency.

During each of the five subsequent project team meetings, a CLA facilitator observed and categorized participants' interactions based on ConvoLens categories. When each meeting ended, participants took the post-meeting survey (see Appendix B) measuring their perceptions of meeting effectiveness (ME), meeting satisfaction (MS), and the extent to which interactions improved and influenced their ratings of meeting effectiveness and satisfaction using the Perceived Interaction Effectiveness (PIE) scale.

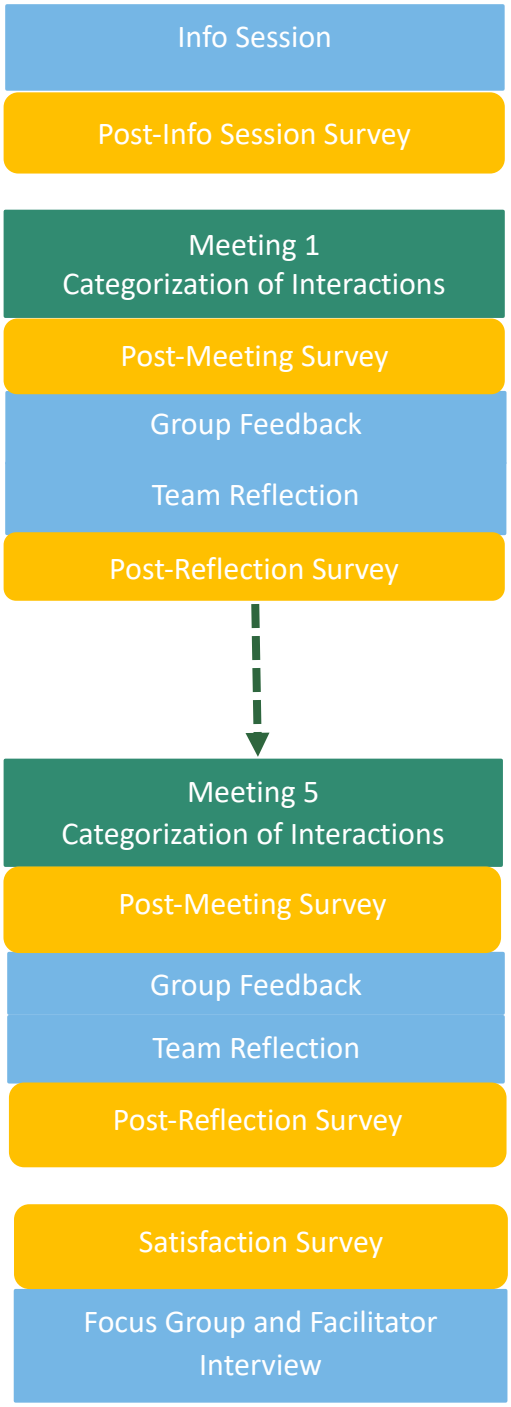
After every participant had taken the post-meeting survey, the facilitator presented a visual dashboard showing the duration and distribution of each type of interaction in which the team engaged during the meeting. Then, the facilitator facilitated a team reflection, which was recorded with participants' permission. The team reflection provided an opportunity for participants to discuss their interactions, evaluate interactions that led to success or opportunities, discuss alternative ways of interacting, and make decisions about ways to improve their interactions and achieve meeting effectiveness and satisfaction. After the team reflection was completed, participants took the post-reflection survey (see Appendix C) designed to assess the quality of the feedback (GFQ) and interaction learning outcomes (ILO).

After the five meetings were completed, participants completed the ConvoLens's Satisfaction survey (see Appendix D) to assess their overall satisfaction with the ConvoLens program, what they liked about it, and ways to improve it. A focus group (see Appendix E) was also conducted to better understand how ConvoLens contributed or not to perceptions of meeting effectiveness and satisfaction, what other factors influenced these meeting outcomes, and to identify more precisely ways to improve ConvoLens. An interview (see Appendix F) was also conducted with the facilitator to understand how well ConvoLens helped categorize behaviors, present feedback, and conduct the team reflection. The

facilitator also had an opportunity to share ways to improve ConvoLens. See figure 4 below showing the sequence of data collection:

Figure 4

Project and Data Collection Sequence



Research Question 1

To understand the extent to which ConvoLens was implemented as designed, a form (see Appendix G) was used to record the number of meetings held and participants' attendance at the Information Session and each of the five work meetings. Understanding of the purpose and process of this improvement project was measured and analyzed by observing the presentation, ensuring all topics were covered, and using the average response rate for four questions on the post-info session survey based on a five-point agreement scale: (1) After attending the info session, I generally understand how ConvoLens works, (2) After attending the info session, I understand the objectives of the ConvoLens improvement project, (3) I believe improving meeting effectiveness and satisfaction is important, and (4) I am excited about participating in this ConvoLens improvement project.

Attendance at each work meeting was important because lack of participation by any member could impact whether the team learns to interact over time. For example, if a member does not participate in team reflections where insights and commitments might emerge for future improvements, this member might not demonstrate new interactions in subsequent meetings.

It was also important to ensure that the ConvoLens process was followed during each meeting. This was accomplished by ensuring that interactions were categorized for each meeting participant, the facilitator shared the feedback with meeting participants, and the team reflection occurred. To do so, a form (see Appendix G) was used to record who attended the meetings, the group feedback, and the team reflections. Then, the ConvoLens visual dashboard for each meeting was audited and was compared to the list of attendees to make sure interactions were categorized for every attendee. The form was also used to assess a number of meeting and intervention design elements such as meeting start and end time, whether there was an agenda, whether both team-level and individual-level feedback was presented, the length of the group feedback and team reflections, and key information

needed to understand the purpose for each meeting and aspects of the discussion that might be important to understand why team members engage in certain interactions.

Finally, it was also important to understand the quality of the group feedback and team reflection as they could impact the ability for the team to learn to interact over time (London & Sessa, 2007) and to achieve group outcomes (London & Sessa, 2006). The group feedback quality was analyzed using the average response for the group feedback measure (GFQ). The quality of the reflection was assessed by coding a recording of each team reflection and measuring the frequency of utterances related to the three parent codes as defined by Gabelica et al. (2014).

Research Question 2

To understand the extent to which ConvoLens leads to improved meeting interactions and meeting effectiveness and satisfaction, it was important to first identify changes of these measures overtime. The average response rate for the meeting effectiveness and satisfaction measures at each meeting was used to identify how they changed over time. Meeting interactions were measured based on the duration in minutes of each interaction at the team and individual level. For example, in meeting #1, the team engaged in Task-related interactions for 12 minutes and in Inquire interactions for 6 minutes. The same level of detail was identified at the individual level. To be able to compare changes of interactions over time irrespective of meeting length, the interactions were analyzed based on the proportion of their occurrence in each meeting. With these data, changes could be plotted and observed over time.

To understand whether ConvoLens's interventions such as group feedback and team reflections influenced meeting interactions, an item in the perceived interaction effectiveness (PIE) scale was used, which asked project team members to rate the extent to which meeting interactions improved since their last meeting. The average response of this item helped determine whether any perceived improvements occurred over time. In addition, qualitative comparisons were made between the type of

interactions demonstrated in a meeting and the content of the team reflections to determine whether any changes in interactions reflected insights or commitments made in prior team reflections or during the meeting because of heighten awareness of effective interactions.

To understand how meeting interactions influenced perceptions of meeting effectiveness and satisfaction, two items in the perceived interaction effectiveness (PIE) scale were used, which asked project team members to rate the extent to which meeting interactions influenced how they assessed meeting effectiveness and meeting satisfaction after each meeting. These items helped create clarity on whether meeting interactions or potentially other factors might have impacted perceptions of meeting effectiveness and satisfaction. For example, if interactions had little impact on how participants rated meeting effectiveness and satisfaction, then other factors might have had an impact.

Table 2 below shows the analysis conducted to determine whether interactions or other factors might have had an influence in how people rated meeting effectiveness and satisfaction. Results fell into four quadrants based on the number of responses meeting two conditions: the influence level of the interactions measured by the two items in PIE and corresponding ratings of meeting effectiveness and satisfaction.

The top quadrants identify high levels of interaction influence, which could result in high or low levels of meeting outcomes. In these cases, interactions have an impact on high or low meeting outcome scores. Bottom quadrants identify low levels of interaction influence on meeting outcome measures. In these cases, other factors not identified might have had an influence in meeting outcome scores.

Table 2

Meeting Interaction's Influence on Meeting Effectiveness and Satisfaction Matrix

	Meeting Effectiveness or Satisfaction	
Interaction Influence	High Influence / low Level	High Influence / high Level
	(*Then, interactions impacted scores*)	(*Then, interactions impacted scores*)
	Moderate Influence / low Level (then, mix of interactions and other factors)	Moderate Influence / high Level (then, mix of interactions and other factors)
	Low Influence / Low Level	low Influence / High Level
	(*Then, other factors impacted scores*)	(*Then, other factors impacted scores*)

Since the survey did not capture what the other factors are, the focus group interviews included questions to identify what other factors might have played a role in the participants' assessments of meeting outcomes. Focus group responses and team reflections were coded using emergent thematic coding and were later compared to meeting effectiveness research such as having an agenda or the relevance of the meeting. To compliment qualitative data, measures of Team Psychological Safety (Edmonson, 1999), Group Potency and Team Learning (Raes et al., 2015), and Readiness to Learn (Sessa et al., 2011) were measured before the use of ConvoLens and used to understand the ability for the team to learn and work together. The focus group also included questions on how meeting interactions might have impacted meeting outcomes.

Research Question 3

To understand the user experience with ConvoLens, a satisfaction survey was designed where participants responded to questions related to their satisfaction with the group feedback, team reflections, program impact, and the program characteristics. In addition, the survey included two overall satisfaction items, an overall satisfaction question and a net promoter score question. The average response rating was used to determine the level of satisfaction. Open-ended questions were included to understand what participants liked the least and most about ConvoLens, and how the

program could be improved. These responses were combined with the focus group's responses and coded using an emergent coding approach.

The facilitator's experience using ConvoLens was also important since this was the first time CLA was using ConvoLens with a project team over a period of time. To obtain the facilitator's perspective, an interview was conducted focused on how well ConvoLens helped the facilitator categorize behaviors, present feedback, and facilitate team reflections. In addition, questions were asked about ways to improve ConvoLens.

Findings

Project Question 1: To What Extent was ConvoLens Implemented as Designed?

Finding 1: ConvoLens was Implemented as Designed

Information Session

An Info Session was conducted before ConvoLens was implemented so that participants could understand the project's purpose and process. All six project team members attended the info session. The quality of the info session was measured by four questions assessing the attendees' understanding of how ConvoLens works and the objectives of the improvement project, their belief that it is important to improve meeting effectiveness and satisfaction, and their excitement about participating in the project. Every respondent agreed with these statements; however, only 3 info session attendees (or 50% of project team members) responded to the survey.

Meeting Occurrences and Team Member Attendance

Following the info session, all five project team meetings were held as expected and, in every meeting, the facilitator presented the group feedback and facilitated team reflection. Group feedback was presented for an average of 2.1 minutes and team reflections lasted an average of 9.56 minutes (see table 3 for length of group feedback and team reflection at each meeting).

Another aspect of the implementation that was important to track was project team meeting, group feedback, and team reflection attendance. Consistent high attendance to these three key processes would ensure that team members would have the opportunity to increase awareness of interactions, reflect on success and failures, and commit to future ways of interacting, which can lead to improvements over time (Gabelica et al., 2014; Kneisel, 2020). On the other hand, low or inconsistent attendance could impact commitments and improvements in interactions.

As shown in table 3, participation in meetings decreased over the course of time from 6 participants (100% participation) to 5 and 4 participants. In addition, there were two meetings where two participants left early and either did not attend or partially attended group feedback and team reflection. One participant attended group feedback and team reflections but did not add any input in team reflections.

Table 3

Meeting Attendance and Survey Response Rates

Meeting Date	# of Meeting Participants	Meeting Attendance Rate	*GF Participation Rate	**TR Participation Rate	GF Time (min)	TR Time (min)
8/8/23	6	100%	6	6	3.2	7.7
8/14/23	5	83%	5	5	1.4	16.2
8/24/23	5	83%	5	3 (2 left in the middle of TR)	2.7	7.8
9/5/23	4	67%	2 (2 left before GF started	2	1.8	10.6
9/12/23	4	67%	4	4	1.4	5.5

Note. *Group Feedback (GF); **Team Reflection (TR)

Implementation of Group Feedback

Group feedback involved the presentation of a dashboard showing all the interactions that team members engaged in during the meeting. The facilitator categorized behaviors for each project team member who participated in the meetings, ensuring that every participant's interactions were included in the visual feedback. The last meeting included two employees from the organization's IT department and their interactions were also categorized (please note that the IT staff did not participate in group feedback or team reflection because they were not members of the project team that had been oriented into ConvoLens).

The facilitator presented these interactions at the team-level first and then, at the individual level. However, the facilitator would focus mostly on team-level interactions and briefly showed individual-level interactions. As the facilitator presented the feedback, he would describe the type, duration, and distribution of categorizations on the dashboard and shared key observations he made on ways that the team interacted. After presenting this feedback, the facilitator would ask participants open-ended questions that prompted commentary or reflection to the categorizations or his key observations.

A common example of how the facilitator described the categorizations is as follows:

> "…I think this meeting had a very consistent kind of call and response feel to it. So, it was very task focused with some facilitation and a lot of asking questions as well such as action planning and offering support. And I didn't catalog any socialization, advocating or disagreement…" (From meeting #1).

An example of key observations is as follows:

> "So, one thing that I noticed and I would be really curious to hear folks' take on it was that I noticed two predominant forms of inquiry throughout the session that really rose out. One was kind of a straightforward direct inquiry to another participant about a specific task…The other

> thing that I noticed a little bit more, and I don't know whether it was more frequent in this one or just something that I picked up on more, was sort of like an open-ended wondering." (from meeting #3).

It is important to note that the facilitator, at times, also provided feedback during the team reflection, and not just while he was presenting the group feedback. Therefore, team members' assessments on the quality of the feedback were likely based on all the feedback given throughout the meeting, not just the one presented at the beginning of the feedback delivery. An example of feedback presented after the initial feedback includes:

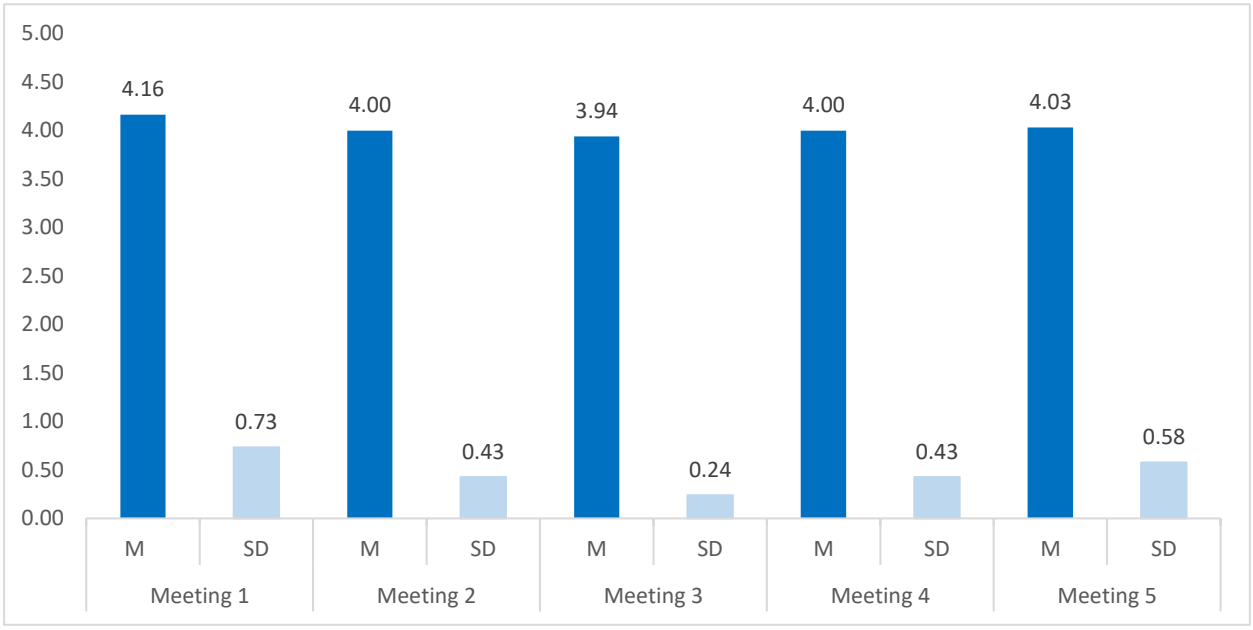
> "So one last question that I'll leave you with…it might be something worth thinking about between now and next meeting. Are there productive disagreements or productive kind of conflicts? Because conflict is not always bad that are not happening either because they're being avoided or they're not being brought up." (From meeting #2).

Group Feedback Quality

The overall average for every survey item comprising Group Feedback Quality was a 4.03 based on a 5-point agreement Likert scale where 4 was "Agree". This average score denotes a general agreement with statements describing key characteristics of group feedback needed for continuous learning (London & Sessa, 2006). The standard deviation was the highest in the first meeting at 0.73 and the lowest in the third meeting at 0.24 (See figure 5).

Figure 5

Group Feedback Quality, Mean Scores and Standard Deviations by Meeting



Note. M = Mean; SD = Standard Deviation

At an item level, standard deviations ranged from 0.24 to 0.86 (see Table 4), showing general agreement among all respondents. Every item had an average mean above four, except for three items: "the feedback was accurate" (M = 3.97), "The feedback helped me become aware of how I interacted" (M = 3.88), and "The feedback focused on how ineffectively we interacted" (M = 3.47). The last two items had the lowest scores and could be explained by very brief presentations of individual interactions and team members' general belief, expressed in team reflections, that the interactions in which they engaged were appropriate to achieve the purpose of the meetings. In terms of feedback accuracy, every rating but two was "Agree" and "Strongly Agree" which means that team members mostly agreed that the feedback was perceived as accurate. The satisfaction survey completed after the ConvoLens engagement ended also supports this finding as every respondent agreed (rating of 4) that the feedback accurately reflected the interactions that occurred during the meetings.

On the other hand, the items showing both high scores and the lowest standard deviations (thus, higher agreement among respondents) were “the feedback helped become aware of how the group interacted”, “the feedback was important”, “the feedback was helpful”, and “I intend to use the feedback to improve how I interact in meetings”. “The feedback was specific” had the highest score and a moderate standard deviation. It is important to note that most respondents agreed that they intended to use feedback, which could be the result of positive perceptions of group feedback (London and Sessa, 2006).

Table 4

Group Feedback Survey

Group Feedback Survey Results	**Meeting 1**		**Meeting 2**		**Meeting 3**		**Meeting 4**		**Meeting 5**			
Survey Items	M	SD	M	SD	M	SD	M	SD	M	SD	**Mean**	**SD**
The feedback was objective	4.40	0.49	4.00	0.00	4.00	0.00	4.00	0.00	4.00	0.82	4.08	0.47
The feedback was accurate	4.20	0.40	4.00	0.00	3.67	0.47	4.00	0.00	4.00	0.82	3.97	0.49
The feedback was easy to understand	4.00	0.63	4.00	0.00	4.00	0.00	4.50	0.50	4.00	0.82	4.10	0.54
The feedback was specific	4.20	0.75	4.25	0.43	4.00	0.00	4.50	0.50	4.33	0.47	4.26	0.55
The feedback focused on how effectively we interacted	4.20	0.40	4.00	0.00	4.00	0.00	4.00	0.00	4.00	0.00	4.04	0.24
The feedback focused on how ineffectively we interacted	3.20	1.17	3.50	0.87	4.00	0.00	3.00	0.00	3.67	0.47	3.47	0.85
The feedback helped me become aware of how I interacted	4.00	0.89	3.75	0.43	3.67	0.47	4.00	0.00	4.00	0.82	3.88	0.68

Group Feedback Survey Results	**Meeting 1**		**Meeting 2**		**Meeting 3**		**Meeting 4**		**Meeting 5**			
Survey Items	M	SD	M	SD	M	SD	M	SD	M	SD	**Mean**	**SD**
The feedback helped me become aware of how the group interacted	4.40	0.49	4.00	0.00	4.00	0.00	4.00	0.00	4.33	0.47	4.15	0.38
The feedback was important	4.40	0.49	4.25	0.43	4.00	0.00	4.00	0.00	4.00	0.00	4.13	0.38
The feedback was helpful	4.40	0.49	4.25	0.83	4.00	0.00	4.00	0.00	4.00	0.00	4.13	0.38
I intend to use the feedback to improve how I interact in meetings	4.40	0.49	4.00	0.00	4.00	0.00	4.00	0.00	4.00	0.00	4.08	0.32
Total M and SD	4.16	0.73	4.00	0.43	3.94	0.24	4.00	0.43	4.03	0.58		

Implementation of Team Reflection

The purpose of team reflexivity is to create meaning and make decisions about future interactions based on the feedback that was received (Gabelica et al., 2014). In order for improvements to be made, Gabelica et al. (2014) posited that evaluating performance and looking for alternatives were not sufficient and making decisions in the form of explicit statements about actions needed to occur. This serves as a guide to understand the quality of team reflexivity. That is, effective team reflections that lead to behavioral change or improvements should include all these reflective categories, especially, making decisions.

As shown in table 5, every team reflection involved “evaluating and reviewing performance strategies” and “looking for alternatives.” Overall, every reflexivity behavior decreased over time. Making decisions occurred only in the first three meetings and had a low number of occurrences. That is, making decisions only constituted six reflective interactions out of a total of eighty-three reflective

interactions. And out of the six, three (shown in table 5) were questions the facilitator asked to prompt decisions. An explanation for the absence of "making decisions" behaviors in the last two meetings will be explained later in this section.

Table 5

Frequencies of Team Reflexivity Behaviors

	ERPS*	Fac's ERPS	% Fac ERPS vs. all ERPS	LFA**	Fac's LFA	% Fac LFA vs. all LFA	MD***	Fac's MD	% Fac MD vs. all MD
Meeting 1	8	4	33%	7	1	13%	1	0	0%
Meeting 2	6	5	45%	8	5	38%	2	2	50%
Meeting 3	3	3	50%	5	1	17%	0	1	100%
Meeting 4	1	1	50%	5	3	38%	0	0	N/A
Meeting 5	6	1	14%	2	2	50%	0	0	N/A
Totals	24	14	37%	25	12	32%	3	3	50%
	38			39			6		

Note. *Evaluating or Reviewing Performance Behaviors (ERPS); ** Looking for Alternatives (LFA); *** Making Decisions (MD); Fac = Facilitator

Since the facilitator led and participated in team reflections, his reflective behaviors were coded as well. The job of the facilitator was to present feedback and promote effective team reflections. For the purposes of this project, expectations about effective team reflection were not established between the doctoral student and the facilitator.

The facilitator demonstrated behaviors in every reflexive category, and mostly encompassed fewer than 50% of the reflections, which shows that team members were doing most of the reflection. The facilitator demonstrated review of performance strategies by reviewing the feedback and calling out observations. In addition, the facilitator looked for alternatives by asking general questions to prompt reflection on alternatives or by suggesting alternatives. While the facilitator suggested looking for alternatives; he only prompted the team to solidify decisions twice. The team, however, made decisions on behavioral changes without his prompt. Examples follow in table 6.

Table 6

Facilitator's Reflective Behaviors

Team Reflection Categories (per Gabelica et al., 2014)	**Examples of Team Reflection Behaviors**
Evaluating or Reviewing Performance Strategies	**Evaluating or reviewing or prompting ERPS:** "I think, you know, uh, a pretty similar, a fairly similar profile to the last couple of meetings. Seeing a little bit of socializing in the beginning." (from meeting #4) "And I noticed there were a number of points where you made some specifics to follow up. Is there anything that's being left on the table or maybe being missed when it comes to some of these information gaps?" (meeting #3)
Looking for Alternatives	**Prompting reflection on alternatives:** "Um, from this session, any insights or thoughts about how you might want to continue to attend to that or, or ensure that you are able to plan, uh, in order to make sure this is a success?" (Meeting #4) **Suggestions on alternatives:** "it sounds like maybe if I can propose a next step, it might be just going through an exercise of what's called stakeholder mapping…" (meeting #2)
Making Decisions	**Prompting decision making:** Okay. So with that, is that something to add to the agenda for next time? Is that something to add as a work stream? (from meeting #2) So, when would that work need to start the work of thinking about the change management communication socialization? (meeting #2) Okay, so how do you want to accomplish that? (meeting #3)

The team also engaged in every reflective behavior. They engaged in as many evaluations and review of performance strategies as they did looking for alternatives over the course of the five meetings. However, very few decisions were made to change behaviors or take alternative actions. Later

in the capstone, there will be a discussion on factors that might have led to changes in interactions or other actions.

Team reflections involved a conversation among team members and the facilitator about the interactions in which team members engaged, how helpful the interactions were in achieving the objectives of the meetings, and what interactions they needed to engage in to advance their work. A common path followed by the facilitator and team members involved: presentation of the feedback (Facilitator), asking questions to prompt evaluation or review of interactions (Facilitator), reflections on how the team interacted (team members), a reflection on alternative ways to interact (team members), making decisions on how to interact more effectively (team members). However, most of the paths would not result in explicit decisions. Examples of these paths are seen in table 7 below.

Table 7

Team Reflection Paths

Team Reflection Steps	**Path resulting making decisions (Meeting #2)**	**Path resulting in Looking for Alternatives (Meeting #3)**
Presentation of the feedback	Facilitator: So, I have a curiosity and would ask this because it's not something that was immediately apparent to me anyways, is I've noticed that you all have, you'll share one of our next steps or our actions on this informally throughout the meeting. But one thing that I've seen often in times and meetings like this would be sort of a repeating back of what are those action steps, commitments, agreements.	Facilitator: So there were several times where someone would sort of either half ask a question or make a statement of a question, I don't know about X, Y, or Z, or I wonder if we need to A, B, C before really letting it, without really the chance to let it land or open that up to be answered.
Asking questions to prompt evaluation or review of interactions	Facilitator: Is that something that's happening offline? Is that something that's happening informally?	Facilitator: So, I'm wondering whether anyone else noticed or observed that during the meeting, whether that's typical.

Team Reflection Steps	Path resulting making decisions (Meeting #2)	Path resulting in Looking for Alternatives (Meeting #3)
Reflections on how the team interacted	Team member #1: I would say some of the stuff like I'd say I catch up with [team member] to look over data, I put that into the tracker of a process step that needs to happen. [department name] meeting isn't necessarily on here. I would say it's something we're just aware of, but it's for [team member] to present out on the work, not so determines the work. I don't know if I think it does. Team member #2: I think that's a good point. For instance, I said I'd follow up with [stakeholder], but I don't see that we don't document that. It's on my notes, but then my plan would be once I hear from her to feedback [team member #1]	Team member #3: I think I asked some of those vague questions during the meeting. It's like, I guess my purpose of asking them is not to get an answer from this group, but just like, Hey, this is a thing we're going to have to figure out as a group. I don't have the answers. I don't know if any of us do…I'm just maybe making a list of the things that we need answers on for us to move forward that we're unable to answer right now. We're hoping that somebody has an answer maybe, I don't know. At least we can get those questions organized so that we know we need to go get 'em answered so that we can move forward.
A reflection on alternative ways to interact	Facilitator: So I ask this because it's helpful to have accountability measures for these actions and especially as things get a little bit more hectic, it can be helpful to sort of document what are some of the decisions that are made in the moment or the actions that are committed to for future reference. Again, it is a little extra work to put together those action items, so it would really depend on what's working for you all, whether you feel that's worth the little bit of extra effort, whether you think it's needed, but just an observation that I've noticed.	Facilitator: Got it. So then I guess my question is do you feel like you're adequately tracking to those information gaps? Team member #3: I think they're becoming their own category, so maybe that's what we're being hinted to do, I think is we could have a list at the end, the six things we need to know to move forward or something like that and then start to develop, alright, who's going to own it and where do we go and what do we do if we can't get that information and timelines rather than, because each category of work has a couple of unknowns. Maybe we reorganize it as to the big list of unknowns or something.

Team Reflection Steps	Path resulting making decisions (Meeting #2)	Path resulting in Looking for Alternatives (Meeting #3)
A reflection on alternative ways to interact (Continued)		Facilitator: Okay, so how do you want to accomplish that? Team member #3: So again, I think our list on our to-do list on the slides, I think we could make a separate category. That would be my approach. I don't know, I think Cameron just had to jump off maybe, but I think that's a possibility. Just we throw it on as a separate category of items on the list.
Making decisions on how to interact more effectively	Team member #1: I think that's great. I'll start with [team member #2] to follow up with [stakeholder] and then at the beginning of our next meeting, we'll reconnect and do that first and say how did that follow up go? and have a discussion there before we get into the timeline. It's a good call out.	*Not Applicable*

The facilitator was therefore effective in helping the team evaluate and review interactions and reflect on alternative ways of interacting based on ConvoLens's feedback; however, there seem to have been some opportunities for the team to make decisions on alternative ways of interacting.

For example, the team reflection transcripts indicate that the team did not make decisions in the fourth meeting despite one clear consideration about a communication issue they needed to address and discussions about a potential way to handle it. The lack of decision making on this consideration could have been due to the lack of prompts from the facilitator and team members to

make an explicit decision. In addition, the facilitator ended the reflection a little sooner to give participants time to complete the group feedback quality survey.

On the other hand, the last meeting consisted of discussions about observed interactions and explanations about why their interactions were appropriate. Perhaps, given that the team believed they were interacting effectively in this meeting, no decisions were needed. It is also important to note that the last team reflection lasted 5.5 minutes, which is 2.2 minutes below the next shortest team reflection at 7.7 minutes. This reduced time could have impacted the number of topics they reflected on.

During the interview with the facilitator, he shared that the team seemed to be interacting well and many of the "basics of team dynamics" such as having a positive affect towards each other and lack of interruptions were "already shored up", which made him feel that he was at times "stuck" in regard to his facilitation and improving interactions. He tried to resolve this by identifying more "nuanced" interactions; however he stated that "…if I look back, I don't think I was particularly successful in that.." He shared that this also led him to focus on what he called "basic meeting effectiveness" factors such as pointing out to the team that they were not following up on action items they committed to during the meeting.

When asked about the impact of feeling "stuck", the facilitator shared that "…there might've been a couple of points where it made me a little bit self-conscious and I may have moved through the facilitation at the end a little bit more quickly." This points to another reason why decisions might not have occurred in the last meeting. That is, the facilitator felt he could not identify meeting interactions to be improved, despite providing feedback on observations he made about the ways the team interacted. This made him feel he could not gain traction, which led him to end this facilitation earlier than he would have done otherwise.

It is important to note, however, that the team members who participated in the focus group stated that they would have liked to receive more specific feedback and prescriptive suggestions on how to interact more effectively. They mentioned that some people might have shied away from stating areas that could have been improved. This shows that the team identified areas of opportunities that they did not bring up and that the facilitator might not have noticed or might have expected the team to bring up as a result of his team reflection questions. The impact of not reflecting on these actual *missed opportunities* will be discussed later in this capstone.

In summary, more decisions might not have occurred not just because of a lack of perceived need for improvement by the team or facilitator, but also because of reduced reflection time. Reduced reflection time might stem from a variety of factors such as external needs to end the reflections early and a combination of the facilitator's perceived need for the team to improve and his perceived ability to drive improvement.

Another interesting observation is that team reflections were centered around two different types of subjects. The first subject was related to how the team interacted or needed to interact with each other (intra-team interactions). The second subject was about how the team interacted or needed to interact with stakeholders outside of the project team (inter-team interactions). Often, conversations about how to interact with stakeholders led to conversations about how to manage the project to advance their work.

As a result, while the purpose of the team reflection was to address intra-team interactions during meetings, the team reflection often led to inter-team reflections and project management subjects. These types of reflections align with Decuyper et al. (2010)'s notion that effective teams integrate knowledge and information from outside of the team in order to perform more effectively. Table 8 shows examples of inter-team and intra-team reflections.

Table 8

Examples of Intra and Inter-Team Reflections

Intra Team Reflections	Inter Team Reflections
"I agree with Speaker #3. I think it was very task oriented. It got us to where we need to get moving forward. I wonder as we continue these meetings whether there'll be more, I don't think disagreements, but just different as we firmly establish in a cadence for our tasks, will the meeting change?" (From meeting #1).	"I think it's probably time that we have a different smaller meeting with the bosses essentially to be like, here's some unknowns that we haven't been able to solve yet that are going to hold us back potentially from accomplishing those tasks rather than just five separate emails, maybe one meeting with them to define these. So, I think it'd be really important to clarify these unknowns that we can't answer." (from meeting #3).

Inter-team topics accounted for 17 percent of reflective behaviors or fourteen out of 83 reflecting behaviors. They occurred only in the second, third, and fourth meeting and included evaluation and review of performance strategies and looking into alternatives (see Table 9). While some alternatives could have led to decisions, the team did not make explicit decisions about inter-team topics.

Table 9

Number of Utterances Related to Inter-Team Reflections

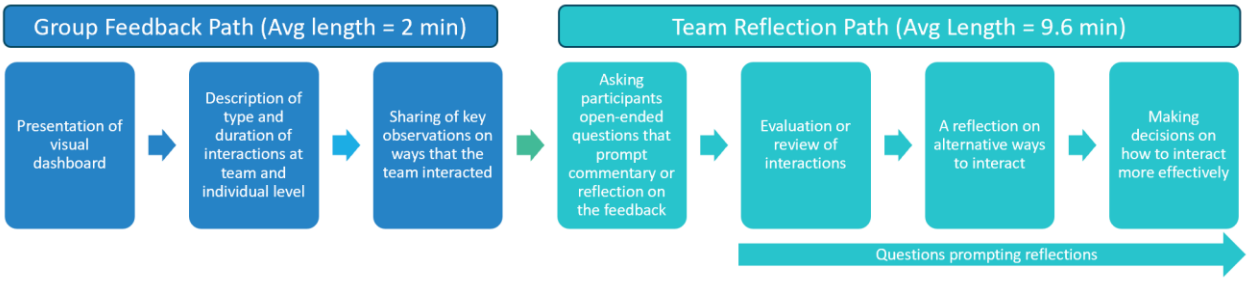
Meeting Number	Inter Team Reflections
Meeting #1	None
Meeting #2	1 ERPS 9 LFA
Meeting #3	1 ERPS 2 LFA
Meeting #4	1 LFA
Meeting #5	None

Inter-team reflections seemed to be welcomed and appreciated based on the team's willingness to engage in this type of reflection and subsequent overall ratings of group feedback and the items related to the helpfulness and importance of group feedback, as previously shown. Therefore, offering support to reflect in inter-team interactions and project management might be an important endeavor that could help the team become more effective in their performance and could be a service offered as long as it does not detract from the main objective of improving meeting effectiveness as implied in Gurtner et al. (2007) where they found that team reflections are not always effective because teams might focus on issues that are not related to the task at hand.

Based on the above analysis, Figure 6 below shows the path followed by facilitator and the team, which led to high ratings of group feedback quality and engagement in important reflection behaviors with opportunities on making more decisions.

Figure 6

Group Feedback and Team Reflection Path



Project Question 2.a: How do Meeting Interactions and Meeting Effectiveness and Satisfaction Change After Using ConvoLens

Finding 2: Fluctuations in Meeting Interactions Over Time Were Perceived as Moderate to Large Improvements

Finding 3: Meeting Effectiveness and Satisfaction Ratings Remained Stable Over Time

To understand how and why interactions were perceived as improvements, it is important to review what type of interactions the team engaged in at each meeting and how they changed over time. Later in this paper (under finding 4), there will be a discussion on how meeting effectiveness and satisfaction changed over time after using ConvoLens.

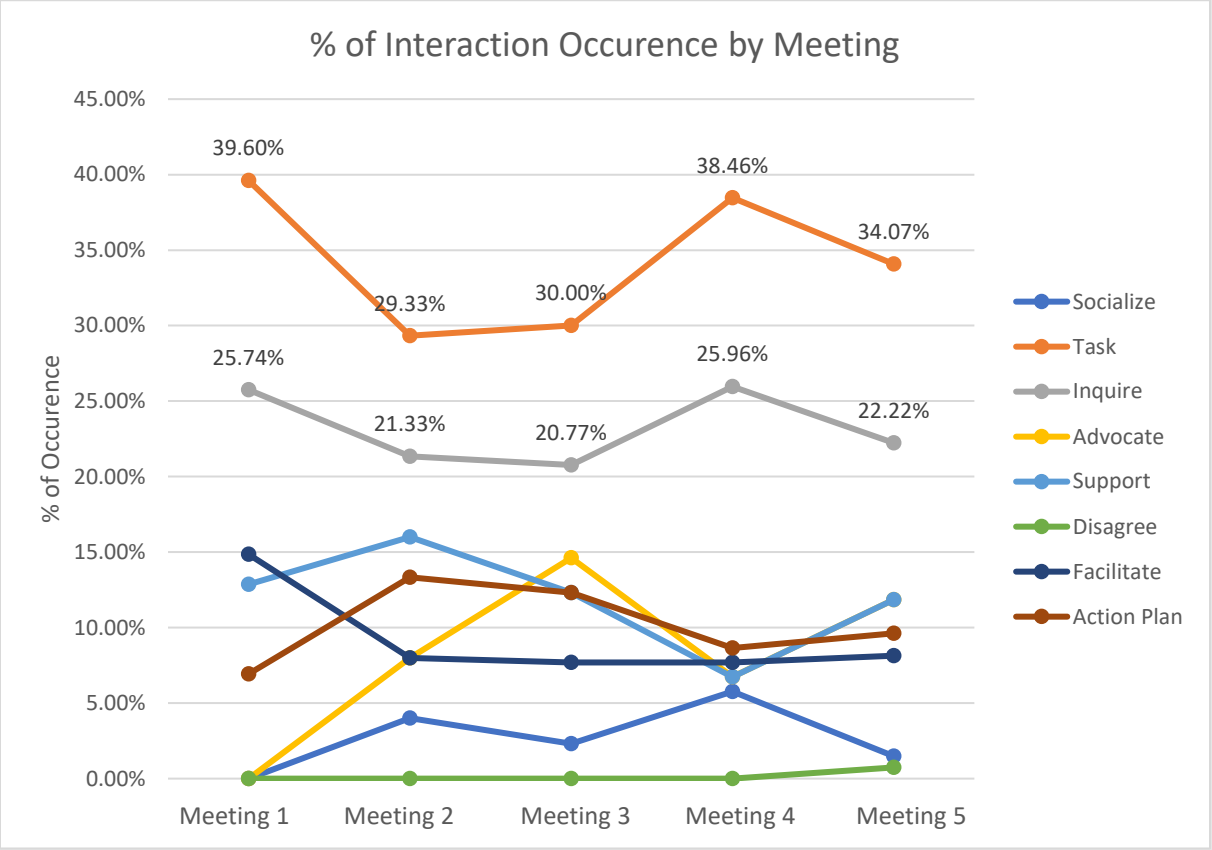
Meeting Interaction Occurrence in Each Meeting

Meeting interactions were categorized by their duration and number of occurrences. In terms of duration, the number of minutes were measured; however, the facilitator reported that his coding with respect to duration might not be completely accurate due to the difficulty in coding utterances that might contain different types of interaction categories. As a result, the analysis is based on number of occurrences and percentage of occurrences in a given meeting. The reason for the latter measure is to account for the overall duration of meetings. That is, if meetings are shorter, attendees would have a shorter window of opportunity to engage in each interaction; therefore, resulting in fewer interactions, but not necessarily affecting the impact of such interactions in that meeting. Percentages of interactions allow for the analysis to show the distribution of interactions irrespective of meeting duration.

Out of the 8 interaction categories, “Task” and “Inquire” were the interactions which occurred the greatest number of times in each meeting as seen in Figure 7. The interaction categories labeled Socialize and Disagree occurred the least number of times. In addition, Advocacy was the interaction category that had the largest change over time, which was possibly due to the team’s dealing with a number of unknowns in meeting #3 that were stalling the project, which led the team to engage in suggesting ideas to resolve this challenge. A discussion on why interactions changed will be discussed later in this capstone.

Figure 7

Percent of Interaction Occurrence by Meeting

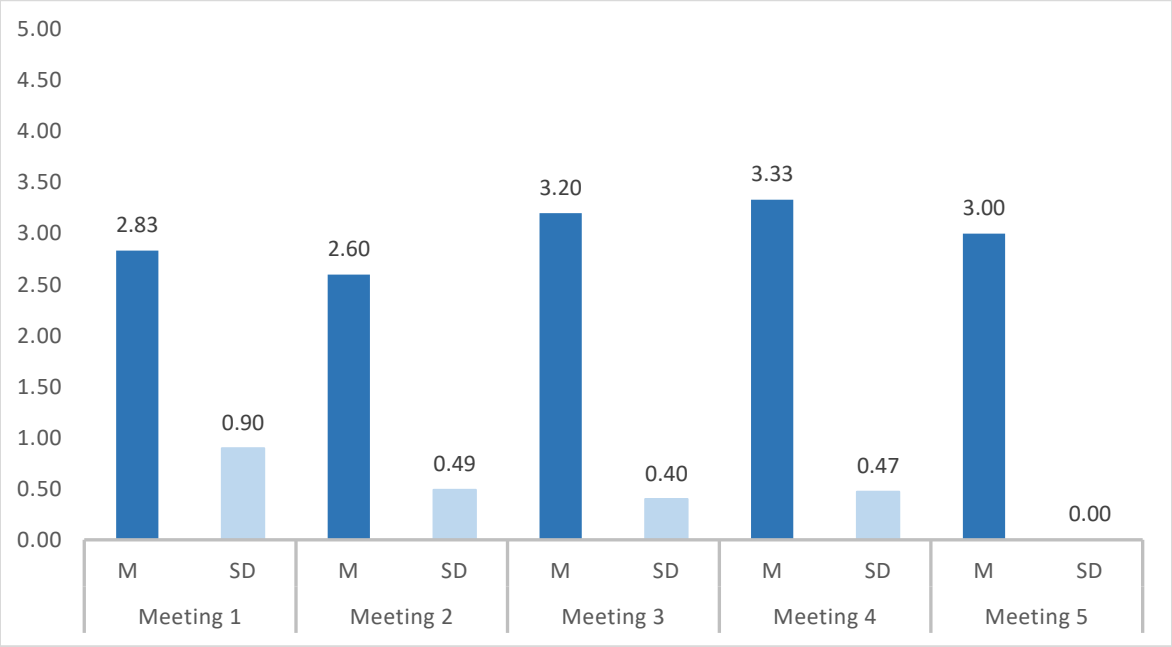


Perception of Meeting Interaction Improvements

Teams can make improvements as a result of interventions such as group feedback and team reflection, aided by a number of variables such as emergent states and learning triggers (London and Sessa, 2006). In order to assess whether interactions were perceived as improvements, team members were asked to assess whether they believed that their meeting interactions had improved since their last meeting. The average rating on a scale from 1-5 where 3, 4, and 5 were “Somewhat”, “To a great extent”, and “To a very great extent”, respectively, increased over time from 2.83 in the first meeting to a maximum of 3.33 in the fourth meeting, to then decrease to 3.00 in the last meeting (see Figure 8).

Figure 8

Perceptions of Meeting Interaction Improvement Since Last Meeting



Note. M = Mean; SD = Standard Deviation

In the first meeting at which point feedback and reflection had not yet occurred, one respondent reported that meeting interactions had not improved at all while most of the respondents had answered that meeting interactions improved somewhat or to a great extent. This points, potentially, to factors other than ConvoLens's interventions positively influencing meeting interactions in the first observed meeting. In subsequent meetings, perceptions of improvement in interactions increased positively. That is, from meeting 3 to meeting 4, all respondents answered that meeting interactions had increased somewhat or to a great extent, unlike the first two meetings when some respondents answered that meeting interactions had not improved at all or very little (see Table 10). Given that most respondents consistently reported that meeting interactions somewhat improved since their last meeting, it could be stated that fluctuations in interactions were generally perceived as improvements.

Table 10

Extent to Which Meeting Interactions Improved Since the Team's Last Meeting

Meeting Number / Scale	Not at all	Very little	Somewhat	To a great extent	To a very great extent
Meeting 1	17%	0%	67%	17%	0%
Meeting 2	0%	40%	60%	0%	0%
Meeting 3	0%	0%	80%	20%	0%
Meeting 4	0%	0%	67%	33%	0%
Meeting 5	0%	0%	100%	0%	0%

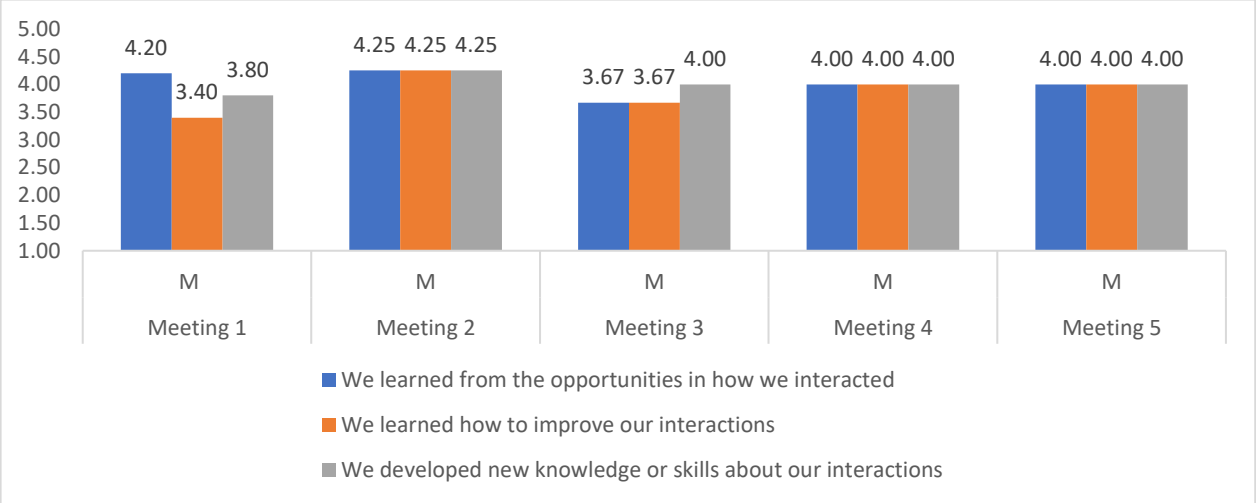
When considering why the team perceived improvements in interactions over time, it is important to note that the team seemed to have strong levels of emergent states needed to learn and improve how to interact more effectively over time. This is based on responses to emergent states scales (5-point agreement likert scales) included in the post-info session survey. Namely, the team showed healthy levels of team learning (M = 3.78), readiness to learn (M = 4.17), psychological safety (M = 4.00), and group potency (M = 3.83) which influence a team's ability to learn over time and improve outcomes.

In addition, based on the team members' responses to the team learning scale, they felt that they elaborated on each others' information and ideas, opinions and ideas are verified by asking each other critical questions, information from team members is complimented with information from other team members, and comments and ideas are acted on. High levels of team learning could have a positive impact on a team's ability to improve (Decuyper et al., 2010) and learn how to interact together (London and Sessa, 2006).

To assess the impact of group feedback and team reflection on learning how to improve interactions, which could in turn impact a team's ability to interact more effectively over time, team members were asked to assess key learning outcomes after the group feedback and team reflection were completed. Specifically, team members were asked whether they learned from the opportunities in how they interacted, whether they learned to improve interactions, and whether they developed new knowledge or skills about their interactions. The average response rate on a 5-point agreement scale remained stable over time starting at 3.80 in the first meeting to 4.00 in the last two meetings with complete agreement (see Figure 9).

Figure 9

Intervention Learning Outcomes



Note. M = Mean

It is interesting to note that "learning how to improve interactions" and "developing new skills increased over time" and by meeting 4 and 5 everyone agreed that these learning outcomes had occurred. This could be due to a variety of factors including becoming more familiar with interactions and feeling more open to discuss interactions.

These learning outcomes are important because they have been found to mediate the relationship between team reflection and performance (Schippers et al., 2013). That is, team reflection

is effective in promoting better performance through the team's ability to learn. Based on these results, the team seemed to be able to learn from the reflections, possibly explaining perceptions of interaction improvement over time. However, it is also important to note that teams with high performance have less of a need to learn and improve, weakening the effect of team reflection on performance (Schippers et al., 2013), which might also explain the reason why team members did not perceive greater scores in learning outcomes and interaction improvements.

Project Question 2.b: How do Interventions Influence Meeting Interactions?

Finding 4: Changes in meeting interactions can result from a variety of intervention and non-intervention mechanisms

To determine whether group feedback and team reflections influenced any changes in interactions, an analysis was conducted to identify actual changes and the potential mechanisms driving these changes. This analysis was based on the identification of considerations and commitments the team made during team reflections, actual changes in interactions or other types of actions over time, and discussions during team reflections and the focus group that point to reasons why changes occurred or did not occur. Based on this analysis, some changes in interactions occurred and these changes have some common and unique characteristics, which reveal the potential influence of both intervention and non-intervention factors.

Table 11 below shows the considerations that the project team discussed and/or committed to and whether a change was observed in subsequent meetings. Only 4 commitments and their outcomes could be validated. Other commitments could not be verified due to lack of visibility to the changes and the unavailability of the participants to confirm whether the changes occurred.

All considerations, and specifically, the four interactions that changed seem to demonstrate certain characteristics. For example, of the four changes observed, two of them were related to interactions that ConvoLens measures and two were related to actions or tasks. These interactions are

socialization and advocacy, and the tasks were timely arrival to meeting and adding follow up items to the team's project tracker. The task-related changes are not interactions in and of themselves, but it is reasonable to expect that they would trigger meeting interactions that ConvoLens measures. For example, adding a follow up item to the agenda may lead to task-related interactions such as sharing progress and roadblocks. The distinction here is important because facilitators might encounter instances where discussions and decisions are made not just on interactions but on processes or tasks that could trigger those interactions. Therefore, focusing on both types of actions (interactions and tasks) might be important to promote needed changes.

The second characteristic of considerations made is related to whether the action is related to interactions within the team or between the team and other groups or stakeholders. This is likely a result of the type of discussions that were observed. As shared earlier, the project team focused their conversations on two types of subjects: intra-team interactions, which are interactions within the team; and inter-team interactions, which were interactions between the team and other people outside of the team. The observed changes were all intra-team; however, two out of the ten suggestions for a different course of action were related to inter-team interactions.

Another observed characteristic of actions that changed was the level of commitment. The first commitment level is explicit, which aligns with Gabelica et al. (2014)'s definition of making a decision. These are definitive statements about a decision or course of action to take. The second commitment level is implicit, which is characterized by a suggestion or agreement that something is necessary to be done. This differs from the explicit version in that there is no definitive statement that the action will be taken; however, the action or change occurrs. The third commitment level seems to be an organic response to the task at hand, and for this reason and based on previous research, it will be termed adaptive. That is, an individual or group response to the task at hand, meeting characteristic, or project

context. This is similar to London and Sessa (2006)'s Adaptive Learning, which occurs as a result of triggers in the environment.

Another observation includes the potential facilitating and detracting influence of a variety of factors and mechanisms observed in team reflections. As described earlier, team reflections seem to follow two different pathways. One where feedback was presented, questions were asked to prompt evaluation and review, reflections on how the team interacted, reflection on alternatives, and making decisions on how to interact; and another one where decisions are not explicitly made. Other factors observed in team reflections, which might have had an impact on decisions made and changes, and which are not included in the team reflection coding scheme include creating understanding about the interactions, supporting or agreeing with a comment, the length of time a subject is reflected on, team and individual role expectations, meeting purpose, task demand, meeting characteristics, people present in or absent from the meeting, and the criticality of the task at hand.

This finding therefore points to the potential involvement of other factors that could impact implementation of ideas or changes in interactions. Otte et al. (2018) found that few team reflection studies have explained the processes involved in implementation and that further studies need to be done to identify these processes such as the concept of team planning where teams do not only make a decision on what to change but engage in a discussion about who is going to implement the decisions and how they will do so.

Table 11 summarizes the results of all considerations made in team reflections, their common characteristics, whether changes occurred, and potential supporting and detracting factors. Following this table is an analysis of the actions and changes that were verified.

Table 11

Interaction Change Characteristics and Potential Supporting and Detracting Factors

Consideration Description	**Action Type** (Interaction or Task)	**Action Relationship Type** (Inter or Intra Team)	**Commitment Level** (Explicit, Implicit, Adaptive)	**Change Observed**	**Potential Supportive Factors**	**Potential Detracting Factors**
Socialization	Interaction	Intra	Implicit	Yes	Visual feedback Discussion on meaning of interaction Members' recognition that interaction is valuable Time discussed: 4 min or 52% of the total team reflection time	None identified
Timely arrival to meeting	Task	Intra	Explicit	Yes	Team and individual role expectations	None identified
Advocacy	Interaction	Intra	Organic	Yes	Meeting purpose and task demand interaction Meeting characteristics support interaction	None identified

Consideration Description	**Action Type** (Interaction or Task)	**Action Relationship Type** (Inter or Intra Team)	**Commitment Level** (Explicit, Implicit, Adaptive)	**Change Observed**	**Potential Supportive Factors**	**Potential Detracting Factors**
Add commitment to tracker and discuss in subsequent meeting	Task	Intra	Explicit	Yes	Facilitator's suggestion Senior Member's agreement with idea Low level of difficulty in implementing commitment	None identified
Place prompt into task list to discuss how to manage change	Task	Intra	Explicit	Unsure	Facilitator's suggestion Members' agreement with idea	None identified
Schedule stakeholder mapping and change management exercise	Task	Intra	Explicit	Unsure	Facilitator's suggestion Members' agreement with idea	None identified
Create list of unknowns to know and allow for project to move forward	Task	Intra	Implicit	Unsure	Members' suggestion Members' agreement with idea Task criticality	People needing to support and execute idea not present in the meeting
Meet with bosses between meetings to advise of unknowns	Task	Inter	Implicit	Unsure	Members' suggestion Members' agreement with idea Task criticality	Facilitator not prompting decision making People needing to support and execute idea not present in the meeting

Consideration Description	**Action Type** (Interaction or Task)	**Action Relationship Type** (Inter or Intra Team)	**Commitment Level** (Explicit, Implicit, Adaptive)	**Change Observed**	**Potential Supportive Factors**	**Potential Detracting Factors**
Complete team check in meeting to ensure efforts and message are aligned	Task	Intra	Implicit	Unsure	Facilitator's suggestion Senior Member's agreement with idea	Not enough time in meeting to make decision
Speak with CFO about FTEs	Task	Inter	Implicit	Unsure	None observed	People needing to support and execute idea not present in the meeting

Below are examples of the discussions where changes were observed and how all these characteristics emerged. The analysis identifies potential supporting and detracting factors influencing implementation of considerations made.

Socialization and Timely Arrival to Meetings

In the excerpts shown in table 12 below, the team follows the path up to evaluating and reviewing strategies and looking for alternatives. No decisions are made about whether they should socialize more; however, they agreed with each other about the importance of socialization and the discussion lasted four minutes or 52% of the total duration of the team reflection (the excerpts below do not include the whole reflection on socialization). Previously, Speaker #2 asked what socialization meant as a result of the visual feedback presented to the team showing that the team had not engaged in socialization during meeting #1. The facilitator then proceeded to answer the question and further reflection ensued. Although no explicit decision was made, the team ended up engaging in socialization interactions at the beginning of every meeting from meeting 2 through 5.

This type of reflection followed the observed path without making an explicit decision. In addition, facilitating factors included the presentation of the feedback, support and agreement among team members, and the time spent on the reflection, which was one of the longest recorded across all reflections.

It is interesting to note that Speaker #2 made a very explicit decision without any observable team reflection, which was prompted by a question that the facilitator asked about what they wanted to do differently. In this meeting, Speaker #2, who is the project manager, arrived 14 minutes late to the meeting and another team member had to step in to facilitate the meeting. At the beginning of the team reflection, the facilitator presented the feedback and noted that Speaker #5 "who is facilitating spent the bulk of the time talking." This observation as well as Speaker #2's role expectations might have led him to express his desire to ensure that he is not late to any other meeting, which in fact occurred. Speaker #2 was always the first person to log into the virtual meetings.

Table 12

Excerpts Related to Changes on Socialization and Timely Arrival to Meetings

Statements	**Observations**
Speaker #1: I've been in a lot of meetings where 90% of the meeting is the socialization and being taken off task. I think this group knows each other fairly well. I think we've had those moments. I don't think there was a need for a lot of stupid jokes beginning of the meeting. Sometimes there is, but today I felt like we were just ready to get down to business so I thought it was good and didn't necessarily need that piece. Other times you certainly do and I think that's a huge part of what's missing from virtual meetings is the conversations after the meeting or walking to the meeting. And so I would love to know ways to creatively insert that into meetings without it becoming a disruption where you can replicate some of what you miss from a live meeting.	This is an excerpt of a conversation that lasted 4 minutes of 52% of the total duration of the team reflection Speaker #1 engages in evaluating and reviewing strategies and looks for alternatives

Statements	**Observations**
Facilitator: Yeah, sounds like there's some agreement there.	Facilitator notices agreement and expresses his observation, which prompt further evaluation
Speaker #2: Yeah, I agree. I think that's one thing you miss is just being able to interact with people more on a personal basis rather than just task-oriented basis.	Speaker #2 reflects on or looks for alternatives
Speaker #3: I agree. I think it's an example of we meet weekly, so we tend to see, and some of us even more than that, so sometimes we've had those conversations pre post other meetings or we're already meeting three of the week, not obviously today it's Tuesday. But I think that's part of it. But I agree that there's some part of that socialization that's lacking. But for what [Speaker #1] said, this is a great group that we do tend to stay very task oriented, but I would almost, I don't want to assume it's socialization, but some of the things [Speaker #4] and I were able to share some situations that have occurred that are great examples of fails or wins or why this project is so important can almost be considered a socialization because it wasn't super task oriented. It was more a back and forth conversation showing…	Speaker #3 evaluates and review strategies and agrees with previous speakers
Speaker #4: I agree. I also think the socialization, although we know each other and know what we do, it's a new project. So there's going to be a lot of task orientation and I think as we a smaller group come together more, there's probably going to be more of those things inserted that are funny or socializing. I mean, for instance, after the last message I had to send [Speaker #2] a message about his horse picture, which I may have said if we had been in a group like this for a long time, I may have said in the middle of the meeting.	Speaker #3 evaluates and review strategies and agrees with previous speakers
Facilitator: So, what, if anything, would you like to do as a team for next time? There's anything you'd like to do differently?	Facilitator prompts team to look for alternatives
Speaker #2: Will do better to be on time and schedule my doctor appointments appropriately.	Speaker #2 makes explicit decisions about timely arrival. However, no decision is made on whether team will engage in more socialization or how they will do so

Adding Commitment to Tracker

Table 13 shows the discussion that led to adding a commitment to the project's tracker. In this case, the team reflection pathway is followed all the way up to making an explicit decision. In addition to engaging in every team reflection behavior, other factors that could have influenced making an explicit decision and implementing it include the low level of difficulty in implementing decision and a senior leader's agreeing that the alternative is important. The follow up item was added to the team's tracker.

Table 13

Excerpts Related to Changes on Adding Commitments to Tracker

Statements	**Observations**
Facilitator: So, I have a curiosity and would ask this because it's not something that was immediately apparent to me anyways, is I've noticed that you all have, you'll share one of our next steps or our actions on this informally throughout the meeting. But one thing that I've seen often in times and meetings like this would be sort of a repeating back of what are those action steps, commitments, agreements? Is that something that's happening offline? Is that something that's happening informally?	Facilitators presents feedback and asks question to prompt evaluation or review of strategies ad looking for alternatives
Speaker #2: I would say some of the stuff like I'd say I catch up with Speaker #6 to look over data, I put that into the tracker of a process step that needs to happen. [Department name] meeting isn't necessarily on here. I would say it's something we're just aware of, but it's for Speaker #1 to present out on the work, not so determines the work. I don't know if I think it does.	Speaker #2 evaluates and review strategies
Speaker #6: I think that's a good point. For instance, I said I'd follow up with [Stakeholder], but I don't see that we don't document that. It's on my notes, but then my plan would be once I hear from her to feedback Speaker #2.	Speaker #6 evaluates and review strategies and agrees with facilitator's observation

Statements	Observations
Speaker #2: That's a good point. Yeah.	Speaker #2 agrees with Speaker #6's observation
Facilitator: So I ask this because it's helpful to have accountability measures for these actions and especially as things get a little bit more hectic, it can be helpful to sort of document what are some of the decisions that are made in the moment or the actions that are committed to for future reference. Again, it is a little extra work to put together those action items, so it would really depend on what's working for you all, whether you feel that's worth the little bit of extra effort, whether you think it's needed, but just an observation that I've noticed.	Facilitator looks for alternatives by making a suggestion
Speaker #2: I think that's great. I'll start to Speaker #6 to follow [Stakeholder] and then at the beginning of our next meeting we'll reconnect and do that first and say how did that follow up go? and have a discussion there before we get into the timeline. It's a good call out.	Speaker #2 makes an explicit decision

Advocacy

The team reflection in meeting #1 does not include discussions on advocacy interactions other than the presentation of the feedback where the facilitator showed that there were no advocacy interactions (see reflection #1 excerpt in Table 14). In Team reflection #2, the facilitator presented increases in advocacy interactions. Speaker #2 mentioned that he noticed increases in inquiries about what needs to happen. The facilitator also noticed that Inquire interactions continued from the previous meeting but that new ideas and suggestions occurred more, which are advocacy behaviors. In fact, inquire interactions decreased 10 interactions from 26 to 16, while advocacy interactions increased by 6 interactions from 0 to 6.

Due to the lack of discussion and no decisions made on advocacy interactions in meeting #1, increases in interactions in meeting #2 and meeting #3 are likely an adaptive group response to the task at hand and the meeting organization. For example, in the excerpts shown in table 14, speaker #2 and Speaker #6 mentioned that they are at a point in the project where they are looking at what has been done and what needs to happen to move the project along, which speaks to their view on the task at hand. Based on notes captured in memos, meeting #2 did not only involve updates on tasks, but also advocacy interactions such as discussions on how to coordinate with other departments, and reviews of the future state and what needed to happen or not to implement phase 1 of the project.

In addition, Speaker #6 mentioned that there is a well-defined timeline and lists of tasks to review, which allows them to look ahead and understand what might be needed. This speaks to meeting organization factors such as the organization of the information presented as a clear timeline, which seems to have promoted inquire interactions (questions seeking information) and advocacy interactions (suggesting a new course of action).

Table 14

Excerpts Related to Changes in Advocacy

Statements	**Observations**
In Reflection #1, Facilitator: I think this is also really interesting, the balance between inquiring versus advocating, task-focused statements versus social statements or discussion and support versus disagreement. So, almost entirely 100% entirely balanced towards the left side of those dichotomies.	Facilitator presents the visual feedback, which calls out the observation that there is a lot inquire and no advocacy
In Reflection #2 from this point forward in this table, Facilitator: …And I think there was a good deal more of advocacy, specifically putting forward some new ideas and suggestions, which people then ran with still a lot of inquiry and task focus….	Facilitator presents feedback and calls out increases in advocacy.

Statements	**Observations**
Reflection #2, Facilitator (Continued) But from this, I'm curious, what changed for you all, if anything, in the quality or content of this meeting?	Facilitator Also asks question to evaluate and review strategies.
Speaker #2: I'd say it's more past focused and making sure we're moving the project along.	Speaker #2 evaluates and reviews strategies
Speaker #6: I guess from my perspective, I feel like we have a fairly well-defined timeline and looking back to where we're at with those targets just seems to, I don't know, it enhances the quality for me because we're continuing to look at the tasks ahead and what might come from that and seeking additional information.	Speaker #6 evaluates and reviews strategies. Specifically, what contributed to success of the meeting.
Facilitator: So it feels like format and the rhythm of the meeting is still really meeting the overall goals that you all have as a team working together on this?	Facilitators prompts people to further evaluate and review strategies
Speaker #6: From my standpoint, yes.	Speaker #6 agrees with observation and question
Facilitator: Okay. Was there anything that felt different or that you noticed in terms of turning something up, turning a behavior up or turning it down?	Facilitators prompts people to further evaluate and review strategies
Speaker #2: Just continuing to inquire what needs to happen next steps anticipate to the future, not just these next week, but what needs to happen come September to make sure we're continuing to move along.	Speaker #2 evaluates and reviews strategies

Interactions That did not Change Significantly

In addition to considering the most salient interactions such as Task and Inquire, which the team engaged in because they believed they were important to advance their project; and their seemingly organic engagement in Advocacy, which allowed them to deal with unknowns they were facing; it is also important to consider why some interactions did not change much over time as this analysis could shed light into additional detractors not considered above because these interactions were discussed very little or not at all.

For example, there were interactions that did not change until the very last meeting such as disagreements. The most likely reason is that the team did not see this interaction as relevant to them at this point in their project cycle. For example, when the facilitator presented the team with the feedback that disagreements did not occur and the importance of productive conflict within the team, two speakers agreed that productive disagreements do not happen within the team, but it happens or will likely happen late in the project with external stakeholders, especially, as they involve others to make decisions. One occurrence of disagreement occurred in the last meeting which involved the two IT stakeholders, which supports the team members' point of view. There was never an occasion when a team member discussed whether they should engage in disagreements within the team.

In an earlier discussion in this capstone on the reason decision making did not occur more often, it was pointed out that the team stated that they would have preferred more prescriptive feedback because there were opportunities that some team members did not want to bring up. Despite their healthy levels of psychological safety, this hesitancy might occur because of the team's stage of development. Even though the team's stage of development was not assessed; it was known that they had just come together for the first time as a team to work on a specific common goal of implementing a new hospital-wide process. While they had worked with each other before in their individual roles and had reported familiarity and an ability to communicate openly with each other, it is likely that they

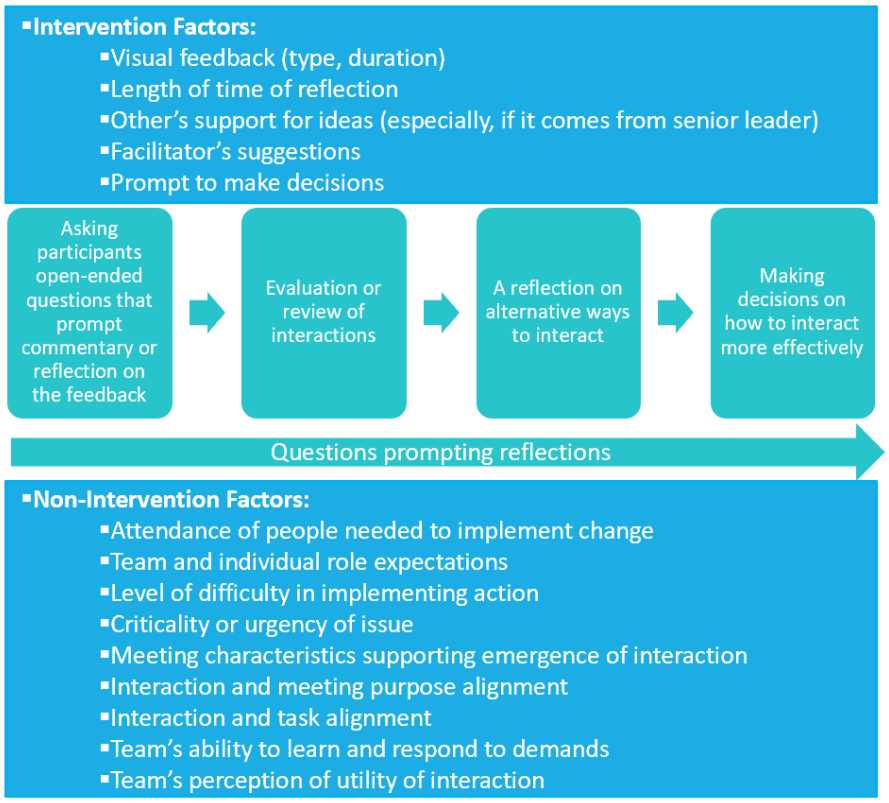
might not have yet had the need to engage in more sensitive and risky conversations inherent in complex challenges and in more mature teams.

The team's inability to bring up concerns regarding interactions that might have prevented them from advancing the project might also be a cause for not achieving higher improvements in interactions as shown by the survey item related to the extent to which they believed interactions improved since their last meeting. That is, while they reported that interactions improved somewhat and to a great extent, they never stated that interactions improved to a very great extent. In addition, as will be explained in the next section, while meeting effectiveness ratings were positive, they did not increase above a rating of 4.06 over time.

As a result of the above analysis, the following intervention and non-intervention factors were identified as potentially having an impact on team reflections and driving changes (see Figure 10).

Figure 10

Potential Intervention and Non-Intervention Factors Influencing Changes in Interactions



Project Question 2.c: How do Meeting Interactions Influence Meeting Effectiveness and Satisfaction?

Finding 5: About 86% of Meeting Effectiveness and Satisfaction Ratings Were Moderately to Highly Influenced by Meeting Interactions

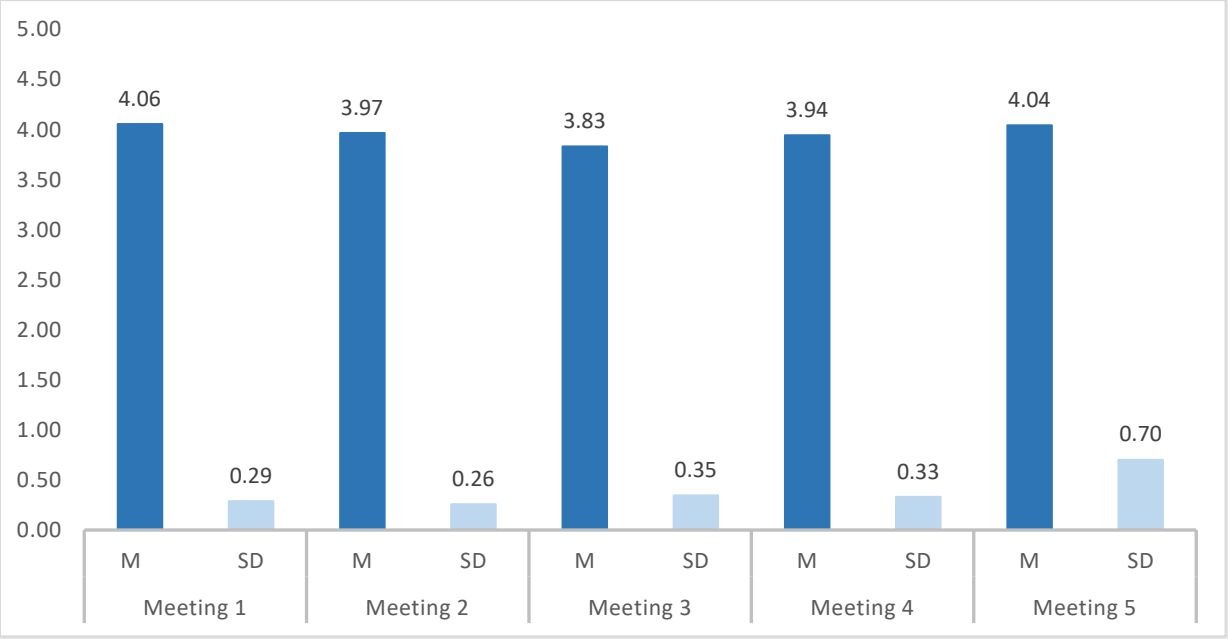
Before reviewing how interactions influenced meeting effectiveness and satisfaction ratings, it will be helpful to understand how the team rated meeting effectiveness and satisfaction. As shown below, these ratings demonstrate a positive perception of effectiveness and satisfaction.

Meeting Effectiveness

Assessments of perceived meeting effectiveness remained stable over time (see Figure 11). The overall rating of meeting effectiveness over the course of 5 meetings was 3.97 on a 5-point scale, denoting moderate to high levels of meeting effectiveness. The first meeting received an overall rating of 4.06 and subsequent meetings showed a decrease to a maximum decrease of 0.23 points, followed by an increase to 4.04 in the last meeting. Over the course of the five meetings, the standard deviations for each overall rating remained high, ranging from 0.29 to 0.70, denoting high agreement.

Figure 11

Perceived Meeting Effectiveness, Mean Ratings and Standard Deviations by Meeting



Note. M = Mean; SD = Standard Deviation

The average rating for each item also remained stable over the course of the five meetings. The most highly rated items were “promoting commitment to what was said and done in the meeting”, “providing you with an opportunity to acquire useful information”, and “achieving your project team’s goals”. The lowest rated items included “providing you with an opportunity to meet, socialize, or network with people”, “achieving your own work goal”, and “achieving colleague’s work goals” (see Table 15).

Table 15

Perceived Meeting Effectiveness, Means and Standard Deviations by Survey Item and Meeting

	Meeting 1		Meeting 2		Meeting 3		Meeting 4		Meeting 5			
	M	SD	M	SD	M	SD	M	SD	M	SD	**Mean by Item**	**SD by Item**
Achieving your project team's goals	4.17	0.37	4.00	0.00	3.80	0.40	4.00	0.00	4.25	0.83	4.04	0.46
Achieving your own work goals	4.00	0.37	4.00	0.00	3.80	0.40	4.00	0.00	3.75	0.43	3.91	0.28
Achieving colleagues' work goals	4.00	0.37	4.00	0.00	3.80	0.40	3.67	0.47	3.75	0.43	3.84	0.34
promoting commitment to what was said and done in the meeting	4.33	0.37	4.20	0.40	4.00	0.00	4.33	0.47	4.25	0.83	4.22	0.51
Providing you with an opportunity to acquire useful information	4.00	0.37	4.00	0.00	4.00	0.00	4.00	0.00	4.25	0.83	4.05	0.36
Providing you with an opportunity to meet, socialize, or network with people	3.83	0.37	3.60	0.49	3.60	0.49	3.67	0.47	4.00	0.71	3.74	0.53
Total	**4.06**	**0.29**	**3.97**	**0.26**	**3.83**	**0.35**	**3.94**	**0.33**	**4.04**	**0.70**		

Note. M = Mean; SD = Standard Deviation

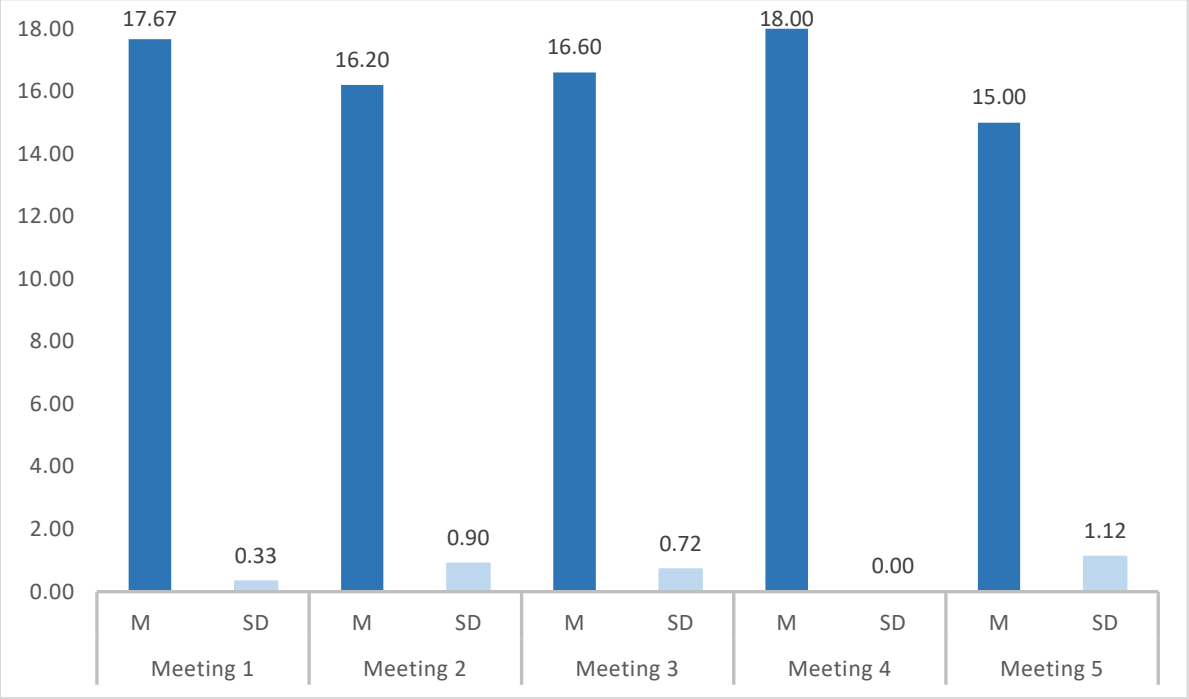
Meeting Satisfaction

Assessments of meeting satisfaction also remained relatively stable over time (see Figure 12). The overall rating of meeting satisfaction was 17.67 based on a possible total score of 18, denoting high levels of meeting satisfaction since the first meeting. Subsequent meetings showed some variability (both decreases and increases), ending in a score of 15 in the last meeting. For the first four meetings, the standard deviations for each overall rating ranged from 0.33 to 0.90, denoting high agreement in the first 4 meetings. In the last meeting, the standard deviation was 1.12 due to one respondent answering ‘no’ to every satisfaction item. It might be possible that the dichotomous characteristics of satisfaction

can occur at the same time. That is, a meeting can be both not stimulating and not boring, or both not satisfying and not enjoyable. It is important to highlight that this respondent also answered 'neutral' to every item in the meeting effectiveness survey for the last meeting.

Figure 12

Meeting Satisfaction, Mean Ratings and Standard Deviations by Meeting



Note. M = Mean; SD = Standard Deviation

The average rating for each item also remained stable over the course of the five meetings, except for the last meeting. The most highly rated items with complete agreement were "boring", "unpleasant", and "annoying". For the first two, these ratings denote complete agreement that none of the meetings was boring and unpleasant. Only the last meeting was characterized as "annoying" by one respondent. The lowest rated items included "stimulating", "satisfying", and "and "enjoyable"; however, it is important to note that about 86% of the responses characterized the meetings as stimulating, satisfying, and enjoyable. The rest of the responses either did not categorize them as such (about 10%) or were not sure (about 4%) (see Table 16)

Table 16

Meeting Satisfaction, Means and Standard Deviations by Meeting and Survey Item

	Meeting 1		Meeting 2		Meeting 3		Meeting 4		Meeting 5			
	M	SD	M	SD	M	SD	M	SD	M	SD	Mean by Item	SD by Item
Stimulating	2.67	0.75	2.40	1.20	3.00	0.00	3.00	0.00	2.25	1.30	2.66	0.91
Boring	3.00	0.00	3.00	0.00	3.00	0.00	3.00	0.00	3.00	0.00	3.00	0.00
Satisfying	3.00	0.00	2.40	1.20	2.40	1.20	3.00	0.00	2.25	1.30	2.61	1.01
Unpleasant	3.00	0.00	3.00	0.00	3.00	0.00	3.00	0.00	3.00	0.00	3.00	0.00
Enjoyable	3.00	0.00	2.40	1.20	2.20	0.98	3.00	0.00	2.25	1.30	2.57	0.97
Annoying	3.00	0.00	3.00	0.00	3.00	0.00	3.00	0.00	2.25	1.30	2.85	0.61
Total	**17.67**	**0.33**	**16.20**	**0.90**	**16.60**	**0.72**	**18.00**	**0.00**	**15.00**	**1.12**		

Note. M = Mean; SD = Standard Deviation

Influence of Meeting Interactions on Meeting Effectiveness and Satisfaction

Figures 13 and 14 show the results of the analysis conducted to determine whether interactions or other factors might have had an influence in how team members rated meeting effectiveness and satisfaction. Results fell into six quadrants based on the number of responses meeting two conditions: the influence level of the interactions measured by two items in the perceived interaction effectiveness (PIE) scale and ratings of meeting effectiveness (ME) and satisfaction (MS). The PIE items were today's meeting interactions influenced how I assessed meeting effectiveness and today's meeting interactions influenced how I assessed meeting satisfaction.

The influence of the interactions on ME and MS ratings were considered high if the average response for each was 4-5 and low if it was 1-2 on a 5-point Likert scale. The influence of interactions was considered moderate if the average response was a 3. No moderate levels of ME/S were used because what ultimately determines whether interactions had an impact on ME/S is the level of influence of interactions. Nonetheless, it is prudent to point out that there were only 3 data points that included moderate levels of ME/S, which would not have changed in any significant way the proportion of interaction influence.

More specifically, high levels of influence, as rated by team members, points to the respondent's belief that interactions influenced his/her ratings of ME/S to a great extent or a very great extent. Low levels of influence means that they believed that interactions influenced their ratings of ME/S very little or not at all. Moderate levels means that interactions somewhat influenced the respondent's ratings of ME/S. As shared before, moderate levels of influence were only categorized for high or low levels of ME/S given that they only had an impact on 3 moderate ratings of ME/S.

Based on the analysis shown in figures 13 and 14, 38% of both ME and MS ratings are highly influenced by interactions; about 48% of the ratings of ME and 52% of MS are moderately influenced by meeting interactions, which could mean that other factors could have influenced the ratings. On the other hand, 14% and 10% of the ME and MS ratings, respectively, were not influenced at all or very little by interactions. Again, adding the last 3 data points would have increased the percentage of moderate influence to over 50% for both ME and MS, not changing the proportion of the influence. Since the ME/S ratings were consistently high, the level of influence of the interactions or the influence of other factors resulted in few moderate and mostly high levels of ME/S. There was only one instance when a mix of interactions and other factors had an influence on low levels of MS.

Figure 13

Influence Level of Meeting Interactions on Meeting Effectiveness Ratings

	Low (1, 2) **Meeting Effectiveness** High (4, 5)	
High (4, 5)	0	**38%** highly influenced by interactions
Interaction Influence	0	**48%** moderately influenced by interactions
Low (1, 2)	0	**14%** little to no interaction influence

Figure 14

Influence Level of Meeting Interactions on Meeting Satisfaction Ratings

	Low (1, 2) **Meeting Satisfaction**	High (4, 5)
High (4, 5)	0	**38%** highly influenced by interactions
Interaction Influence	**4%** moderately influenced by interactions	**48%** moderately influenced by interactions
Low (1, 2)	0	**10%** little to no interaction influence

This analysis comports with meeting effectiveness research detailed in the literature review which finds that other factors such as the distribution of the meeting agenda and meeting lateness can have an impact on perceived meeting effectiveness and satisfaction. For example, Allen et al. (2014) found that the clarity of the goal and timely start of the meeting in addition to making a record of decisions made during the meeting and the distribution of the discussion among participants accounted for more than 40% of how people perceived meeting effectiveness. Therefore, the analysis detailed below attempts to identify interaction and non-interaction factors that impact meeting effectiveness and satisfaction.

Finding 5.1: Alignment Between Team's Objective, Meeting Purpose, and Meeting Interactions Influenced Meeting Effectiveness and Satisfaction

An analysis of the team reflections shed some light into the potential impact of key interactions on ratings of meeting effectiveness and satisfaction. Team members made comments that explained why they felt some interactions were needed in light of what they were trying to accomplish. In addition, team members expressed satisfaction with how they interacted in every meeting.

Needed Interactions and Meeting Purpose

In terms of the type of interactions needed, there were several comments team members made about the need to review what they had done and what needed to happen next. This type of discussion allowed them to share and discuss key information and make decisions on next steps, which they felt was necessary.

For example, in meeting #1, team members said “it may just be a short and sweet meeting where we are just checking boxes, but we're all on the same page with that. I think they're necessary meetings.” And another team member said “I think that that's where all of our minds are. Like, what do I need to do? What's my task?” As a result of the visual feedback the facilitator presented, which showed the majority of the interactions to be Task and Inquiry-related, team members stated “I think for the purposes of this meeting, this was exactly what we needed.” Another member said “very task oriented. It got us to where we need to get moving forward.”

According to an analysis of observations and comments in the team reflections, the purpose of these meetings centered around the review of tasks, sharing and seeking information, coordination of work, and solving problems. Team members validated that most of the interactions they engaged in, namely Task, Inquire, and Advocacy interactions, helped achieve the purpose of their meetings, denoting a perceived alignment between their meeting purpose and the interactions they thought were important to achieve this purpose.

Team’s Objective

Team members were also very interested in advancing the project. This focus and concern became more evident starting in meeting #3 when team members stated that they needed to know key information to move the project forward and culminating in meeting #5 where they stated how great it felt to know that the project was viable. One team member said:

> "I was excited to see the action planning part. I think it was nice to actually walk away with knowing our timelines could be hit, that it's doable. I think this was one of the first times that we had like some box, I don't want to say boxes checked, but like we have true date, action happening, um, with all the team players."

Another team member said:

> "I think it was a pretty good meeting. I think considering we had two very specific tasks for this meeting. We needed to make sure that our guests get what we need and give them the information they need to get their task done. So, I think this [meeting] had a little different spin to it. And I think not only were we able to accomplish that, but then those last few minutes where we went through the checklist, I thought was super helpful."

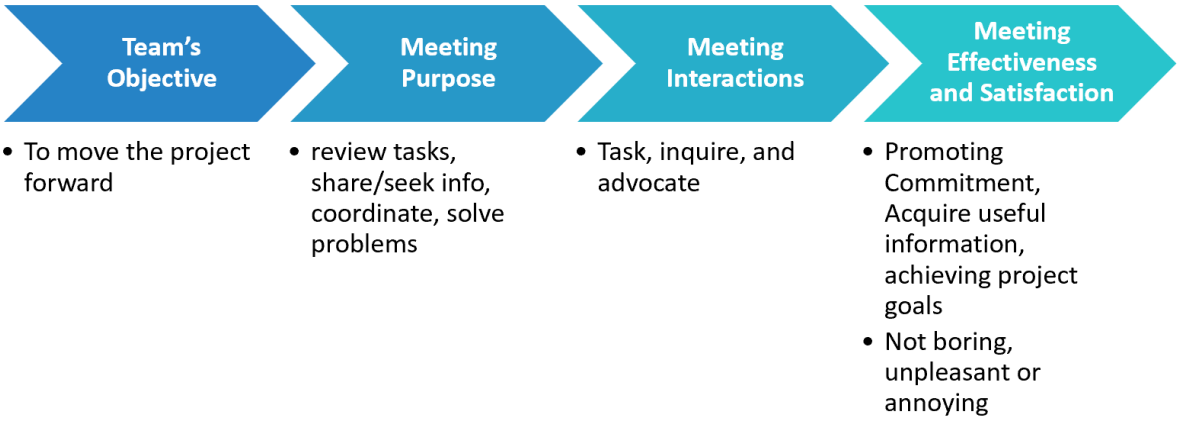
Another team member stated their discontent with not following up with issues shared in the meeting, which would prevent their project from moving forward. When asked in the focus group about what contributed to meeting effectiveness, the team member mentioned that the team did not revisit things they had discussed and instead, they kept bringing the issues back again and again.

In addition to these statements, meeting effectiveness ratings decreased over time and in meeting #3, the overall rating reached the lowest level of 3.83. Meeting #3 was characterized by raising awareness about information that the team felt they needed to know before implementing the project. While all items declined, the survey items related to advancing the project team's goals and promoting commitment to what was said in the meeting had the largest decline. That is, a 0.38 and 0.33-point decline, respectively, vs. an average of around 0.21 points or no decline at all for all other items. These were related to advancing other's or own goals, and acquiring useful information, and the opportunity to socialize. This steeper decline for advancing the project team's goals showed the importance of making progress to the team.

In summary, the above statements demonstrate that the team appreciated the way they interacted in meetings because these interactions (mostly task, inquire, and advocacy) helped the team achieve the purposes of their meetings (i.e., task review, share information, solve challenges), which they believed would allow them to achieve their team's objective (advance the project). Therefore, an alignment between these elements likely influenced how they rated meeting effectiveness and satisfaction. Figure 15 shows how these elements interact to drive meeting outcomes.

Figure 15

Type of Interactions Driving Meeting Effectiveness and Satisfaction



Project Question 2.d: What Additional Factors Influence Meeting Interactions and Meeting Effectiveness and Satisfaction?

Finding 6: Meeting Design and Participation Factors Also Influenced Meeting Effectiveness and Satisfaction

Since 48% to 52% of the assessments of meeting effectiveness and satisfaction may be due to a mix of interactions and other factors, an analysis of team reflections and the focus group was conducted to see what factors beyond interactions might have had an impact. According to the analysis, non-interactions factors could be categorized as follows:

Table 17

Other Factors that Influenced Meeting Effectiveness and Satisfaction Ratings

Factor Name	**Description** (Based on team members' responses)	**Reason it affects ME and MS** (Based on team members' responses)	**Supporting Research**
Task Organization	Organizing the tasks before the meeting by using tracker and creating a well-defined timeline.	Promotes clarity and order. It shows up as orderly report out and few interruptions.	Meeting design characteristics (Leach et al., 2009) Effective Involvement (Geimer et al., 2015)
Member Participation	Having an equal distribution of conversation or ensuring everyone expresses their views.	It allows for people to achieve their aims in meetings.	Open Communication (Allen et al., 2014) Personal involvement (Leach et al., 2009)
Number and Type of Meeting Participants	Having the correct number of people. In this case, not too many people. Having the right people in the meeting.	Could allow for a more equal distribution of the conversation and it is easier to participate, especially in a virtual meeting. Having people that allows them to accomplish their objectives. For example, IT folks who can confirm collaboration and viability of project. On the other hand, not having a team member to provide the information they needed in a given meeting.	Having the right number of attendees (Allen et al., 2021), including in remote meetings (Cutler et al., 2021)

Factor Name	**Description** (Based on team members' responses)	**Reason it affects ME and MS** (Based on team members' responses)	**Supporting Research**
Agreement on Purpose of Meeting	Being aware and agree on the purpose of the meeting.	Creates clarity on what the meeting is for and what participants are expected to do, which might drive preparation and proper interactions.	Task-oriented focus (Allen et al., 2014) Effective Involvement (Geimer et al., 2015)
Team members' engagement level	Members' commitment and motivation to advance the project.	Team members become invested and motivated to advance the project due to the potential positive impact to their own work.	Personal Involvement: Working hard (Leach et al., 2009)

Task Organization

The organization of the tasks was the factor with the greatest number of mentions throughout the meetings. For example, one of the members mentioned that she thought that the meeting "…was centered on a well-organized task. Somebody did some background to get the topics ready so we didn't have to fumble around and keep switching screens." Another member stated "we have a fairly well-defined timeline and looking back to where we're at with those targets just seems to, I don't know, it enhances the quality for me because we're continuing to look at the tasks ahead..."

These comments point to how organizing the information before the meeting helps promote clarity and order. That is, they value organization (through the tracker and clear timeline) because it leads to orderly discussions (through orderly report out) and the ability to look ahead to advance the project.

As shared in the literature review, meeting effectiveness research shows a similar phenomenon through the creation of an agenda and its distribution before the meeting (Leach et al., 2009). Like the

agenda, the project tracker and the team's understanding of what the meeting purpose is might allow team members to prepare and be ready to participate actively and effectively during the meeting.

Member Participation and Number/Type of Meeting Participants

Meeting participant factors may also impact meeting effectiveness and satisfaction according to participants. Namely, the number of meeting participants and having the right people in the room. A member stated that "…I think it was a fairly equal distribution of conversation, the right number of people on this meeting. So, I think it was a great, probably the best one of the day so far." This member's perception was correct in terms of having a fairly equal distribution of the conversation in meeting #1, excluding the facilitator, when this team member made this comment. However, it is important to note that other meetings did not show an equal distribution despite having a small number of participants. Every meeting after meeting #1 had one or two members whose participation took on much more time than others'.

However, one of the team members pointed that it was important for people to participate to have their voices heard, which might not necessarily mean that equal participation is important. The team member said "making sure that, you know, everyone kinda has a different point in this project and making sure that they get out of it what they're looking for too" was important. And this can surely be accomplished in various ways, not just by having a small number of participants.

Meeting effectiveness research shared in the literature review also points to the importance of having the right number of people, which could lead to more effective participation and could be attained by inviting the least number of people needed to achieve the meeting purpose (Allen et al., 2021). If meeting size and effective facilitation allow for widespread participation among meeting attendees (Leach et al., 2009) and people feel that there is open communication (Allen et al., 2014), meeting attendees are likely to perceive higher levels of meeting effectiveness.

Agreement on Meeting Purpose

Agreement on meeting purpose could also promote the ability for members to prepare and be ready for the meeting. This perspective was described by two members when they pointed out that awareness and agreement on what they are charged to do allows for people to have the correct expectation for the meeting and be better prepared for it. A member said:

> "…don't know that I necessarily change anything. I think it's great, I think if we all can have the mindset too that it may just be a short and sweet meeting where we are just checking boxes, but we're all on the same page with that. I think they're necessary meetings and I agree."

Another member stated:

"I think there's just so many moving parts in starting everything and I think it's hard. I mean I think that that's where all of our minds are. Like, what do I need to do? What's my task? Just trying to figure out, me personally, I don't want to show up and not have my part done or so I think at the beginning of any project, especially a project of this magnitude, I just wonder if sometimes we are super task oriented."

Allen et al. (2014) explained that the clarity of the meeting goal explained ratings of meeting effectiveness. This relationship might exist because understanding the goal of the meeting clarifies meeting expectations and allows participants to prepare properly (Cohen et al., 2011) and participate effectively (Geimer et al., 2015).

Team Member's Engagement Level

Lastly, and perhaps driving other factors, is team members' engagement level. When asked what factors contributed to meeting effectiveness, a team member said:

> "The people on the call have an intrinsic relationship with the project. So, I think there's that feeling for all of them on this is all going to help our work become easier….it helps 'em want to continue to move this project along...escalate it up to the right person so that they can help us with this barrier."

This comment speaks to how an individual but common interest (to make their jobs easier) drives behavior, which is to do what is necessary to advance the project. This behavior might show up in meetings, as actually observed, by bringing up concerns, identifying potential action items and solutions, which are essential meeting interactions to drive meting effectiveness. Meeting effectiveness research shows that personal involvement, defined as working hard in addition to widespread communication, can lead to higher ratings of meeting effectiveness (Leach et al., 2009).

The factors described above are important to consider because they could also impact perceptions of meeting effectiveness and satisfaction. In order for ConvoLens to be effective, it must consider how non-interactions factors influence attendee involvement, interactions, and meeting effectiveness and satisfactions, as described in earlier sections of the capstone.

Project Question 3.a: What is the Level of User Satisfaction?

Finding 7: Users Were Moderately Satisfied With ConvoLens

Satisfaction with the program was measured using overall measures of satisfaction and four different dimensions: Program's Characteristics, Group Feedback, Team Reflection, and Program's Impact. It is important to note that a limitation of the satisfaction results was that only three or 50% of the participants responded to the survey. In addition, only two participants participated in the focus group.

Overall Satisfaction and Net Promoter Score

The overall rating of satisfaction was measured by asking how satisfied team members were with the ConvoLens program, on a scale from 1-7 from extremely dissatisfied to extremely satisfied. The top three rating anchors (slightly satisfied, moderately satisfied, and extremely satisfied) received one response each; for an overall average rating of moderately satisfied.

The net promoter score (NPS) was measured by asking how likely the participant was to recommend ConvoLens to a friend or colleague. The overall NPS was -33.33 comprised of two passive responses and one detractor. Scores of 7 or 8 are considered passive, which denote satisfaction with the service or product, but not enough to promote it. One respondent answered with a score of 7 and another respondent with a score of 8. On the other hand, Detractors are scores from 0-6. These are usually considered people who are unlikely to purchase or may even possibly discourage others from purchasing the product. One respondent rated the NPS as a five.

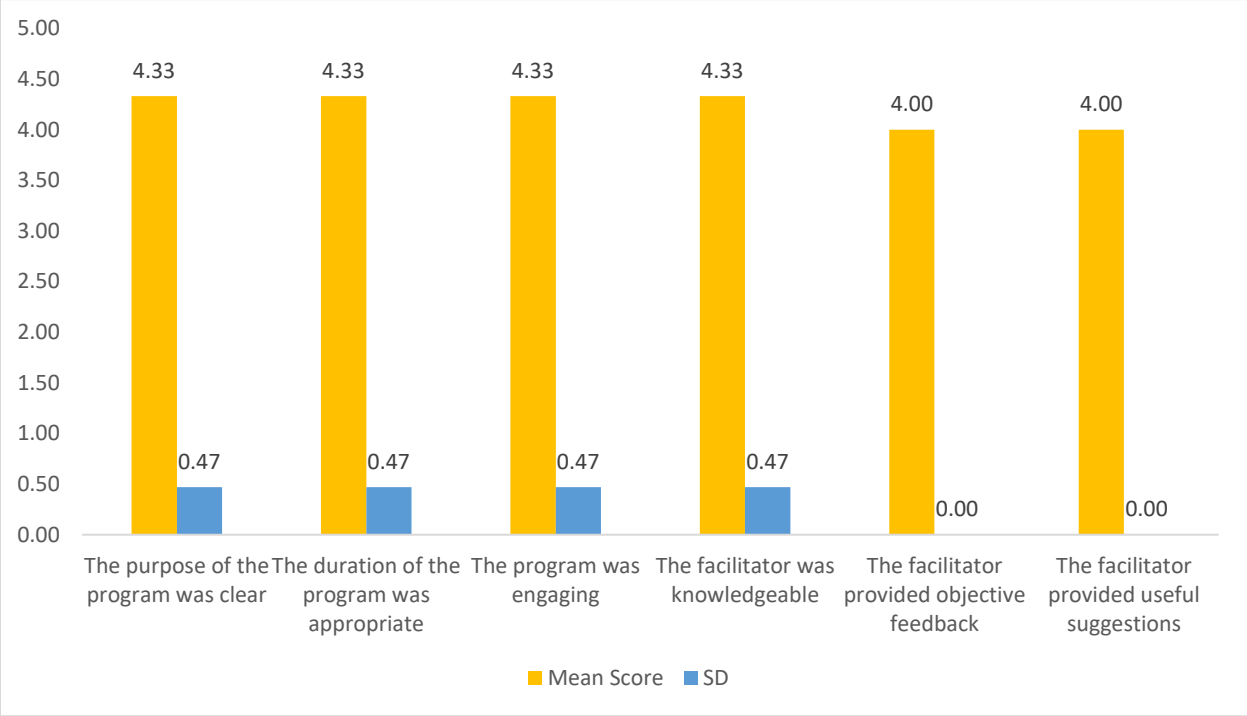
One way to understand what influenced the overall satisfaction and NPS ratings involves understanding how participants rated each dimension of satisfaction as measured by the satisfaction survey. In addition, the survey comments and focus group discussion helped shed some light into specific elements that impacted team members' ratings.

The highest rated dimension is Program Characteristics (M = 4.22), followed by Group Feedback (M = 4.00) and Team Reflection (M = 3.75). The lowest rated dimension was Program Impact (M = 3.50). These scores show that team members were mostly satisfied with program characteristics and group feedback; and team reflection and program impact might have some opportunities for improvement. Figures 16 through 19 show the mean score for each item comprising each dimension.

Every program characteristic was rated highly. Particularly, the purpose of the program, the duration of the program, how engaging the program was, and the knowledge of the facilitator (see Figure 16).

Figure 16

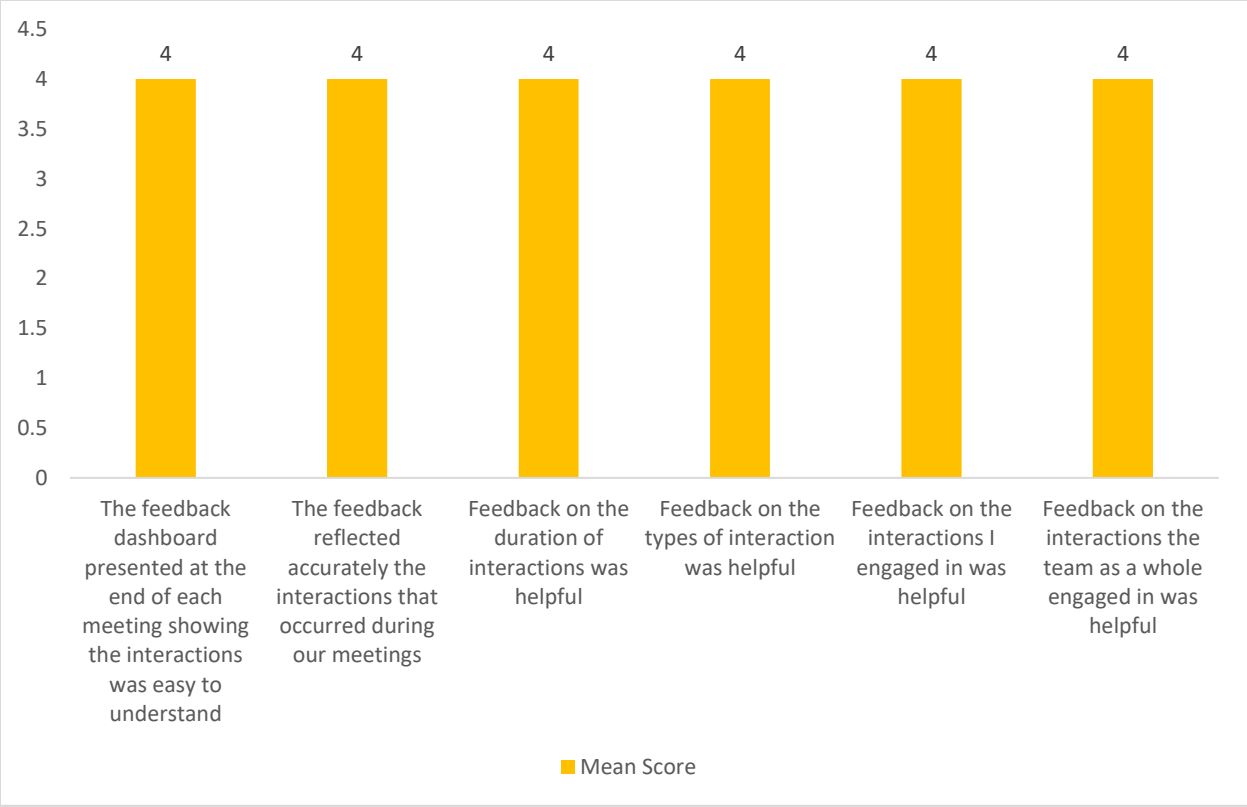
Program Characteristics Satisfaction, Mean Rating and Standard Deviation by Survey Item



The Group Feedback responses were also rated highly, and all the ratings were the same across every item, denoting agreement on all responses. People believed that the visual feedback was easy to understand, reflected accurately the interactions that occurred in the meeting, and presenting the number of minutes, the type of interactions, individual, and group-level interactions was helpful (see Figure 17).

Figure 17

Group Feedback Satisfaction, Mean Rating by Survey Item

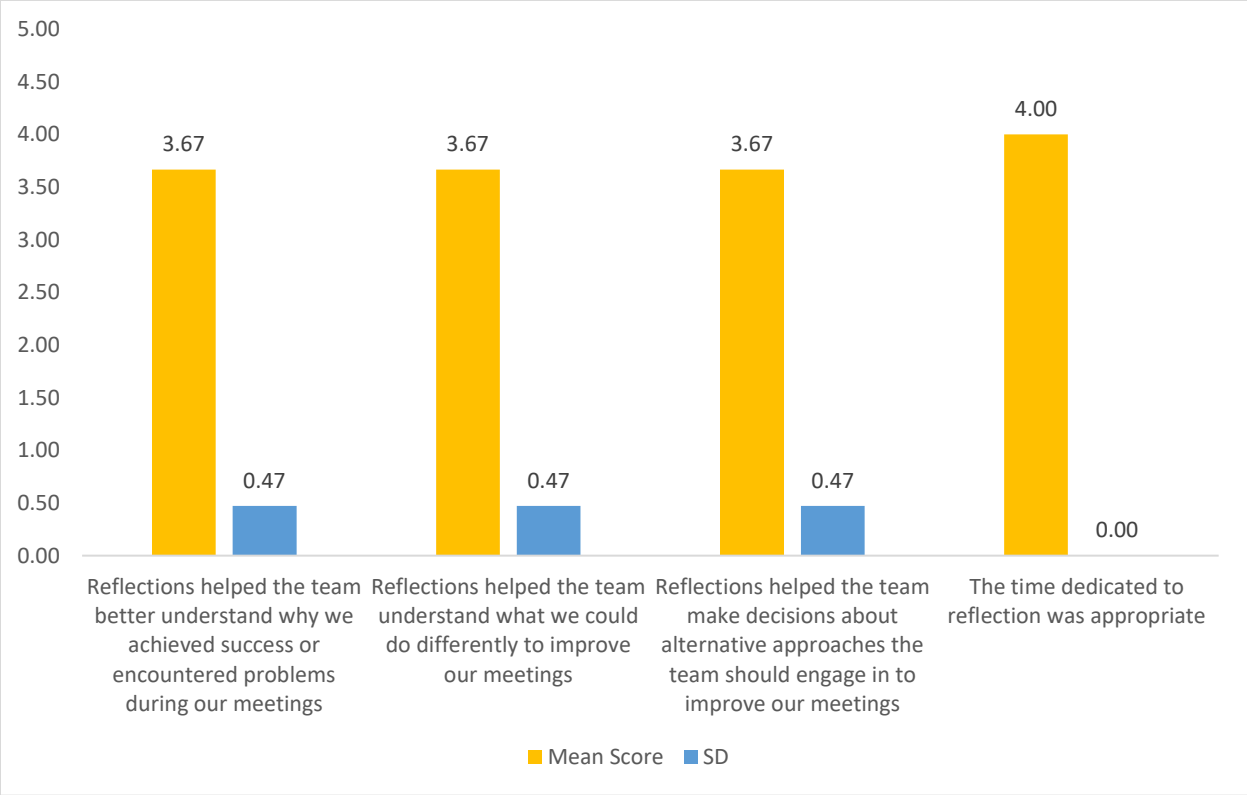


Note. Standard Deviation was zero for every item

Team Reflection scores were rated a little lower, but the scores still represented agreement with the statements. The most highly rated item was the appropriateness of the time dedicated to team reflections. Two respondents rated the rest of the items as a four or agreed and one response as neutral, perhaps pointing to some opportunities. These items spoke to how well reflections helped the team understand why they achieved success or problems, what could be done to improve meetings, and what decisions to be made to improve meetings (see Figure 18).

Figure 18

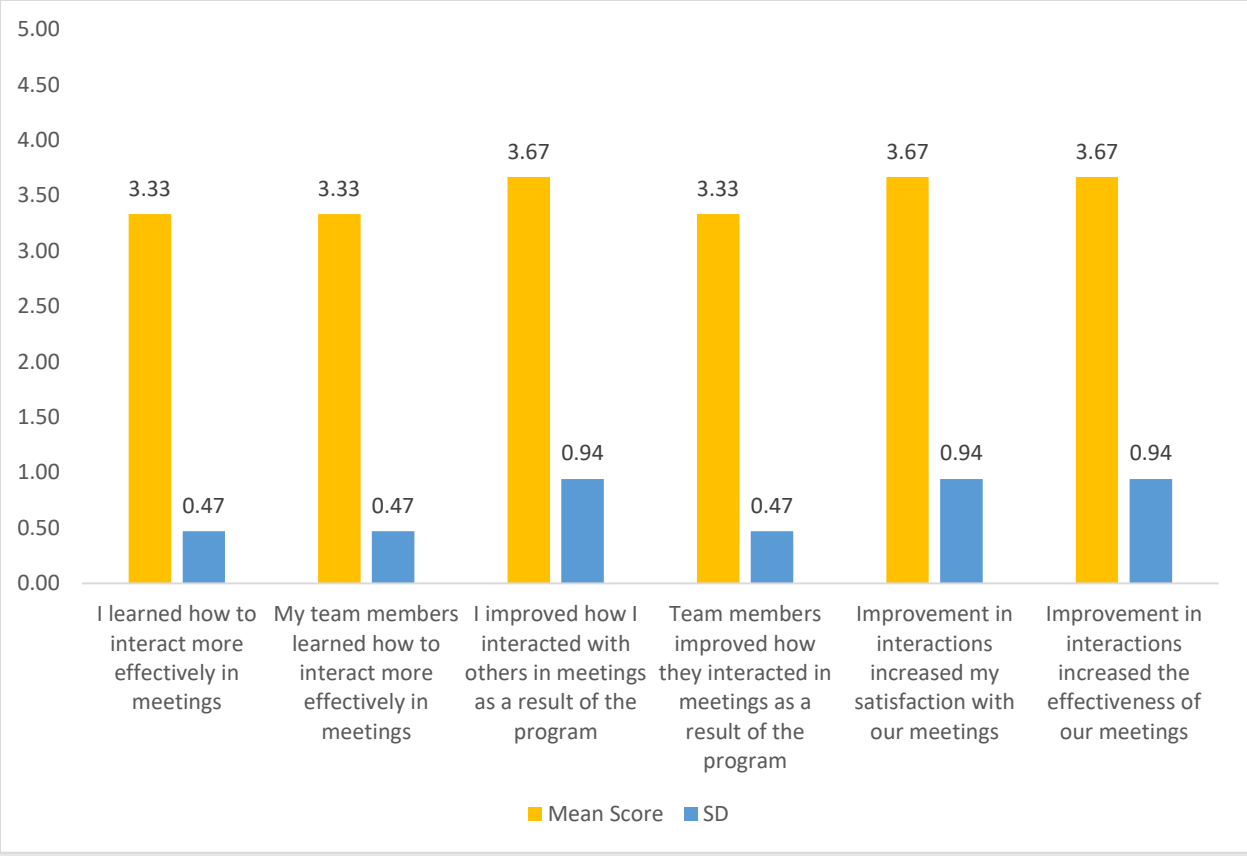
Team Reflection Satisfaction, Mean Rating and Standard Deviation by Survey Item



The lowest-rated items, but the highest variability was found in the Program's Impact (see Figure 19). That is, some people rated these items as neutral and others provided the highest rating, pointing to the largest disagreement. In this case, the highest level of agreement was related to whether the individual and the group learned how to interact more effectively in meetings, and whether team members actually improved how they interacted in meetings. More variability was found in items related to individuals improving how they interacted, and whether improvement in interactions increased their satisfaction and the effectiveness of the meeting. For these items, one response rated them as five and the other two as neutral.

Figure 19

Program Impact, Mean Rating and Standard Deviation by Survey Item



Project Question 3.b: What Factors Influenced User Satisfaction?

Finding 8: Group Feedback and Perceived Need for Intervention Influenced Users' Satisfaction With ConvoLens

The analysis of the feedback team members gave through the customer satisfaction survey and focus groups shed some light into aspects of the ConvoLens program that positively contributed to or detracted from team members' satisfaction levels. Contributing factors to user satisfaction focused mostly on feedback characteristics and their impact. The feedback provided did not contain any specific detracting factors of satisfaction. As a result, potential detracting factors were gleaned from feedback on ways that the ConvoLens program could be improved.

Contributing Factors to User Satisfaction

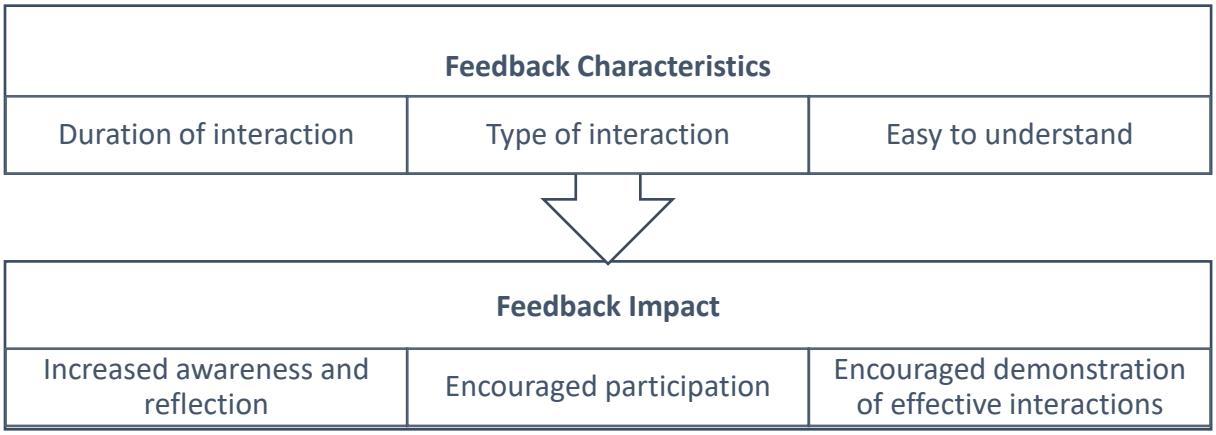
Feedback Characteristics and Impact. Team members appreciated being able to see the interaction categories, the duration of each interaction, and how long each participant spoke during the meeting. Team members also shared why they thought this information was helpful. First, knowing the type and duration of each interaction in which the team engaged prompted team members to continue engaging in the interactions needed to have productive meetings and to ensure they advanced their work. Second, being aware of how long each team member spoke during a meeting increased awareness about the extent to which each team member was contributing, which in turn motivated team members to contribute more. Lastly, feedback allowed individuals to become aware of ideal meeting interactions, reflect on how they are interacting in meetings, and as needed, engage in productive interactions. The following comment shared in the focus group summarizes these points in a compelling way:

> *"In my subsequent meetings, other meetings, I **find myself thinking** where are we spending our time? Where are we maybe lacking some time? And then, **how am I contributing or not** contributing, and vice versa. So **never have I seen things broken down like that**, but it **has made me think of every meeting differently since.**"*

In addition, team members mentioned that they thought that ConvoLens measured all the interactions that may emerge in a meeting and that the way they were presented on the visual dashboard was easy to understand. However, seeing that the team engaged in some interactions more than others and that some interactions were never demonstrated, made some team members wonder whether they were doing something wrong. Figure 20 below summarizes the factors that contributed to satisfaction.

Figure 20

Elements of Feedback Contributing to Program Satisfaction



Potential Detracting Factors to User Satisfaction

Perceived need for intervention. When asked what could be improved about ConvoLens, the team spoke about the perceived need for the intervention. That is, while the team found it helpful to receive feedback on their meeting interactions because of the reasons mentioned in the previous section, they also shared a sense that ConvoLens did not have more of an impact on the effectiveness of their interactions because they felt they were already interacting effectively. They suggested to use ConvoLens in meetings where ineffective interactions were more evident. For example, where meeting participants are known to have big egos, where participation rested on few participants, and where little gets done at the end of the meeting.

Despite research showing that a balance between dimensions and a positive to negative ratio is characteristic of high performing teams, it is important to note that the team did not have a balance between inquiry and advocacy or support and disagreement. However, they felt they were interacting effectively based on their team's objectives and meeting purpose. This could be explained by the fact that the most salient meeting purposes (task review and info sharing) did not need much disagreement

(which they stated they would need later) nor did it need much advocacy, which they demonstrated more when they had to deal with unknowns.

They also shared that their level of familiarity with each other and the project phase might have posed a challenge in relation to the impact ConvoLens had. That is, their familiarity with each other led them to interact with honesty, which allowed the team to discuss their concerns. In addition, a team member mentioned that the project was too new and required a lot of planning. As a result, task and inquiry were perceived as appropriate interactions in which to engage during their meetings.

During the team reflections, team members mentioned that they thought that they might engage in other types of interactions such as disagreements once they went into the implementation phase. Similarly, the facilitator believed the range of behaviors needed for the type of meeting this team was holding was somewhat limited. He observed that the meetings were mostly about information sharing and planning and the team was not yet doing the type of work that would require other types of interactions. These perceptions about their ability to interact effectively given their relationships, the project phase, the perceived required interactions based on meeting purpose, among other conditions as described above, might have led the team to believe the utility of ConvoLens was limited.

Users' Perspective on How to Improve ConvoLens

When asked what needed to change to improve the user's experience and satisfaction with ConvoLens, the feedback centered around elements related to feedback design and team reflection. The feedback below answers project question 3.c.

Present Progression to Identify and Provide Feedback on Patterns. Team members and the facilitator mentioned that it would have been helpful to see how current meeting interactions changed from meeting to meeting. Team members believed this feature would have been helpful so that they could see how effective or ineffective interactions had progressed and confirm that they had improved

as they deemed necessary. One team member mentioned that they believed interactions improved over time; however, he felt he could not verify it because this was not discussed or shown on the dashboard. Similarly, the facilitator suggested showing this type of progression in order to easily identify big changes in the occurrence of interactions or any key patterns on which to provide feedback.

Increase Participation in Team Reflection. Team members reported that it would have been more helpful if all team members participated in team reflections. In fact, team reflection participation data show that one team member never participated in reflections even when present and some team members participated in the team reflection discussion more than others. In addition, two team members did not attend the team reflections for meeting #3 and Meeting #4, leaving only three and two team members, respectively, to participate.

An analysis of the content in the team reflections did not reveal less engagement in team reflections. For example, the number of reflection occurrences per minute remained the same for every reflection; however, fewer people participated in the 3rd and 4th reflections, perhaps giving the impression to participants and the facilitator that others were not interested. The last reflection was the shortest reflection with a length of 5.5 minutes compared to an average of 10.6 minutes for the first four reflections. There is evidence to show that the last reflection was shorter because it was the end of the engagement and there was decreased motivation to have a robust discussion.

Team members believed that some team members "checked out" once the meetings ended but they did not know necessarily why team members might have become disinterested. The facilitator also felt that interest decreased after the first two meetings and believes that this might have occurred because the feedback might not have been relevant or compelling enough to the team since the they felt they were already interacting effectively, as well as the team's development stage potentially being in the forming phase characterized by more polite interactions vs. disagreements and conflict.

Based on team reflection transcripts and observations, some people did not attend team reflections because they had meetings to attend immediately after their project meeting. In addition, while team members mentioned that they felt that they could be honest with each other, team reflection transcripts show that the only time they had constructive feedback towards a member of their team occurred when only two members were present in the team reflection. This might point to some hesitation to express sensitive perspectives in team reflections, which would impact participation. A comment from one of the team members brings up this hesitation to light:

> "…in group talk you're just going to talk in circles and you might say, yeah, this was a great meeting, you did a good job. No one's going to be like, I think you're going to get a lot less people saying we need to do this better next time."

A team member proposed that lack of participation could be addressed by having the facilitator bring up issues or feedback that team members do not notice or surface themselves. It is important to note here that this information seems to contradict the team members' belief that they had a certain level of familiarity which led to effective interactions. While it can be true that their prior relationships were enough to promote interactions that led to effective sharing of tasks and coordination of work; limited participation and hesitancy to share constructive feedback could have had an impact on sharing issues important to their current and future success. Especially at a later stage when the creation of an implementation plan would have required more complex decisions, as was observed at the end of the ConvoLens engagement. This point brings up another opportunity brought up by both team members and the facilitator.

Provide Specific and Prescriptive Feedback. Team members would have liked more specific and prescriptive feedback, in part to encourage participation, but also to identify areas of opportunities they might not bring up or otherwise see. Similarly, the facilitator suggested to focus more on identifying

patterns of interactions and both mentioning opportunities and inviting team members to reflect on them a little more. The facilitator noticed that he might have called out some of these opportunities but did not promote reflection on all of them. For example, he did not invite people to discuss the extent to which they participated.

Additional Facilitator's Feedback

To improve ConvoLens, it is also important to obtain feedback from the facilitator since this role is central in an effective engagement. The role of the facilitator is to observe and categorize interactions, present feedback, and facilitate team reflections, which are the main elements in this program. The findings listed below only include feedback that is unique to the facilitator. Feedback that was found to be similar or the same for both the facilitator and team member was summarized in the section above.

Appropriate Meeting Set up to Better Observe Interactions. The facilitator recommended for cameras to be turned on during the duration of the meeting to allow the facilitator to observe non-verbal cues that could reveal distractions and interruptions. For example, a team member might have wanted to share an idea and might have opened their mouth to start speaking while another team member kept speaking, preventing the other team member from participating effectively. The facilitator believed that being able to observe these potential detractors of meeting effectiveness would have allowed him to provide more accurate feedback and promote relevant discussions.

Regarding the meetings held during this project, the number of cameras on and off varied. Only meeting #2 had all cameras on, while the number of cameras on for the remainder meetings ranged from 33% to 75% of attendees. It is important to note, however, that this topic did not come up as a factor impeding meeting effectiveness and meeting satisfaction, or as an opportunity for the team to interact more effectively. Not turning on cameras could be due to the team or organizational culture and accepted behaviors. Even so, it may have a negative impact on perceived meeting effectiveness and satisfaction as it could prevent effective perceptions of involvement.

Feedback Design to Aid Pattern Identification. In addition to the suggestion on showing the progression of interactions, there are elements that the facilitator thought would have aided him to provide feedback more easily and effectively and make it easier for participants to engage in conversations. The facilitator suggested to add the distribution of participation over time, meeting length, and any other element that would be important to mention because of its impact on meeting effectiveness and satisfaction.

Calibrating Interactions With Teams. The facilitator realized that teams might have different tolerance levels for certain detractors such as interruptions and distractions. Team reflections point to this when one of the team members mentions that interruptions might be a sign of a healthy discussion when the team is small and trying to include different points of view. When the facilitator pointed out to the team that meeting #5 (when the team was meeting with IT) had more interruptions than any other meeting, a team member stated:

> *"I think, uh, excitement brings interruption, right? I mean, um, as well as just, uh, you know, making sure that, you know, everyone kinda has a different point in this project and making sure that they get out of it what they're looking for too. So, um, I don't think it's, uh, interruption to make their point, uh, the, uh, the bolder, the better. Um, more so just getting everyone's thoughts out."*

This also might speak to the idea of calibrating meeting conditions such as having cameras on, which as stated earlier, did not come up as an issue influencing the effectiveness and satisfaction of meetings. It is also important to note that personal views on the impact of meeting conditions and interactions are worth discussing after their experience under these conditions. A question worth exploring is whether these views can be opposite to what research has found given an organization's or team's expectations, established ways of interacting, and culture. The facilitator might benefit from

being current on meeting research in order to include this evidence for participants to consider in their decisions to change conditions or interactions to improve meeting outcomes.

Setting Objectives With the Team and Key Stakeholders. The facilitator suggested setting improvement objectives with the team before starting the intervention in order to customize the feedback based on the team's needs and drive engagement in discussions. The facilitator suggested to ask questions such as what do you want to do differently? What do you want to improve on? What will be a meaningful difference for you?

Based on feedback from the executive champion, it might also be prudent to set objectives with stakeholders to whom the team is accountable. The reason for this suggestion is based on observations made by the executive stakeholder that the team almost failed to see the value of integrating system resources into their plan. The executive stated that this might have happened as a result of the team's being too task-oriented and thus not being able to step back and make considerations in light of new information being received. This is an important point because teams might believe that their meetings are effective and satisfactory because they are accomplishing their objectives as understood and agreed upon by the team. However, as the project or work evolves, requirements will change, and meeting objectives and interactions might need to change to meet these new requirements. Therefore, the meeting is only truly effective if it is helping advance the project according to new demands and expectations set and agreed upon by team members and those who provide project direction and oversight such as executive champions and sponsors.

Recommendations

The recommendations to help ConvoLens improve meeting interactions, drive meeting effectiveness and satisfaction, and the program's satisfaction center around the design and implementation of the ConvoLens program.

Recommendation 1: Implement Pre-intervention Actions to Create Shared Understanding and Direction

Before implementing ConvoLens with a team, it will be important to obtain their anonymous feedback on meeting effectiveness and satisfaction. This will help obtain a more accurate view of meeting perceptions and the type of intervention needed. Another important pre-intervention strategy would be to discuss with the team that is selected for the engagement the purpose of their meetings and how they would like to improve them. That is, what are they hoping to accomplish through their meetings (meeting goals)? How do their meetings currently help them accomplish these goals? How could their meetings improve to help them accomplish these goals?

This could help in two ways: First, team members and the facilitator will increase clarity about the meeting purpose, which research has shown to influence expectations and preparation (Allen et al., 2014; Cohen et al., 2011). Second, these questions will increase clarity on the meeting strengths and opportunities from the perspective of the participants and afford them the opportunity to check in every so often on how well they are striving towards those aims. The facilitator also thought this step was important because it would help customize the feedback based on the team's needs and drive participation in discussions.

It will also be important to assess a team's meeting practices since meeting effectiveness research shows that there are several predictor, moderating, and mediating variables that could impact how people interact in a meeting and perceive meeting effectiveness and satisfaction. These factors range from meeting design characteristics to temporally-based interactions. For example, lateness (Allen

et al., 2018) can influence meeting socioemotional acts; meeting relevance (Geimer et al., 2015), pre-meeting work (Kral et al., 2023), agenda use and state of facilities (Leach et al., 2009) can influence attendee involvement; and considerate leadership can impact meeting satisfaction through managing relational and task-oriented procedures (Odermatt et al., 2017).

Assessing these practices can be done through a pre-intervention survey or a group discussion followed by training on relevant meeting practices. Rogelberg et al. (2006) recommended organizations to create training and guides on effective meeting practices such as agenda use, coming prepared to meetings, being punctual at start and end of meeting, having clear meeting purposes, and ensuring across the board meeting participation. Mroz et al. (2018) provide a comprehensive checklist with evidence-based recommendations to improve meeting success which could be used as supporting documentation for this training.

Cohen et al. (2011) suggested that training on meeting design characteristics should include how to effectively organize meetings and integrate meeting practices into meetings. Furthermore, they suggested to emphasize the benefits of these practices in order to promote understanding and implementation. Therefore, it will be important to not only highlight the meeting practice which refers to what to do, but also the impact of these practices or why they work. For example, understanding that a meeting agenda allows an attendee to prepare for the meeting and be more actively engaged might motivate a meeting organizer to implement this meeting practice.

Finally, implement a pre-intervention training session where participants can learn about ConvoLens, its purpose and use, but more specifically, the definition of each interaction so that when participants receive feedback, they have a shared understanding of what the interactions mean. In addition, it would be helpful to explain what type of interaction patterns research and ConvoLens recommends.

The reason for this recommendation is that the information session did not explain and describe the meeting interactions and in the first feedback session, many participants asked questions to make sense of the feedback being presented. Participants asked about the definition of some interactions and whether there was a certain type of distribution of interactions that they should be aiming for. Regarding the latter, a team member asked "So when you guys are doing research into this data, do you look for even categories, I mean, we didn't have the disagree, advocate. Do you look for that? You would want to have some of that stuff in conversations about it? What do you guys look for?" and in the focus group another participant mentioned they felt they did not know whether they were doing a good job because some interactions did not show up.

Recommendation 2: Design Feedback to Maximize Learning and Intent to Use Feedback

Based on participants' and the facilitator's suggestions, group feedback should show changes of interactions over time on the visual dashboard. For example, in this project, meeting #1 had ten minutes of support and meeting #2 had two minutes. Showing this progression more clearly could prompt discussions among participants about the reason for the decrease and the type of impact it has on performance and meeting effectiveness and satisfaction, if any. By doing this, participants could become aware of how interactions help or not to achieve their meeting goals, reflect on which situations these interactions might be more helpful in, and what actions are necessary to show more or less of these important interactions and how the team plans to do so.

Based on team reflections, it would also be helpful to clearly identify the interactions when showing the dashboard. Currently, the dashboard only shows the color of the interactions, but the actual type of interaction is not easily identifiable. A team member asked the facilitator in a later meeting to clarify what interactions the team engaged in by explaining what each color represented. These changes are designed to increase clarity of the feedback, which will increase the chances that the feedback will be perceived as accurate and that the team members accept it (London and Sessa, 2006)

Finally, it would be important to ensure that feedback quality is as high as possible to promote positive perceptions and processing of the feedback. To ensure the feedback is perceived as important and helpful, it will be necessary to have a knowledgeable, trustworthy, and objective source (London & Sessa, 2006), which for the case of ConvoLens, it involves the facilitator, the interaction categories, and the dashboard. The good news is that the interactions are already perceived as complete and representative of behaviors that may occur in meetings. On the other hand, it will be important to address the dashboard improvements mentioned in the previous section. Since the facilitator plays a key role in the ConvoLens program, and could potentially include someone outside of CLA, it will be important for facilitators to be effective in coding interactions reliably, delivering the group feedback, facilitating the team reflection, and to be knowledgeable of and adept in explaining effective meeting practices and interactions. This might require a robust Facilitator training.

Recommendation 3: Enhance Team Reflection to Promote Improvements

The facilitator should ensure to ask questions that drive explicit decisions to make helpful changes. Gabelica et al. (2014) spoke about the importance of making explicit decisions to drive action. Similarly, Bales (1999), who created Interaction Process Analysis, which ConvoLens was originally based on, observed that the combination of a thorough analysis of the interaction data, discussions about current and desired behaviors and values, and commitment to behavioral changes was needed to promote transformation. This supports the need to ensure fidelity to Gabelica et al.'s (2014) evaluation of strategies, review of alternatives, and explicit decision making.

Perhaps, an additional step needed to drive implementation of changes, as Otte et al. (2018) suggested, should include a discussion on how changes or improvements that meeting participants committed to will actually be implemented. This strategy also aligns with meeting effectiveness research which points out that proactive meeting behaviors such as discussing steps to be implemented and who

will be responsible are more likely to lead to the implementation of ideas and suggestions (Kauffeld & Lehmann-Willenbrock, 2012; Lehmann-Willenbrock et al., 2013).

In addition, it would be helpful to follow up with the team on whether commitments were implemented to create an expectation that decisions and commitments that the team makes will be followed up on and validated, which, in turn, should drive action. Only four changes were validated out of 11 potential changes based on the team reflections. It is also important to keep in mind that teams might not just make decisions on interactions but decisions on tasks that might lead to effective interaction such as adding an agenda item, which is likely to lead to team members checking in on whether the agenda item was completed and questions about what needs to happen for the item to be resolved. This is an important procedural interaction that could impact meeting effectiveness. Therefore, the facilitator needs to make sure to drive explicit decision-making on both interactions and tasks.

Another aspect of team reflection that was welcomed was the ability to reflect on inter-team matters, which included how to better interact with others outside of the team, and ways to better manage the project or task at hand. Some of these team reflection topics can help advance the work they are hoping to achieve and explicit decisions connected to these topics could eventually trigger effective interactions. For example, if the team decides to do a brainstorming session or plan a meeting to do stakeholder analysis, this might prompt the team to engage in actions and mechanisms that ultimately will help them advance their work, which will require the practice and learning of effective interactions. Because of its relevance to the team, it would be important for the facilitator to facilitate discussions and prompt decisions on these matters as well. The facilitator will also need to be skillful in identifying reflection topics that may detract from the ultimate purpose of the reflection, which is to learn how to interact more effectively as a team to improve meeting effectiveness and satisfaction.

It will also be important to ensure that everyone participates in team reflections to make better decisions, create buy in, and promote program satisfaction. In a way, team reflections are meetings as well and active participation and involvement are important for team members to feel that the meeting was effective and satisfactory. In addition, it is important to consider all perspectives to ensure the team considers everyone's experience and feedback on strategies, alternatives, and decisions. Participants did not appreciate that there were some people who did not actively participate in team reflections by not speaking during team reflections or not attending them. This disappointment could impact their satisfaction with the program and their motivation to participate in team reflections, as meeting effectiveness research shows.

Recommendation 4: Use ConvoLens Based on the Team's Needs

There might be two main types of team that ConvoLens may support. The first group is one that has high levels of meeting effectiveness and satisfaction and demonstrates mostly effective interactions. Another group could be those with low levels meeting effectiveness and satisfaction and that demonstrates mostly unproductive or dysfunctional interactions.

For the first team, ConvoLens might not be perceived to be so helpful in the long term since, for the most part, they already demonstrate effective interactions, and their meetings are deemed effective. However, ConvoLens may still be helpful and appreciated by increasing their awareness of key meeting practices and meeting interactions, and prompting reflection on how to improve their own meetings or others in which they participate. Therefore, ConvoLens could still be implemented and used to train these teams on how to promote effective meetings, create awareness of effective meeting interactions, and develop skills in using this awareness to drive action in real time during meetings. It might be prudent to implement it in their meetings and check in after three to five meetings on the utility of the feedback and team reflection and make a decision on whether to close the engagement based on this feedback.

For team members with low levels of perceived interaction effectiveness, the above steps would still apply, except that the engagement might last a little longer and some work might need to be done before hand to ensure a safe space for honest discussion and effective decisions making. The focus on interactions cannot be the only focus here since other factors impact meeting effectiveness and satisfaction and moderate interactions. Therefore, it would be important to assess and help drive improvements in these areas to ensure the maximization of improvements. For example, sharing a meeting agenda in advance will promote preparation and involvement during the meeting.

In addition, teams that demonstrate ineffective interactions might require further training and interventions to help them enhance their ability to engage in productive interactions. If the team reflection process after presenting the group feedback does not help, it might be important to make a deeper assessment on emergent states and organizational and cultural factors such as leader effectiveness and team norms that might be impeding effective interactions. For example, Peterson and Behfar (2003) found that giving negative performance feedback to teams with low trust could lead to relationship conflict and low performance. To address the impact of negative feedback on teams with low trust, additional interventions might be needed to increase trust before negative feedback is given.

Lehmann-Willenbrock and Kauffeld (2010) found that team reflections where participants saw the frequency of the behavior were effective in driving interaction improvement but listening back to their own conversations helped emphasize key strengths and opportunities. They also suggested coaching the team leader who might have a tremendous impact on his or her team's performance and creating workshops for teams to learn about effective interactions, their impact on key work outcomes, and to reflect on how they can engage in productive interactions more effectively.

ConvoLens was well received, and the team found utility in its use. Implementing the above recommendations based on both research and users' feedback will likely enhance ConvoLens's impact.

Limitations

This project involved a team that showed strong levels of meeting effectiveness and satisfaction since their first meeting and perceived themselves as interacting in effective ways to accomplish the purpose of their meetings. Although the design of the project was able to identify perceived improvements in how the team interacted and potential reasons why further improvements were not made such as team members' hesitancy to bring up sensitive issues, these pre-intervention perceptions might have made it more difficult to observe significant improvements in meeting interactions and meeting outcomes. Therefore, the results of this project might not be generalizable to teams with lower levels of perceived meeting effectiveness and satisfaction and with opportunities in the ways they interact. It would be prudent, then, to assess ConvoLens's impact with this type of team. Recommendation #4 identifies potential challenges ConvoLens might encounter with teams showing dysfunctional interactions and low levels of meeting effectiveness and satisfaction, and ways to address these challenges.

Another limitation includes having low response and participation rates to some surveys and data collection methods, thus potentially leaving out important information needed to understand the impact of ConvoLens. Namely, there was low participation in some post-reflection surveys, the satisfaction survey, and the focus group.

For example, it was challenging to maintain high response rates over the course of the five meetings, especially the post-reflection survey (see Table 18). The possible reasons for this challenge include: (1) the research design included two surveys after each meeting which might have created survey fatigue over time; (2) for meeting #4, one participant left as soon as the work meeting was over and did not take the post meeting survey, which was designed to measure meeting effectiveness and satisfaction, and perceived interaction effectiveness; (3) the post-reflection survey, designed to measure group feedback quality and interaction learning outcomes, needed to be provided after the reflection

was conducted at which point meeting attendees were ready to leave the meeting and move on to their next meeting or work task. As a result, the response rate for the post-reflection survey ranged from 83% percent participation in survey one on 8/8/23 to 50% participation in survey four on 9/5/23.

Table 18

Meeting Attendance and Survey Response Rates

Meeting Date	# of Meeting Participants	Attendance Rate	*PM # Respondents	PM Response Rate	**PR # Respondents	PR Response Rate
8/8/23	6	100.00%	6	100.00%	5	83.33%
8/14/23	5	83.33%	5	100.00%	4	80.00%
8/24/23	5	83.33%	5	100.00%	3	60.00%
9/5/23	4	66.67%	3	75.00%	2	50.00%
9/12/23	4	66.67%	4	100%	3	75.00%

Note. *Post Meeting Survey measuring ME, MS, and PIE; **Post Reflection Survey measuring GFQ and ILO

As mentioned earlier, another challenge involved the low participation rate with the satisfaction survey and the focus group. Although the feedback provided by team members was rich and meaningful, it only included 33% and 50% of team members, for the focus group and satisfaction survey, respectively. As a result, other members' feedback was not included, which could have changed some of the feedback and survey results.

The above challenges were addressed by triangulating data from a variety of data sources in addition to the satisfaction survey and focus group. These data sources included team reflections, facilitator's interview, memos, and other surveys. For example, feedback provided in the focus group on the impact of the program, quality of the feedback, and team reflections, was compared to quantitative ratings of these factors and comments related to these elements in team reflections.

The project's design also poses some limitations in the interpretation and generalizability of results. The project team selected was a convenience sample with a small size where all members were

leaders and worked in a very specific industry. Although more labor intensive and thus, not possible for the resources available for this capstone project, it would have been ideal to have more teams participate, with more diverse position levels (i.e., staff and leaders), and to have comparison groups in order to compare the impact between treatment and non-treatment groups. A bigger sample size would have also allowed the use of robust statistical analyses such as correlational analysis, ANOVAs, and regression analyses, to understand the potential impact of ConvoLens on meeting interactions and outcomes. However, the triangulation of qualitative data provided rich insights into the impact of the interventions on interactions and meeting outcomes.

Conclusion

ConvoLens is a web-based platform developed on an extensive review of the literature related to the relationship between meeting interactions and meeting effectiveness. This has allowed ConvoLens to provide a tool with high face validity as evidenced by feedback from team members and the facilitator who participated in this project. In addition, ConvoLens was viewed as helpful in increasing team members' awareness of effective meeting interactions and as a result, promoting effective involvement in meetings and positively impacting team members' perceptions of meeting effectiveness and satisfaction.

In fact, results showed that 86% of meeting effectiveness and satisfaction ratings were moderately to highly influenced by meeting interactions. In addition, group feedback quality and team reflections were rated positively and were found to promote changes in interactions. This project also found that other factors beyond interactions such as length of time of discussion or not having the right person in the room to implement a suggestion might impact the implementation of changes. In addition, other factors beyond interactions such as task organization and agreement on meeting purpose impacted involvement and ratings of meeting effectiveness and satisfaction.

In this project, ConvoLens was used with a team that already showed high levels of meeting effectiveness and satisfaction and believed that their interactions were effective in achieving their meeting purpose and team's objectives. Based on their experience, team members believed that ConvoLens would also be helpful with teams that show dysfunctional interactions and lower levels of meeting effectiveness and satisfaction. Previous accounts from practitioners who use interaction assessments confirm the ability to improve interactions over time with teams that interact in counterproductive ways. Recommendations included in this project incorporate elements that other practitioners have found helpful.

To enhance ConvoLens's impact, it will be important to also consider non-interaction factors such as meeting design and attendee characteristics since they have been found to impact meeting effectiveness and satisfaction directly and through some mediating variables such as attendee involvement. Group feedback and team reflection were effective and can be enhanced by making it easier to identify progress over time and including concrete planning and follow-up to promote the implementation of changes the team identifies.

Finally, ConvoLens might need to be used differently based on the team's needs. High performing teams might benefit from increasing their awareness of effective meeting interactions and reflecting on more effective ways of interacting. However, their perceived need or utility of ConvoLens might be lower impacting the length and impact of the engagement. Low performing teams might benefit the most but might require additional intervention elements such as training and coaching on effective interactions and meeting practices.

Meetings are complex systems that require attention and improvement given the amount of time people spend in them at work and the many accounts from meeting participants regarding their ineffectiveness. ConvoLens promises to be a valuable tool to help teams engage in effective meeting interactions and practices to promote meeting effectiveness and satisfaction.

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Appendix A

Post-Info Session Survey

Instructions:

Thank you for participating in the info session!

Please answer the following questions. Your responses will be anonymous.

Please rate the following statements based on your level of agreement:

Info Session	**1**	**2**	**3**	**4**	**5**
I understand how ConvoLens works	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I understand the objectives of this study	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I believe improving meeting effectiveness and satisfaction is important	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am excited about participating in this study	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Please answer the following questions based on the meeting group that you participate in:

What do your meeting group usually meet for? (rank in order of occurrence):

- To make decisions
- To solve problems
- To share information
- To coordinate
- To educate or train
- To brainstorm

How many members usually attend these meetings?

- More than 10
- 5-9
- 1-4

How would you characterize your meeting?

- These meetings are managed by an official lead
- These meetings are managed by an unofficial lead
- There is no lead in our meetings

1. **Please rate the effectiveness of these meetings in terms of the following:**

Statements	**1**	**2**	**3**	**4**	**5**
"achieving your own work goals"	Extremely Ineffective	Ineffective	Neutral	Effective	Extremely Effective
"achieving colleagues' work goals"	Extremely Ineffective	Ineffective	Neutral	Effective	Extremely Effective
"achieving your department–section– unit's goals"	Extremely Ineffective	Ineffective	Neutral	Effective	Extremely Effective
"providing you with an opportunity to acquire useful information"	Extremely Ineffective	Ineffective	Neutral	Effective	Extremely Effective
"providing you with an opportunity to meet, socialize, or network with people"	Extremely Ineffective	Ineffective	Neutral	Effective	Extremely Effective
"promoting commitment to what was said and done in the meeting."	Extremely Ineffective	Ineffective	Neutral	Effective	Extremely Effective

2. **Please rate your satisfaction with these meeting based on the extent to which the following six adjectives described this meeting:**

Adjective	**1**	**2**	**3**	**4**	**5**
Stimulating	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Boring	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
unpleasant	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Satisfying	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Enjoyable	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Annoying	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. **Please answer the following questions based on the meeting group that you participate in:**

	1	**2**	**3**	**4**	**5**
This team believes it can become exceptionally good and successfully accomplishing each assignment.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
This team believes it can be very effective	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
This team expects to be known as a highly performing group	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
This team believes that no assignment is too tough	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
This team can get a lot done when it works hard	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

This team has confidence in its own capacities.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Working with members of this team, my unique skills and talents are valued and utilized.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
No one on this team would deliberately act in a way that undermines my efforts	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
If you make a mistake on this team, it is often held against you.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Members of this team are able to bring up problems and tough issues	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
It is difficult to ask other members of this team for help	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
People on this team sometimes reject others for being different	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
It is safe to take a risk on this team	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

	1	**2**	**3**	**4**	**5**
I often look for opportunities to develop new skills and knowledge.	Not at All	Very Little	Somewhat	To a great Extent	To a Very Great Extent
I like challenging projects.	Not at All	Very Little	Somewhat	To a great Extent	To a Very Great Extent

Appendix B

Post Meeting Survey

1. **Please rate the effectiveness of this meeting in terms of the following:**

Statements	**1**	**2**	**3**	**4**	**5**
"achieving your own work goals"	Extremely Ineffective	Ineffective	Neutral	Effective	Extremely Effective
"achieving colleagues' work goals"	Extremely Ineffective	Ineffective	Neutral	Effective	Extremely Effective
"achieving your project team's goals"	Extremely Ineffective	Ineffective	Neutral	Effective	Extremely Effective
"providing you with an opportunity to acquire useful information"	Extremely Ineffective	Ineffective	Neutral	Effective	Extremely Effective
"providing you with an opportunity to meet, socialize, or network with people"	Extremely Ineffective	Ineffective	Neutral	Effective	Extremely Effective
"promoting commitment to what was said and done in the meeting."	Extremely Ineffective	Ineffective	Neutral	Effective	Extremely Effective

2. **Please rate your satisfaction with today's meeting based on the extent to which the following adjectives describe the meeting**
    a. **Select "Yes" if it describes today's meeting**
    b. **Select "No" if it does not describe today's meeting**
    c. **Select "?" if you cannot decide**

Adjective		**2**	**3**
Stimulating	Yes	No	?
Boring	Yes	No	?
unpleasant	Yes	No	?
Satisfying	Yes	No	?
Enjoyable	Yes	No	?
Annoying	Yes	No	?

3. **Please rate the effectiveness of today's interactions:**

Statements	**1**	**2**	**3**	**4**	**5**
Meeting interactions improved since our last meeting	Not at All	Very Little	Somewhat	To a great Extent	To a Very Great Extent
Today's meeting interactions influenced how I assessed meeting effectiveness	Not at All	Very Little	Somewhat	To a great Extent	To a Very Great Extent
Today's meeting interactions influenced how I assessed meeting satisfaction	Not at All	Very Little	Somewhat	To a great Extent	To a Very Great Extent

Appendix C

Post-Reflection Survey

1) **Please rate the group feedback based on your level of agreement with the following statement:**

Group Feedback	**1**	**2**	**3**	**4**	**5**
The feedback was objective	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The feedback was accurate	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The feedback was easy to understand	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The feedback was specific	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The feedback focused on how effectively we interacted	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The feedback focused on how ineffectively we interacted	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The feedback helped me become aware of how I interacted	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The feedback helped me become aware of how the group interacted	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The feedback was important	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The feedback was helpful	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I intend to use the feedback to improve how I interact in meetings	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2) **Please rate the following statements based on your level of agreement with the following statements:**

Interaction Learning Outcomes	**1**	**2**	**3**	**4**	**5**
We learned from the opportunities in how we interacted	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
We learned how to improve our interactions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
We developed new knowledge or skills about our interactions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Appendix D

ConvoLens Satisfaction Survey

Instructions:

This survey intends to measure your satisfaction with ConvoLens. Your answers will help us improve ConvoLens and the process used to improve meeting interactions and meeting outcomes. Your feedback will be anonymous. Thank you for your responses.

1. **Please rate the following statements regarding the group feedback presented at the end of each meeting**

Group Feedback	**1**	**2**	**3**	**4**	**5**
The feedback dashboard presented at the end of each meeting showing the interactions was easy to understand	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The feedback reflected accurately the interactions that occurred during our meetings	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Feedback on the duration of interactions was helpful	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Feedback on the types of interaction was helpful	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Feedback on the interactions I engaged in was helpful	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Feedback on the interactions the team as a whole engaged in was helpful	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. **Please rate the following statements regarding team reflections conducted at the end of each meeting**

Team Reflections	**1**	**2**	**3**	**4**	**5**
Reflections helped the team understand what we could do differently to improve our meetings	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Reflections helped the team make decisions about alternative approaches the team should engage in to improve our meetings	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The time dedicated to reflection was appropriate	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Reflections helped the team better understand why we achieved success or encountered problems during our meetings	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. Please rate the following statements regarding the **program's impact**

Results	**1**	**2**	**3**	**4**	**5**
I learned how to interact more effectively in meetings	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
My team members learned how to interact more effectively in meetings	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I improved how I interacted with others in meetings as a result of the program	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Team members improved how they interacted in meetings as a result of the program	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Improvement in interactions increased my satisfaction with our meetings					
Improvement in interactions increased the effectiveness of our meetings					

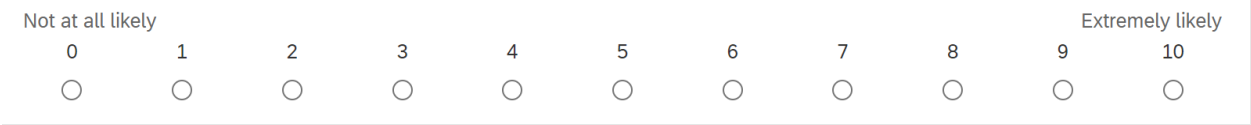
4. Please rate the following statements regarding the program based on your level of agreement

Program	**1**	**2**	**3**	**4**	**5**
The purpose of the program was clear	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The duration of the program was appropriate	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The program was engaging	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The facilitator was knowledgeable	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The facilitator provided objective feedback	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The facilitator provided useful suggestions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Overall Satisfaction	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Overall, I was satisfied with the ConvoLens program?	Extremely Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Neither Satisfied nor dissatisfied	Slightly satisfied	Moderately Satisfied	Extremely Satisfied

Net promoter Score:

How likely are you to recommend ConvoLens to a friend or colleague?



Please answer the following questions using the box below:

1. What did you like most about the program?

2. What did you like the least about the program?

3. How could the program be improved?

Appendix E

Focus Group Protocol

Participants: Work Meeting Participants

Good morning/afternoon (Name). I would first like to thank you for participating in the survey and making additional time to discuss your ConvoLens experience. I know how busy your schedule is, so I particularly appreciate your taking time to participate in this interview. As you know, I am doctoral student at Vanderbilt University and this study is the final component of our three-year program.

During this interview, I am going to ask questions about your experience with the process we went through, what worked and did not work, and ways to improve it. Your thoughts and suggestions will help us understand how to make ConvoLens more effective.

With your permission, I would like to record the session because I want to make sure I capture all of your thoughts and valuable feedback. Also, I won't use your name in our reports - so you may be assured of complete anonymity.

It's important to note (NAME) that there are no wrong answers. So please feel free to be candid and share both negative and positive experiences.

Do you have any questions?

Alright, let's begin.

QUESTIONS

Experience with introduction of ConvoLens:

1. Tell me first about how easy or difficult it was to understand how ConvoLens works.

   PROBE:
   How helpful was the info session in helping explain how ConvoLens works?

   When ConvoLens was presented to you during the info session, how effective did you think ConvoLens would be in improving meeting effectiveness and satisfaction?

Group Feedback

2. How helpful was it to see on the dashboard how the group interacted during the meeting?

PROBE:

What did you like the least about the information presented? What did you like the most about the information presented?

What was it about the information presented that helped or prevented the group to make changes in the way they interacted?

From your perspective, was the information presented on the dashboard accurate?

Team Reflexivity

3. How helpful was it to reflect on how the group interacted during the meeting?

PROBE:

What did you like the least about these reflections? What did you like the most about these reflections?

What was it about reflections on meeting interactions that helped or prevented the group to make changes in the way they interacted?

Meeting Interactions:

4. How do you think meeting interactions affected the overall effectiveness of meetings?

5. How did meeting interactions affect your satisfaction with meetings? How so?

Other Factors:

6. Are there other reasons, independent of ConvoLens, that you think had an impact on the improvement of meeting interactions?

PROBE:

How do these factors impact how you or others interact?

7. Are there other reasons why you think meeting effectiveness and satisfaction improved or not?

PROBE:

How do these factors impact how effective these meetings are?

How do these factors impact how satisfied you are with these meetings?

8. What do you like most about your meetings?

9. What do you like least about your meetings?

10. Do you feel that it is important for you to attend your work meetings? Why or why not?

11. (If applicable) How did the meeting lead impact the group's ability to improve interactions or ME/S?

Overall Experience

12. Tell me about your overall experience with the ConvoLens process. What did you like? What didn't you like?

Recommendations

13. How can ConvoLens be improved to drive meeting interactions?

14. How can ConvoLens be improved to drive meeting effectiveness and satisfaction?

15. What could be done differently to maintain or improve your satisfaction with ConvoLens?

Appendix F

Facilitator Interview

Participants: Facilitator

Good morning/afternoon (Name). I would first like to thank you for partnering with me on this project. During this interview, I am going to ask questions about your experience with the process we went through, what worked and did not work, and ways to improve it. Your thoughts and suggestions will help us understand how to make ConvoLens more effective.

With your permission, I would like to record the session because I want to make sure I capture all of your thoughts and valuable feedback. Also, I won't use your name in our reports - so you may be assured of complete anonymity. It's important to note (NAME) that there are no wrong answers. So please feel free to be candid and share both negative and positive experiences.

Do you have any questions? Alright, let's begin.

QUESTIONS

1. What objectives did you have as a facilitator when you when implemented valence with this team?
2. What was your experience regarding:
    - the categorization of meeting interactions?
    - Presenting the feedback to the team?
    - Helping the team engage in reflection?
3. What would you do differently to improve:
    - the categorization of meeting interactions?
    - The delivery of the feedback?
    - Helping the team engage in reflection?
4. What changes should be made to ConvoLens in order to improve your satisfaction with ConvoLens and its effectiveness?

Appendix G

ConvoLens Implementation Tracking Form

Meeting #: **Date:** **Scheduled Time:**

Start Time: **End Time (1):** **End Time (2)**

Was there an agenda? **Was there a lead?**

Attendance:

- Speaker name and position title *(not included here for anonymity)*
  - *Was camera on?*
- Speaker name and position title *(not included here for anonymity)*
  - *Was camera on?*
- Speaker name and position title *(not included here for anonymity)*
  - *Was camera on?*
- Speaker name and position title *(not included here for anonymity)*
  - *Was camera on?*
- Speaker name and position title *(not included here for anonymity)*
  - *Was camera on?*
- Speaker name and position title *(not included here for anonymity)*
  - *Was camera on?*
- Others, if applicable:

Did any participant arrive late or leave early? If so, who and what time?

Did every participant rate (refer to Qualtrics to confirm):

1. **Meeting Effectiveness?** Yes No If no, how many rated it?
2. **Meeting Satisfaction?** Yes No If no, how many rated it?
3. **Perceived Interaction Effectiveness?** Yes No If no, how many rated it?
4. **Feedback Quality?** Yes No If no, how many rated it?
5. **Intervention Learning Outcomes?** Yes No If no, how many rated it?

Did facilitator share feedback with participants?

Team Level: **Individual Level:**

Yes No Yes No

If no, why not? If no, why not?

Were interactions categorized for each participant who attended?

Yes No

If no, why not? How many participants were categorized?

Did the team reflect on?

Team Level:	**Individual Level:**
Yes No	Yes No
If no, why not?	If no, why not?

How much time was used after the end of the meeting to (around 15 minutes):

Start time: End time:

- Take post-meeting survey:
- present the feedback:
- reflect on feedback:
- Take post reflection survey:

Survey Links to share with attendees:

Post meeting survey #:

Post Reflection survey #:

Comments

- Observed purpose(s) of meeting
- Key events and turning points in meetings
- General Comments

Team Reflection

Order of participation in reflection recording:

- Facilitator
- Speaker name (not included here for anonymity)
- Speaker name (not included here for anonymity)
- Speaker name (not included here for anonymity)
- Speaker name (not included here for anonymity)
- Speaker name (not included here for anonymity)
- Speaker name (not included here for anonymity)
- Others, if applicable: